

HYGIEA INTERNATIONALIS

An Interdisciplinary Journal
for the History of Public Health

Volume 11, No. 1, 2015

ISSN, Print: 1403-8668; Electronic: 1404-4013
URL: <http://www.ep.liu.se/ej/hygia/>

Editorial Board

Giovanni Berlinguer, University of Rome “La Sapienza”, Italy
Virginia Berridge, London School of Hygiene and Tropical Medicine, U.K.
Patrice Bourdelais, École des Hautes Études en Sciences Sociales, France
Linda Bryder, University of Auckland, New Zealand
Marcos Cueto, Instituto de Estudios Peruanos, Peru
Christopher Hamlin, University of Notre Dame, U.S.A.
Robert Jütte, Robert Bosch Stiftung, Germany
Øivind Larsen, University of Oslo, Norway
Marie C. Nelson, Linköping University, Sweden
Dorothy E. Porter, University of California, U.S.A.
Günter B. Risse, University of California, U.S.A.
Esteban Rodriguez-Ocaña, University of Granada, Spain
John Rogers, Uppsala University, Sweden
Jan Sundin, Linköping University, Sweden
Lars-Göran Tedebrand, Umeå University, Sweden
John H. Woodward, The University of Sheffield, U.K.

Editorial Committee

Laurinda Abreu, Patrice Bourdelais,
Jan Sundin and Sam Willner

Copyright

This journal is published under the auspices of Linköping University
Electronic Press. All Authors retain the copyright of their articles.

© The Authors

Table of Contents

Volume 11, No. 1, 2015

| | | |
|--|--|-----|
| Sam Willner | Foreword | 5 |
| Juan Antonio Rodriguez | Introduction (Guest Editor) | 7 |
| Adrian Carbonetti, Lila Aizenberg Marina Laura Rodriguez | Poliomyelitis in the city of Córdoba: Morbidity, knowledge and the research performed by a medical elite in Argentina's interior, 1943-1953 | 33 |
| Adriana Álvarez | History of a strategy to eradicate poliomyelitis in Uruguay and Argentina | 53 |
| Rosa Ballister Maria-Isabel Porras Maria-José Báguena | The eradication of poliomyelitis in Spain: projects, obstacles, achievements, realities | 71 |
| Juan Antonio Rodriguez Inez-Guerra Santos | Denial, oblivion and new fears: poliomyelitis and the post-polio syndrome in the Spanish and Portuguese press (1995-2009) | 93 |
| Dilene Raimundo do Nascimento | Poliomyelitis vaccination campaigns in Brazil resulting in the eradication of the disease (1961-1994) | 131 |
| Axel M Klohn Philippe Chastonay | Guaman Poma de Ayala's "New chronicle and good government": A testimony of the indigenous populations in XVIth century Peru | 147 |
| Virigine De Luca Barusse | Foreign bodies in the Nation: The "health problem of immigration" in France during the interwar period | 163 |

Preface

Sam Willner

We are pleased to present this thematic issue of *Hygiea Internationalis* dealing with the fight against polio in South America and the Iberian Peninsula and to welcome the guest editor professor Juan Antonio Rodriguez from the University of Salamanca introducing the thematic articles.

Besides the thematic issue we are also pleased to present two separate articles.

Axel Klohn and Philippe Chastonay from Switzerland are presenting a contemporary indigenous testimony on the demographic catastrophe in early colonial Peru, based on an extensive manuscript by Guaman Poma de Ayala discussing possible causes for the extinction of large parts of the native population as a consequence of the colonial policy.

Professor Virginie De Luca Barrusse from Paris examines “the health problems of immigration” as revealed by French hygienists in the interwar period from an approach reflecting how immigrant health “becomes the issue of reflection and of public protest as well as a target for public action.”

Finally I will also invite the readers to submit articles dealing with the history of public health to coming issues of *Hygiea Internationalis*.

Poliomyelitis after Poliomyelitis: Lights and Shadows of the Eradication an Introduction

By Juan Antonio Rodríguez-Sánchez

Introduction

In October of 2013 the European Centre for Disease Prevention and Control raised the alarm about the possibility of the reintroduction of the polio virus in the European Region: Syria, a country absent poliomyelitis cases since 1995, presented new cases due to the deterioration of the health conditions during the internal armed conflicts.¹ This situation brought about the reappearance of the wild poliovirus type 1 in Israel,² which as qualified in the scientific literature as a “silent reintroduction”.³

The European Region (according to the classification of the WHO) had obtained the eradication certificate for poliomyelitis in 2002, which is why the reappearance of the virus on the shores of the Mediterranean has posed serious questions and reflection about the eradication plan⁴ and old fears have resurfaced in

1 European Centre for Disease Prevention and Control, “Suspected outbreak of poliomyelitis in Syria: Risk of importation and spread of poliovirus in the EU”, *Rapid Risk Assessment*. 23 October 2013. Cited 2014 Jan 17. Available from: <http://www.ecdc.europa.eu/en/publications/Publications/RRA%20poliomyelitis%20Syria%2021%2010%202013.pdf>.

2 European Centre for Disease Prevention and Control, “Expert consultation on scientific evidence linked to polio virus in Israel and Syria”, *Meeting Report*. 5 November 2013. Cited 2014 Jan 17. Available from: <http://www.ecdc.europa.eu/en/publications/Publications/Expert%20consultation%20mtg%20report%20-%20polio%20Israel%20Syria%20-%20final.pdf>.

3 E. Kaliner, J. Moran-Gilad, I. Grotto, E. Somekh, E. Kopel, M. Gdalevich, E. Shimron, Y. Amikam, A. Leenthal, B. Lev and R. Gamzu, “Silent reintroduction of wild-type poliovirus to Israel, 2013 – Risk communication challenges in a argumentative atmosphere”, *Euro Surveillance*, 19(7) (2014), 1–7. Cited 2014 Mar 5. Available from: <http://www.eurosurveillance.org/images/dynamic/EE/V19N07/art20703.pdf>

4 D. Heymann and Q. Ahmed, “The polio eradication end game: what it means for Europe”, *Euro Surveillance*, 19(7) (2014), 1–7. Cited 2014 Mar 5. Available from: <http://www.eurosurveillance.org/images/dynamic/EE/V19N07/art20702.pdf>

Occidental society towards an illness that, although it was far too easily forgotten, left a lasting impression on the central decades of the 20th century,⁵

Poliomyelitis is an infection which is produced by an enterovirus, of the picornaviridae family, denoted poliovirus and having 3 different serotypes (named 1, 2 and 3). Although 95% of infections proceed asymptotically and create immunity in the individual, the remaining cases can produce an effect in the central nervous system, and even, a destruction of the motor neurons which leads to paralysis, especially of the extremities and preferentially the lower ones. This form of Poliomyelitis called paralytic, and is seen in only 0.1% of cases of infection by poliovirus and its most serious form is when it affects the respiratory, intercostals and the diaphragm musculature and causing death if patient is not put on mechanical ventilation⁶. It was precisely the paralytic form in children for which no immunity had been developed which gave the illness a particular significance in demolishing the dream of an invulnerable first world society, stigmatized several generations with sequaelae which changed the way people with motor disabilities were viewed and how they saw themselves, something that permitted, finally, to go beyond the medical model of disability. The cultural imprint was accompanied by iconic elements such as the iron lung which joined the orthopedic devices with which they hoped to return their gait, as well as a definitive association between vaccination and childhood.

Despite the existence of references throughout the history of humanity,⁷ it didn't evolve epidemically until the contemporary period and especially the 20th century, paradoxically in the countries with the most developed Health Services and lower child mortality – known as Payne's Phenomenon – given that contact with the poliovirus was belatedly produced when the child found itself unprotected by the immunity provided by breast feeding. Between 1921 and 1955 an expansion was

5 The two major references for the general history of polio are: John R. Paul, *A History of Poliomyelitis* (New Haven, 1971); Mathew Smallman Raynor and Andrew D. Cliff, *Poliomyelitis: Emergence to Eradication* (Oxford, 2006). The most relevant focus in the history of polio has been North America, and especially the United States, where it is necessary to highlight the monographs by Naomi Rogers, *Dirt and Disease: Polio before FDR* (New Brunswick, 1992) and David M. Oshinsky, *Polio: An American Story* (New York, 2005). Other works will be cited in the next pages.

6 Jeffrey I. Cohen, "Enterovirus y reovirus", in A. Fauci et al., eds, *Harrison Principios de Medicina Interna* (Madrid, 2012, 17 ed.), I:1208–1213. J.F. Modin, "Poliovirus", in G.L. Mandell, J.E. Bennett and R. Dolin, *Enfermedades Infecciosas. Principios y Práctica*, (Madrid, 2002, 5 ed.), pp. 2305–2315. V.R. Racaniello, "One hundred years of poliovirus pathogenesis", *Virology*, 344 (2006), 9–16.

7 It is obligatory in any history of poliomyelitis to include the image of the Egyptian monument of Roma, priest of Astarte, which exhibits a characteristic poliomyelitis leg. Dating from the 18 dynasty, between 1403 and 1365 approximately around the reign of Amenophis III.

witnessed, reaching its peak in the second half of the 50s and beginning of the 60s.⁸ This tendency was reverted thanks to the appearance of 2 types of vaccine.

The injectable vaccine by Jonas Salk (which contained an inactivated virus: IPV) provided the first effective intervention in the halting of the epidemic since the great campaign carried out in the United States in 1955.⁹ However, to achieve a collective immunity and interrupt the transmission of the wild poliovirus, an attenuated vaccine was necessary – like that investigated by Hilary Koprowski¹⁰ – which while containing a minimum risk of producing the illness (VAPP), it also had the clear advantage of being able to transmit the immunization passively to unvaccinated people if a high enough percentage of the population was reached. In this way, fundamentally through the investigations of Albert Sabin, results were seen, at the end of the 50s, diverse oral vaccination (OPV) campaigns which owing to its form of administration, were easier to apply, more economical, produced intestinal immunity and allowed the multiplication and excretion of the vaccine virus with the effect of group immunization¹¹.

Humans being the only reservoir for poliomyelitis meant that the appearance of this attenuated oral vaccine made the eradication of said virus possible. The global projects of the WHO had a singular aim in the Expanded Program on Immunization (EPI), started in 1974, with the objective of vaccination availability

8 SMathew Smallman-Raynor and Andrew D. Cliff, *Poliomyelitis: Emergence to Eradication* (Oxford, 2006), pp. 187–428.

9 Jonas Salk and his discovery have occupied a preferential place in scientific biographies, neighboring sometimes in the hagiography: the historic moment of the appearance of the vaccine, its interpretation in key policy (compared to vaccines such as Sabin's, linked to the sphere of socialist countries), the renounce of the rights of patent, the results obtained in the USA or , even the empty space left in the pantheon of live scientist after the death of Alexander Fleming in 1955, are some of the elements to understand how his figure has eclipsed the other investigators.

10 Hilary Koprowski and Stanley Plotkin, "History of Koprowski Vaccine Against Poliomyelitis", in Stanley A. Plotkin, ed., *History of Vaccine Development* (New York, 2011), pp. 155–166. Hilary Koprowski and Stanley Plotkin, "Histoire alternative du vaccin oral", in Anne-Marie Moulin, dir., *L'aventure de la vaccination* (Paris, 1996), pp. 299–310.

11 In 1959, the First International Conference on Live Poliovirus Vaccine gave an account of 20 campaigns carried out in 15 countries. (Joseph L. Melnick, "The Picornaviruses", in F. Fenner and A. Gibbs, eds, *Portraits of Viruses. A History of Virology*. (Basel, 1988), pp. 147–188. Joseph Melnick and Stanley Plotkin, "Oral Polio Vaccine and the Results of Its Use", in Stanley A. Plotkin, ed., *History of Vaccine Development* (New York, 2011), pp. 167–177). Those implemented in some Latin American countries were reported on by Sabin himself (Albert B. Sabin, "Oral poliovirus vaccine: history of its development and use and current challenge to eliminate poliomyelitis from the world", *Journal of Infectious Diseases*, 151(3) (1985), 420–436. Lee Hampton, "Albert Sabin and the Coalition to Eliminate Polio from the Americas", *American Journal of Public Health* 99: 1 (2009), 34–44). Vaccinations as ideological instruments during the Cold War period and the role of Sabin's vaccine are analysed by Dora Vargha, "Between East and West: Polio Vaccination across the Iron Curtain in Cold War Hungary", *Bulletin of the History of Medicine*, 88(2) (2014), 319–343.

in every country. The success of Smallpox eradication encouraged the implementation of even more ambitious plans: in 1982, James P Grant motivated by UNICEF “The Child Survival Revolution”, supported by GOBI (an acronym of 4 interventions in child health, whose letter “I” corresponded to “immunization”) and in 1988, the 41st World Health Assembly began the Global Polio Eradication Initiative (GPEI), a resolution with the aim of poliomyelitis eradication by the year 2000 and in answer to the private initiative set up three years earlier by Rotary International: The Polioplus Program. The magnitude of the project required the participation of various state and private bodies. Successes¹² and errors of provision¹³ aside, its presence continues with the goal of world health¹⁴.

Nevertheless, the particular characteristics of the poliomyelitis virus and the oral attenuated virus vaccine not only promoted the eradication but have also obligated us to reconsider some concepts: despite the elimination of the wild poliovirus in vast geographical areas, it is difficult to consider the eradication if vaccine-derived poliovirus still circulate which are capable of producing new infections and, even epidemic outbreaks.¹⁵ The advent of the artificial synthesis of polio by Wimmer, Cello and Paul,¹⁶ who reconstructed it in vitro from sequential elements of oligonucleotides, incorporated a new element into the debate. Control, elimination, eradication and extinction take on nuances in which a world without the polio virus, a definite “endgame” appears difficult to envision.

Chronologies of Polio: Beyond the Epidemiological Perception

In an attempt to understand the evolution of poliomyelitis on a global scale, a variety of authors have coincided in establishing, at least, five stages: one, prior to

12 Attaining the eradication certificates in the different regions of the WHO also points to a chronology of success: 1994 (South American Region), 2000 (Western Pacific Region), 2002 (European Region) and 2014 (Southern Asian Region). The disappearance of wild poliovirus 2 and currently of type 3, indicates significant advances.

13 The eradication programs were set up with fixed dates and deadlines to achieve said objectives, but have had to be systematically postponed.

14 World Health Organization, *Polio Eradication & Endgame Strategic Plan 2013–2018* (Geneva, 2013). Cited 2014 Mar 23. Available from http://www.polioeradication.org/Portals/0/Document/Resources/StrategyWork/PEESP_EN_US.pdf

15 Neal Nathanson and Olen M. Kew, “From Emergence to Eradication: The Epidemiology of Poliomyelitis Deconstructed”, *American Journal of Epidemiology*, 172 (2010), 1213–1229. Walter R. Dowdle, “The principles of disease elimination and eradication,” *Bulletin of the World Health Organization*, 76: Suppl. 2 (1998), 22–25.

16 J. Cello, A.V. Paul, E. Wimmer, “Chemical Synthesis of Poliovirus cDNA: Generation of Infectious Virus in the Absence of Natural Template”, *Science*, 297: 5583 (2002), 1016–1018.

the epidemics (until 1880), followed by another period of appearance of localized epidemic outbreaks (until 1920) and a subsequent stage of increase and global expansion that ran until 1955 at the moment that Jonas Salk's vaccine permitted the dawning of a new era known as retreat.¹⁷ For the Geographers Smallman-Raynor and Cliff, this would last until 1988, the year in which the aforementioned WHO program gave rise to a period with global eradication still inconclusive. However, for the microbiologists/virologists Nathanson and Kew other phases are distinguished: 1973 would bring to a close an emblematic stage (the eradication of the wild poliovirus in the United States), followed by a lengthy period, until the year 2000, of progress towards global eradication. A phase of challenges to the eradication arose in the years 2000 to 2010 and since the year 2000 a period characterized by problems derived from the oral vaccine has been established.¹⁸

It is an undeniable fact the usefulness of this chronology, structured by epidemiological data, which allows us to identify endemism, increase or remission and link them to specific interventions mediated by the public health policies. However, as has been demonstrated, poliomyelitis is far more than an infection, due to its cultural impact (and economic) of its paralytogenic effects in the infant population. As such, other possible approaches exist because –as written by Jan Sundin in the first issue of this magazine – the history of Public Health is an interdisciplinary field that goes beyond approximations exclusively demographic and epidemiological.¹⁹ The constructivist vision provokes us to consider elements which would allow the establishment of different chronologies as a function of the social and cultural significance of polio in the West.

The great polio epidemics, especially those of the 40s to the 60s, mark the turning point in the social consideration of polio. Previously, before these epidemics, polio had been the source of attention for the scientific community, but –only since the epidemic outbreaks in the countries of North America and Europe– did poliomyelitis become part of the social imaginary as an illness associated with childhood and motor disability, the price of prosperity and progress (the “middle class plague”), the fear of the illness and the behavior patterns characteristics of epidemics as analyzed by Rosenberg.²⁰

17 Mathew Smallman-Raynor and Andrew D. Cliff, *Poliomyelitis: Emergence to Eradication* (Oxford, 2006).

18 Neal Nathanson and Olen M. Kew, “From Emergence to Eradication: The Epidemiology of Poliomyelitis Deconstructed”, *American Journal of Epidemiology*, 172 (2010), 1213–1229.

19 Jan Sundin, “Why Hygiea Internationalis?”, *Hygiea Internationalis*, 1(1) (1999), 5–7, p. 6.

20 Charles Rosenberg, *Explaining Epidemics and Other Studies in the History of Medicine* (New York, 1992), pp. 293–304.

The appearance of the vaccines of Salk and Sabin rapidly changed this perception, and in spite of sporadic incidents (like the Cutter case),²¹ their convincing results restored confidence in science stuffed with triumphalism. From this moment onwards the struggle against polio is not only an objective of the Public Health system assumed by the State, but by a united public, who made it their responsibility to ensure the correct implementation of the vaccination guidelines, bearing in mind the relationship between vaccination and infancy.

The initial optimism lead many countries to set elimination deadlines for polio, internationally shared. This phase offered a major disparity between what the scientific community and the national and international bodies considered with respect to polio and what the public perceived, because polio at that time was only visible through the consequences it produced and not through the surfacing of new cases. Public Health policies were put to the test during this period, when the illness began to associate itself with poverty stricken areas, economically downtrodden or segregated for other reasons social groups, with restricted access to sanitary services and lacking in health education. In the social imaginary the significance of polio changed rapidly, and despite the marked persistent fear of the same, the illness changed its sense, taking on characteristics which associated it with “the others”.

This perception was emphasized when polio was considered to be an eradicable disease and global programs were started for this end. The receipt of certificates of eradication ratified the progressive introduction of the idea that polio is an “other people” illness that belongs in far away regions of the world, a distant illness tied to poverty and non-culture; polio as a developing countries illness. Those countries are often referred to as needy recipients of international assistance (with scare questioning of the ways of the same) and habitually are perceived as threatening a reintroduction of the virus in the West. However, for society as a whole the onset of a rapid forgetfulness of poliomyelitis has grave consequences such as the appearance of anti-vaccinationist tendencies, the invisibility for people suffering the consequences of polio and the difficulties in the recognition of post-poliomyelitis syndrome and the denial of the rights of those afflicted by it.

The Problems of Polio

Poliomyelitis offers itself as an opportunity to examine the role of history *in* public health.²² One of the most significant examples in history and its methods as tools

21 Paul A. Offit, *The Cutter Incident. How America's First Polio Vaccine Led to the Growing Vaccine Crisis* (New Haven, 2005).

22 Virginia Berridge, “History in Public Health: a New Development for History?”, *Hygiea Internationalis*, 1(1) (1999), 23–35. E. Perdiguero, J. Bernabeu, R. Huertas, E. Rodríguez-

for public health constitutes the previously quoted work of deconstruction of the epidemiology of poliomyelitis carried out by Nathanson and Kew,²³ in which the analysis of long epidemiological series and of the abundant scientific literature generated allowed them to identify the principal problems in the understanding of the infection, its epidemics and the fight against them. Starting from a chronology which clarifies the last ten years in different phases marked by the consequences of the vaccinations, the authors proposed seven questions for the understanding of polio for which they then searched for answers. Some of them allowed a connection to be formed between the articles in the present dossier and problems present in the struggle against polio.

One of the conditions which has determined the greater or lesser possibility of eradication of the polio virus has been the seasonality. Tropical climates allow for much longer periods when the transmission of the virus flourishes and in competition with other enteroviruses, at the time that the attenuated oral vaccine was at that moment more temperature sensitive than in the present. That presented major difficulties in many countries for immunization of the population only through the system of campaigns and a greater risk of the reintroduction of the virus. The persistence of wild poliomyelitis would be determined by viral epidemiology (the absence of seasonality in tropical countries, the coexistence with diarrheal diseases, high density population and bad sanitary health services, which facilitates transmission), the failure of the oral vaccine (for its own coexistence with frequent diarrhea due to the enterovirus and for the lower efficiency of the trivalent inoculation) and finally, for the material difficulty of vaccination, but also for ideological resistance.

It still hasn't been the object of an adequate historical analysis other than the problems identified by Nathanson and Kew and that which only begins to supply information in the present century. It deals with the epidemic outbreaks produced by the vaccine-derived poliovirus. Although the events in Egypt are documented since 1988, it will be the event on the island of Hispaniola (Haiti and the Dominican Republic), in 2000 and 2001, which is the first to arouse interest, while

Ocaña, "History of health, a valuable tool in public health", *Journal of Epidemiology and Community Health*, 55 (2001), pp. 667–673, p. 667.

23 Neal Nathanson and Olen M. Kew, "From Emergence to Eradication: The Epidemiology of Poliomyelitis Deconstructed", *American Journal of Epidemiology* 172 (2010), 1213–1229. Nathanson, from Global Health Program Office, School of Medicine, University of Pennsylvania, had published, together with Martin, an article in 1979 in which they question some epidemiological characteristics of poliomyelitis (Neal Nathanson and J.R. Martin, "The epidemiology of poliomyelitis: enigmas surrounding its appearance, epidemicity, and disappearance", *American Journal of Epidemiology*, 110(6) (1979), 672–692). Thirty years later, they revisit those questions search for an explanation in history.

the most serious are produced in Nigeria from 2005.²⁴ We must realize that the cases of poliomyelitis which allowed the identification of these outbreaks were cases of poliomyelitis that proceeded with paralytic forms and it is estimated that the vaccine-associated paralytic poliomyelitis is one case in every 2.5 million administered doses, though the risk does rise by some two thousand times in situations of immunodeficiency.²⁵ We would find ourselves therefore, with new forms of the poliovirus circulating which have recovered their virulence and infective capacity. The fact that the oral vaccine itself provides immunity from these derived-polioviruses directs the offense strategy to increase vaccination in order to achieved full coverage of the population.²⁶ However, we now confront a new problem: the eradication of polio will not be so if we substitute the wild poliovirus for other vaccine-derived poliovirus. This leads the authors to consider the final problem, which will be the post-eradication strategy and which would have to go through a substitution of the oral vaccination for the dead virus injectable vaccine, more expensive and more complex in its administration, although all the research is currently directed towards obtaining a cheaper form, combined with other viruses and an intradermal application.

On the contrary, its epidemiological perspective leaves out of its objectives the analysis of one of the most serious problems currently in polio: its long term repercussions. Beyond the crippling immediate consequences produced by the virus, the awareness of the existence of post-polio syndrome confronts us with a reality with important public health implications, especially in societies with scare social sanitary coverage that jeopardizes the quality of life of affected people.

The History of Polio, History of the Present

From what we have seen above we can infer that the historical study of poliomyelitis is a rich model in the history of illness steeped in complexity and with a current interest for public health: we find ourselves before a recent pandemic, of grand dimensions which has become the objective for the development of a major global scale public health program to achieve its eradication, which is why historical analysis is compulsory before proposing new interventions of such a magnitude in

24 Michael B.A. Oldstone, *Viruses, Plagues, and History. Past, Present, and Future* (New York, 2010), pp. 159–195, p. 160. Bernard Seytre and Mary Shaffer, *The death of a disease: a history of the eradication of poliomyelitis* (New Brunswick, 2005), pp. 132–147.

25 Jeffrey I. Cohen, “Enterovirus y reovirus”, in A. Fauci et al., eds, *Harrison Principios de Medicina Interna* (Madrid, 2012, 17 ed.), I:1208–1213, p. 1209.

26 José Elías García-Sánchez, Enrique García-Sánchez, Enrique García-Merino and María José Fresnadillo-Martínez, “La polio, el largo camino hacia el final de la partida”, *Enfermedades Infecciosas y Microbiología Clínica*. In print. Cited 2015 Mar 17. Available from <http://dx.doi.org/10.106/j.eimc.2014.10.005>

other diseases. In an attempt to reach this goal problems have arisen and challenges have been faced which make us pause for reflection on eradication, epidemiology and public health.

Poliomyelitis doesn't only grant us detailed historical demographic studies, but also constitutes an excellent field to study the social construction of the illness and the power relationships, the expert knowledge and the professionalism. The history of medical technology has shown itself to be especially effective when applied to poliomyelitis either in the role of vaccine, iron lung or orthopedic devices. As generating disease of motor disability is a subsidiary of fruitful approaches from disability studies, they are intimately linked to the history of the body and gender studies.²⁷ If we join to this the peculiarity that many of who suffered from the infection are still alive, polio has invited a focused history from experience and illness narratives.²⁸

On the whole, these implications of the history of poliomyelitis derives its framework in the history of the present.²⁹ Without getting involved in the debates about the special historicity of the present, the definition of the temporal significance of this historical perspective or the place of memory in history and the role of witness (to quote only some controversial aspects), it is easy to understand that the researcher who deals with poliomyelitis delves into experienced history,³⁰ in which the illness, its consequences and the sufferers are current. That persistence of polio or those who live with the after-effects underline that concept of the history of the present as an analysis of ongoing processes, inconclusive history or under construction. Principally, those affected people, but including those who are connected professionally or emotionally, who, conscious of being historical subjects and having valuable memories, claim the right to question the significance of their historical action.³¹ The acceptance of the experience and subjectivity are intimately entwined with the transformation of the relationship between doctor and patient, with the incorporation of the expert patient knowledge.³² Post-polio syndrome is

27 José Martínez-Pérez, "Presentación: la poliomyelitis como modelo para el estudio de la enfermedad en perspectiva histórica", *Asclepio*, 61(1) (2009), 7–21.

28 Roy Porter, "The Patient's View: Doing Medical History from Below", *Theory and Society*, 14(2) (1985), 175–198.

29 Juan Antonio Rodríguez-Sánchez, "La historia de la poliomiélitis, historia del presente", *Temperamentvm*, 16 (2012). Cited 2013 Jan 30. Available from: <http://www.index-f.com/temperamentum/tn16/t2712.php>

30 "Historia vivida", according to Aróstegui (Magdalena González, "La teorización de Julio Aróstegui sobre la historia del tiempo presente como historia vivida", *Hispania Nova*, 13 (2015), 126–133.

31 Josefina Cuesta Bustillo, "La historia del tiempo presente: estado de la cuestión", *Studia Historica. Historia Contemporánea*, 1 (1983), 227–241.

32 Juan Antonio Rodríguez-Sánchez, "La persona enferma como experta: los cambios sociosanitarios promovidos por el asociacionismo polio-postpolio en España", *Estudios do Século XX*, 12 (2012), 104–122. M. Siegler, "La relación médico-paciente en la era de la medicina de

probably the most illuminating case, where the history of the present as a space of confluence between past and future acquires it sense, between memory and expectations³³ and where the social demand for a commitment from the historian to develop critical thinking is perceived with greater clarity.

The History of Poliomyelitis in Ibero-America

In the present dossier we approach the history of poliomyelitis in a vast, diverse geographical space while having strong historical and cultural nexuses, made up of the countries of the Iberian Peninsula and by those of the Atlantic coast in South America. The presence of the illness (its incidence, significance and imaginaries), its outbreaks and the fight against it (especially the prevention through vaccination campaigns) are studied in Argentina, Uruguay and Brazil, Portugal and Spain, between 1943 and the present. In those articles how the objective of control and eradication of poliomyelitis is shaped and its relation to the global programs and the consequences of these achievements in the general population and in affected people in particular are analyzed.

On the Iberian Peninsula diverse research projects have been under development since 2005, coordinated by Rosa Ballester, on the history of polio³⁴ and into which they have been integrating eight Spanish universities and two Portuguese ones. There poliomyelitis has been approached from diverse perspectives and historical angles in which the scientific, professional and social repercussions of the disease, contextualized with the European and international framework have been contemplated.³⁵

gestión”, in *Limitación de prestaciones sanitarias* (Madrid, 1997), pp. 44–64. J. Jovell, “El paciente del siglo XXI”, *Anales del Sistema Sanitario de Navarra*, 29: supl. 3 (2006), 85–90.

33 François Bedarida, “Definición, método y práctica de la Historia del Tiempo Presente”, *Cuadernos de Historia Contemporánea*, 20 (1998), 19–27. Julio Aróstegui, *La historia vivida. Sobre la historia del presente* (Madrid, 2004), p. 102: the present would be the history experienced by every subject and by their social collective, and it extends to their past perception and the expectation about their own future.

34 *La poliomielitis en la España del siglo XX: repercusiones científicas, profesionales y sociales*. Funding Entity: MCYT. Proyectos I+D. Reference: HUM2005–073788–C03. Duración: 2005–2008; *Enfermedades emergentes y comunidades de pacientes*. Funding Entity: MICIIN. Proyectos nacionales de Promoción del Conocimiento. Plan Nacional de I+D+I. Duración: 2009–2012. Reference: HAR2009–14068–C03. *El reto de la erradicación de la poliomielitis y la amenaza del síndrome post-polio: estrategias nacionales y acciones globales en la lucha contra la enfermedad y la discapacidad (1963–2010)*. Funding Entity: MINECO. Duración: 2013–2015.

35 The results of these projects have been published in two dossiers in renamed specialized magazines (José Martínez-Pérez, coord., “La poliomielitis y sus contextos: experiencias colectivas e individuales ante la enfermedad en el siglo XX”, *Asclepio*, 61(1) (2009), 7–192; Rosa Ballester and María Isabel Porras, eds, “Políticas, respuestas sociales y movimientos asociativos

In contrast, the eradication of poliomyelitis in the Americas Region in 1994 has attracted an disproportionate amount of attention from historians, with great attention paid to northern countries and much less to the rest, without this level of disinterest being justified by a lower rate of incidence. What is clear is the fact that in the United States the epidemic outbreaks were early, intense and successive for over than half a century which marked that society with a cultural imprint reaffirmed by the figure of a president, Franklin Delano Roosevelt, affected by the illness. But it is equally true that since the 30s, and fundamentally, in the 50s there existed epidemics of special virulence in the Southern Cone. Thus the studies carried out by Dilene Raimundo and the development team demonstrated, from 2002, the project “A história da poliomielite e de sua erradicação no Brasil”, whose results were captured in diverse publications among them one which highlights a group effort, the first of its kind, which collected research from diverse authors about Brazil, Peru, Portugal, Spain and Pakistan.³⁶

Another group effort arose from a round table discussion held a year later during the Congress of Spanish Society of the History of Medicine, coordinated by Adriana Alvarez, Maria Isabel Porras and Maria Jose Baguena, entitled “International perspectives of health in Latin America. Programs, methods and local experiences in the struggle against poliomyelitis (1930–1960)”, during which the cases from Costa Rica, Brazil, Mexico, Cuba and Argentina were analysed.³⁷

Precisely it is Argentina, the country which, along with Cuba and the aforementioned Brazil, has provoked the most interest in historians, especially centered on the epidemic outbreaks and the publically developed policies to fight against the infection, before and after the emergence of the vaccine, with the work of Karina Ramacciotti, the already mentioned Alvarez and Daniela Testa, who focus on the imaginaries and social response to the affected people with poliomyelitis sequelae.³⁸ Cuba’s case is of obvious interest, being the first country to

frente a la poliomielitis: la experiencia europea”, *Dynamis* 32(2) (2012), 273–414) and collective books (María Isabel Porras Gallo, Mariano Ayarzagüena Sanz, Jaime de las Heras Salord y María José Báguena Cervellera, coords., *El drama de la polio: un problema social y familiar en la España franquista* (Madrid, 2013).

36 Dilene Raimundo de Nascimento, org., *A história da poliomielite* (Rio de Janeiro, 2010).

37 Adriana Álvarez, María Isabel Porras Gallo and María José Báguena, coords., “Perspectivas internacionales de la salud en la América Latina. Programas métodos y experiencias locales en la lucha contra la poliomielitis (1930–1960)”, in María Isabel Porras et al., eds, *Transmisión del conocimiento médico e internacionalización de las prácticas sanitarias: una reflexión histórica* (Ciudad Real, 2011), pp. 233–261.

38 Karina Inés Ramacciotti, “Las sombras de la política sanitaria durante el peronismo: los brotes epidémicos en Buenos Aires”, *Asclepio*, 58(2) (2006), 115–138. Adriana Álvarez, “Parálisis y acción: el caso argentino frente a los brotes de poliomielitis de mediados del siglo XX”, in María Isabel Porras et al., eds, *Transmisión del conocimiento médico e internacionalización de las prácticas sanitarias: una reflexión histórica* (Ciudad Real, 2011), pp. 259–261. Daniela Testa, “Poliomielitis: la ‘herencia maldita’ y la esperanza de la rehabilitación. La epidemia de 1956 en la ciudad de

apply mass campaigns of the oral vaccine in 1962 and in so doing eradicated polio that same year.³⁹ Once again epidemiology and vaccination are the focal point of interest.

In spite of Chile,⁴⁰ Peru,⁴¹ Costa Rica⁴² and Mexico⁴³ also having something to say in the history of polio, its battle and its eradication, the lack of attention which a large part of the Americas region receives remains puzzling, despite pioneering the eradication of the disease. The encyclopedic work of Kohn makes reference to not a single epidemic outbreak in Ibero-America (for Spain or Portugal either),⁴⁴ the Cambridge World History of Human Disease hardly dedicates a paragraph to the mention of vaccination programs in Argentina, Brazil, Chile, Costa Rica, Cuba, Nicaragua and Paraguay⁴⁵ and even the great and voluminous work of Smallman-Raynor and Cliff muster only twelve pages of information about vaccination in Latin America and the Caribbean, although it does include some references to epidemic outbreaks on previous pages.⁴⁶ Perhaps the only point of attention,

Buenos Aires”, *Intersticios*, 5(2) (2011), 309–323; Daniela Testa, “La lucha contra la poliomielitis: una alianza médico-social, Buenos Aires, 1943”, *Salud Colectiva*, 8(3) (2012), 299–314; Daniela Testa, “*Curing by doing*: la poliomielitis y el surgimiento de la terapia ocupacional en Argentina, 1956–1959”, *História, Ciências, Saúde – Manguinhos*, 20(4) (2013), 1571–1584; Daniela Testa, “El síndrome pos-polio y sus anudamientos en el pasado”, *Intersticios*, 8(1) (2014), 233–248.

39 However, the works of Más Lago and Enrique Beldarraín speak of subsequent cases of unvaccinated children, the suspicion of interruption of wild poliovirus circulation in 1967 and its confirmation from 1970. P. Más Lago, “Eradication of poliomyelitis in Cuba: a historical perspective”, *Bulletin of the World Health Organization*, 77(8) (1999), 681–687. Enrique Beldarraín, “Poliomyelitis and Its Elimination In Cuba: An Historical Overview”, *MEDICC Review*, 15(2) (2013), 30–36. Cited 2014 Jan 23- Available from <http://www.medicc.org/mediccreview/index.php?issue=24&id=302&a=va>

40 Enrique Laval, “Anotaciones para la historia de la poliomielitis en Chile”, *Revista Chilena de Infectología* 24(3) (2007), 247–250.

41 Deepak Sobti, Marcos Cueto and Y. He, “A public health achievement under adversity: the eradication of poliomyelitis from Peru, 1991”, *American Journal of Public Health*, 2014, 104(12), 2298–2305.

42 Ana Paulina Malavassi Aguilar, “Representaciones sobre la epidemia de poliomielitis en el periódico *La Nación*. Costa Rica, 1954”, in María Isabel Porras et al., eds, *Transmisión del conocimiento médico e internacionalización de las prácticas sanitarias: una reflexión histórica* (Ciudad Real, 2011), pp. 237–239.

43 Ana María Carrillo, “Vacunación y educación higiénica en la campaña contra la poliomielitis en México”, in María Isabel Porras et al., eds, *Transmisión del conocimiento médico e internacionalización de las prácticas sanitarias: una reflexión histórica* (Ciudad Real, 2011), pp. 247–251.

44 George C. Kohn, *Encyclopedia of Plague and Pestilence: From Ancient Times to the Present* (New York, 1995).

45 Kenneth F. Kiple, ed., *The Cambridge World History of Human Disease Past and Present* (Cambridge, 1993), p. 949. Kenneth F. Kiple, ed., *The Cambridge Historical Dictionary of Disease* (Cambridge, 2003).

46 Mathew Smallman-Raynor and Andrew D. Cliff, *Poliomyelitis: Emergence to Eradication* (Oxford, 2006), pp. 511–523.

embedded in triumphalist rhetoric, has been the frequent inclusion of the photographs of Peruvian child Luis Fermin Tenorio as the last affected soul in the Americas Region. The necessity for new studies are therefore confirmed, and above all, publications that halt the concealment of the sanitary situation in non-English speaking countries.⁴⁷

Polio: Towards a Comparative History of the Present Time

The history of the present was given incentive by the resurgence, from the 70s of the last century, of a new political history in which reflection on power, beyond that of the institutionalized, was bound with society and culture. The history of poliomyelitis and, more concretely, of the international projects to combat it is an appropriate theme for approximations in which the tensions produced between the international sanitary organizations and their policies and the application of the same on a national level are explored. This dialogue between local and international levels is also produced in the universalization of scientific knowledge. In his study of poliomyelitis in the Argentinian province of Cordoba, Adrián Carbonetti analysis in this dossier the role of local social factors in the autochthonous production of expert knowledge. The acceptance of foreign knowledge on poliomyelitis (that is to say from North American and European science) is not static, producing a fresh signification of this and the creation of their own research strategies.

However, the most emphasized characteristic of the sanitary policies with regards to poliomyelitis was the adoption of international commitments in the fight against the same one that they led, in 1988, the ambitious global eradication (the Global Polio Eradication Initiative), which Ballester, Porras and Baguena analyse in their article on the Spanish case in its European context. Various talking points are produced on international bodies which affect the strategies to combat poliomyelitis: the WHO's own composition meant that up to the 60s global eradication projects were not established (smallpox being the first, successful and, as such, encouraging), a composition that was also influential in the commitment by the Primary Healthcare signed in Alma-Ata in 1978 and partially failed, with inevitable consequences in the form of vaccination and the organization of

47 Three different research networks are focused on History of diseases (which include polio): Red de Estudios Histórico-Comparativos de la Medicina y la Salud Pública Latinoamericanas, Red de Viejas y Nuevas Enfermedades de la Asociación Latino-Americana de Población y la Red Iberoamericana de Investigación en Historia de la Poliomiélitis y el Síndrome Post-Polio.

epidemiological security.⁴⁸ One final point to consider is one which arises from the WHO crisis in the 80s and drives a progressive increase in nongovernmental funding, a very significant fact in the participation of different organizations in the eradication of polio (National Governments in coordination with the four spearheading partners -WHO, UNICEF, Rotary International and the Centers for Disease Control and Prevention- to which others can be added, such as the World Bank or the Bill & Melinda Gates Foundation) or in the Global Alliance for Vaccines and Immunization (GAVI).⁴⁹ In our case the role conducted by the Pan American Health Association (PAHO) acquires a special interest, as much in the heart of the WHO as in its work for the eradication of polio in the Americas Region (even facing its criteria to those of the international bodies), the first to achieve the certificate in 1994.⁵⁰ This contextualization of the Spanish case with the European and Global strategies allow a reflection on the necessity to go beyond of the collective studies to carry out comparative studies which permit the analysis of the role of local determining factors and the acceptance and application of global strategies, their adaptation and results obtained. Although the national studies can illustrate many of these aspects, it is the comparative perspective which detects critical elements for the research. The well-known article by Lindner and Blume about the development of vaccines (IPV and OPV) and the adoption of one kind or another in the United Kingdom (England and Wales), the Netherlands and West Germany, shows three different processes of introduction and use. Their analysis of the intensity of the epidemic, organization of the health services and its financing, the production (state or private) of the vaccine and the activities (scientific and political) towards it, international relations, and above all, the existence of prior national developments with respect to the illness and the vaccination are some of the elements which authors claim enrich the comparative studies.⁵¹

48 Marcos Cueto, “Los orígenes de la Atención Primaria de Salud y la Atención Primaria Selectiva de Salud”, in Marcos Cueto and Víctor Zamora, eds, *Historia, Salud y Globalización* (Lima, 2006), pp. 27–58.

49 Theodore M. Brown, Marcos Cueto and Elizabeth Fee, “The World Health Organization and the Transition From ‘International’ to ‘Global’ Public Health”, *American Journal of Public Health*, 96(1) (2006), 62–72.

50 Miguel Armando Mosquera Gordillo, Natalia Barón Cano and Rosa Ballester Añón, “El camino hacia la erradicación de la poliomielitis a través de la Organización Panamericana de la Salud”, *Revista Panamericana de Salud Pública*, 36(3) (2014), 185–192. Lee Hampton, “Albert Sabin and the Coalition to Eliminate Polio from the Americas”, *American Journal of Public Health*, 99(1) (2009), 34–44. Marcos Cueto, *El valor de la salud. Una historia de la OPS* (Washington, 2004).

51 Ulrike Lindner and Stuart S. Blume, “Vaccine Innovation and Adoption: Polio Vaccines in the UK, the Netherlands and West Germany, 1955–1965”, *Medical History*, 50 (2006), 425–446.

For the comparative polio study in Ibero-America, despite the study being pioneered for Brazil and Peru, aforementioned,⁵² and others for the Iberian Peninsula,⁵³ a specific proposal still doesn't exist, although there exists a framework with a solid scientific foundation and meticulously organized by an ample international team, coordinated by Emilio Quevedo, for the comparative study of public health, health professions and their relationship with society,⁵⁴ Adriana Alvarez was appointed to this project, and in his article about poliomyelitis in Argentina and Uruguay, highlights the complexity of comparative studies between countries which show marked differences themselves internally according to geographical areas. Through the analysis of health policies, vaccination programs and epidemiological data, we can compare the evolution of the illness in both countries during the governments of Peron and Batlle and their great epidemic strategies to combat the outbreaks of the mid 50s.

Furthermore, from the comparative perspective the representation of poliomyelitis and post-polio syndrome are tackled in the Spanish-Portuguese press by Guerra and Rodriguez –Sanchez. If contemporary history has always counted on the press as a relevant source, then the history of the present finds facts about the influence in its public and political agendas, with the effect of a configuration of identities. Post-polio Syndrome, dealt with by the comparative study, exemplifies the vicious circles established: the absence of collectives and social movements for polio-affected people leads to their invisibility in the Portuguese press and this disappearance causes a spread of misinformation across public society (and worse still, of the people affected) about the existence of the syndrome. To this must be

52 Dilene Raimundo do Nascimento, Marcos Cueto, Eduardo Ponce Maranhão and Deepak Sobti, “A erradicação da poliomielite na América Latina: comparando Brasil e Peru”, in Dilene Raimundo de Nascimento, org., *A história da poliomielite* (Rio de Janeiro, 2010), pp. 161–176.

53 Sandrine Martins Pinto, Inês Guerra, Juan Antonio Rodríguez-Sánchez, João Rui Pita y Ana Leonor Pereira, “De las campañas de vacunación al calendario vacunal: el Programa Nacional de Vacinação português y las Campañas Nacionales de Vacunación Antipoliomielítica en España (1963–1976)”, in Ricardo Campos Marín, Ángel González de Pablo, María Isabel Porras Gallo y Luis Montiel, eds, *Medicina y poder político* (Madrid, 2014), pp. 203–209. Juan Antonio Rodríguez-Sánchez, Rosa Ballester Añón and Inês Guerra Santos, “El movimiento asociativo: una perspectiva internacional, nacional y de los casos de Madrid, Valencia y Castilla – La Mancha”, in María Isabel Porras Gallo, Mariano Ayarzagüena Sanz, Jaime de las Heras Salord y María José Báguena Cervellera, coords., *El drama de la polio: un problema social y familiar en la España franquista* (Madrid, 2013), pp. 233–257. João Rui Pita and Juan Antonio Rodríguez-Sánchez, “Actitudes ante la polio en España y Portugal: estudio comparativo”, in Teresa Ortiz et al., eds, *La experiencia de enfermar en perspectiva histórica* (Granada, 2008), pp. 331–334.

54 Emilio Quevedo, Mario Hernández, Claudia Cortés and Juan Carlos Eslava, “Un modelo para armar: Una propuesta metodológica para abordar el estudio comparativo de la historia de la salud pública, de las profesiones de la salud y de sus relaciones de doble vía con la sociedad”, *Revista de Ciencias de la Salud*, 11(3) (2013), 295–321.

added its effect in relation to social movements and in relation to the creation and reconstruction of identities.

Memory, Testimony and History of Polio in Light of Post-Polio Syndrome

In fact, a characteristic of the history of the present is the coexistence of territories which are troublesome to demarcate: history, investigative journalism and memory narratives⁵⁵. Poliomyelitis has not only been common to its focus, but it has illustrated them prolifically. The vaccines, their trials and the incidents during their application has given rise to controversies that have elicited approaches from investigative journalism which have exalted the figure of Jonas Salk⁵⁶ or has related Koprowski's trials with the origin of HIV,⁵⁷ linked diverse cancers with the contamination of the vaccines by the SV40,⁵⁸ or even in the poliomyelitis outbreaks from the vaccine-derived polioviruses.⁵⁹ In such cases, history and journalism can, when the approximations are rigorous, be very close to the mark: share multiple sources, respond to social demand, and contrast documents and testimonies in search of their veracity.⁶⁰

However, an extant illness, whose survivors have been scarred by paralytic effects, invite us to convert their memory into one of the pillars of history. The autobiographical narratives have frequently interlaced in an effort to recover a collective memory like in the cases of Black⁶¹ and Shell,⁶² which acquired major historical aspiration in that of Sass⁶³ and Wilson⁶⁴ coming from the fulfillment and

55 Montserrat Huguet Santos, "Historia del Tiempo Presente e Historia de las Relaciones Internacionales", *AYER*, 42 (2001), 43–69.

56 Jeffrey Kluger, *Splendid Solution. Jonas Salk and the Conquest of Polio* (New York, 2004)

57 Edward Hooper, *The River: A Journey to the Source of HIV and AIDS* (Boston, 1999).

58 Debbie Bookchin and Jim Schumacher, *The Virus and the Vaccine. Contaminated Vaccine, Deadly Cancers, and Government Neglect* (New York, 2004). A review in the scientific literature: Michele Carbone, Paola Rizzo and Harvey I. Pass, "Simian virus 40, poliovaccines and human tumors: a review of recent developments", *Oncogene*, 15 (1997), 1877–1888.

59 Bernard Seytre and Mary Shaffer, *The death of a disease: a history of the eradication of poliomyelitis* (New Brunswick, 2005).

60 Montserrat Huguet Santos, "Historia del Tiempo Presente e Historia de las Relaciones Internacionales", *AYER*, 42 (2001), 43–69.

61 Kathryn Black, *In the Shadow of Polio. A Personal and Social History* (Cambridge, Mass., 1996).

62 Marc Shell, *Polio and its Aftermath. The Paralysis of Culture* (Cambridge, Mass., 2005). Cfr. Rosa Ballester, "Entre la metáfora y la realidad. Discapacidad e identidad en la historia de la poliomiélitis", *Dynamis*, 28 (2008), 419–425.

63 Edmund J. Sass, *Polio's Legacy. An Oral History* (Lanham, Maryland, 1996).

64 Daniel J. Wilson, *Living with Polio. The Epidemic and its Survivors* (Chicago, 2005).

analysis of interviews of affected people⁶⁵. Memory archives as a baseline for an oral history of poliomyelitis have been frequent in United States⁶⁶ and Canadian⁶⁷ historiography, making the experience – including the emotions – one of the most enriching aspects in the history of the illness. Adding to this as much the contributions framed as historical research or as journalistic research have been developed on many occasions by people affected by polio, incorporating new nuances on motivation and subjectivity, memory and history, commitment and activism.⁶⁸

Abundant motives hamper our field of research, the Ibero-American space, we count on autobiographical publications, and moreover there are developing projects, many of whose objectives are articulated in an oral history setting. Dilene Raimundo has led some of these projects⁶⁹ which have generated an archive of testimonials available online.⁷⁰ Her article in this dossier concerning the eradication of poliomyelitis in Brazil tells of one of these testimonies to focus on one of the aspects which usually serve as a corollary in the majority part of the historical accounts on poliomyelitis: post-polio syndrome. The threat of the syndrome gravitates in almost every work centered on the testimonies, establishing the worry for those, who having fought for the consideration of the disability as functional diversity, become ill once more.⁷¹

65 The testimonies of scientists are usually written memoirs published in collective works: Anne-Marie Moulin, dir., *L'aventure de la vaccination* (Paris, 1996). Thomas M. Daniel and Frederick C. Robbins, eds, *Polio* (Rochester, 1997). Stanley A. Plotkin, ed., *History of Vaccine Development* (New York, 2011).

66 Tony Gould, *A Summer Plague. Polio and its Survivors* (New Haven, 1995). Julie Silver and Daniel J. Wilson, *Polio Voices. An Oral History from the American Polio Epidemics and Worldwide Eradication Efforts* (Westport, Connect, 2007).

67 Sally Aitken, Helen D'Orazio and Stewart Valin, eds, *Walking Fingers. The Story of Polio and Those Who Lived with It* (Georgetown, Ontario, 2004).

68 Serve as examples Aitken, Wilson, Smith, Gould, Shell or Sass.

69 A história da poliomielite e de sua erradicação no Brasil (Programa Estratégico de Pesquisa da Casa de Oswaldo Cruz, Conselho Nacional de Pesquisa de Brasil). A erradicação da poliomielite. Uma história comparada: Brasil e Peru (Edital Universal 01/2002-CNPq).

70 Anna Beatriz de Sá Almeida, Laurinda Rosa Maciel and Dilene Raimundo do Nascimento, *Memórias da Poliomielite: acervo de depoimentos orais*. 2005. Available from: <http://www.bvspolio.coc.fiocruz.br/polio/brasil/acervo/memoriaPoliomielite/index.htm>.

71 Heather Green Wooten, *The Polio Years in Texas. Battling a Terrifying Unknown* (Texas, 2009). Sally Aitken, Helen D'Orazio and Stewart Valin, eds, *Walking Fingers. The Story of Polio and Those Who Lived with It* (Georgetown, Ontario, 2004). Julie Silver and Daniel J. Wilson, *Polio Voices. An Oral History from the American Polio Epidemics and Worldwide Eradication Efforts* (Westport, Connect., 2007). Daniel J. Wilson, *Living with Polio. The Epidemic and its Survivors* (Chicago, 2005), pp. 228–251. Edmund J. Sass, *Polio's Legacy. An Oral History* (Lanham, Maryland, 1996). Marc Shell, *Polio and its Aftermath. The Paralysis of Culture* (Cambridge, Mass., 2005), pp. 206–210. Tony Gould, *A Summer Plague. Polio and its Survivors* (New Haven, 1995).

If the problems in achieving an authentic eradication of poliomyelitis make it necessary to revisit the past, post-polio syndrome presents one of the major current challenges that should be approached from the point of view of the stories of the people who have lived through the illness and its aftermath, as well as the social significance which the disease has had. Post-polio syndrome exceeds the mere medical and scientific pursuit in that it influences some key elements of the cultural construction of polio in western society: if the person with poliomyelitis sequelae has symbolized the triumph of effort, of will, of the mind over body (and so they have individually assumed this continuous challenge to demonstrate their capacity), the appearance of the syndrome is borne as a failure, a setback and a loss of meaning for the vital project. However, in contrast to that society which is bending over backwards to find a solution to the threat which children suffered and to assist in their rehabilitation, the person with post-polio syndrome confronts obscurity and abandonment in many parts of the world. The necessity to complete this process of eradication, the much announced “endgame”, diverts attention from the consequences of polio that linger on, affecting the world free of polio.⁷² Exclusively in this context is it possible to conceive of a syndrome that (in spite of being extensively studied by Dalakas and Halstead and internationally debated since the 80s)⁷³ wasn’t included in the International Classification of Diseases until the year 2010,⁷⁴ and to all intents and purposes, faced with the problems of low prevalence diseases.⁷⁵ Similarly, it is the people affected who lead social movements in which the role of the expert patient is revalidated, with the help of new virtual social networks, search for and organize the information that many health professionals worldwide are ignorant of.

Poliomyelitis, despite the continually strengthening perception of it as an illness of the past, continues to cause problems for the present public health system and challenges for the immediate future. The answers, more than in any other case, pass necessarily through interdisciplinary areas in which history provides vital keys and can still illuminate multiple aspects open for investigation.

72 Nora Ellen Groce, Lena Morgan Banks and Michael Ashley Stein, “Surviving polio in a post-polio world”, *Social Science & Medicine* 107 (2014), pp. 171–178.

73 Tony Gould, *A Summer Plague. Polio and its Survivors* (New Haven, 1995), pp. 209–217.

74 International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10 Version:2010). Available from: <http://apps.who.int/classifications/icd10/browse/2010/en> Chapter VI. Diseases of the nervous system (G00–G99). Systemic atrophies primarily affecting the central nervous system (G10–G14). G14 Postpolio Syndrome <http://apps.who.int/classifications/icd10/browse/2010/en#/G10-G14> Polio sequelae are codified as B91.

75 Marc Shell, *Polio and its Aftermath. The Paralysis of Culture* (Cambridge, Mass., 2005).

References

- Sally Aitken, Helen D’Orazio and Stewart Valin, eds, *Walking Fingers. The Story of Polio and Those Who Lived with It*. (Georgetown, 2004).
- Álvarez, Adriana, “Parálisis y acción’: el caso argentino frente a los brotes de poliomielitis de mediados del siglo XX,” pp. 259–261 in María Isabel Porras et al., eds, *Transmisión del conocimiento médico e internacionalización de las prácticas sanitarias: una reflexión histórica*. (Ciudad Real, 2011).
- Álvarez, Adriana, María Isabel Porras Gallo and María José Báguena, coords., “Perspectivas internacionales de la salud en la América Latina. Programas métodos y experiencias locales en la lucha contra la poliomielitis (1930–1960),” pp. 233–261 in María Isabel Porras et al., eds, *Transmisión del conocimiento médico e internacionalización de las prácticas sanitarias: una reflexión histórica*. (Ciudad Real, 2011).
- Julio Aróstegui, *La historia vivida. Sobre la historia del presente*. (Madrid, 2004).
- Ballester, Rosa, “Entre la metáfora y la realidad. Discapacidad e identidad en la historia de la poliomielitis,” *Dynamis* 28 (2008), 419–425.
- Rosa Ballester and María Isabel Porras, eds, “Políticas, respuestas sociales y movimientos asociativos frente a la poliomielitis: la experiencia europea,” *Dynamis* 32(2) (2012), 273–414.
- Bedarida, François, “Definición, método y práctica de la Historia del Tiempo Presente,” *Cuadernos de Historia Contemporánea* 20 (1998), 19–27.
- Beldarraín, Enrique, “Poliomyelitis and Its Elimination” In Cuba: An Historical Overview,” *MEDICC Review* 15(2) (2013), 30–36.
- Berridge, Virginia, “History in Public Health: a New Development for History?,” *Hygiea Internationalis* 1(1) (1999), 23–35.
- Kathryn Black, *In the Shadow of Polio. A Personal and Social History*. (Cambridge, Mass., 1996).
- Debbie Bookchin and Jim Schumacher, *The Virus and the Vaccine. Contaminated Vaccine, Deadly Cancers, and Government Neglect*. (New York, 2004).
- Brown, Theodore M., Marcos Cueto and Elizabeth Fee, “The World Health Organization and the Transition From ‘International’ to ‘Global’ Public Health,” *American Journal of Public Health* 96(1) (2006), 62–72.
- Carbone, Michele, Paola Rizzo and Harvey I. Pass, “Simian virus 40, poliovaccines and human tumors: a review of recent developments,” *Oncogene* 15 (1997), 1877–1888.
- Carrillo, Ana María “Vacunación y educación higiénica en la campaña contra la poliomielitis en México,” pp. 247–251 in María Isabel Porras et al., eds,

- Transmisión del conocimiento médico e internacionalización de las prácticas sanitarias: una reflexión histórica.* (Ciudad Real, 2011).
- Cello, J., A.V. Paul, E. Wimmer, "Chemical Synthesis of Poliovirus cDNA: Generation of Infectious Virus in the Absence of Natural Template," *Science* 297(5583) (2002), 1016–1018.
- Cohen, Jeffrey I. "Enterovirus y reovirus," I:1208–1213 in A. Fauci et al., eds, *Harrison Principios de Medicina Interna*. Madrid, 2012, 17 ed.
- Cuesta Bustillo, Josefina, "La historia del tiempo presente: estado de la cuestión," *Studia Historica. Historia Contemporánea* 1 (1983), 227–241.
- Marcos Cueto, *El valor de la salud. Una historia de la OPS.* (Washington, 2004).
- Cueto, Marcos, "Los orígenes de la Atención Primaria de Salud y la Atención Primaria Selectiva de Salud," pp. 27–58 in Marcos Cueto and Víctor Zamora, eds, *Historia, Salud y Globalización.* (Lima, 2006).
- Thomas M. Daniel and Frederick C. Robbins, eds, *Polio.* (Rochester, 1997).
- Dowdle, Walter R. "The principles of disease elimination and eradication," *Bulletin of the World Health Organization* 76: Suppl. 2 (1998), 22–25.
- European Centre for Disease Prevention and Control, "Suspected outbreak of poliomyelitis in Syria: Risk of importation and spread of poliovirus in the EU," *Rapid Risk Assessment*. 23 October 2013. Cited 2014 Jan 17. Available from:
<http://www.ecdc.europa.eu/en/publications/Publications/RRA%20poliomyelitis%20Syria%2021%2010%202013.pdf>.
- European Centre for Disease Prevention and Control, "Expert consultation on scientific evidence linked to polio virus in Israel and Syria," *Meeting Report*. 5 November 2013. Cited 2014 Jan 17. Available from:
<http://www.ecdc.europa.eu/en/publications/Publications/Expert%20consultation%20mtg%20report%20-%20polio%20Israel%20Syria%20-%20final.pdf>.
- García-Sánchez, José Elías, Enrique García-Sánchez, Enrique García-Merino and María José Fresnadillo-Martínez, "La polio, el largo camino hacia el final de la partida," *Enfermedades Infecciosas y Microbiología Clínica*. In print. Cited 2015 Mar 17. Available from <http://dx.doi.org/10.106/j.eimc.2014.10.005>
- González, Magdalena "La teorización de Julio Aróstegui sobre la historia del tiempo presente como historia vivida," *Hispania Nova* 13 (2015), 126–133.
- Tony Gould, *A Summer Plague. Polio and its Survivors.* (New Haven, 1995).
- Groce, Nora Ellen, Lena Morgan Banks and Michael Ashley Stein, "Surviving polio in a post-polio world," *Social Science & Medicine* 107 (2014), 171–178.
- Hampton, Lee "Albert Sabin and the Coalition to Eliminate Polio from the Americas," *American Journal of Public Health* 99(1) (2009), 34–44.
- Heymann, D. and Q. Ahmed, "The polio eradication end game: what it means for Europe," *Euro Surveillance*, 19(7) (2014), 1–7. Cited 2014 Mar 5. Available

- from: <http://www.eurosurveillance.org/images/dynamic/EE/V19N07/art20702.pdf>
- Edward Hooper, *The River: A Journey to the Source of HIV and AIDS*. Boston, 1999.
- Huguet Santos, Montserrat, “Historia del Tiempo Presente e Historia de las Relaciones Internacionales,” *AYER* 42 (2001), 43–69.
- Jovell, J., “El paciente del siglo XXI,” *Anales del Sistema Sanitario de Navarra* 29: supl. 3 (2006), 85–90.
- Kaliner, E., J. Moran-Gilad, I. Grotto, E. Somekh, E. Kopel, M. Gdalevich, E. Shimron, Y. Amikam, A. Leenthal, B. Lev and R. Gamzu, “Silent reintroduction of wild-type poliovirus to Israel, 2013 – Risk communication challenges in an argumentative atmosphere,” *Euro Surveillance*, 19(7) (2014), 1–7. Cited 2014 Mar 5. Available from: <http://www.eurosurveillance.org/images/dynamic/EE/V19N07/art20703.pdf>
- Kenneth F. Kiple, ed., *The Cambridge World History of Human Disease Past and Present*. (Cambridge, 1993).
- Kenneth F. Kiple, ed., *The Cambridge Historical Dictionary of Disease*. Cambridge, 2003.
- Jeffrey Kluger, *Splendid Solution. Jonas Salk and the Conquest of Polio*. New York, 2004.
- George C. Kohn, *Encyclopedia of Plague and Pestilence: From Ancient Times to the Present*. (New York, 1995).
- Koprowski, Hilary and Stanley Plotkin, “Histoire alternative du vaccin oral,” pp. 299–310 in Anne-Marie Moulin, dir., *L’aventure de la vaccination*. (Paris, 1996).
- Koprowski, Hilary and Stanley Plotkin, “History of Koprowski Vaccine Against Poliomyelitis,” pp. 155–166 in Stanley A. Plotkin, ed., *History of Vaccine Development*. (New York, 2011).
- Laval, Enrique, “Anotaciones para la historia de la poliomiélitis en Chile,” *Revista Chilena de Infectología* 24(3) (2007), 247–250.
- Lindner, Ulrike and Stuart S. Blume, “Vaccine Innovation and Adoption: Polio Vaccines in the UK, the Netherlands and West Germany, 1955–1965,” *Medical History*, 50 (2006), 425–446.
- Malavassi Aguilar, Ana Paulina, “Representaciones sobre la epidemia de poliomiélitis en el periódico *La Nación*. Costa Rica, 1954,” pp. 237–239 in María Isabel Porras et al., eds, *Transmisión del conocimiento médico e internacionalización de las prácticas sanitarias: una reflexión histórica*. (Ciudad Real, 2011).
- Martínez-Pérez, José, “Presentación: la poliomyelitis como modelo para el estudio de la enfermedad en perspectiva histórica,” *Asclepio* 61(1) (2009), 7–21.

- José Martínez-Pérez, coord., “La poliomielitis y sus contextos: experiencias colectivas e individuales ante la enfermedad en el siglo XX,” *Asclepio* 61(1) (2009), 7–192.
- Más Lago, P., “Eradication of poliomyelitis in Cuba: a historical perspective,” *Bulletin of the World Health Organization* 77(8) (1999), 681–687.
- Melnick, Joseph L., “The Picornaviruses,” pp. 147–188 in F. Fenner and A. Gibbs, eds, *Portraits of Viruses. A History of Virology*. (Basel, 1988).
- Melnick, Joseph and Stanley Plotkin, “Oral Polio Vaccine and the Results of Its Use,” pp. 167–177 in Stanley A. Plotkin, ed., *History of Vaccine Development*. (New York, 2011).
- Modin, J.F., “Poliovirus,” pp. 2305–2315 in G.L. Mandell, J.E. Bennett and R. Dolin, *Enfermedades Infecciosas. Principios y Práctica*. (Madrid, 2002, 5 ed.).
- Mosquera Gordillo, Miguel Armando, Natalia Barón Cano and Rosa Ballester Añón, “El camino hacia la erradicación de la poliomielitis a través de la Organización Panamericana de la Salud,” *Revista Panamericana de Salud Pública*, 36(3) (2014), 185–192.
- Anne-Marie Moulin, dir., *L’aventure de la vaccination*. Paris, 1996.
- Dilene Raimundo do Nascimento, org., *A história da poliomielite*. (Rio de Janeiro, 2010).
- Nascimento, Dilene Raimundo do, Marcos Cueto, Eduardo Ponce Maranhão and Deepak Sobti, “A erradicação da poliomielite na América Latina: comparando Brasil e Peru,” pp. 161–176 in Dilene Raimundo de Nascimento, org., *A história da poliomielite*. (Rio de Janeiro, 2010).
- Nathanson, Neal and J.R. Martin, “The epidemiology of poliomyelitis: enigmas surrounding its appearance, epidemicity, and disappearance,” *American Journal of Epidemiology* 110(6) (1979), 672–692.
- Nathanson, Neal and Olen M. Kew, “From Emergence to Eradication: The Epidemiology of Poliomyelitis Deconstructed,” *American Journal of Epidemiology* 172 (2010), 1213–1229.
- Paul A. Offit, *The Cutter Incident. How America’s First Polio Vaccine Led to the Growing Vaccine Crisis*. (New Haven, 2005).
- Michael B.A. Oldstone, *Viruses, Plagues, and History. Past, Present, and Future*. (New York, 2010).
- David M. Oshinsky, *Polio: An American Story*. (New York, 2005).
- John R. Paul, *A History of Poliomyelitis*. (New Haven, 1971).
- Perdiguerro, E., J. Bernabeu, R. Huertas, E. Rodríguez-Ocaña, “History of health, a valuable tool in public health,” *Journal of Epidemiology and Community Health* 55 (2001), 667–673.
- Pinto, Sandrine Martins, Inês Guerra, Juan Antonio Rodríguez-Sánchez, João Rui Pita y Ana Leonor Pereira, “De las campañas de vacunación al calendario vacunal: el Programa Nacional de Vacinação português y las Campañas

- Nacionales de Vacunación Antipoliomielítica en España (1963–1976),” pp. 203–209 in Ricardo Campos Marín, Ángel González de Pablo, María Isabel Porras Gallo y Luis Montiel, eds, *Medicina y poder político*. (Madrid, 2014).
- Pita, João Rui and Juan Antonio Rodríguez-Sánchez, “Actitudes ante la polio en España y Portugal: estudio comparativo,” pp. 331–334 in Teresa Ortiz et al., eds, *La experiencia de enfermar en perspectiva histórica*. (Granada, 2008).
- Stanley A. Plotkin, ed., *History of Vaccine Development*. (New York, 2011).
- Porter, Roy, “The Patient’s View: Doing Medical History from Below”, *Theory and Society* 14(2) (1985), 175–198.
- María Isabel Porras Gallo, Mariano Ayarzagüena Sanz, Jaime de las Heras Salord y María José Báguena Cervellera, coords., *El drama de la polio: un problema social y familiar en la España franquista*. (Madrid, 2013).
- Quevedo, Emilio, Mario Hernández, Claudia Cortés and Juan Carlos Eslava, “Un modelo para armar: Una propuesta metodológica para abordar el estudio comparativo de la historia de la salud pública, de las profesiones de la salud y de sus relaciones de doble vía con la sociedad,” *Revista de Ciencias de la Salud* 11(3) (2013), 295–321.
- Racaniello, V.R., “One hundred years of poliovirus pathogenesis,” *Virology*, 344 (2006), 9–16.
- Ramacciotti, Karina Inés, “Las sombras de la política sanitaria durante el peronismo: los brotes epidémicos en Buenos Aires”, *Asclepio* 58(2) (2006), 115–138.
- Rodríguez-Sánchez, Juan Antonio, “La persona enferma como experta: los cambios sociosanitarios promovidos por el asociacionismo polio-postpolio en España”, *Estudios do Século XX* 12 (2012), 104–122.
- Rodríguez-Sánchez, Juan Antonio, “La historia de la poliomyelitis, historia del presente”, *Temperamentum* 16 (2012). Cited 2013 Jan 30. Available from: <http://www.index-f.com/temperamentum/tn16/t2712.php>
- Rodríguez-Sánchez, Juan Antonio, Rosa Ballester Añón and Inês Guerra Santos, “El movimiento asociativo: una perspectiva internacional, nacional y de los casos de Madrid, Valencia y Castilla – La Mancha,” pp. 233–257 in María Isabel Porras Gallo, Mariano Ayarzagüena Sanz, Jaime de las Heras Salord y María José Báguena Cervellera, coords., *El drama de la polio: un problema social y familiar en la España franquista*. (Madrid, 2013).
- Naomi Rogers, *Dirt and Disease: Polio before FDR*. (New Brunswick, 1992).
- Charles Rosenberg, *Explaining Epidemics and Other Studies in the History of Medicine*. (New York, 1992).
- Sabin, Albert B., “Oral poliovirus vaccine: history of its development and use and current challenge to eliminate poliomyelitis from the world,” *Journal of Infectious Diseases* 151(3), 1985, 420–436.
- Edmund J. Sass, *Polio’s Legacy. An Oral History*. (Lanham, Maryland, 1996).

- Bernard Seytre and Mary Shaffer, *The death of a disease: a history of the eradication of poliomyelitis*. (New Brunswick, 2005).
- Marc Shell, *Polio and its Aftermath. The Paralysis of Culture*. (Cambridge, Mass., 2005).
- Siegler, M., “La relación médico-paciente en la era de la medicina de gestión,” pp. 44-64 in *Limitación de prestaciones sanitarias*. (Madrid, 1997).
- Julie Silver and Daniel J. Wilson, *Polio Voices. An Oral History from the American Polio Epidemics and Worldwide Eradication Efforts*. (Westport, Connect, 2007).
- Mathew Smallman-Raynor and Andrew D. Cliff, *Poliomyelitis: Emergence to Eradication*. (Oxford, 2006).
- Sobti, Deepak, Marcos Cueto and Y. He, “A public health achievement under adversity: the eradication of poliomyelitis from Peru, 1991,” *American Journal of Public Health*, 2014, 104(12), 2298-2305.
- Sundin, Jan, “Why Hygiea Internationalis?,” *Hygiea Internationalis* 1(1) (1999), 5-7.
- Testa, Daniela, “Poliomyelitis: la ‘herencia maldita’ y la esperanza de la rehabilitación. La epidemia de 1956 en la ciudad de Buenos Aires,” *Instersticios* 5(2) (2011), 309-323.
- Testa, Daniela, “La lucha contra la poliomyelitis: una alianza médico-social, Buenos Aires, 1943,” *Salud Colectiva* 8(3) (2012), 299-314.
- Testa, Daniela, “*Curing by doing*: la poliomyelitis y el surgimiento de la terapia ocupacional en Argentina, 1956-1959,” *História, Ciências, Saúde – Manguinhos* 20(4) (2013), 1571-1584.
- Testa, Daniela, “El síndrome pos-polio y sus anudamientos en el pasado,” *Instersticios* 8(1) (2014), 233-248.
- Vargha, Dora, “Between East and West: Polio Vaccination across the Iron Curtain in Cold War Hungary,” *Bulletin of the History of Medicine* 88(2) (2014), 319-343.
- Daniel J. Wilson, *Living with Polio. The Epidemic and its Survivors*. (Chicago, 2005).
- Heather Green Wooten, *The Polio Years in Texas. Battling a Terrifying Unknown*. Texas, 2009.
- World Health Organization, *Polio Eradication & Endgame Strategic Plan 2013-2018*. Geneva, 2013. Cited 2014 Mar 23. Available from http://www.polioeradication.org/Portals/0/Document/Resources/StrategyWork/PEESP_EN_US.pdf

Acknowledgements

This work has been carried out as part of Project HAR2012-39655-C04-03 of the Spanish Ministry of Innovation, Economy and Competitiveness (MINECO) and SA359A12-1 and SA251U14 (Junta de Castilla y León).

Poliomyelitis in the City of Córdoba: Morbidity, Knowledge and the Research Performed by a Medical Elite in Argentina's Interior, 1943–1953

Adrián Carbonetti, Lila Aizenberg and
María Laura Rodríguez

Introduction

The complex problems presented by the production of medical knowledge in Argentina during the middle decades of the twentieth century have been sidestepped by the nation's historiographers.¹ Some studies begin their examination of these questions by describing the situation in Buenos Aires and focusing on its medical elite. Others describe and quantify the medical community's familiarity with this disease, or the lack thereof, during this time period.² The lack of interest in the medical outlooks and scientific perspectives of Argentina's foremost doctors as they related to polio's symptoms, origin, causes and development has been linked to a narrative which describes "victories" as "rare" in the fight against poliomyelitis. While this article acknowledges that this undertaking is exploratory in nature and seeks to put forth its own questions and hypotheses,

1 The aftereffects suffered by children seriously affected by infantile paralysis, which include physical defects in their extremities and in their cores caused by irreparable damage to their neuromuscal systems — have been the subject of important studies. These interrogated how — and at what speed — the scientific community and Argentine society, represented here by federal institutions and others operating at a local level in the city of Buenos Aires, shaped their responses to this disease over the long term. D. Testa. "Poliomielitis: La herencia maldita y la esperanza de la rehabilitación. La Epidemia de 1956 en la Ciudad de Buenos Aires", *Intersticios*. Vol. 5 (2011). pp. 299–213 C. Ferrante. "Rengueando el estigma: Modos de ser, pensar y sentir (se) discapacitado construidos desde la práctica deportiva adaptada", *RBSE*, 9(27) (2010). pp. 909–1902.

2 K. Ramaciotti. *Las políticas sanitarias del primer peronismo: ideas, tensiones y prácticas*. Thesis defended at the Facultad de Ciencias Sociales de la Universidad de Buenos Aires, (Buenos Aires, 2008).

it rejects interpretations that seek only to collect, organize, and classify “scientific successes.” Nor is it interested in reconstructing “errors” and “omissions” in order to label them scientific detours.³ With this in mind, we aim to rescue a universe of scientific production whose results were published locally by the foremost members of the medical profession in the province of Córdoba. We will do this by analyzing medical articles published in the *Revista Médica de Córdoba* and the *Revista de la Universidad Nacional de Córdoba* that examine Argentina’s fatal polio cases at various points in time between the years 1943 and 1952. Because we understand that scientific progress can also be said to possess its own epidemiological and historic characteristics, this article will interrogate the links between medical research and the particularities of local morality rates. Our article will interrogate the connections between local medical science and knowledge produced in leading European countries, particularly in Sweden, and the United States. It will consider the kind of articles that were published in Córdoba, the sort of research was conducted there, and the link between knowledge produced elsewhere and local variables associated with the development of poliomyelitis. It should be understood that the receptive attitude displayed by members of the local medical community in Córdoba is closely linked to the sporadic appearance of fatal polio cases in the region from 1943 to 1952: the yearly totals of deaths attributed to this condition varied from year to year until the outbreak of an epidemic in 1952. This article will also comment on the city’s experience with massive immunization, both with the Salk vaccine, which contained killed viruses, and with the more efficient Sabin vaccine of 1963, both of which were, of course, named for eminent American scientists whose discoveries led to the initiation of the controlled phase of this disease epidemic.⁴ However, this article will not lose sight of the fact that although the biomedical science developed in Argentina was, from the nation’s founding, influenced by European scientists and European scientific discoveries, the processes by which this knowledge was received cannot be considered static.⁵ Our reading of these events holds that, along with the production dynamic of knowledge relating to poliomyelitis, other processes for the acquisition of knowledge were also emerging at this time at the local level. These processes are noteworthy because they involved investigative

3 S.Caponni. “Epistemología, Historia de las Ciencias y Saber médico”, *Episteme*, v. 11, Nro. 23, (2006) p. 59.

4 D. Testa. “Poliomielitis: La herencia maldita y la esperanza de la rehabilitación. La Epidemia de 1956 en la Ciudad de Buenos Aires”, *Intersticios: Revista Sociológica de Pensamiento Crítico*. Vol. 5 (2011), p. 309.

5 H. Vessuri “El crecimiento de una comunidad científica en argentina”, *Cad.Hist.Fil.Ci.*, Serie 3, V 5, (1995), p. 174.

strategies that raised questions about a number of social issues, including some related to mortality, in an environment that would prove important to the study and development of medical science.

The City of Córdoba: The State, Medicine, and Poliomyelitis

The city of Córdoba, which is the capital of the province that bears the same name, is located in the northeast corner of Argentina's lowland coastal region. Throughout its history, the city has served as a nerve center and a communications hub connecting the country's coastal provinces to its northern and northeastern regions. Córdoba had been an indispensable center for commerce originating in Argentina's northern and central provinces during the colonial era and the early days of the Argentine republic, but when Argentina's coastal lowlands became a major producer of raw materials and participant in the international markets that traded them during the closing decades of the 19th century, the city became better established in this role. At the same time, encroachment upon desert lands belonging to native tribes and the growth of transatlantic immigration transformed the city into an administrative center with dominion over a wide swath of southern Córdoba province, whose growth was likewise spurred by these phenomena. Taken together, these factors lent the city a rare dynamism: the city and its structures underwent a rapid modernization.⁶

When the city underwent a remarkable period of growth during the middle decades of the twentieth century, this state of affairs shifted, but, in some ways, became more firmly entrenched. In demographic terms, the population of the city of Córdoba nearly doubled during the period described in our study. According to official estimates, the city's population grew from 296,310 in 1944 to 420,531 in 1951.⁷ This population growth was matched by record growth in the area's production capacity. According to Dadone, macroeconomic values recorded after 1950, such as those relating to the production of value-added products, show that the process of industrialization

6 W. Ansaldi. *Industria y urbanización, Córdoba, 1880–1913*, Universidad Nacional de Córdoba, Mimeo, (Córdoba, 1977), pp. 469–477.

7 Report of the Dirección General de Estadística Censos e Investigación, Ministerio de Hacienda, Economía y Previsión Social de la Provincia de Córdoba, Quinquenio 1944–1948. Published in 1953. Report of the Dirección General de Estadística Censos e Investigación, Ministerio de Hacienda, Economía y Previsión Social de la Provincia de Córdoba, 1949–1951. Published in 1953.

was advancing “faster than the national rate” and more independently “as compared to the rest of the country’s other large industrial centers.”⁸

Córdoba’s long-term development was not, however, accompanied by the formulation of concrete responses to illnesses, particularly poliomyelitis. The condition of its public health system was defined by the relative absence of state intervention, though this might, of course, be attributed to an underdeveloped sanitation system and a general lack of understanding of the disease under discussion. As for sanitation policies, we have evidence of only a few actions carried out by the federal government after the beginning of the epidemic. As in 1946, these were typically control and prevention measures, such as *cordons sanitaire*, the disinfection and fumigation of stores, homes, schools, theaters, moviehouses, and the sewer system, the incineration of any wastes or domestic items that might carry infection, and the demolition of houses. That year also marked the first time that Argentine poliomyelitis patients were treated with streptomycin and sulphonamides.⁹

The resources available in Córdoba to fight poliomyelitis during the time period described in this report were limited to the Infantile Paralysis Section of the Hospital de Niños, which was, at the time, the only institution in the entire province dedicated to treating the disease.¹⁰ Relatively underequipped for this task, it focused its activities on alleviating the effects that the disease left in its wake. It should be noted that during the time period described by this study, which corresponds broadly to Argentina’s era of Peronist rule (1946–1955), no significant improvements to the situation described herein were to take place.

During the time period described in this report, institutions in Córdoba devoted to medical science experienced significant development and carried out a significant amount of specialized research, a fact which provides a stark contrast to the state of affairs described above. Córdoba began to play a significant role in medical affairs during the latter part of the nineteenth century, a period which saw the founding and subsequent growth of the School of Medical Sciences at the Universidad Nacional de Córdoba. The founding of this institution goes beyond mere anecdote: it was the first center

8 This is in line with “(...) the type of industries that make up the bulk of the activity in this sector is more dynamic [in the local case]. A .Dadone. “Cien de la industrialización en Córdoba 1873–1973”, *Revista de Economía Banco de la provincia de Córdoba*, n 24, (1974). p. 155

9 K. Ramaciotti. *Las políticas sanitarias del primer peronismo: ideas, tensiones y prácticas*. Thesis defended at the Facultad de Ciencias Sociales de la Universidad de Buenos Aires, (Buenos Aires, 2008). p. 191.

10 L.A. Lezama “La Parálisis infantil en la ciudad de Córdoba”, *Revista de la Facultad de Ciencias Médicas de la Universidad Nacional de Córdoba*, Año XII, Julio-Septiembre Nro. 3, (1954). p. 293.

for medical instruction of its kind to be founded in Argentina's interior. Furthermore, the school served as both an important research center and a point of interaction for the region's medical professionals and medical scientists.^{11,12} The medical professionals that gathered there, who could be considered members of an elite, were both interested in and inspired by the idea that science could be advanced through the accumulation of medical knowledge. At no point was this more evident than when a few noted teaching doctors founded *La Revista del Círculo Médico de Córdoba* during the first decade of the twentieth century in the hopes of advancing both their profession and science itself.¹³ Their aspirations' influence on the activities of Córdoba's doctors would become even more pronounced during the nineteen thirties, when the journal gained prominence in the local medical publishing field and was incorporated into the Universidad Nacional de Córdoba.¹⁴ In 1943, another periodical, *La Revista de la Facultad de Medicina de Córdoba* appeared. Both of these publications served as the "powerhouses" for an effort to increase the visibility and influence of Córdoba's best medical professionals in the field of Argentine medicine by opening up spaces for medical research and debate.

It was in this context that Córdoba's first polio epidemic occurred. While poliomyelitis was not unknown in the city, it had, by 1943, become endemic, and several locations in the province's interior had suffered epidemics of the disease, most notably Cruz del Eje, which is located in the province's northeast. A consistent rise in fatal cases attracted the concern of Córdoba's doctors, who initiated projects to better understand every aspect of the disease, including its nosological, epidemiological, clinical, and therapeutic character. This study will address the perspectives taken by the studies and scientific work produced by individuals and institutions in the city of Córdoba and will examine the issues they raise. It will focus on the time elapsed between the polio epidemic that Córdoba suffered in 1943 and the epidemic that broke out in the city in 1952, which was, in terms of fatalities, the more serious of the

11 Besides the Escuela de Medicina de la Universidad de Buenos Aires, the Facultad de Medicina de Córdoba, which was founded in 1878, was, during this period, the only institution in the country that trained doctors. Its graduates usually went on to settle in various parts of the country's interior. M.L. Rodríguez. "Perspectivas en torno a la consolidación de la elite médica de Córdoba. Epidemias y Estado, 1878–1923". Undergraduate thesis, Facultad de Historia, Universidad Nacional de Córdoba, (Córdoba. 2006). p. 87.

12 M.L. Rodríguez. *La medicalización de la ciudad de Córdoba en tiempos epidémicos: conceptos, saberes e intervenciones 1878–1927*. Editorial de la Municipalidad de Córdoba, (Córdoba, 2011). p. 56.

13 *Revista Círculo Médico de Córdoba*, Enero y Febrero, Año VIII, Nro. 3. (1920), p. 50.

14 *Revista Círculo Médico de Córdoba*, Abril y Mayo, Año XVI, Nro. 1, (1928), p. 60.

two. It will examine articles written by both doctors and teachers at the Facultad de Ciencias Médicas of the Universidad Nacional de Córdoba and analyze both their authors' perspectives on the pathology of this disease and the research practices they employed while investigating it.

Poliomyelitis According to Córdoba's Doctors: A Reconstruction of Knowledge

Rosenberg makes the observation that a disease does not exist until society has agreed on its name, its symptoms, and its forms of treatment. This is to say that disease, from a social perspective, is a social and historical construction produced by science and society.¹⁵ We must also add something else to this statement: the fact that disease is constructed historically does not, in itself, determine the specific concerns of medical science or the way that its investigations into these concerns develop. This appears to be the case with poliomyelitis in Córdoba: it is worth remembering that the city had, since the end of the nineteenth century, been home to a university with a medical school that carried out basic research. This constitutes a very significant track record, and it also bears mentioning that, beginning in 1915, when Salversan proved impossible to import, the Facultad de Medicina de Córdoba made continual efforts to develop an alternative cure for syphilis. Dr. Aparicio, referring to this issue, noted that, “the earliest Salversan trials date to 1913 in regards to syphilis in the nervous system. However, in 1915, we began trials using intravenous mercury cyanide.”¹⁶ It is particularly illuminating to refer to local studies on contagious diseases such as tuberculosis, whose study inspired the founding of a professorship and an institute devoted to the advancement of phthisiology in the early nineteen thirties.¹⁷ Generally speaking, a review of the subjects discussed in the only medical journal published in the region during that era, *La Revista Médica de Córdoba*, reveals a marked interest in the

15 C.E. Rosenberg. “Disease in History: Frames and Framers”. *The Milkbank Quarterly*, 67, Suppl. 1, (1989).p. 1.

16 M. L. Rodríguez. “Perspectivas en torno a la consolidación de la elite médica de Córdoba. Epidemias y Estado, 1878–1923”. Undergraduate thesis, Facultad de Historia, Universidad Nacional de Córdoba (Córdoba, 2006). p. 35.

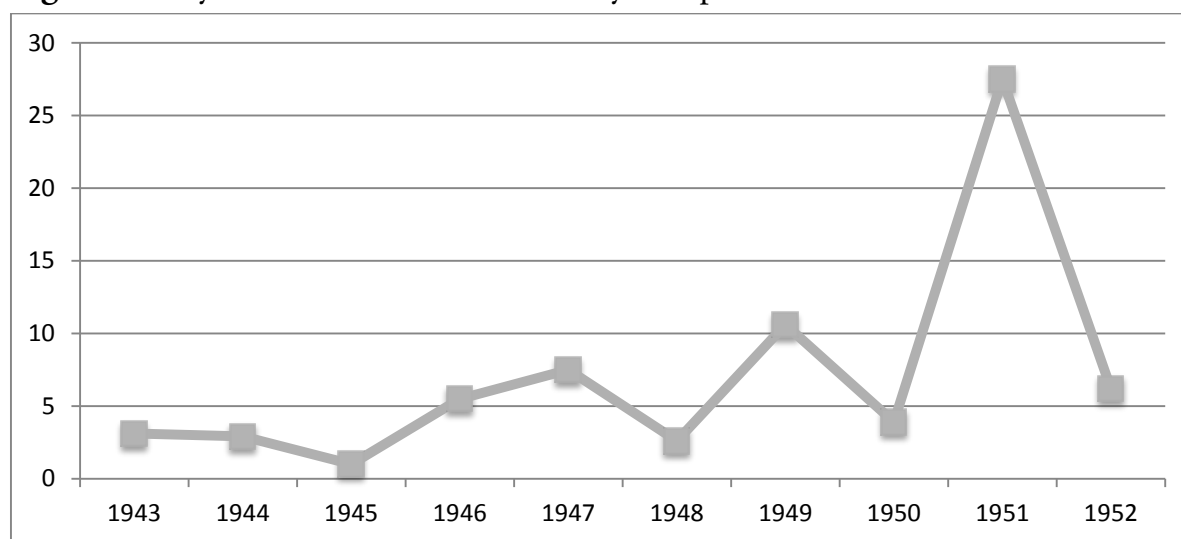
17 A.. Carbonetti. “El sistema sanitario en la provincia de Córdoba, 1880–1926”, *Dynamis*, vol. 25, (2005). p. 87–116.

clinical and epidemiological study of the diseases that most affected the population of the city and province of Córdoba.¹⁸

Even so, specifically medical thinking about poliomyelitis in Córdoba has a relatively short history. Papers on the subject published by local doctors prior to 1943 are almost unknown. It hardly seems surprising that the study of poliomyelitis received a limited amount of attention, since the disease affected relatively few patients. Between 1943 and the epidemic that took place in Cruz del Eje in 1946–1947, only seventy cases were reported each year. The number of patients affected rose to just 164 during the epidemic of 1951–1952, according to research carried out by Luis Alberto Lezama, who was, at the time, a technical assistant in the traumatology and orthopedics department of the Universidad Nacional de Córdoba.¹⁹

If the small amount of cases reported per year might be considered one factor that could explain why so few articles on the disease were written, the connection between low mortality rates and a low level of research years leading up to 1953 seems stronger, particularly in terms of epidemiology. The following chart shows the number of polio deaths reported in the years between 1943 and 1952.

Figure 1: City of Córdoba. Polio mortality rate per 100,000 residents.



Source: In-house production based on: Lezama, Luis Alberto (1954): “La Parálisis infantil en la ciudad de Córdoba”, *Revista de la Facultad de Ciencias Médicas de la Universidad Nacional de Córdoba*, Año XII, Julio-Septiembre Nro. 3, Córdoba, Argentina.

18 M.L.Rodriguez. “Perspectivas en torno a la consolidación de la elite médica de Córdoba. Epidemias y Estado, 1878–1923”. Undergraduate thesis, Facultad de Historia, Universidad Nacional de Córdoba, (Córdoba, 2006). p. 35.

19 L.A. Lezama “La Parálisis infantil en la ciudad de Córdoba”, *Revista de la Facultad de Ciencias Médicas de la Universidad Nacional de Córdoba*, Año XII, Julio-Septiembre Nro. 3, (Córdoba, 1954).p.302.

In 1944, Guillermo Allende and Oscar Malvarez, two doctors associated with the Chair of Traumatology and Orthopedics, wrote an article that appeared in the *Revista de la Facultad de Ciencias Médicas* of the Universidad Nacional de Córdoba titled “Spinal Poliomyelitis (Heine-Medin Disease)” which attempted to describe the symptomology and treatment of both the acute phase and the convalescence period of this disease.²⁰ In general terms, we might consider these studies to be another product of Argentina’s concern about the increase in its polio-related deaths, which totaled 2,280 in 1942 and 1943.²¹ Though the authors “display an understanding” of the concerns that infantile paralysis had generated among the public, they were also forthright about their doubts that both their countries and their region’s leading doctors had about the ability of prophylactic measures to prevent infection and break the chain of contagion. Still, despite acknowledging the public’s concern with polio and its prophylaxis, the article sidesteps the impact that the disease had had on the city and province of Córdoba and on Argentina in general, even though mortality statistics that described the disease’s effects were available for all of these jurisdictions.²² Instead, it describes research that had been carried out in the United States, and, especially, Sweden. It describes a number of existing orthopedic treatments and refers to the “treatment of known aftereffects” and the “correction of deformities” without alluding to what treatment technologies might have been available in Córdoba or to the work that had been done in this field by local pediatricians or by specialists at the province’s own school of medicine.²³

Similarly, when considering questions of etiology and epidemiology, the article seems to depend entirely on research carried out in first-world nations,

20 L.A. Lezama “La Parálisis infantil en la ciudad de Córdoba”, *Revista de la Facultad de Ciencias Médicas de la Universidad Nacional de Córdoba*, Año XII, Julio-Septiembre Nro. 3, (Córdoba, 1954). p. 302.

21 K. Ramaciotti. *Las políticas sanitarias del primer peronismo: ideas, tensiones y prácticas*. Thesis defended at the Facultad de Ciencias Sociales de la Universidad de Buenos Aires, (Buenos Aires, 2008). p. 203.

22 Although the articles analysed do not use statistical data, statistical production has been always an activity conducted by the Province. At least since the beginning of the twentieth century there were various Statistical Yearbooks of the Province made by the governments of these years. According to the documents consulted, this activity developed by the Department of Statistics did not stop between 1943 and the early peronist years. In 1952 the Secretary of Statistics and Census was created by law as part of the Ministry of Finance, Economy and Social Welfare with an effort to rationally centralize" (...) the implementing of statistical service of the Province". Collection of Laws of the Legislature of the Province of Córdoba, 1952, Volume 32, p. 113.

23 G. Allende, Guillermo and O. Malvarez. “Poliomielitis anterior”, *Revista de la Facultad de Ciencias Médicas de la Universidad Nacional de Córdoba*, Año I, Marzo, Nro. 1, (1944), p. 4.

most notably the United States. This goes beyond mere reference: the article seems to be a perfect reproduction of knowledge produced elsewhere and lacks even a single mention of any clinical or statistical data. In etiological terms, it is clear that the authors have made the doubts expressed by foreign researchers their own. When discussing the progress of poliomyelitis as it relates to age, the authors “observe” that the disease is most fatal to patients between one and five years old, though this statement is not backed up by any analyses made locally or, for that matter, in any part of Argentina. They go on to assert that the incidence of the disease is increasing in older children, though they neither provide any locally sourced information about polio’s prevalence in this age group nor provide an explanation for this trend based on observations of epidemiologically significant behaviors. When discussing the disease’s epidemiology, they limit themselves to reproducing conjectures made by American doctors, such as “the fact that the clear majority of polio patients belong to this age group leads us to suspect a late acquisition of a spontaneous and endogenous immunity brought about by growth and perhaps by hormonal factors of a sexual nature.” They cite a similar cause when explaining why males predominate in polio’s patient group.²⁴

The section that discusses factors that contribute to the development of polio’s acute phase perhaps best demonstrates the privileged place that scientific studies originating from economically dominant countries occupy in this article. Since doctors in the United States had emphasized the significance of muscle fatigue and chills as contributing factors, the authors do, too. They illustrate this point by describing the treatment of “a beautiful twelve-year-old girl who had recently undertaken a vigorous gymnastics program in preparation for a dance class and had bathed in a public pool the day before she suffered her attack.”²⁵

A review of the authors’ research methods also suggests that they ignored their own experiences or any variables introduced by the local epidemiological environment. They avoid discussing or questioning why the number of polio cases in Córdoba had increased, sketching out an ambiguous argument by claiming that it was “logical to suppose, looking back to when cases were sporadic, compared to the more recent epidemics, that the germ has grown progressively more virulent or that the human organism has lost its immunity

24 Allende, Guillermo and O. Malvarez. “Poliomielitis anterior”, *Revista de la Facultad de Ciencias Médicas de la Universidad Nacional de Córdoba*, Año I, Marzo, Nro. 1, (1944), p. 6.

25 Allende, Guillermo and O. Malvarez. “Poliomielitis anterior”, *Revista de la Facultad de Ciencias Médicas de la Universidad Nacional de Córdoba*, Año I, Marzo, Nro. 1, (1944), p. 6.

against it.”²⁶ Of course, the authors neither conceptualize nor discuss the term “epidemic” and refer instead to American or European cases. In these places, however, polio was not discussed as a global phenomenon.

These authors employed similar types of strategies when they considered the way in which the virus spread. In a later paragraph, they link contagion with healthy carriers and ask if these individuals spread the disease directly or through some other vector. When considering this question, they refer only to studies carried out at Yale University which had succeeded in infecting monkeys using the papillae of flies taken from epidemic-stricken areas and in isolating the virus on the feet of flies and mosquitos.²⁷ As for the nosology and epidemiology of polio’s spread, they write that, “current thinking leads us to believe that the virus passes directly from the sick to the healthy. In a small number of cases, the fly acts as the principal intermediary: it carries the sick individual’s virus from his feces or waste, or from contaminated water, and infects another individual, either through direct contact or through the contamination of water, milk, vegetables, etc.”²⁸ However, despite this battery of conjectures, the authors do not venture to make any recommendations about prophylaxis: “We must note, unfortunately, that we do not possess the necessary means with which to effect a successful prophylaxis, since the virus’s point of entry remains unknown and we cannot determine which children are most susceptible to contagion by this disease.”²⁹

Another fundamental aspect of poliomyelitis emphasized by doctors of the time was the connection between social class and the incidence of infantile paralysis. It was originally believed that this disease affected wealthier populations and that the children of the poor were immune. Two professors who taught at the Facultad de Ciencias Médicas of the Universidad Nacional de Córdoba, Dr. González Alvarez and Pedro Luque, expanded upon this theme in an article they published in 1946 that they titled “Epidemiology and

26 Allende, Guillermo and O. Malvarez. “Poliomielitis anterior”, *Revista de la Facultad de Ciencias Médicas de la Universidad Nacional de Córdoba*, Año I, Marzo, Nro. 1, (1944), p. 7.

27 Allende, Guillermo and O. Malvarez. “Poliomielitis anterior”, *Revista de la Facultad de Ciencias Médicas de la Universidad Nacional de Córdoba*, Año I, Marzo, Nro. 1, (1944), p. 7.

28 Allende, Guillermo and O. Malvarez. “Poliomielitis anterior”, *Revista de la Facultad de Ciencias Médicas de la Universidad Nacional de Córdoba*, Año I, Marzo, Nro. 1, (1944), p. 8.

29 Allende, Guillermo and O. Malvarez. “Poliomielitis anterior”, *Revista de la Facultad de Ciencias Médicas de la Universidad Nacional de Córdoba*, Año I, Marzo, Nro. 1, (1944), p. 8.

Prophylaxis in Heine-Medin Disease.”³⁰ Despite its title, the authors of this article, like the authors of the one that was discussed previously, based their work on a series of studies that had been carried out abroad. The scientists they chose to discuss were again American or European, and often Swedish. In this case, the authors accepted as valid the conclusions drawn by epidemiological studies carried out by Lyon, Huntington, and Price, who had drawn nosological maps for the disease that showed that poliomyelitis was found predominantly in poor areas that lacked facilities for personal and public hygiene and in which flies were abundant.³¹ The article did not even mention the existence of the city of Córdoba or its social organization, though it did advance certain criticisms that grew out of preconceived notions about the inadequate hygienic habits of the working classes. It recommended the hospitalization of working-class children because it would allow doctors to study them in isolation, since “when it comes to children who come from working-class backgrounds, this step will allow them to receive therapeutic treatment, which might be decisive in the outcome of their cases.”³²

Poliomyelitis in the City of Córdoba: Toward an Affirmation of the Local

It might have taken a minor polio epidemic in 1949 and 1950 and another, more serious, epidemic in 1951 and 1952 to convince Córdoba’s scientists to begin epidemiological studies whose research drew on both knowledge about poliomyelitis that originated in better-developed countries and from their own experience of Córdoba’s situation. To this end, the *Revista de la Facultad de Ciencias Médicas* published a very interesting article by Dr. Luis Lezama titled “Infant Paralysis in the City of Córdoba” in 1953.

The level of epidemiological specificity that this article displays suggests a clear break from earlier works, which were clearly bibliographical in nature or were merely intended to systematize or recapitulate global findings about the disease. In contrast, this article uses local variables to explain the distribution

30 F.González Alvarez y P. Luque. “Epidemiología y Profilaxis de la enfermedad Heine Medin”, *Revista de la Facultad de Ciencias Médicas de la Universidad Nacional de Córdoba*, Año III, Octubre-Diciembre Nro. 4, (1946), p. 27.

31 F.González Alvarez y P. Luque. “Epidemiología y Profilaxis de la enfermedad Heine Medin”, *Revista de la Facultad de Ciencias Médicas de la Universidad Nacional de Córdoba*, Año III, Octubre-Diciembre Nro. 4, (1946), p. 27.

32 F.González Alvarez y P. Luque. “Epidemiología y Profilaxis de la enfermedad Heine Medin”, *Revista de la Facultad de Ciencias Médicas de la Universidad Nacional de Córdoba*, Año III, Octubre-Diciembre Nro. 4, (1946), p. 37.

of polio cases in Córdoba and the incidence of the disease among different social classes. It is even possible to argue, as we will, that this article went further: it moved an ongoing discussion about public sanitation, which had been a central issue for Argentina's doctors and politicians during that era, to center stage.

First of all, Dr. Lezama's article, which is based on clinical histories, is an excellent epidemiological study which breaks down poliomyelitis cases in the city of Córdoba by age and sex. In contrast with the aforementioned studies, the author uses these variables to develop an analysis in which he compares the information he collected with the experiences of doctors in other cities, such as Havana, Cuba, and in places like Florida and Connecticut.³³

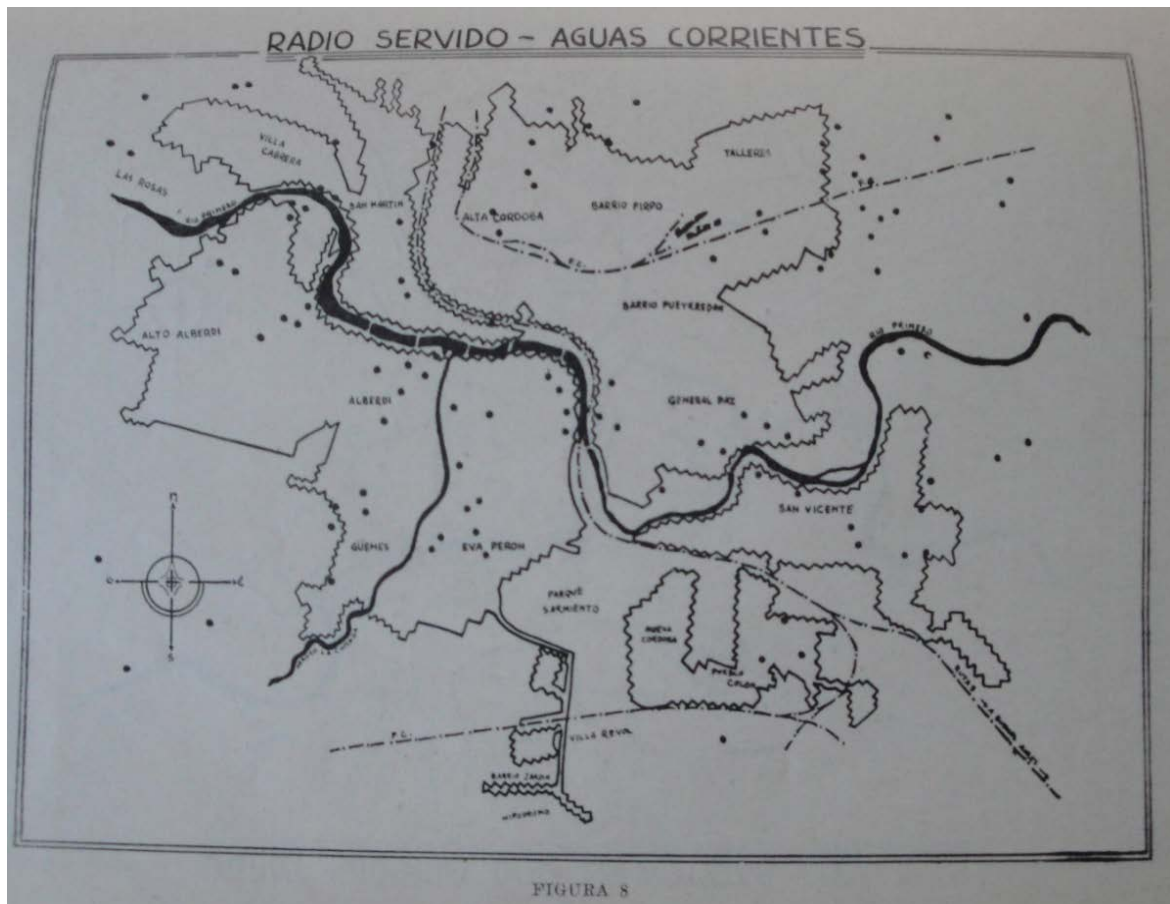
It is even more interesting to note that the doctor from Córdoba who wrote this article found important differences between what had taken place in Córdoba and what took place in these other locales. He determined, for example, that the children affected by poliomyelitis in Córdoba were, on average, younger than the children who had been affected by the disease elsewhere. Similarly, Dr. Lezama used the clinical histories of fifty local patients to reconstruct the symptoms they experienced during the epidemic of 1951–1952.³⁴ He used this information to develop a strikingly original analysis of the epidemiology of polio in the city of Córdoba. Specifically, working from the theory of oral and not aerosol contagion — a controversy which had already been discussed in other works, and particularly in the ones profiled above — the author drew a connection between the city's polio cases and the extent of its sewer and potable water services. His research was accompanied by maps that drew on his own research to illustrate the distribution of polio cases throughout the city and the city's own municipal maps, which illustrated the geographic extent of its sanitary services.³⁵ Dr. Lezama reached the following conclusion: "A higher rate of mortality is observed in zones that lack sewers and whose housing is served by cesspits, as can be observed in the city's

33 L.A. Lezama "La Parálisis infantil en la ciudad de Córdoba", *Revista de la Facultad de Ciencias Médicas de la Universidad Nacional de Córdoba*, Año XII, Julio-Septiembre Nro. 3, (1954). p. 293.

34 . A. Lezama "La Parálisis infantil en la ciudad de Córdoba", *Revista de la Facultad de Ciencias Médicas de la Universidad Nacional de Córdoba*, Año XII, Julio-Septiembre Nro. 3, (1954). p. 293.

35 . A. Lezama "La Parálisis infantil en la ciudad de Córdoba", *Revista de la Facultad de Ciencias Médicas de la Universidad Nacional de Córdoba*, Año XII, Julio-Septiembre Nro. 3, (1954). p. 293.

Map 1: Distribution of polio cases throughout the city of Córdoba's sanitary services



Source: Photograph of the map made by Dr. Lezama, Luis Alberto (1954): “La Parálisis infantil en la ciudad de Córdoba”, *Revista de la Facultad de Ciencias Médicas de la Universidad Nacional de Córdoba*, Año XII, Julio-Septiembre Nro. 3, Córdoba, Argentina.

eastern and southeastern neighborhoods, which are densely populated areas that lack sewers.”³⁶

When this article’s findings are considered using its own investigative standards, we find that its own research does not establish a connection between the availability of potable water and polio cases in the city of Córdoba. We should note, however, that the doctor who compiled this report did so using clinical histories belonging to the Traumatology and Orthopedics department of the Hospital de Niños, which worked in cooperation with the Universidad Nacional de Córdoba’s nursing school, its Kinesiology and Rehabilitation department, and the chairs of Traumatology and Orthopedics

³⁶ Lezama, Luis Alberto (1954): “La Parálisis infantil en la ciudad de Córdoba”, *Revista de la Facultad de Ciencias Médicas de la Universidad Nacional de Córdoba*, Año XII, Julio-Septiembre Nro. 3, Córdoba, Argentina, pp. 301–302.

Map 2: Incidences of polio with the distribution of running water and sewage services in the city of Córdoba



Source: Photograph of the map elaborated by Dr. Lezama, Luis Alberto (1954): “La Parálisis infantil en la ciudad de Córdoba”, *Revista de la Facultad de Ciencias Médicas de*

attached to its medical school. In 1953, the Hospital de Niños was the only institution equipped with these resources in Argentina’s north and north-central regions and so received poliomyelitis patients from a very significant portion of Argentina’s territory. However, the author’s decision to relate incidences of polio with the distribution of running water and sewage services in the city of Córdoba attempted to remedy a potentially distortive aspect of the disease’s mortality statistics by discounting cases that originated in the country’s other regions.³⁷

While this article presented an exhaustive year-by-year analysis of polio-related deaths in the city of Córdoba from 1943 to 1952, it followed the lead of various hypotheses posited by American scientists and considered the ages at which patients in Córdoba had been affected by the disease, their races, the socioeconomic profile of the disease, and the area’s sanitary conditions. While we cannot definitively claim that this sort of research might have constituted part of an independent effort to increase the sum total of knowledge related to

37 A. Lezama “La Parálisis infantil en la ciudad de Córdoba”, *Revista de la Facultad de Ciencias Médicas de la Universidad Nacional de Córdoba*, Año XII, Julio-Septiembre Nro. 3, (1954). p. 310.

poliomyelitis, the question of whether this investigation constitutes the beginning of an autochthonous scientific culture remains open.

While the influence of European medical science on Argentina's medical sciences³⁸ and on the medical science developed in Córdoba is undeniable, and the processes of knowledge appropriation that can be seen to occur in Dr. Lezama's article make reference to scientific advancements made elsewhere. However, the article also puts local processes of reception and resignification into play. In this sense, we would argue both what is appropriated, in terms of knowledge, and the process of appropriation itself should be considered part of a dynamic process that mediates between information's initial reception and its subsequent diffusion in the local community.

Doctors, in effect, set a certain threshold that defined the epidemiology of infantile paralysis not in terms of any internationally recognized body of knowledge about poliomyelitis but in terms of the concepts and notions that shaped Argentina's thinking about the condition. From a medical point of view, the events that took place in Córdoba in 1951–2 were comparable to events that had occurred in New York in 1944, London in 1947, and in Berlin. If one uses the term as it was understood by the international standards that governed treatment of the disease, they constituted an epidemic.

The article under discussion analyzed data from the city of Córdoba and attempted to understand and analyze cases of poliomyelitis as they related to a number of factors. It then used information gleaned about these cases to raise awareness about the disease and to advocate for the declaration of a state of emergency. According to the standard that Dr. Lezama employed, an epidemic was thought to exist when the amount of cases recorded rose above the level of twenty per hundred thousand inhabitants: by 1951, the rate of infection was seven percent higher than what was considered epidemic level.³⁹

During those years, such a declaration was no minor matter. The same year that Dr. Lezama's article was published, the state organism in charge of Argentina's hygienic standards, which was quite aware of the increase in the country's polio cases, referred to them as part of a "global epidemic wave." The government, however, was so determined remain uninvolved that at a press conference held on April 2nd, 1953, Argentina's health minister — going against the health standards used by Dr. Lezama — underlined his contention that the cases of poliomyelitis that had been reported in Córdoba did not

38 J. Buschini. "Una carrera profesional con espacio para la ciencia en la Argentina de la primera mitad del siglo XX: Ángel Roffo y la cancerología experimental", *Quipu*, vol. 14, núm. 2, (2012). pp. 267–293.

39 A. Lezama "La Parálisis infantil en la ciudad de Córdoba", *Revista de la Facultad de Ciencias Médicas de la Universidad Nacional de Córdoba*, Año XII, Julio-Septiembre Nro. 3, (1954). p 305.

constitute an epidemic, since the rate did not reach one case per every ten thousand inhabitants.⁴⁰ As has often happened throughout the history of Argentine public health, the “public’s psychosis” was blamed on doctors who, armed with uncertain estimates, facilitated the spreading of “unfounded rumors.”⁴¹ Of course, in this case, it was an Argentine doctor who was responding to a health issue with well-founded scientific arguments, made after conducting an investigation that sought to engage with both local perspectives and knowledge produced abroad. The doctor in question was also arguing that poliomyelitis was not just a medical problem, but, in the context of increasing mortality, a political one.

Conclusions

Our article is only an initial approach to the issues surrounding the accumulated knowledge about poliomyelitis’s nosology and epidemiology as they relate to a series of events that took place in Argentina’s interior. Still, we believe it provides an opening into a number of questions that deserve more thorough investigation. The most significant of these questions refers to the complex interactions that took place between science and politics and between internationally recognized scientists and those native to Argentina and to Córdoba. It also calls into question the decisions taken and the viewpoints assumed by an exclusive medical elite that, even today, has succeeded in establishing a cognitive monopoly that successfully resists the pressures exerted upon it by both society and confers upon itself an air of legitimacy in the eyes of its fellow professionals.

Scientific logic itself leads us to conclude that the esteem with which the articles analyzed above that date from 1944 and 1946 viewed scientific developments made in Europe and North America refer to power dynamics and the transmission of knowledge from powerful countries to so-called peripheral jurisdictions. This article does not engage these questions directly, but, when considering these dynamics, it should be understood that scientific knowledge is not necessarily universal in character: it is produced through

40 K. Ramaciotti. *Las políticas sanitarias del primer peronismo: ideas, tensiones y prácticas*. Thesis defended at the Facultad de Ciencias Sociales de la Universidad de Buenos Aires, (Buenos Aires, 2008). p. 203.

41 K. Ramaciotti. *Las políticas sanitarias del primer peronismo: ideas, tensiones y prácticas*. Thesis defended at the Facultad de Ciencias Sociales de la Universidad de Buenos Aires, (Buenos Aires, 2008). p. 203.

local means, and its “universalization” is largely a project of power.⁴² The relatively brief period of time that elapsed between the publishing of the articles examined in this report — two of which were published in the nineteen forties, and the last of which was published in 1953 — should remind us of the importance of investigating the local social variables particular to each environment. We have attempted in this article to show that one need not always search for a political shift to explain the differences that appear between one historical moment and another. Rather, we believe that it could be argued that we have observed a shift in the agenda of Córdoba’s leading doctors, who would later show themselves to be more receptive to poliomyelitis research as the city’s number of poliomyelitis cases rose. At first, Córdoba’s leading doctors barely seemed to recognize poliomyelitis as an investigative priority. They were later to reject this view and to join an investigative tradition that was then being developed in the province, one that was based in local epidemiological concerns. While their work did not contradict the universal practices or cognitive models that were being constructed and diffused at this time, the new spaces that were opened up after the polio outbreaks of 1949–1950 and 1951–2 seem to have been ideal environments for the construction of scientific research practices informed by both an international body of knowledge about poliomyelitis and by issues relevant to the city of Córdoba.

As we have previously suggested, we believe that the path taken by medicine as it developed in Córdoba both caused notable disruptions in the medical field in regards to the treatment of polio and questioned the legitimacy of larger, politically hegemonic structures. The exploratory character of this article implies limitations: these did not permit us to deepen our study of the dynamics we have described here. This article has, however, enabled us to highlight some historical evidence and make some general conjectures that allow for a deeper understanding of Córdoba’s experience and the complex relationships that create tension, not only on the local level, but also in national and perhaps even international contexts. In our opinion, it is important to carefully examine the way that these relationships are understood in both epidemiological and power-oriented political contexts.

Dr. *Adrián Carbonetti* is associate professor of the “Centro de Estudios Avanzados”, National University of Córdoba. Main Researcher at the “Consejo Nacional de Investigaciones Científicas y Técnicas” in Argentina.

42 D. Hurtado de Mendoza. *La Ciencia Argentina. Un proyecto inconcluso: 1930–2000*, Edhasa, (Buenos Aires, 2010). p. 23.

Dr. *Lila Aizenberg* is post-doctoral fellow at the “Consejo Nacional de Investigaciones Científicas y Técnicas” in Argentina.

Dr. *María Laura Rodríguez* is assistant professor of the History Department, National University of Córdoba. Research Assistant at the “Consejo Nacional de Investigaciones Científicas y Técnicas” in Argentina.

References

- Allende, G. and Malvarez, O., “Poliomielitis anterior”, *Revista de la Facultad de Ciencias Médicas de la Universidad Nacional de Córdoba*, Año I, Marzo, Nro. 1, (Córdoba, 1944).
- Ansaldi, W., *Industria y urbanización, Córdoba, 1880–1913*, Universidad Nacional de Córdoba, Mimeo, Tesis Doctoral, (Córdoba, 1977).
- Arce, H., *El territorio de las decisiones sanitarias*, Ed. H. Macchi, (Buenos Aires, 1993).
- Armus, D., “Los médicos, profesiones, poder y prestigio”, *Cuadernos de Historia*, Popular Argentina, CEAL, (Buenos Aires, 1981).
- Buschini, J., “Una carrera profesional con espacio para la ciencia en la Argentina de la primera mitad del siglo XX: Ángel Roffo y la cancerología experimental”, en *Quipu*, vol. 14, núm. 2, (2012).
- Canguilhem, G., “O Objeto da Historia das Ciencias, in: Carrilho, M M (org.) *Epistemologia: posições e críticas*, Fundação Gulbenkian. (Lisboa: 1991).
- Carbonetti, A., “El sistema sanitario en la provincia de Córdoba, 1880–1926”, *Dynamis*, vol. 25, (2005).
- Capponi, S., “Epistomologia, historia de las ciencias y saber médico”, *Episteme*, v. 11, Nro. 23. (2006)
- Collection of Laws of the Legislature of the Province of Córdoba, 1952
- Dadone, A., “Cien de la industrialización en Córdoba 1873–1973”, *Revista de Economía Banco de la provincia de Córdoba*, n ° 24, (Córdoba 1974).
- Ferrante, P., “Rengueando el estigma: Modos de ser, pensar y sentir (se) discapacitado construidos desde la práctica deportiva adaptada”, *RBSE*, 9(27), (2010).
- González Alvarez, F., and Luque, P., “Epidemiología y Profilaxis de la enfermedad Heine Medin”, *Revista de la Facultad de Ciencias Médicas de la Universidad Nacional de Córdoba*, Año III, Octubre-Diciembre Nro. 4, (Córdoba, 1946).
- Hurtado de Mendoza, D., *La Ciencia Argentina. Un proyecto inconcluso: 1930–2000*, Edhasa. (Buenos Aires, 2010)
- Quintero Toro, C., “¿En qué anda la historia de la ciencia y el imperialismo? Saberes locales, dinámicas coloniales y el papel de los Estados Unidos en la ciencia en el siglo XX”, *Historia Crítica*, Nro. 31, (2006).
- Koyre, A., *Estudios de historia del pensamiento científico*, Editorial Siglo Veintiuno, (México, 1982).
- Lezama, L.A., “La Parálisis infantil en la ciudad de Córdoba”, *Revista de la Facultad de Ciencias Médicas de la Universidad Nacional de Córdoba*, Año XII, Julio-Septiembre Nro. 3, (Córdoba, 1954).

- Rodriguez, M.L., *Perspectivas en torno a la consolidación de la elite médica de Córdoba. Epidemias y Estado, 1878–1923*. Tesis de Licenciatura en Historia. Universidad Nacional de Córdoba, (Córdoba, 2006).
- Rodriguez M.L., *La medicalización de la ciudad de Córdoba en tiempos epidémicos: conceptos, saberes e intervenciones 1878–1927*. Editorial de la Municipalidad de Córdoba. (Córdoba, 2011),
- Ramaciotti, K., *Las políticas sanitarias del primer peronismo: ideas, tensiones y prácticas*. Tesis defendida en la Facultad de Ciencias Sociales de la Universidad de Buenos Aires. (Buenos Aires, 2008),
- Report of the Dirección General de Estadística Censos e Investigación*, Ministerio de Hacienda, Economía y Previsión Social de la Provincia de Córdoba, 1944–1948. Published in 1953.
- Report of the Dirección General de Estadística Censos e Investigación*, Ministerio de Hacienda, Economía y Previsión Social de la Provincia de Córdoba, 1949–1951. Published in 1953.
- Rosenberg, C., “Disease in History: Frames and Framers, *The Milkbank Quarterly*, 67, Suppl. 1. (1989).
- Testa, D., “Poliomielitis: la “herencia maldita” y la esperanza de la rehabilitación. La epidemia de 1956 en la Ciudad de Buenos Aires. *Intersticios*, Vol. 5 (2). (2011).
- Vessuri, H., “El crecimiento de una comunidad científica en argentina”, *Cad.Hist.Fil.Ci., Campinas*; Serie 3, V 5, Nro. Especial. (1995)

History of a Strategy to Eradicate Poliomyelitis in Uruguay and Argentina¹

Adriana Alvarez

Introduction

The outbreak of poliomyelitis in the early 1950s turned it into one of the most feared diseases in the twentieth century. The resulting deaths and the thousands of children and adults who were handicapped world-wide made it a real threat which was only controlled with the introduction of the vaccines developed by Jonas Salk and Albert Sabin.

This paper addresses the different health policies applied on both banks of the River Plate, starting in the 1950s. Soon after that, several Latin American countries, among which were Argentina and Uruguay, started oral vaccination programs. This paper attempts to answer questions related to the characteristics of the vaccination programs in each of the two countries and their relation to the degree in which the disease affected each of them. It is part of a more extensive research project dealing with the social, political and cultural consequences of the polio epidemics in twentieth-century Argentina with a view to understanding what happened in order to explain the present Post-Polio Syndrome (PPS).

Research has helped to reveal that the original project had to be reviewed since, unlike other pathologies, poliomyelitis shared similar events and circumstances in several Latin American countries, at least up to mid-twentieth century, and so it was necessary to connect the processes. Although Latin American countries have generally shown great progress in consolidating the history of health and disease, in the current research there is a tendency to prioritize regional and/or local aspects, thus losing sight of the contexts within which the processes developed.

Less than a decade ago, Serge Gruzinski supported the idea that the historian should have a broader vision of history, beyond the nation, and proposed that ‘connections’² since histories are multiple, plural, are connected among each other and can intercommunicate.

1 Translated by Cecilia Chapman.

2 Gruzinski Serge “Les mondes mêlés de la Monarchie catholique et autres connected histories”. *Annales: Histoire, Sciences Sociales* 56 (2001), 85–117.

The 2006 publication in the American Historical Review magazine has been particularly stimulating to this paper, because it presents the idea that transnational history is not closed to any particular methodological viewpoint. Political history can be transnational, as can be cultural history, entrepreneurial history or the history of health and disease, since the emphasis is on observing the objects of research keeping an open mind regarding different methodological preferences and problems, and highlighting networks, processes, beliefs and institutions beyond the national sphere.

According to Isabel Hofmeyr, the key to understanding transnational history is its central concern with movements and circulations. Topics considered for transnational history are connected especially to social and/or political diaspora, to movements of groups of goods or people. I would add to this list pests and epidemics, such as that of poliomyelitis, which spread on both banks of the River Plate regardless of political boundaries.

This perspective led to the rise of several questions concerning the development of polio in countries neighboring Argentina, the answers to which might shed more light on the explanations arrived at in the national sphere. On this occasion, the vaccination campaigns in Argentina and Uruguay in the 1950s and 1960s will be dealt with, since they were the necessary previous steps to the eradication of polio some decades later.

Argentina and Uruguay, thanks to their geographical vicinity basically in the area of the River Plate, which outlines a border extending some 500 kilometers, are countries whose destinies have been intertwined since their origins. Although their sizes are different, both regarding geographical extension and demography, Uruguay shares the same climate and soil as that of the Argentine pampa area.

Map 1. Border between Argentina and Uruguay.



It is possible that their shared origin or the geographical vicinity can explain common patterns in political and health-policy development, as well as some differences stemming from the different realities each of these two countries had and have. The epidemiologic scenario must be understood within this frame.

When Smiles Faded

Both Argentina and Uruguay were considered prosperous and modern countries within Latin America, with open economies based on farming, which around mid-twentieth century sought to strengthen their industries by substituting local for imported goods. On the other hand, both states had achieved an epidemiological transition which had mostly controlled infectious diseases, leaving the stage to circulatory, cardiovascular and other diseases. This was the result of multiple causes such as sanitary and economic improvements, new social practices and others. From a broader perspective it could be said that the states reached this stage with the development of the welfare state.³ However, the first slump in infant mortality in Uruguay goes back to the first decade of the twentieth century when it reached the lowest rates for the times, only matched by Norway and Sweden, and it takes place during the start and consolidation of Batlle's welfare model.⁴ Likewise, the persistence of high infant mortality rates in the Argentine hinterland in the mid-twentieth century leads to the consideration that, leaving aside the perceptions of the time, those "Welfare States" showed inconsistencies which were put to the test with the appearance of the polio epidemics, revealing that the actions the state took were ineffective.

Both Argentina and Uruguay had experienced sporadic outbursts of polio⁵ since the start of the twentieth century⁶ but it was only in the 1950s that the disease struck a large number of people, causing fear among the population at large.

3 Pellegrino, Adela. 2003. *Caracterización demográfica del Uruguay*. Montevideo. UNFPA-Facultad de Ciencias Sociales-Universidad de la República, Uruguay.

4 Birn, A.E., W. Cabella and R. Pollero. 2005. "La mortalidad infantil uruguaya en la primera mitad del siglo XX: un análisis por causas del pasado al presente." In *VII Jornadas Argentinas de Estudios de Población (Asociación de Estudios de Población de la Argentina)*, 2003, I: 37–154, Universidad Nacional de Tucumán. Taí del Valle. Tucumán. On this topic also see Birn, A.E., R. Pollero and W. Cabella. 2003. "No se debe llorar sobre leche derramada. El Pensamiento Epidemiológico y la Mortalidad Infantil en Uruguay, 1900–1940." *Estudios Interdisciplinarios de América Latina y el Caribe* 1(1) 35–65.

5 The etiologic agent, a virus which spreads through contact with feces, was known since the thirties of the previous century, but its control was unknown.

6 Alvarez Adriana "El impacto de los brotes de poliomielitis en las formas de organización ciudadana (Buenos Aires)" *Revista de Historia de la medicina y epistemología médica* vol .V – N 1-1 semestre de 2013 (ISSN 1852-6152, 2013).

The alarm was raised in the 1940s by the international events reflected in the main Uruguayan and Argentine newspapers, which portrayed the interest in and astonishment caused by the intensification of the disease in countries such as the United States and Canada, as well as by the local cases, which were increasing in number. Thus, by the 1940s polio was a health problem in both Argentina and Uruguay.

The following table shows that from the mid-1940s, polio had a variable but steady presence both in Argentina and in Uruguay, with Argentina showing a rise between 1945 and 1949 while Uruguay shows a fall in cases, even though the most serious epidemics took place in the following decade.

Table 1. Number of reported cases of poliomyelitis with rates per 100,000 inhabitants in Argentina and Uruguay, from 1945 to 1949

| YEAR | ARGENTINA | URUGUAY |
|------|-----------|---------|
| 1945 | 2,5 | 8 |
| 1946 | 4,2 | 2,6 |
| 1947 | 2,9 | 5,6 |
| 1948 | 3,4 | 0,4 |
| 1949 | 6,6 | 0,9 |

Sources: Obtained from the Boletín de la Oficina Panamericana Año 34, vol. XXXVIII, Junio 1955, n 6

Children were at risk of dying or suffering the consequences of infantile paralysis. In Uruguay, during the period between July 1950 and June 30 1954 there were 248 reported cases of polio, according to the official records of the Ministry of Public Health. However, in the twelve following months, from July 10, 1954 to June 30, 1955, there were 550 reported cases which, in a country of 2.6 million inhabitants, constituted a serious epidemic, with an attack rate of 21 out of every 100,000 inhabitants.⁷ In the case of Argentina, the 1950s had started with only isolated cases in the city of Buenos Aires and the province of Santa Fe. In 1953 these figures shot up, affecting 2579 people, of which 1,300 belonged to Buenos Aires, followed in quantity by the provinces of Santa Fe, Tucumán and Córdoba. In the face of this situation, the provincial governments also responded and in the province of Santa Fe, a Commission for the Defense against and Prevention of Poliomyelitis was

7 Leunda, J. J., and others: Mass vaccination program with live, attenuated poliomyelitis virus in Montevideo, Uruguay. Live Poliovirus Vaccines: Papers Presented and Discussions Held at the First International Conference on Live Poliovirus Vaccines, Organización Panamericana de la Salud, Publicación Científica N° 44, Washington D.C., 1959, pp 638–646.

created to organize the fight against the disease in the face of the outbreak in the city of Rosario. Medical and political concern for the consequences of this disease did not lie so much on the death rate (179 deceased) as on the disabilities it produced (1316 handicapped victims) in the younger members of the population. Seventy-one percent of patients were children between zero and four years of age.⁸ Cases began to be reported by the press in the month of January, and the number of infected victims rose. Up to then and until the appearance of the vaccine in 1955, measures were only palliative.

Some report says that:

...cleaning tasks were organized in towns and cities, triggered by the belief that the virus was 'in the air'. Neighbors chose spontaneously to clean up vacant lots and weed out gardens. Houses smelled of bleach and phenol, and camphor bags emerged from children's clothes, emitting their typical pungent smell... Any method or suggestion was adopted with alacrity to prevent contagion. It was common to see whitewashed walls and trees, which gave them a ghostly appearance. White bands on tree trunks were in place for many years, even when the epidemics had been forgotten thanks to the compulsory vaccination programs ..."⁹

Such testimonies show that both countries lacked resources and health policies to face the outbreak of the disease, among other reasons because, in spite of the concern with which cases in other countries were viewed, the lack of serious local epidemic outbreaks meant that there were no plans for any assistance network to combat them. On both sides of the River Plate, during the years when the epidemic struck, specific spaces had to be improvised such as wards in hospitals or emergency rooms in neighborhoods. This absence of previous planning was criticized by the government opposition groups, since on both banks of the River Plate critics referred to the "political paralysis" exhibited by the governments of the two countries when dealing with the outbreaks of polio.

Infantile Paralysis and Political Paralysis. Years of Confusion

Which were the health models applied in Argentina and Uruguay in the years prior to the great polio epidemics? As mentioned before, from the start of the twentieth

8 In April 1949 there had been one case of infantile paralysis in the city of Buenos Aires, informed by the Ministry of Public Health on 21 April 1949. Memoria. Op.cit.: 312. Between the months of April and July 1951 there were cases of polio in the city of Buenos Aires and in the Province of Santa Fe. See Resolución N° 36.181, 5 July 1951 in Memoria. Op. cit: 405.

9 Interview to María Angelina Sánchez, affected by the 1956 polio epidemics. Diario Clarin 27/7/2013 http://www.clarin.com/sociedad/epidemia-polio-marco-siempre_0_959304181.html

century “infantile paralysis” was known in both banks of the River Plate, which means that by mid-century it was not an unknown disease either to doctors or to society at large. However, the outbreak was regarded with fear, surprise and puzzlement, as it took place at a time when the government, within a welfare state frame, had taken great health improvement measures in both countries.

Uruguay pioneered (with respect to Argentina) in adopting health reforms, based on a centralizing action of the state through the creation, in 1934, of the Ministry of Public Health, which unified the National Hygiene Council (a regulatory body) and the National Public Assistance (a health-care body).¹⁰ The new Ministry centralized health policies and was the sole organizing body for the whole of the Uruguayan territory. Among its functions was the control of plagues and epidemics and the prevention of diseases.¹¹ This initiative was the result of the concentration of power carried out by the Terra regime (1933–1938)¹² within the framework of the 1934 Constitutional Reform which attempted the “foundation of the Third Republic.” This was a moderately conservative movement but it carried out important innovations such as the Food Institute, the Housing Institute, the reorganization of Public Health and the promotion of the Children’s Code.¹³

Subsequently, during the neo-Batlle period (roughly between 1940 and 1960) there were a series of important institutional transformations such as the changes in the etiological models which organized the field of health knowledge, the institutional changes such as the emergence of new organizational spaces in health care, the training of new health agents under the strong influence of international agencies in the consolidation of management models and in the role of the different categories of professionals in health care.¹⁴ Thus, the creation of public health policies, together with the signing of several international agreements in the field of health care and prevention, led to the creation of many health centers. Their origin can be found in a context of development in Uruguay of health-care preventive strategies and in the consolidation of international agreements both bilateral and with multilateral agencies. The health centers were defined as spheres institutionally devoted to the prevention of disease and the promotion of health care and must be located within a pan-American post-war strategy under the hegemony of the United

10 Portillo, José. “Historia de la medicina estatal en Uruguay (1724–1930)”. *Rev Med Uruguay* 1995, 11:5–18

11 Margolis, E., N. Piazza. *Organización de la atención médica en el Uruguay*. Montevideo. Nordan, 1989.

12 Gabriel Terra was elected to the Presidency of Uruguay for the period 1934–1938.

13 The presidents during this period were Alfredo Baldomir (1938–1943), Juan José Amezaga (1943–1947) and Luis Batlle (1947–1958)

14 Ortega, Elizabeth; Mitiavila, Myriam Raquel. Preventismo sanitaria y la institucionalización del Trabajo Social en el Uruguay neobatllista: una indagación genealógica. *Revista Katálysis*, vol. 8, núm. 2, Julio-diciembre 2005, pp. 211–224. Universidade Federal de Santa Catarina, Santa Catarina, Brasil.

States and parallel to the creation of international agencies which became essential in developing key programs.¹⁵ In spite of all this, as will be seen below, this new State-monitored sanitary map was incapable of either containing the poliomyelitis outbreaks which struck Uruguay or of coping with their after-effects. Rehabilitation of victims suffering from after-effects of polio was carried out, as also happened in Argentina, by physicians who had had training in United States hospitals and had become acquainted with the so-called Rehabilitation Centers, which were built locally thanks to community volunteer work. In Uruguay, the Recovery Center for Handicapped Children was founded by Dr. Ricardo Cariat Larrar not as part of a state policy but as part of a citizen project.

Argentina created the Ministry of Health after the Constitutional Reform of 1949 and the 13,259 Ministry Law, that is, belatedly with respect to Uruguay. The State's role regarding health was divided into three distinct branches: medical attention, sanitary medicine and social medicine. A structure of geographical de-centralization was built within these fields of work and the country was divided into regional centers which, due to the physical characteristics of Argentina (size and communications networks) sought action coordinated with a greater field of autonomy in the operational headquarters.

A national program of hospital building, as established by Law 13,019, was carried out together with the regional organization, as part of the National Health Plan¹⁶ which in turn was included in the First Five-Year Plan which Peronism enthroned in its quest to consolidate the image of a central State, and with some characteristics similar to those stated for Uruguay.

In between Political Crises and Poliomyelitis Outbreaks

In mid-twentieth century, Juan Domingo Perón, in Argentina, and Luis Batlle Berres, in Uruguay, were responsible for setting up a strong central State, controlling not only economic aspects but also social ones, and both gave a leading role to working sectors. Public policies in general and health care policies in particular were the offspring of this model of state embodied by both Perón and Batlle.

15 Ortega, Elizabeth; Mitiavila; Myriam Raquel. Preventivismo sanitarista y la institucionalización del Trabajo Social en el Uruguay neobatllista: una indagación genealógica. *Revista Katálisis*, vol. 8, núm.2, Julio-diciembre 2005, pp. 211–224. Universidade Federal de Santa Catarina. Santa Catarina, Brasil, p. 214.

16 ORGANIZACION SANITARIA PANAMERICANA. Decimotercera Conferencia Sanitaria Panamericana. Comité Regional. Organización Mundial de la Salud. Ciudad Trujillo, República Dominicana. Octubre 1–10 de 1960. Publicación N° 261 Anexo °, Septiembre, 1952. Oficina Regional de la Organización Mundial de la Salud. Washington D.C., E.U.A.

The great outbreaks of poliomyelitis tarnished or blurred the plans previously outlined and served to feed the political crises suffered by Peronism in 1955 and by Batllism three years later.

The onset of polio in Argentina, during the heyday of Peronism, alternated from a 10.6 rate in 1943 to a low rate of between 3.0 and 5.0 cases every 100,000 inhabitants, without any particular action being taken to bring the rate down. But in 1953 there were a total of 2,579 cases, which constituted a rate of 14.0 per 100,000 inhabitants. The two following years saw rates of between 2.0 and 4.0, which brought some relief to the authorities, who were accused by the opposition of suffering from political paralysis on account of the absence of reaction they showed in the face of the disease. In fact, although hospitals had enough beds for polio patients, technical and human resources were scarce and it took a long time for the government to bring them together in specific, specialized spaces, at least within the frame of the State agencies. This is why the year 1943 saw the creation of ALPI, the association against infantile paralysis, founded by Dr. Marcelo J. Fitte. This was the sole private clinic which treated patients with motor disabilities and with polio handicaps entirely for free, thanks to community aid exclusively.

In mid-twentieth century and as a consequence of the worsening of the polio outbreaks both in Argentina and Uruguay, comprehensive rehabilitations centers arose to cater to the need for recovery of the after-effects of polio. These institutions were directly linked to the rehabilitation boom which began in the post-World War II period, spurred by the outbreaks of the 1940s and 1950s.¹⁷ By that time, some physicians considered that rehabilitation in the case of polio was not a therapeutic technique but rather “a group of methods that allowed the lessening of all kinds of alterations in movement – handicapped patients to ease their integration or re-insertion into social life”.¹⁸

But while these therapeutic changes were introduced, in 1955 and a few months after the military coup that ousted Argentina President Juan Domingo Perón, the Salk vaccine was introduced. Developed by Dr. Jonas Salk, this vaccine introduced a small amount of the virus into the body, which later developed antibodies and an ability to combat the more powerful strains of the disease. Its appearance generated an atmosphere of confidence and the purchase of consignments was announced while different publications and conferences served the purpose of spreading the importance of the vaccine. However, both in Argentina and in Uruguay, the worst was yet to come.

17 A. Amate, A. Vazquez. Evolución del concepto de discapacidad. Discapacidad, Lo que todos demos saber. Organización Panamericana De la Salud, Publicación Científica y Técnica N° 616, 3–7.

18 Bravo E. Cuestiones médicas y sociales que plantea la organización de un Centro de Rehabilitación de niños afectos de enfermedad motriz. Madrid: Servicios de Protección Maternal e Infantil, Dirección General de Sanidad; 1958.

In 1954, Uruguay suffered 85 cases (a rate of 3.3 per 100,000 inhabitants), most at the end of the year, in December, and the number of cases rose in early 1955.¹⁹ The 28 cases reported in December 1954 had doubled by January 1955 until a high was reached in March: 211 cases. Out of a total number of 524 cases in that outbreak, 255 cases belonged to Montevideo (the capital of Uruguay) and 269 to the Departments. The highest sickness rate was in infancy (44.4% under the age of three).²⁰

Where did the outbreak originate? Judging by the existing records, the first cases did not appear in the capital city but in the locality of San José, which, as can be seen in the period map, lies close to the Uruguayan capital of Montevideo.

Map 2. Distribution of poliomyelitis cases in different areas of Uruguay, December 1954 – May 1955

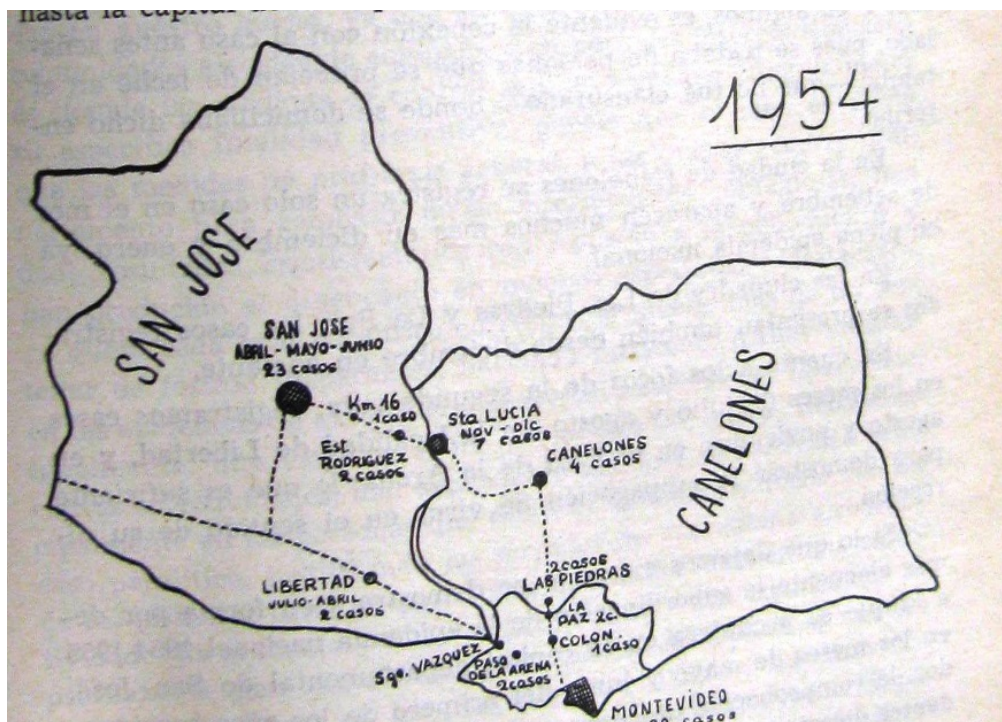


Source: Gómez Malaret, Simón and Osvaldo Luzardo, Poliomyelitis: Epidemia de 1954–1955 in: Archivos de Pediatría del Uruguay, Año XXVII, Agosto de 1956, n 8 p. 512.

¹⁹ Gómez Malaret, Simón and Osvaldo Luzardo. Poliomyelitis. Epidemia de 1954–1955 in: Archivos de Pediatría del Uruguay, Año XXVII, Agosto de 1956, n 8, p.512.

²⁰ Gómez Malaret, Simón and Osvaldo Luzardo. Poliomyelitis. Epidemia de 1954–1955 in: Archivos de Pediatría del Uruguay, Año XXVII, Agosto de 1956, n 8, p. 510.

Map 3. Poliomyelitis cases in San José, Canelones and Montevideo



Source: Gómez Malaret, Simón and Osvaldo Luzardo, Poliomieltis: Epidemia de 1954–1955 in: Archivos de Pediatría del Uruguay, Año XXVII, Agosto de 1956 , nº 8 p. 512.

Transmission was effected by “...people coming directly from San Joséto Montevideo...spreading contagion to other localities” because...it has greater communication with each one of the Departments...” as can be seen in the following chart.

This time, the State did not react, did not establish sanitary containment lines to prevent the disease from spreading from one locality to the next. Considering that the cycle began in rural communities and that it was detected in its early stage (the cases were reported immediately), the rural communities or its sick members could have been placed in isolation to prevent contact between affected and healthy communities. What is worse, there were double cases in family groups²¹ since at that time there was little if no chance of getting the Salk vaccine, measures were basically palliative and were based on passive preventive treatment through the use of gamma globuline shots. The problem was that they were administered too late (“...they use was delayed...”) since it was prescribed for domestic contacts to prevent contagion within the households.

The rate of incidence of the disease was of 25 cases every 100,000 inhabitants in Montevideo; 178 cases every 100,000 inhabitants in the countryside and 20 cases out of 100,000 in the country at large. Clearly, the countryside was struck hardest. In

21 Gómez Malaret, Simon and Osvaldo Luzardo. Poliomieltis: Epidemia de 1954–1955, in: Archivos de Pediatría del Uruguay, Año XXVII, Agosto de 1956, n 8, p. 512.

1956 there was a drop in the disease which "...a total of 71 cases of poliomyelitis a recorded, 18 of which belong to the capital and 63 to the rest of the country..."²² It was precisely in that year that, as we shall see below, vaccination with inactive virus of the Salk type, was begun.

It is a unique case that, according to the Medical Records "...in Uruguay the greatest tribute to the disease lies with the less benefitted classes of society, unlike as allegedly happens in other countries. Sixty percent of the cases fall within the regular bad classification and forty percent to good very good..."²³ This has a bearing with what has been explained above: the countryside was struck hardest and had few health care resources.

What was going on in the borders of Uruguay? In the last months of 1955, in an Argentina which had ousted Peronism from power, there were 435 cases, which meant a rate of 2.3 every 100,000 inhabitants,²⁴ reported by the press and denied by the new authorities, who had in the past condemned the previous government for denying the appearance of the disease. The following year, under the *de facto* government of Pedro Eugenio Aramburu, the figure grew to 6,496 cases, or a rate of 33.3 cases every 100,000 inhabitants.²⁵

....During a span of around two months, the health authorities, while admitting the existence of cases, denied that it was an epidemic and sought to ease the concern caused by alarmist reports which exaggerated the situation and produced great anxiety in those household where there were children. At last, seeing the gravity of the disease and the repetition of medical statements to the effect that there were more than fifty cases per day, the Government finally admitted that there was an epidemic...²⁶.

The foreign and national press reported the situation, stating that the first cases arose in the area of Greater Buenos Aires, causing "...true alarm in the country..."²⁷ due to the extension of and death rate produced by the outbreak.

22 Luzardo, Osvaldo. Epidemiología de la poliomiélitis en Uruguay. Posteriormente a la epidemia nacional 1954–1955...in: Archivos de Pediatría del Uruguay, p. 32.

23 Gómez Malaret, Simon y Osvaldo Luzardo. Poliomiélitis: Epidemia de 1954–1955, in: Archivos de Pediatría del Uruguay, Año XXVII, Agosto de 1956, n 8, p. 512.

24 Figures from "Epidemiología de la poliomiélitis formas paralíticas-año 1958", Ministerio de Asistencia Social y Salud Pública. Sección de Estadísticas Vitales. Buenos Aires, Argentina, 1959.

25 Figures from "Epidemiología de la poliomiélitis formas paralíticas-año 1958", Ministerio de Asistencia Social y Salud Pública. Sección de Estadísticas Vitales. Buenos Aires, Argentina, 1959.

26 ABC newspaper "Aumenta de manera alarmante la epidemia de poliomiélitis. Once defunciones en una sola jornada. Estados Unidos y otros países envían a la Argentina personal científico y material sanitario". Sábado 17 de marzo de 1956, p. 899.

27 ABC newspaper "Aumenta de manera alarmante la epidemia de poliomiélitis . Once defunciones en una sola jornada. Estados Unidos y otros países envían a la Argentina personal científico y material sanitario" Sabado 17 de Marzo de 1956 p. 899.

With the 1956 outbreak, the report established by the World Health Organization in November 1955 became of central importance. On that occasion, the WHO summoned a group of international experts to examine the several aspects related to poliomyelitis. One of the aspects highlighted by the group was the convenience of using the vaccine, above all its distribution according to age groups, since paralytic poliomyelitis was more severe in adults.

Figure 1. Newspaper *La Nación*



But availability of the Salk vaccine was complicated in these countries, unlike what happened in Europe, where most of the countries were using locally produced inactive vaccines, although they sometimes had to import them from the United States and Canada to cover the demand.²⁸ Argentina and Uruguay had to import them, which not only increased the costs of purchase but also slowed it down. This is why the Revolutionary Liberation government of Argentina, in the early months of 1956 and owing to the absence of Salk vaccine consignments, began administering the first gamma globuline shots in schools in March,²⁹ with the intention of immunizing 300,000 children between three months and five years of age.

28 Porras, María Isabel, María José Báguena, Rosa Ballester and Jaime de las Heras. "La Asociación Europea contra la Poliomielitis y los programas europeos de vacunación". In: *Revista Dynamis*, 2012, 23(2):287–310.

29 *La Nación* newspaper, jueves 23 de marzo de 1956, p. 1.

Figure 2. Newspaper *La Nacion*



Gamma globuline was used because, according to the Argentine authorities "...at present it is a comprehensive solution sought to annul the epidemic...", with the intent of creating defenses in the younger ones³⁰ in order to counteract the effects or the development of the disease, while awaiting the arrival of consignments of Salk vaccines which took place after the main outbreak in the summer season. This is why it was in 1956 that the first Salk inoculations were carried out in both countries, increasing in number the following year.³¹

In Uruguay, vaccination with Salk-type inactive viruses was carried out on limited areas of population, at a moment when, given the sudden fall in the number of cases, concern had lessened and given way to lack of interest, which was also a consequence of the doubts perceived regarding effectiveness or consequences of inoculation.

³⁰ *La Nación* newspaper, 14 de marzo de 1956, p. 1.

³¹ The Salk vaccine or inactive poliovirus vaccine (IPV) is based on three reference varieties: Mahoney (poliovirus type 1), MEF-1 (poliovirus type 2) and Saukett (poliovirus type 3). The viruses are cultivated in Vero cells from monkey kidney epithelial tissue and are later inactivated through the use of formaldehyde. The Salk vaccine provides immunity mediated by immunoglobuline in the bloodstream, which prevents the progress of the poliovirus infection to a viremia and protects the motor nerve cells. In this manner, the risks of bulbar polio and of post-polio syndrome are eliminated. However, since there is no protection to the intestinal membrane, people who have received the Salk vaccine may be carriers and transmit the disease to non-vaccinated individuals.

Besides, this perception was increased by the negative experiences such as that the vaccine “....brought the disease upon 200 people who were immunized with defective material...”,³² According to Ministry of Public Health official figures, use of the Salk vaccine was relatively scarce and shows a fall towards the end of the decade, as can be seen in the following chart:

Table 2. Number of people who received three or more doses of Salk vaccine

| Year | People Vaccinated |
|------|-------------------|
| 1956 | 0 |
| 1957 | 26.425 |
| 1958 | 18.805 |
| 1959 | 14.657 |
| 1960 | 8.499 |

Source: Albert Sabin “Planeamiento de la eliminación de la Poliomielitis en Basil, Uruguay, Argentina y Chile” in: Boletín de la Oficina Sanitaria Panamericana, Washington , 1962 p. 502.

In 1958, with the onset of a new epidemic, the Montevideo Department Council began anti-polio oral vaccination campaign with weak Cox virus strains produced by the Laderle Laboratories. Up to that moment, two types of vaccines had been used in the world: the injectable vaccines with dead or inactivated viruses (Brodie, Kolmer, Lepine and Salk) and the oral vaccines with weak live viruses (Cox, Koprowski and Sabin). The Brodie and Kolmer vaccines were soon abandoned. By then, reports in Europe showed a rise in the use of the Sabin vaccine following the reports on the result of the application of this vaccine in the Soviet Union, as presented in the V International Congress (1960).³³

In the late 1950s, some 325,000 inhabitants of Montevideo, of all ages, had received the vaccine. However, there were 87 cases of paralysis in Montevideo, where the population made up more than one third of the total population of Uruguay, and 75 cases in the areas where no vaccines had been administered and, in some cases, in localities where some vaccines had been used but on a very small number of the population.³⁴ This rise, in the midst of the progress in the vaccination program, can be explained by limiting factors, such as lack of coordination and absence of state

32 *La Nación* newspaper. Buenos Aires, 1956.

33. Luzardo O. Epidemiología de la poliomielitis en el Uruguay posteriormente a la epidemia nacional 1954–1955. En: Arch. pediatr. Urug. 34(1): 32–42; 1963.

34 Tercer Informe del Comité de Expertos en Poliomielitis, Serie de Informes Técnicos n°203, OMS, Ginebra, 1960, p.15.

planning to prevent the disorganization shown in this stage. Such lack of organization can be ascribed to the political and institutional situation Uruguay was undergoing at the time, since in 1958 the Partido Nacional won elections, displacing the Partido Colorado, which had governed for 93 years. Thus did neo-Batllism come to an end.

On the other hand, we must point out that the Salk vaccine showed its usefulness in preventing polio paralysis, but its application had some drawbacks. The high cost of the vaccines made it difficult for the states to buy them, so they had to rely on voluntary contributions made by citizens in response to campaigns organized by physicians or non-profit public welfare organizations. Besides, each individual had to receive three doses which had to be taken throughout a long time span of at least eight months for the immunization to be effective, with the added disadvantage that the vaccine protected those who had been vaccinated but did not prevent polio infection, as it did not prevent multiplication of polioviruses in the bodies of the immunized individuals.³⁵

The Committee of experts in poliomyelitis of the World Health Organization, after considering the improvements of the times, recommended in July 1957 that the oral vaccine should be used in areas with endemic infantile poliomyelitis or at the onset of an epidemic, or during its development. In the last case, the recommendation was based on the fact that, as explained above, the Salk vaccine did not have immediate effect nor did it interrupt the transmission of the virus. On the other hand, the oral vaccine acted speedily, produced antibodies in a few days, and, by acting on the intestine, prevented intestinal multiplication of the epidemic polioviruses.³⁶

These recommendations, added to those made by the Pan American Health Organization to similar account, influenced different countries. Uruguay was a pioneer, using Cox strains in 1958. In the early 1960s (1960–61) there was an increase in polio cases, which was due to the characteristics of the immunization process, in which the size of the vaccinated population was neither large nor encompassing, unlike what happened later, with the first Sabin oral vaccination campaign of 1962.³⁷ The case of Uruguay is contemporary with that of the United States, and it was Uruguay and Chile, within Latin America, who first experimented with changes in vaccination campaigns early on in the 1960s.³⁸ Between 1962 and 1964 there were massive oral vaccination campaigns against poliomyelitis. In the first campaign, 80%

35 An individual vaccinated with the Salk vaccine may carry in his intestines a large quantity of polioviruses, which reproduce in the same way as in those people who have not been vaccinated.

36 Bacigalupi, J.C. Estado actual de la vacunación antipoliomielítica por vía oral, con virus vivos atenuados. In: *Arc. Pediatr. Urug.* 34(2–3):100–111 and 175–184; 1963.

37 The OPV is an oral vaccine with weak live viruses, prescribed at months 2, 4, 6 and 12 with an additional dose at the age of five. Uruguay began this massive campaign with OPV in 1962.

38 Las condiciones de salud en las Américas. 1961–1964. Publicación Científica n° 138. Agosto de 1966. OPS/OMS. Washington, p.63.

of the country's population under the age of twenty was vaccinated; in 1964 the new generations were immunized and the 1962 group was vaccinated again. Children under three years of age were intensely targeted and all children up to the age of fourteen were vaccinated again.

The results were clear and of the few sporadic cases reported in 1970, most were of children who had not been immunized.³⁹

The 1962–64 campaign gave way in 1966 to the DPT and Polio vaccination plan, which used the polyvalent vaccine against polioviruses I, II and III, in use up to the 1980s.⁴⁰

Argentina used the Salk vaccine up to 1964, when it began to use the oral Sabin vaccine. This change brought about a fall in the number of cases of the disease (the lowest rate can be found in 1967 with a rate of 0.3 every 1,000 inhabitants). But the later lack of continuity in the vaccination programs triggered off a rise in cases from 1968, with an outbreak which lasted until 1974.

The development of massive vaccination programs from 1971, added to an intensified watch system, allowed the disease to be controlled by 1977. Between 1978 and 1984 there were isolated outbreaks, most of them belonging to type 1 (the most severe type). Since 1984 no cases of polio have been recorded in Argentina. In 1984 the last case was recorded in the town of Orán, province of Salta and since then there have been no recorded cases of wild viruses in the country.

By Way of a Conclusion

The previous pages have analyzed the course of poliomyelitis in two South American countries, and, through a multidimensional approach have explained two well-defined historical moments: the early twentieth century and the period which began in mid-century. As regards the latter, infantile paralysis served as a catalyzer of different aspects of the two countries' social reality, since it brought to the forefront the limits of medical science, which, until the appearance of vaccines, left the state agencies without the tools to successfully cope with the epidemics. It also served to show that although operative forms of the welfare state were present in both countries involved in the study, these were not fully operational and were partial versions which gave rise to different institutional universes and different interventions, at least

39 XII CONFERENCIA SANITARIA PANAMERICANA. XXII REUNIÓN DEL COMITÉ REGIONAL WASHINGTON D.C., E.U.A. SEPTIEMBRE-OCTUBRE 1970.

40 The National Vaccine Plan is postponed until 1981, when law 15272 established compulsory vaccination against eight diseases (tuberculosis, tetanus, whooping cough, diphtheria, poliomyelitis, measles, rubella and mumps). Its application by the Ministry of Public Health gives way to the present Broadened Immunizations Program, national counterpart to the program established for the region by the Pan American Health Organization.

regarding vaccination campaigns. The absence of a State of Commitment towards the paralyzed children patients was a steady component as was the citizens' response: through different events and/or organizations, citizens organized ways of providing the vaccines and created specific aid facilities, both of which the state agencies did not provide, such as the Anti-Poliomyelitis Centers. These new civilian actors, who arose within a robust State model which aspired to centralize and regulate the provision of health care services, were the ones who raised awareness to the fact that the notion of universal coverage for their children's ailment did not exist. This lack of coverage was evidenced not only by the absence of policies for the treatment of children who had survived polio, but also, and principally, by the fact that the existing public sanitation models were not incorporating the changes in the concept of what it meant to be handicapped or the new ideas surrounding child disability, an idea which included both physical and social rehabilitation.

Adriana Carolina Alvarez is researcher at the National Council of science and technology (CONICET) and the Centre for historical studies (Cehis) in Buenos Aires Argentina; Professor of the Faculty of Humanities of the National University of Mar del Plata.

References

- Alvarez Adriana “El impacto de los brotes de poliomielitis en las formas de organización ciudadana (Buenos Aires)”, *Revista de Historia de la Medicina y Epistemología Médica* V: 1 (2013), 1–13.
- Bacigalupi, J.C. “Estado actual de la vacunación antipoliomielítica por vía oral, con virus vivos atenuados”, *Archivos de Pediatría de Uruguay*. 34(2) (1963), 100–111.
- Birn, A.E., W. Cabella and R. Pollero, “La mortalidad infantil uruguaya en la primera mitad del siglo XX: un análisis por causas del pasado al presente.” In *VII Jornadas Argentinas de Estudios de Población (Asociación de Estudios de Población de la Argentina)*, I: 37–154, Universidad Nacional de Tucumán. Taí del Valle. (Tucumán, 2005).
- Birn, A.E., R. Pollero and W. Cabella, “No se debe llorar sobre leche derramada. El Pensamiento Epidemiológico y la Mortalidad Infantil en Uruguay, 1900–1940”, *Estudios Interdisciplinarios de América Latina y el Caribe* 1(1) (2003), 35–65.
- Gomez Malaret, Simon and Osvaldo Luzardo. “Poliomielitis. Epidemia de 1954–1955” *Archivos de Pediatría del Uruguay*, 27(8) (1956), 512– 520.
- Margolis, E., N. Plaza, *Organización de la atención médica en el Uruguay*. (Montevideo. Nordan, 1989).
- Luzardo, Osvaldo, “ Epidemiología de la poliomielitis en Uruguay”, *Archivos de Pediatría del Uruguay*, 34(1) (1963), 32–42.
- Ortega, Elizabeth; Mitiavila, Myriam Raquel, “Preventismo sanitarista y la institucionalización del Trabajo Social en el Uruguay neobatllista: una indagación genealógica”, *Revista Katálisis*, 8(2) (2005), 211–224.
- Pellegrino, Adela, *Caracterización demográfica del Uruguay*. Montevideo. UNFPA-Facultad de Ciencias Sociales-Universidad de la República, Uruguay. 2003.
- Portillo, José, “Historia de la medicina estatal en Uruguay (1724–1930)”. *Revista Medica Uruguay*, 1 (1995), 5–18.
- Porras, María Isabel, María José Báguena, Rosa Ballester and Jaime de las Heras. “La Asociación Europea contra la Poliomielitis y los programas europeos de vacunación”. In: *Revista Dynamis*, 23:2 (2012), 287–310.
- Reggi, José “El problema del tratamiento de la parálisis infantil en nuestro país”, *Segunda Conferencia para el Bienestar del Lisiado*. (Buenos Aires, 1946).

The Eradication of Poliomyelitis in Spain: Projects, Obstacles, Achievements, Realities

Rosa Ballester, María-Isabel Porras and María-José Báguena

Introduction

The main aim of our paper is to provide a historical approach to the complex process undertaken in Spain to achieve the official WHO certificate of polio eradication in 2002, within the framework of the initiatives launched in the WHO European Region. At the time of the first meeting of the European Regional Commission for the Certification of Poliomyelitis Eradication in 1996, the epidemiological situation and levels of vaccination cover (over 90%) enabled Spain, like other countries, to ensure compliance with the conditions set by the World Health Organization. This showed that the country, at the end of the twentieth century, had achieved high public health standards, which is remarkable if one considers that the country had suffered forty years of dictatorship and that the previous health care system had important failings. The changes that allowed Spain to join those European countries that obtained eradication certification are to be found within the framework of the deep social, political, economic and cultural transformation behind this process. In order to make a more complete assessment, we seek to analyse the set of projects designed, the obstacles encountered in their practical implementation and the final outcomes.

Our main sources are the official WHO publications – technical reports, the *Bulletin of the WHO* and other documents– as well as Proceedings of the International Poliomyelitis Conferences (1948–1960) and the European Association against Poliomyelitis Symposia (1953–1969)¹. In addition we have used printed sources and other kinds of grey literature (reports and other unpublished

1 Information about both scientific meetings and The European Association against Poliomyelitis figures in Maria-Isabel Porras; María-José Báguena; Rosa Ballester, “Spain and the scientific conferences on polio, 1940s–1960s”, *Dynamis*, 30 (2010), 91–118; María-Isabel Porras; Rosa Ballester; María-José Báguena; Jaime de las Heras, “La Asociación Europea contra la Poliomielitis y los programas europeos de vacunación”, *Dynamis*, 32(2) (2012), 287–310.

documents) from the archives of the Carlos III Institute of Health², as well as the *Spanish Weekly Epidemiological Bulletin* and a selection of daily newspapers such as *ABC*, *La Vanguardia*, and *El País*³ in order to analyse how an ambitious global health initiative was implemented at a local level. Finally, we have also used the oral testimony of a key figure, the president of the National Commission for the Certification of the Eradication of Poliomyelitis, Ferran Martínez-Navarro.

The programme to eradicate polio worldwide must be considered in the broader context of the eradication of infectious diseases of which, the first and most successful programme was the global eradication of smallpox led by the WHO between 1967 and 1978⁴. Indeed, this highlight is one of the great success stories of twentieth-century public health medicine and a fundamental stimulus not only for contemporary debates regarding the possible eradication of other infectious diseases⁵, but also for the launch, a decade later, of the Global Polio Eradication Initiative⁶. Most doctors and public health workers⁷ were aware of the historical significance of the process and described the need to clarify concepts in this new area that appeared to be opening in the history of medicine and public health. Previously the term “eradication” had been used inaccurately to mean the disappearance of a particular infectious disease in a particular country. Thus, the term “global eradication” was coined in the 1980s to describe the achievement of a

2 As we will show, this Institute had a prominent role in the final control of the poliomyelitis in Spain and in the development of the Spanish epidemiology and virology through the National School of Health and the Virology Institute of Majadahonda (Madrid, Spain).

3 *ABC* (1903–) is a monarchist daily newspaper, representing the national general-interest press, and has been widely-circulated for many years. *La Vanguardia* (1881–) is a Catalan general-interest daily newspaper, a very good example of the commercial press founded at the end of the nineteenth century; it has succeeded in maintaining its important position to the present day. *El País* (1976–) is a national daily newspaper that played an important role among the media of the Spanish Transition after the Dictatorship of Franco. Although little information was forthcoming from these sources, we still consider them essential for a comprehensive analysis, as in the case of the *Boletín Epidemiológico Semanal* (*Spanish Weekly Epidemiological Bulletin*). The review of the six years between 1996 and 2002 of the latter has enabled us to recover only 4 articles related to the polio eradication process in Spain and 2 on the situation in the World.

4 Hervé Bazin, *The Eradication of Smallpox* (San Diego, 2000); Frank Fenner, “The Eradication of infectious diseases”, *South African Medical Journal*, 66 (1988), 35–39; Frank Fenner; Donald A. Henderson; Isao Arita et al., *Smallpox and its Eradication* (Geneva, 1988); Donald Henderson, “Smallpox eradication: a victory against the Cold War”, *World Health Forum*, 19 (1998), 115–121.

5 Dorothy M. Hortsman, “Preface”, *Reviews of Infectious Diseases*, 6 (Suppl. 2) (1984), S301.

6 Matthew R. Smallman-Raynor; Andrew D. Cliff; Barry Trevelyan; Clive Nettleton; Sam Sneddon, *A world geography. Poliomyelitis. Emergence to eradication* (Oxford, 2006), p. 564.

7 James Chin, “Can paralytic poliomyelitis be eliminated?”, *Reviews of Infectious Diseases*, 6 (Suppl. 2) (1984), S581–585.

level of control of infectious diseases characterized by the complete and permanent cessation, worldwide, of the natural transmission of infectious agents.⁸

Global eradication campaigns were launched during the term of Marcolino Candau (1911–1983) as Director General of the WHO, but mostly it was his successor Halfdan Mahler (1923–), Director General three times between 1973 and 1988, who inspired the process at a time when the WHO was entering a phase of renewal. In this period, the organization emphasized not only technical aspects (insisting on the rigorous application of epidemiological methods with a strong statistical base) but also a social approach in which the participation of community in health issues was fundamental. These ideas were explicitly set out in the paradigmatic Declaration of Alma Ata in 1978 and the GOBI strategy (Growth monitoring, Oral rehydration techniques, Breast feeding, Immunization) which included universal vaccination against the major preventable diseases. The new proposals were different from the previous “vertical” ones. In this way, the most important change was that the eradication and immunization programmes ceased to operate according to a rigid design applied “from above” with low levels of participation of the people involved in vaccination campaigns⁹.

The authors who have studied the history of the approaches adopted by WHO at different stages of the organization¹⁰ have stressed that, in order to achieve these objectives, it was necessary to take into account such local circumstances as the propaganda strategies of vaccination programmes which were adapted to the socio-economic structures and specific cultures where the activities were to be carried out. This was fundamental in understanding both the achievements and the failures of those programmes according to local circumstances.

Polio as a Target of Worldwide Eradication

The selection of polio as a second candidate disease within the eradication project was taken in 1988 as a part of the conclusions of the 41st World Health Assembly. The formal process for the eradication of polio was established on the basis of the experience with smallpox. Independent groups of experts were appointed to

8 Frank Fenner, “The eradication of infectious diseases”, *South Africa Medical Journal*, 66 (suppl.) (1986), 35–39.

9 Marcos Cueto, *The value of health. A history of the Pan American Health Organization* (Washington, 2007).

10 World Health Organization, *The first ten years of the World Health Organization* (Geneva, 1958); World Health Organization, *The second ten years of the World Health Organization from 1958 to 1967* (Geneva, 1968); World Health Organization, *The Third ten years of the World Health Organization, 1968–1977* (Geneva, 2008); World Health Organization, *The Fourth ten years of the World Health Organization, 1978–1987* (Geneva, 2011).

international, regional and national level commissions in order to establish a set of criteria and conduct properly the certification process¹¹.

However, prior to the Assembly, the question of eliminating polio worldwide had also been raised at the International Poliomyelitis Conferences¹². At the III conference (1954), John J. Paul, one of the most outstanding figures in polio research, presented a paper entitled “Future Prospects”, which was included in a wider session on “Trends in Poliomyelitis”. Given the hopeful early results achieved with polio vaccines, he was encouraged by the possibility of preventing the disease and, perhaps even of eliminating it. He insisted that this goal could not be accomplished by a single laboratory or a single country, but would require a joint effort¹³.

In similar terms, at the IV Conference (1957), the honorary president, the American Basil O’Connor, head of the National Foundation for Infantile Paralysis, was commissioned to draw up the conclusions. In this document, he also referred to the possibility of eliminating polio:

Since I know that you feel, as we of the United States feel, that the elimination of paralytic polio in one country only is not the goal that is sought, I repeat that there is a likelihood that we will have eliminated paralytic polio in the United States by 1958. That is not the goal of any science and should not be; that is not the goal of the International Congress. The goal should be the elimination of paralytic polio throughout the world¹⁴.

Two years later, in 1959, when polio vaccination campaigns had been implemented in several countries, Frank L. Horsfall, president of the scientific committee of the V Congress, was given the task of summarizing all those papers presented. In this case, although he also showed the advances in the control of polio, he did not mention ‘eradication’ but rather displayed a hopeful but still cautious attitude:

It seems no longer necessary to bolster optimism with uncritical hope. Means for the control of poliomyelitis appear to be at hand. What remains is to learn more of their vagaries and the best ways in which to use them. Once again, then, man has

11 Joseph Smith; Rose Leke; Anthony Adams; Rudolph H. Tangermann, “Certification of polio eradication: process and lessons learned”, *Bulletin World Health Organization*, 82(1) (2004), 24–29.

12 María-Isabel Porras; María-José Báguena; Rosa Ballester, “Spain and the scientific conferences on polio, 1940s–1960s”, *Dynamis*, 30 (2010), 91–118.

13 *Poliomyelitis, Papers and Discussions presented at the Third International Poliomyelitis Conference* (Philadelphia, 1955), p. 422.

14 *Poliomyelitis, Papers and Discussions presented at the Fourth International Poliomyelitis Conference* (Philadelphia, 1958), p. 665.

demonstrated his almost limitless capacity to manage hazards in his own environment¹⁵.

The European Association against Poliomyelitis, which was set up in 1951 in Brussels, concluded its IV Symposium of 1956 in similar terms considering that there was still necessary hardworking –both technically and theoretically– before getting the total elimination of the polio¹⁶. However, five years later, when the live vaccine was disposable, the eradication of the disease seemed to be possible:

It is thus argued that vaccination with the live vaccine, if practised on a wide scale... will not only bring about the complete eradication of poliomyelitis but also eliminate the causative viruses¹⁷.

The choice of poliomyelitis for global eradication was favoured by a series of biological circumstances such as the fact that poliovirus is transmitted only by infectious humans or their waste and the vector plays only a very limited role in contagion; the survival of poliovirus in the environment is finite; humans are the only reservoir of poliovirus and the oral vaccine interrupts poliovirus transmission. In addition to these biological circumstances, other fundamental factors included the social, economic, cultural and political perspectives of the problem, above all in the experience acquired in many countries through the mass vaccination campaigns¹⁸. An article published in the *Bulletin of the WHO*, one year before the official recognition by the General Assembly, showed clearly that “global eradication of poliomyelitis is inevitable: the only question is whether we will accomplish it or pass on the needed action to our successors”¹⁹. The possible impediments to eradication included the necessity to generate political and social will but it was considered “that with intensified effort and increased international collaboration, global eradication could be achieved as early as 1995”²⁰.

Smallmann-Raynor et al. have stressed the role played by a global polio partnership comprising the WHO, Rotary International, Centers for Disease

15 *Poliomyelitis, Papers and Discussions presented at the Fifth International Poliomyelitis Conference* (Philadelphia, 1961), p. 426.

16 Association Européenne contre la Poliomyélite, *IV Symposium, Bologna, 20–22 September 1956* (Bruxelles, 1957), p. 44.

17 Association Européenne contre la Poliomyélite, *VII Symposium, Oxford, 17–20 September 1961* (Bruxelles, 1962), p. 155.

18 Ciro A. de Quadros, “The whole is greater: How polio was eradicated from the Western Hemisphere”. In: Daniel Perlman; Ananya Roy (ed.), *The Practice of International Health. A case-based orientation* (New York, 2009), pp. 54–69, p. 54–59.

19 Alan R. Hinman; William H. Foege; Ciro A. de Quadros; Peter A. Patriarca; Walter A. Orenstein; Edward W. Brink, “The case for global eradication of poliomyelitis”, *Bulletin of the World Health Organization*, 65 (1987), 839; cited by Smallmann-Raynor et al. op cit, p. 570.

20 Alan R. Hinman, op. cit, p. 835. cited by Smallmann-Raynor et al. op cit, p. 570.

Control (CDC) and UNICEF²¹. These institutions were, in turn, increasingly supported by a global network of humanitarian organizations, international agencies and private corporations²². Indeed, the social movement which developed around polio, unlike the case with other diseases, encouraged the raising of funds for other international health problems²³.

In 1989 a Plan for global polio eradication by the year 2000 was drafted and a series of international meetings was held. The global eradication strategies pioneered by the Pan American Health Organization (PAHO) included high routine immunization cover, national immunization days (NIDs), acute flaccid paralysis surveillance and intensive “mopping-up” immunization campaigns used to interrupt the final chains of poliovirus transmission through vaccine administration on a house-to-house basis²⁴.

Ten years after the launch of the eradication plan, the largest initiative ever undertaken, two international meetings in Dahlen (1997) and Atlanta (1998), were held to discuss and evaluate the eradication of the disease as a public health strategy. At these meetings, taking polio as an analysis model, various issues were discussed, such as whether the human and financial costs of these initiatives justified the concentration required to eradicate specific diseases. Three core questions were analysed:

1. Why eradicate polio (costs and benefits)?
2. Why is eradication technically feasible (biological determinants of eradicability)?
3. Why is this process socially and politically feasible?²⁵

The responses were all positive. With regard to the first question, the arguments used included the magnitude of the humanitarian benefits, the economic costs of this type of disability, and the fact that vaccination campaigns had led also to improvements in the health services. On the second question, it was argued that oral disease vaccine was an effective weapon and that the implementation based on the National Immunization Days strategy had interrupted poliovirus transmission even in areas with low routine immunization cover. The availability and safety of

21 Matthew R. Smallmann-Raynor, op. cit, pp. 571–572.

22 The Melinda and Bill Gates Foundation also joined the cause in 2000.

23 Theodore M. Brown, Marcos Cueto, Elisabeth Fee, *Historia, salud y globalización*. (Lima, 2013), p. 98–99.

24 Miguel Mosquera, Natalia Barón, Rosa Ballester, “El camino hacia la erradicación de la poliomielitis a través de la Organización Panamericana de la Salud”, *Rev. Panam. Salud pública*, 36 (3) (2014), 185–192.

25 R. Bruce Aylward; Harry F. Hull; Stephen L. Cochi et al., “Disease eradication as a public health strategy: a case study of poliomyelitis eradication”, *Bulletin of the World Health Organization*, 78(3) (2000), 285–297.

polio vaccines were much improved with the introduction of culture in continuous cell lines (Vero cells) by the Mérieux Institute of Lyon²⁶. Furthermore, it had been found that culturing viruses from stool samples from cases of acute flaccid paralysis was a sensitive and specific tool for diagnosis.

The answer to the third question was more complicated because, unlike the objectivity and universality of the arguments used in the previous two, the issue depended on local circumstances. The development and maintenance of a social and political commitment were considered essential for this feasibility from an operational point of view. Furthermore, the implementation of this commitment made it necessary to test the eradication strategy in a large geographical area (the example given was that of the Region of the Americas, the first to receive the official certificate in 1994).

In short, eradication would help to combat inequity and would favour social justice. If these principles were supported by humanitarian, economic and other benefits, there would be significant reasons to consider the eradication of poliomyelitis as a valuable public health strategy.

The European Programme for the Eradication of Poliomyelitis

The general principles began to take shape in the different regions into which the WHO was divided. As far as the European Region was concerned²⁷, the seventh meeting of the European Group of the Expanded Programme on Immunization²⁸ reviewed the general and specific aims of the programme and determined that by 2000, or as soon as possible, indigenous poliomyelitis, caused by the wild-type poliovirus, should be eradicated from the Region.

The *Global Commission for the Certification of the Eradication of Poliomyelitis* (GCC), was set up in 1995 to supervise, at a global level, activities carried out in this field, including such conceptual aspects as the definition itself of eradication adapted to the case of polio:

26 Bernard Seytre; Mary Shaffer, *Histoire de la poliomyélite* (Paris, 2004), pp. 103–110; Samuel L. Katz; Catherine M. Wilfert; Frederick C. Robbins, “The Role of Tissue Culture in Vaccine Development”, in S.A. Plotkin, ed., *History of Vaccine Development* (New York, 2011), pp. 145–148; Florian Horaud, “Viral Vaccines and Cell Substrate: A 'Historical' Debate”, in S.A. Plotkin, ed., *History of Vaccine Development* (New York, 2011), pp. 151–154.

27 Aurora Limia-Sánchez, “La erradicación de la poliomiélitis en la Región Europea de la Organización Mundial de la Salud”, *Revista Española de Salud pública*, 87 (2013), 507–516.

28 The Expanded Programme on Immunization (EPI), was set up in 1979, under the auspices of the WHO and the PAHO, in order to achieve universal vaccination designed to reduce mortality and morbidity through immune prevention and to control, eliminate and eradicate such diseases.

The Worldwide Eradication of Poliomyelitis means the eradication of all wild-type viruses. The existence of clinical cases of poliomyelitis caused by other enteroviruses, including attenuated viruses from anti-polio vaccines, does not invalidate the eradication of wild-type polioviruses²⁹.

A second fundamental aspect was to endorse global criteria for the certification of an area as free from polio. There were two main types of criteria:

- Absence of wild-type virus –isolated from clinical cases of flaccid paralysis suspected of having being caused by polio, both from healthy individuals and environmental samples– for a minimum period of three years within a system of proper epidemiological vigilance.
- The effective control of all stocks of polio virus in accredited laboratories³⁰.

The *Global Commission for the Certification of the Eradication of Poliomyelitis* (GCC) gave rise to the *Regional Certification Commissions* (RCCs) which, in the case of the European Region, began work in 1996. The Commission, which sought to adapt the general norms to the European reality, met periodically and produced a series of reports³¹. In order to coordinate national strategies and in the interests of greater effectiveness, the presidents of the national committees for the certification of eradication of the disease also held regular meetings from 1997 onwards³². As had previously occurred in other regions (Americas 1994; Western Pacific 2000), the official certification in the European Region took place at a solemn ceremony on 21 June 2002 at the European headquarters of the WHO in Copenhagen³³. The last case of wild-type polio in the 55 countries of the Region had been reported in Turkey in November 1998.

The main Spanish newspapers reported the achievement: *ABC* of 22 June 2002, under the headline “Polio officially eradicated from Europe after years of mass vaccinations” (p. 60), and the Barcelona newspaper *La Vanguardia*, six months after certification, used the event to introduce the subject of polio in the World and the work carried out to date. Under the heading “Victory over polio” and the sub-heading “Five years of solidarity”, the Sunday magazine of 22nd December 2002 described activities in India, Sudan, Somalia and the Republic of the Congo in

29 *Report of the 1st meeting of the Global Commission for the certification of the Eradication of Poliomyelitis* (Geneva, 1995). WU WHO/EPI/GEN95.6 document WHO.

30 *Ibidem*.

31 World Health Organization, *Report of the first meeting of the European Regional Commission for the certification of polio eradication. Paris, 7–8 march 1996* (Geneva, 1996).

32 World Health Organization, *Certification of Poliomyelitis Eradication in the European Region. Report on a WHO Meeting. Vienna, 16–17 December 1997* (Copenhagen, 1998).

33 “Certification of poliomyelitis eradication -European Region”, *MMWR Morbidity and Mortality Weekly Report*, 51 (2002), 572–574.

order to encourage funding for the work that remained to be done (*La Vanguardia*, 22-12-2002). The dailies recalled the eradication of the disease in the region of the Americas in 1994 and insisted on the importance of the WHO target of worldwide eradication by 2005. *ABC* used the good news to remind readers that the last outbreaks in Spain had occurred in Andalucía in the years 1987–88 and that thereafter the few cases reported in the 1990s had been vaccine-linked (p. 60). Just over a month later and under the headline “Health Ministry estimates 36,000 possible cases of post-polio syndrome”, *El País* reported on another important problem arising from the polio epidemics which had occurred during the Francoist period and which to that date had failed to receive the response it required (*El País*, 30-7-2002).

The Barcelona daily, *La Vanguardia*, gave greater coverage to the contribution of Rotary International in the eradication of poliomyelitis (*La Vanguardia*, 27-6-2002, p. 30). Six months after certification, the newspaper used the victory over polio in Europe to intensify its campaign to expose the continuing presence of polio in other parts of the World and to describe the work carried out to achieve its eradication. The newspaper made a call for solidarity in the provision of resources to achieve the worldwide elimination of the disease (*La Vanguardia*, 22-12-2002).

In the years since the eradication of poliomyelitis in Europe, the Spanish press has continued to publish reports of the work that is still being done to achieve the worldwide elimination of the problem, of the difficulties and setbacks that must be overcome, of the reappearance of the disease in some countries where it had been eradicated, and also of the WHO’s enduring commitment to this objective.

The Process of Eradication in Spain (1988–2002)

The Spanish state, within a democratic political and social framework very different to that of the epidemic outbreaks of the mid-twentieth century, had no difficulty in adhering to the strategies developed by the other European countries. The death of the dictator in 1975, the creation of the Ministry of Health and Consumer Affairs in 1977 and the ratification of the Spanish Constitution of 1978 were followed by the General Health Law of 1986 which set out the fundamental guidelines for our health and public health systems³⁴ organized around the Autonomous Communities into which Spain was now divided (the new design of the Spanish state established by the Constitution of 1978).

The victory of the *Partido Socialista* in the 1982 elections brought the consolidation of democracy and the conclusion of the transition that had followed

34 The 1986 Law established universal health care cover in Spain.

the death of Franco. The relationships of the president of the government, Felipe González, with the great statesmen of the European democratic left explain, to a certain extent, the influence of social democracy in the health policies developed in Spain. This approach led Spain to become an irrevocable part of the western world. The most significant event took place in 1985 when Spain joined the European Union; a transcendental step in the country's economic development, which produced an increase in social and research spending, which in turn led to the establishment of a welfare state.

It is important to underline the fact that the two fundamental aspects of the health reform (decentralization and the implementation of a primary health care system) were the result of a determination to reinforce Public Health. In the early years of the government of the conservative *Partido Popular*, following their victory in 1996, there were no substantial changes in health policy.

In this context, between 1988 (the last reported case of polio in Spain) and 2002, the country, together with the other members of the European region of the WHO, enjoyed appropriate conditions for the eradication of poliomyelitis. However, the process was not devoid of problems and although in 1988 polio was a controlled disease; the certification of eradication was delayed until the results were guaranteed in 2002³⁵.

The Figures

The situation in Spain in terms of the number of notified cases of poliomyelitis in 1988 showed a sharp fall in the number of affected people since the introduction of the first mass anti-polio immunization campaign of 1963–1964 with oral vaccine. From the 1500 cases per year in 1950 and the more than 2000 cases in 1959, the figure had dropped to below 100 in 1964 and 1965³⁶. However, this decrease was not maintained in the subsequent years. The process was one of problems and setbacks which, while disclosed by the health professionals, were not always sufficiently divulged by the health authorities³⁷. As we shown in another paper, in which we analyzed the annual polio morbidity distribution in all provincial capitals and provinces in Spain³⁸ between 1965 and 1975, this disease persisted as a public

35 Information done by Ferrán Martínez-Navarro and Andreu Segura.

36 María-José Báguena; María-Isabel Porras; Rosa Ballester, "Poliomyelitis in rural and urban Spain: epidemiological trends, social and scientific responses", in A. Andresen; J. L. Barona and S. Cherry, eds, *Making a new Countryside* (Frankfurt, 2010), pp. 113–132.

37 Enrique Nájera et al., "Análisis epidemiológico de la situación actual de la poliomiélitis en España", *Revista de Sanidad e Higiene Pública*, 49 (1975), 953–1025.

38 The only breakdown possible of the morbidity data provided by the *Instituto Nacional de Estadística* (INE).

health problem throughout this ten-year period³⁹. Indeed the situation deteriorated; in 1965 there were ten provincial capitals with above zero morbidity, in 1975 there were twenty. Apart from Madrid and Barcelona (the two Spanish cities with the highest population), Almería was the provincial capital with the highest rates. Our study has also confirmed that the problem was most severe in the south of Spain, both in the provincial capitals and the rest of the provincial areas, although there were some differences between the two. Indeed, the capitals with the most years among the five reporting the highest rates of morbidity were: Almería (7 years), Huelva (5 years), Granada (4 years), Badajoz, Córdoba, Las Palmas and Santander (3 years). The provinces that recorded the highest rate in the most number of years were: Las Palmas (7 years), Cádiz and Sevilla (6 years), Almería (5 years), Granada and Barcelona (4 years) and Murcia (3 years). We see that Almería (7 and 5 years), Las Palmas (3 and 7 years) and Granada (4 and 4 years), which belong to the south of the peninsula and the southern Canary Island archipelago, coincide in both sections and have the highest polio morbidity rates. The situation was more serious in Andalucía than in other autonomous communities⁴⁰, especially in the provinces of Seville – as the ABC and El País newspapers of the late 1970s and early 1980s reported – and Almería⁴¹.

Leaving aside for the moment the reasons behind this situation, which differs from that of other European countries at the time of the death of Franco, we must ask ourselves to what extent the situation would change in the following years. An analysis of the development of the higher and lower morbidity rates in the provincial capitals (table 1) and in the rest of the province (table 2) between 1976 and 1988 shows that polio remained a problem in most southern capitals and provinces, except in Seville, where in 1972, the authorities had implemented the *First Pilot Program of Home Vaccination* which, in the six years that it lasted,

39 María-Isabel Porras; María-José Báguena, “El conocimiento sobre la realidad de las campañas de vacunación contra la polio, su cobertura, su seguimiento, la percepción de la población sobre su eficacia y/o peligrosidad y el reflejo en la prensa diaria (1963–1975)”, at the Conference: *Política, salud y enfermedad en España: entre el desarrollismo y la transición*. Alicante, December 12–13, 2013.

40 Valenciano, Mezquita, Pérez Gallardo and Gabriel y Galán showed in 1969 the unequal distribution of the poliomyelitis morbidity rates between the North and the South of Spain: Luis Valenciano; Manuel Mezquita; Florencio Pérez Gallardo; Jesús Gabriel y Galán, “Estudio epidemiológico y virológico de la poliomielitis en España durante el quinquenio 1964–1968”, *Revista de Sanidad e Higiene Pública*, 43 (1969), 517–564.

41 Porras and Báguena has recently confirmed, this situation as well as the high morbidity rates of Almería: María-Isabel Porras; María-José Báguena, “El conocimiento sobre la realidad de las campañas de vacunación contra la polio, su cobertura, su seguimiento, la percepción de la población sobre su eficacia y/o peligrosidad y el reflejo en la prensa diaria (1963–1975)”, in Conference: *Política, salud y enfermedad en España: entre el desarrollismo y la transición*. Alicante, December 12–13, 2013.

achieved a significant reduction in the number of cases; in 1977 not a single case was reported in the province of Sevilla⁴².

Table 1. Polio morbidity rates (per 100,000 inhabitants) by capital (1976–1988)

| Capital | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 |
|----------------------|------|------|-------|------|------|------|------|------|------|------|------|------|------|
| Almería | - | - | 19.21 | - | - | - | ND | ND | - | - | ND | ND | ND |
| Bilbao | - | - | - | - | - | 0.23 | ND | ND | - | - | ND | ND | ND |
| Cádiz | 1.47 | 0.73 | 0.73 | - | - | - | ND | ND | - | - | ND | ND | ND |
| Coruña, La | - | - | - | - | - | - | ND | ND | - | - | ND | ND | ND |
| Granada | 1.57 | 0.52 | 2.62 | 1.05 | - | - | ND | ND | - | - | ND | ND | ND |
| Huelva | 1.03 | - | - | - | - | 1.03 | ND | ND | - | - | ND | ND | ND |
| Lugo | - | - | - | - | - | - | ND | ND | - | - | ND | ND | ND |
| Málaga | 0.53 | - | 0.80 | - | - | - | ND | ND | - | - | ND | ND | ND |
| Oviedo | - | - | - | - | - | 0.52 | ND | ND | - | - | ND | ND | ND |
| Palmas de G. C., Las | - | - | 0.34 | 0.34 | - | - | ND | ND | - | 0.27 | ND | ND | ND |
| Pamplona | - | - | - | - | 0.54 | - | ND | ND | - | - | ND | ND | ND |
| Pontevedra | - | - | - | - | - | - | ND | ND | - | - | ND | ND | ND |
| San Sebastián | 0.60 | - | - | - | - | - | ND | ND | - | - | ND | ND | ND |
| Santander | - | - | - | - | - | - | ND | ND | - | - | ND | ND | ND |
| Sevilla | 0.18 | - | 0.18 | - | - | - | ND | ND | - | - | ND | ND | ND |
| Vitoria | - | - | - | - | - | - | ND | ND | - | - | ND | ND | ND |

Source: *Instituto Nacional de Estadística* (INE). By the authors. Southern capitals in bold letters (ND: no data).

Although, in the following years, the morbidity rate did not remain at zero, it was still better than in Almería, Granada or Cádiz (tables 1 and 2). The examples that we have chosen from the North of Spain show that in those regions, polio had ceased to be a problem in the years of the so-called “*transición democrática*”. The last two cases in Spain were reported in 1988; one imported from Mauritania and the other post-vacunal⁴³.

Without seeking to provide a comprehensive analysis, but rather to clarify what follows, we should outline the main factors that appear to explain the persistence of polio in Spain: a failure to achieve total immunization of children under seven in the 1963–64 national campaign with oral vaccine and a similar failure with children under 12 months in subsequent years; the fact that two doses proved insufficient to achieve complete immunity among the population vaccinated; the particular importance of the type 1 virus (linked to the paralytic form of the disease) in Spain; the lack of resources and the shortcomings in health management in the vaccination programs; bureaucratic hindrance, as revealed in the case of Seville;

42 M. Jiménez, “La polio no ha desaparecido”, *ABC*, 05/06/1981, p. 28.

43 Instituto de Salud Carlos III, “Plan de actuaciones necesarias para la consecución del Certificado de Erradicación de la Poliomielitis”, *Boletín epidemiológico semanal*, 5(13) (1997), 126–128, p. 126.

restrictions in the support role of the mass media due to lack of public funding from the Francoist state, which after 1965 led to the virtual disappearance of polio from the pages of those daily newspapers we have consulted; breakdowns in the cold chain, a concern of Sabin⁴⁴ which appears to have been confirmed by the national study performed in 1988–89⁴⁵; and the lack of urgency in the organization of the first competent laboratory of virology for the confirmation of polio diagnoses and even more so in establishing a network of specialized laboratories⁴⁶.

Table 2. Morbidity rates (per 100,000 inhabitants) for polio in the rest of the province (1976–1988)

| Resto provincia | 1976 | 1977 | 1978 | 1979 | 1980 | 1981 | 1982* | 1983* | 1984 ** | 1985 | 1986* | 1987* | 1988* |
|--------------------|------|------|------|------|------|------|-------|-------|------------|------|-------|-------|-------|
| Álava | - | - | - | - | - | - | - | - | ND | - | - | - | - |
| Almería | - | - | 3.83 | - | - | - | 0.37 | 1.13 | ND | 0.37 | - | 1.13 | 1.13 |
| Asturias | - | 0.11 | - | - | - | - | - | - | ND | - | - | - | - |
| Cádiz | 0.13 | 0.66 | 0.13 | - | - | - | - | 0.11 | ND | - | - | - | - |
| Cantabria | 0.31 | - | - | 0.31 | - | - | - | - | ND | - | - | - | - |
| Coruña, La | - | - | - | - | - | - | 0.23 | - | ND | - | - | - | - |
| Granada | 0.36 | 0.55 | 0.92 | 0.73 | - | - | - | 0.20 | ND | - | - | - | - |
| Guipúzcoa | 0.21 | 0.21 | - | - | - | - | - | - | ND | - | - | - | - |
| Huelva | - | - | 0.66 | 0.33 | - | - | - | 0.69 | ND | - | - | - | - |
| Lugo | - | - | - | - | - | - | - | - | ND | - | - | - | - |
| Málaga | 0.40 | 0.20 | 0.60 | - | 0.18 | - | - | 0.18 | ND | - | - | 0.37 | - |
| Navarra | - | - | - | - | - | - | - | - | ND | - | - | - | - |
| Palmas, Las | 1.36 | 0.34 | 0.34 | - | - | - | 0.25 | 0.25 | ND | - | - | - | - |
| Pontevedra | 0.57 | - | 0.28 | - | - | 0.12 | - | - | ND | - | - | - | - |
| Sevilla | - | - | - | 0.45 | 0.12 | 0.12 | - | 0.12 | ND | - | - | - | - |
| Vizcaya | - | 0.15 | - | - | - | 0.26 | - | - | ND | - | - | - | - |

Source: Instituto Nacional de Estadística (INE). By the authors. (ND: no data)

*There is no breakdown of the data for capitals for 1982, 1983, 1986, 1987 and 1988, and therefore it is not possible to know if the data for cases per province include cases in provincial capitals.

**According to national morbidity data for 1984, there was one case of polio. As there were no cases in provincial capitals, it must have occurred in one of the provinces. However we do not have a breakdown per province.

44 Albert Sabin expressed his concern in a letter to Florencio Pérez Gallardo: <http://hdl.handle.net/2374.uc/670052>. The personal files of Albert Sabin are available at: <http://digitalprojects.libraries.uc.edu/sabin/>

45 José Tuells et al., “El primer ensayo de campo sobre cadena de frío vacunal en España (Alicante, 1986–88)”, *Vacunas*, 2 (2009), 42–48; José Tuells, “El frágil inicio de la cadena de frío vacunal en España”, *Gaceta Sanitaria*, 4 (4) (2010), 354–357.

46 María-Isabel Porras; María-José Báguena, “El conocimiento sobre la realidad de las campañas de vacunación contra la polio, su cobertura, su seguimiento, la percepción de la población sobre su eficacia y/o peligrosidad y el reflejo en la prensa diaria (1963–1975)”, in Conference: *Política, salud y enfermedad en España: entre el desarrollismo y la transición*. Alicante, December 12–13, 2013.

Regarding this last factor, some changes did take place in the early years of the “*transición democrática*”, which took advantage of some of the improvements achieved during the dictatorship with the support of international organizations (WHO, Rockefeller Foundation). Rafael Nájera took over the leadership of the National Centre of Microbiology, Virology and Immunology of the Carlos III Institute of Health. The first goal of his team, with an excellent scientific tradition in spite of the political circumstances of Francoism⁴⁷, was the eradication of polio through the introduction of the criteria of the WHO classification and characterization studies of polioviruses⁴⁸. The anti-polio vaccination rate had passed the 80% mark and subsequently reached 91% in 1996 (this was even thought to be below the actual figure as it did not include immunizations performed outside the public sector)⁴⁹. Furthermore, as we shall describe below, with the formal application of a specific programme for Spain, the authorities began use of the CMBD database (Conjunto Mínimo Básico de Datos – Basic Minimum Data Set), introduced into the Spanish Health System in 1987, as a complementary source of data to follow up cases of acute flaccid paralysis (AFP)⁵⁰. In 1995, the number of cases of AFP reported by the CMBD in the Spanish state among the under-15s was 66, a rate of between 1.2 and 1.6 cases per 100,000 inhabitants. None of these cases finally proved to be polio.

Implementation of the Poliomyelitis Eradication Plan in Spain

The report drafted at the first meeting of the *Global Commission for the Certification of the Eradication of Poliomyelitis* (GCC), mentioned above, was swiftly transmitted by the Ministry of Health and Consumer Affairs to the Autonomous Communities, which now held political responsibility for health. It is important to point out that this was the situation of a third of the Spanish Autonomous Communities in 1996. The rest of them had only political responsibility for public health and get for medical care some years later. The Autonomous Communities were asked to study

47 María-Isabel Porras; Mariano Ayarzagüena; Jaime de las Heras; María-José Báguena, eds., *El drama de la polio. Un problema social y familiar en la España franquista* (Madrid, 2013).

48 Rafael Nájera, “La última fase: la eliminación”, *Revista española de Salud Pública*, 87 (2013), 461–469.

49 Instituto de Salud Carlos III, “Plan de actuaciones necesarias para la consecución del Certificado de Erradicación de la Poliomielitis”, *Boletín epidemiológico semanal*, 5 (13) (1997), 126–128, p. 126.

50 The Flaccid Paralysis Syndrome (AFP) is characterized by a rapid muscular weakening in the lower limbs and, on occasions, in the respiratory muscles. It is essentially a disease of infancy. Its interest for polio surveillance is that this syndrome can be caused by polio.

the viability of the implementation of a Poliomyelitis Eradication Plan in Spain⁵¹, and an analysis was made of the strategies recommended by the WHO for the eradication of poliomyelitis in the European Region, based on the conclusions of the first meeting of the European Regional Commission for the Certification of the Eradication of Poliomyelitis⁵².

The organization of the Plan had a central structure, in which the Autonomous Communities participated in epidemiological surveillance and the monitoring of hypothetical cases. Nonetheless, poliomyelitis came to be seen as an increasingly distant threat. The Autonomous Communities and the Ministry maintained both technical relations (through the Epidemiological Surveillance Groups) and political contacts (through the Public Health Commissions). The highest level of political representation within the state of the autonomies on this and other questions was, and still is, the *Consejo Interterritorial del Sistema Nacional de Salud* (Interterritorial Council of the National Health System).

The first decision adopted at state level was the constitution, in 1996, of a *Working Group of the Poliomyelitis Eradication Plan (GT-PEP)* made up of representatives of the Ministry of Health and Consumer Affairs (General Board of Public Health, the Carlos III Health Institute and the National Institute of Health) as well as representatives of scientific societies (Epidemiology, Neurology, Pediatrics and Virology). Representatives of the Poliomyelitis Eradication Plan in the Autonomous Communities were subsequently appointed and a coordination meeting was held between them and the GT-PEP which approved a timetable for the process of certification of the eradication of poliomyelitis in Spain⁵³. The schedule covered the period between 1996 and 2000, and set milestones ranging from the introduction of a system of epidemiological surveillance of flaccid paralysis to the presentation of the final report of the GT-PEP to the National Committee in 2000.

The creation of a National Committee of Experts for the attainment of the Certificate of Eradication of Poliomyelitis in Spain, in 1997, represented the last of the bases required for the Plan to reach its goal⁵⁴. Recourse to experts was not a

51 Rafael Nájera, "Intentos y dificultades en la erradicación de la poliomielitis", in R. Nájera, coord., *Erradicación y control de las enfermedades producidas por virus* (Madrid, 2012), pp. 433–464.

52 *Report of the 1st meeting of the Global Commission for the certification of the Eradication of Poliomyelitis* (Geneva, 1995). WU WHO/EPI/GEN95.6 document WHO.

53 Instituto de Salud Carlos III, "Plan de actuaciones necesarias para la consecución del Certificado de Erradicación de la Poliomielitis", *Boletín epidemiológico semanal*, 5(13) (1997), 126–128.

54 Ministerio de Sanidad y Consumo. Instituto de Salud Carlos III. *Plan de actuaciones necesarias para la consecución del certificado de erradicación de la poliomielitis*. (Madrid, 1988). Ferrán Martínez -Navarro, "La Comisión Nacional para la certificación de la erradicación de la

compulsory criterion of the WHO, although it was an important recommendation and a feature of the organization's working methods, as we have described in other studies⁵⁵. This purely technical level, together with the political and administrative structures, was important from the point of view of the programme because among the recommendations of the WHO was the suggestion that this type of committee should include eminent professionals who were not directly involved in the measures to eradicate poliomyelitis. We should add that a review of the names of those who made up this Committee⁵⁶, shows that the experts, whose chairman was Ferrán Martínez Navarro – a highly experienced epidemiologist and renowned professional who had attended some of the European meetings mentioned above – provided guarantees that things should be done according to the guidelines. One of the spokespersons, the virologist and epidemiologist Rafael Nájera Morrondo, cited above, had been a member of the Florencio Pérez Gallardo's⁵⁷ working group of the National School of Health during the implementation of the first mass immunization campaigns.

The results achieved in the preliminary work led to the adoption of a series of decisions which took shape in a Proposal setting out the required measures to obtain the certificate of eradication of poliomyelitis in Spain. In brief:

- to set up an efficient service to monitor acute flaccid paralysis;
- to achieve and maintain high levels of immunization cover;

poliomiélitis” in Juan A. Rodríguez-Sánchez, Jesús Seco-Calvo, eds. *La poliomiélitis en Castilla y León. Vacunación, erradicación y efectos tardíos* (León, 2015, in press).

55 María-Isabel Porras; Rosa Ballester; María-José Báguena; Jaime delas Heras, “La Asociación Europea frente a la Polio y los programas europeos de vacunación”, *Dynamis*, 32(2) (2012), 287–310; Rosa Ballester; María-Isabel Porras; María-José Báguena, “La respuesta de las agencias internacionales (NFIP, OMS, AEP) al problema de la poliomiélitis” in M.I. Porras; M. Ayarzagüena; J. de las Heras; M.J. Báguena, eds., *El drama de la polio. Un problema social y familiar en la España franquista* (Madrid, 2013); María-Isabel Porras; María-José Báguena; Rosa Ballester, “Spain and the international scientific conferences on polio, 1940s–1960s”, *Dynamis*, 30 (2010), 91–118.

56 The composition was the following: President: Ferrán Martínez-Navarro, Chief of the Epidemiological Surveillance Area of the Instituto de Salud Carlos III of the Ministry of Health. Spokespersons: Two professors of Pediatrics and Neurology (Manuel Moya Benavent and Alberto Portera Sánchez), the President of the Health Advisory Council (José-María Segovia de Arana), the Chief of the Retrovirus Area of the National Center of Fundamental Biology of Majadahonda (Rafael Nájera-Morrondo), the Chief of the Biological Products Area of the IS Carlos III, Francisco Salmerón-García and two technicians from INSALUD and the National School of Health.

57 Florencio Pérez Gallardo was a prominent Spanish scientist who took part of the European Association against Poliomyelitis on behalf of the World Health Organisation. María-Isabel Porras; María-José Báguena; Rosa Ballester, “Spain and the scientific conferences on polio, 1940s–1960s”, *Dynamis*, 30 (2010), 113–119.

- to implement a system of environmental surveillance to detect wild polioviruses in individual and environmental samples and
- to carry out a seroepidemiological study to assess the immunity of the population.

The first three objectives responded point by point to the instructions of the WHO. The fourth was a supplementary measure which we have described in other studies⁵⁸ and which the Committee was able to include in the Project following the introduction in 1996 of a national seroepidemiological macro study, which was carried out in the Autonomous Communities and in the towns of Ceuta and Melilla in order to determine the serological profile of the population between 2 and 40 years of age in relation to such specific infectious agents as polioviruses 1, 2 and 3⁵⁹.

As we can see, the implementation of these systems in the National Epidemiological Surveillance Network were key to the work programme and of the specific measures of the network, which ranged from how to detect suspected cases to the arrangements for the laboratory which would deal with the stool samples and the most suitable laboratory techniques for the processing of suspected cases of acute flaccid paralysis. The weekly dispatch of this information to the European Regional Office of the WHO and the drafting of annual reports signalled the path towards the finishing line.

Nevertheless, from the outset, the monitoring system for acute flaccid paralysis in Spain suffered from low sensitivity and low reporting. The level of notified incidence in Spain was below the 2000 WHO estimate⁶⁰ of one case per 100,000 inhabitants. The reasons for this appear to be the absence of polio cases and the association between AFP and other conditions such as Guillain-Barré syndrome. Indeed, an active search for AFP in the National Minimum Dataset (a national collection of public and private hospital discharge information, including coded clinical data for inpatients and day patients) does provide a rate similar to the figure estimated by the WHO in most autonomous communities. This situation, and the

58 María-Isabel Porras; Rosa Ballester, “El significado histórico de las encuestas de seroprevalencia como tecnología de laboratorio aplicada a las campañas de inmunización. El caso de la poliomielitis en España”, *Asclepio*, 61(1) (2009), 55–80.

59 Instituto de Salud Carlos III, “Plan de actuaciones necesarias para la consecución del Certificado de Erradicación de la Poliomielitis”, *Boletín epidemiológico semanal*, 5(13) (1997), 128.

60 Isabel Pachón del Amo; C. Sanz Ortiz; B. Merino Merino, “Sistema de vigilancia de parálisis flácida aguda (PFA): descripción de los primeros casos notificados”, *Boletín epidemiológico semanal*, 5(31) (1997), 289–292. Isabel Pachón del Amo; M. C. Sanz Ortiz, “Certificación de la erradicación de la poliomielitis. Sistema de vigilancia de parálisis flácida aguda”, *Boletín epidemiológico semanal*, 7(18) (1999), 189–192. Isabel Pachón del Amo; M. C. Sanz Ortiz, “Certificación de la erradicación de la poliomielitis. Sistema de Vigilancia de Parálisis Flácida Aguda. Año 2000”, *Boletín epidemiológico semanal*, 9(8) (2001), 77–81.

fact that other western European countries (France and Great Britain) have ceased surveillance and instead have opted for environmental monitoring, have led the epidemiologist Ferrán Martínez Navarro to put forward a proposal to follow the example of these countries and to reinforce Spain's response capability in the eventuality of imported cases of polio.⁶¹.

Concluding Remarks

Throughout the paper we have shown how the programme for the eradication of polio in Spain was organized on the basis of the decision of the WHO in 1988. Although morbidity had already been reduced by that time, following the great efforts made during the 1960s, the measures taken to achieve certification contributed to the modernization of our system and the establishment of a national epidemiological surveillance network for polio which might be transferable to other infectious diseases. Indeed, polio vaccination represented the starting point for the establishment of vaccination calendars in Spain from 1975 onwards.

The results of the case study allow us to delve into the process by which an international health programme was implemented at a local level, its positive aspects and the difficulties that arose.

Rosa Ballester is professor of History of Science at the Department of Public Health and History of Science, Miguel Hernández University, Spain.

María-Isabel Porras is professor of History of Science at the Medical Faculty of Ciudad Real, University of Castilla-La Mancha, Spain.

María José Baguena is professor of History of Science at the Institute for the History of Medicine and Science, University of Valencia, Spain

⁶¹ Ferrán Martínez-Navarro, "La Comisión Nacional para la certificación de la erradicación de la poliomielitis" in Juan A. Rodríguez-Sánchez, Jesús Seco-Calvo, eds. *La poliomielitis en Castilla y León. Vacunación, erradicación y efectos tardíos* (León, 2015, in press).

References

- Association Européenne contre la Poliomyélite, *IV Symposium, Bologna, 20–22 September 1956*. (Bruxelles, 1957).
- Association Européenne contre la Poliomyélite, *VII Symposium. Oxford, 17–20 September 1961*. (Bruxelles, 1962).
- Aylward, Bruce, Harry F. Hull; Stephen L. Cochi et al., “Disease eradication as a public health strategy: a case study of poliomyelitis eradication,” *Bulletin of the World Health Organization* 78:3 (2000), 285–297.
- Báguena, María-José, Porras, María-Isabel, Ballester, Rosa, “Poliomyelitis in rural and urban Spain: epidemiological trends, social and scientific responses,” pp. 113–132 in A. Andresen, J. L. Barona and S. Cherry, eds., *Making a new Countryside*, (Frankfurt, 2010).
- Ballester, Rosa, María-Isabel Porras, “El significado histórico de las encuestas de seroprevalencia como tecnología de laboratorio aplicada a las campañas de inmunización. El caso de la poliomielitis en España,” *Asclepio* 61(1) (2009), 55–80.
- Ballester, Rosa, María-Isabel Porras; María-José Báguena, “La respuesta de las agencias internacionales (NFIP, OMS, AEP) al problema de la poliomielitis” pp.73–93 in M.I. Porras; M. Ayarzagüena; J. de las Heras; M.J. Báguena, eds, *El drama de la polio. Un problema social y familiar en la España franquista*. (Madrid, 2013).
- Bazin, Hervé *The Eradication of Smallpox*. (San Diego, 2000).
- Brown, Theodore M.; Marcos Cueto, Elisabeth Fee. *Historia, salud y globalización*. (Lima, 2013).
- “Certification of poliomyelitis eradication: European Region,” *Morbidity and Mortality Weekly Report* 51 (2002), 572–574.
- Chin, James “Can paralytic poliomyelitis be eliminated?,” *Clinical Infectious Diseases* 6 (Suppl. 2) (1984), S581– S585.
- Cueto, Marcos *The value of health. A history of the Pan American Health Organization*. (Washington, 2007).
- De Quadros, Ciro A., “The whole is greater: How polio was eradicated from the Western Hemisphere,” pp. 54–69 in Daniel Perlman and Ananya Roy, eds, *The Practice of International Health. A case-based orientation*. (New York, 2009).
- Fenner, Frank “The eradication of infectious diseases,” *South African Medical Journal* 66 (suppl.) (1986), 35–39.
- Fenner, Frank, Donald Henderson. Isao Arita, Zdenek Jezek, Ivan Danilovich Ladnyi, *Smallpox and its Eradication*. (Geneva, 1988).

- Henderson, Donald, "Smallpox eradication: a victory against the Cold War," *World Health Forum* 19 (1998), 115–121.
- Hinman, Alan R, William H. Foege, Ciro A. de Quadros, Peter A. Patriarca, Walter A. Orenstein and Edward W. Brink, "The case for global eradication of poliomyelitis," *Bulletin of the World Health Organization* 65 (1987), 839.
- Horaud, Florian, "Viral Vaccines and Cell Substrate: A 'Historical' Debate," pp. 151–154 in S.A. Plotkin, ed., *History of Vaccine Development*. New York, 2011.
- Hortsmann, Dorothy M., "Preface," *Reviews of Infectious Diseases*, 6 (Suppl. 2) (1984), S301.
- Instituto de Salud Carlos III, "Plan de actuaciones necesarias para la consecución del Certificado de Erradicación de la Poliomielitis", *Boletín epidemiológico semanal* 5:13 (1997), 126–128.
- Jiménez, M., "La polio no ha desaparecido", *ABC*, 05/06/1981, p. 28.
- Katz, Samuel L., Catherine M. Wilfert and Frederick C. Robbins, "The Role of Tissue Culture in Vaccine Development," pp. 145–148 in S.A. Plotkin, ed., *History of Vaccine Development*. (New York, 2011).
- Limia-Sánchez, Aurora, "La erradicación de la poliomielitis en la Región Europea de la Organización Mundial de la Salud", *Revista Española de Salud pública* 87 (2013), 507–516.
- Martínez-Navarro, Ferrán, "La Comisión Nacional para la certificación de la erradicación de la poliomielitis" in Juan A. Rodríguez-Sánchez, Jesús Seco-Calvo, eds. *La poliomielitis en Castilla y León. Vacunación, erradicación y efectos tardíos*. (León, 2015 (in press)).
- Ministerio de Sanidad y Consumo. Instituto de Salud Carlos III. *Plan de actuaciones necesarias para la consecución del certificado de erradicación de la poliomielitis*. (Madrid, 1988).
- Mosquera, Miguel, Natalia Barón, Rosa Ballester, "El camino hacia la erradicación de la poliomielitis a través de la Organización Panamericana de la Salud", *Revista Panamericana de Salud pública* 36(3) (2014), 185–192.
- Nájera, Enrique, Ángel Llácer, Luis Valenciano, E. Salmerón, Ferrán Martínez-Navarro, Manuel Mezquita, Florencio Pérez-Gallardo, "Análisis epidemiológico de la situación actual de la poliomielitis en España," *Revista de Sanidad e Higiene Pública* 49 (1975), 953–1025.
- Nájera, Rafael, "La última fase: la eliminación," *Revista española de Salud Pública* 87 (2013), 461–469.
- Nájera, Rafael, "Intentos y dificultades en la erradicación de la poliomielitis", pp. 433–464 in R. Nájera, coord., *Erradicación y control de las enfermedades producidas por virus*. (Madrid, 2012).

- Pachón del Amo, Isabel, C. Sanz-Ortiz and B. Merino-Merino, "Sistema de vigilancia de parálisis flácida aguda (PFA): descripción de los primeros casos notificados," *Boletín epidemiológico semanal* 5(31) (1997), 289–292.
- Pachón del Amo, Isabel and M. C. Sanz-Ortiz, "Certificación de la erradicación de la poliomielitis. Sistema de vigilancia de parálisis flácida aguda," *Boletín epidemiológico semanal* 7(18) (1999), 189–192.
- Pachón del Amo, Isabel and M. C. Sanz Ortiz, "Certificación de la erradicación de la poliomielitis. Sistema de Vigilancia de Parálisis Flácida Aguda. Año 2000," *Boletín epidemiológico semanal*, 9(8) (2001), 77–81.
- Poliomyelitis, Papers and Discussions presented at the Third International Poliomyelitis Conference.* (Philadelphia, 1955).
- Poliomyelitis, Papers and Discussions presented at the Fourth International Poliomyelitis Conference.* (Philadelphia, 1958).
- Poliomyelitis, Papers and Discussions presented at the Fifth International Poliomyelitis Conference.* (Philadelphia, 1961).
- Porras, María-Isabel, Mariano Ayarzagüena, Jaime de las Heras and María-José Báguena, eds, *El drama de la polio. Un problema social y familiar en la España franquista.* (Madrid, 2013).
- Porras, María-Isabel and María-José Báguena, "El conocimiento sobre la realidad de las campañas de vacunación contra la polio, su cobertura, su seguimiento, la percepción de la población sobre su eficacia y/o peligrosidad y el reflejo en la prensa diaria (1963–1975)," in *Conference: Política, salud y enfermedad en España: entre el desarrollismo y la transición.* Alicante, December 12–13. (Alicante, 2015 (in press)).
- Porras, María-Isabel, María-José Báguena and Rosa Ballester, "Spain and the scientific conferences on polio, 1940s–1960s," *Dynamis* 30 (2010), 91–118.
- Porras, María-Isabel, Rosa Ballester, María-José Báguena and Jaime de las Heras, "La Asociación Europea contra la Poliomielitis y los programas europeos de vacunación," *Dynamis* 32(2) (2012), 287–310.
- Report of the 1st meeting of the Global Commission for the certification of the Eradication of Poliomyelitis.* (Geneva, 1995).
- Seytre, Bernard and Mary Shaffer. *Histoire de la poliomyélite.* (Paris, 2004).
- Smallman-Raynor, Matthew R, Andrew D. Cliff, Barry Trevelyan, Clive Nettleton and Sam Sneddon, *A world geography. Poliomyelitis. Emergence to eradication.* (Oxford, 2006).
- Smith Joseph, Rose Leke, Anthony Adams and Rudolph H. Tangermann, "Certification of polio eradication: process and lessons learned," *Bulletin World Health Organization* 82(1) (2004), 24–29.
- Tuells, José, "El primer ensayo de campo sobre cadena de frío vacunal en España (Alicante, 1986–88)," *Vacunas* 2 (2009), 42–48.

- Tuells, José “El frágil inicio de la cadena de frío vacunal en España,” *Gaceta Sanitaria* 4(4) (2010), 354–357.
- Valenciano, Luis, Manuel Mezquita, Florencio Pérez Gallardo and Jesús Gabriel y Galán, “Estudio epidemiológico y virológico de la poliomielitis en España durante el quinquenio 1964–1968,” *Revista de Sanidad e Higiene Pública*, 43 (1969), 517–564.
- World Health Organization. *Report of the first meeting of the European Regional Commission for the certification of polio eradication*. Paris, 7–8 march 1996. (Geneva, 1996).
- World Health Organization. *The first ten years of the World Health Organization*. Geneva, 1958. World Health Organization. *The second ten years of the World Health Organization from 1958 to 1967*. (Geneva, 1968).
- World Health Organization. *Certification of Poliomyelitis Eradication in the European Region. Report on a WHO Meeting*. Vienna, 16–17 December 1997. (Copenhagen, 1998).
- World Health Organization. *The Third ten years of the World Health Organization, 1968–1977*. (Geneva, 2008).
- World Health Organization. *The Fourth ten years of the World Health Organization, 1978–1987*. (Geneva, 2011).

Acknowledgements

This work has been carried out within Projects N° HAR2012-39655-C04-01 and HAR2012-39655-C04-02 of the Spanish Ministry of Innovation, Economy and Competitiveness (MINECO). A preliminary version of this paper has been presented on the *Tercer Congreso Internacional de Humanidades Médicas* (São Paulo, Brazil, March 15-16, 2013).

Denial, oblivion and new fears: Poliomyelitis and the post-polio syndrome in the Spanish and Portuguese press (1995-2009)

Juan Antonio Rodríguez-Sánchez and Inês Guerra-Santos

Introduction: Learning to Forget Polio

In 1988 the World Health Assembly approved and launched the Global Polio Eradication Initiative, in which the governments of the member countries took part, as well as UNICEF, the US Centres for Disease Control and Prevention, the Rotary International and even the WHO, then followed by other organisations such as the United Nations Foundation, the World Bank and the Bill and Melinda Gates Foundation. This ambitious project not only had a strong scientific support regarding their viability, as well it was socially based on the success in eradicating smallpox, officially registered in 1980. The first results were obtained in the Region of the Americas, where the eradication certificate was achieved in 1994.¹ The European Region, the third to achieve it, would have to wait until 2002.

The initial optimism, sometimes close to a disproportionate triumphalism, led to the setting of a date for the worldwide eradication of poliomyelitis in the year of 2000, which was then moved to 2005 and further continuously postponed, although with setting a specific year. The situation in 2009 was not encouraging, with cases of polio in 23 countries, some of them countries in which polio had been considered eradicated. The following year would not be better, because although the number of cases decreased and there were only cases in 20 countries, 88.53% of the cases were in countries where polio was not considered endemic. In this scenario, the WHO launched its Strategic Plan 2010–2012 (OMS, 2010). However, continued attempts to achieve the objectives had been frustrated by repeated

1 Nascimento, Dilene Raimundo do, Marcos Cueto, Eduardo Ponce Maranhão and Deepak Sobti, “A erradicação da poliomielite na América Latina: comparando Brasil e Peru,” pp. 161–176, in Dilene Raimundo de Nascimento, org., *A história da poliomielite*, Rio de Janeiro, 2010.

expansions and new outbreaks of the virus in countries believed polio-free, to the point that the European Centre for Disease Prevention and Control considered, at the end of 2013, the risk of reintroduction of wild poliovirus in Europe from Syria and Israel.² In return, on March 27th of this year of 2014, the eradication has been certified in the South-East Asia.

The countries of the Iberian Peninsula, Portugal and Spain, declared the last cases of poliomyelitis produced by wild poliovirus in 1987 and 1989 respectively. However, this apparent parallelism occurred only on these final dates, as both endemism and vaccination had different models and results. Despite the high morbidity rate in both countries in the years of 1958 and 1959, the campaigns of mass oral vaccination did not arrive in Spain until 1963 and in 1965 in Portugal, after faint attempts of vaccination campaigns with the Salk vaccine, but locally, low impact on public health and some advertising revenue and justification of health policies in both dictatorships.³ The free oral mass vaccination campaigns were a huge success, which is demonstrated by the epidemiological statistics (Fig. 1).

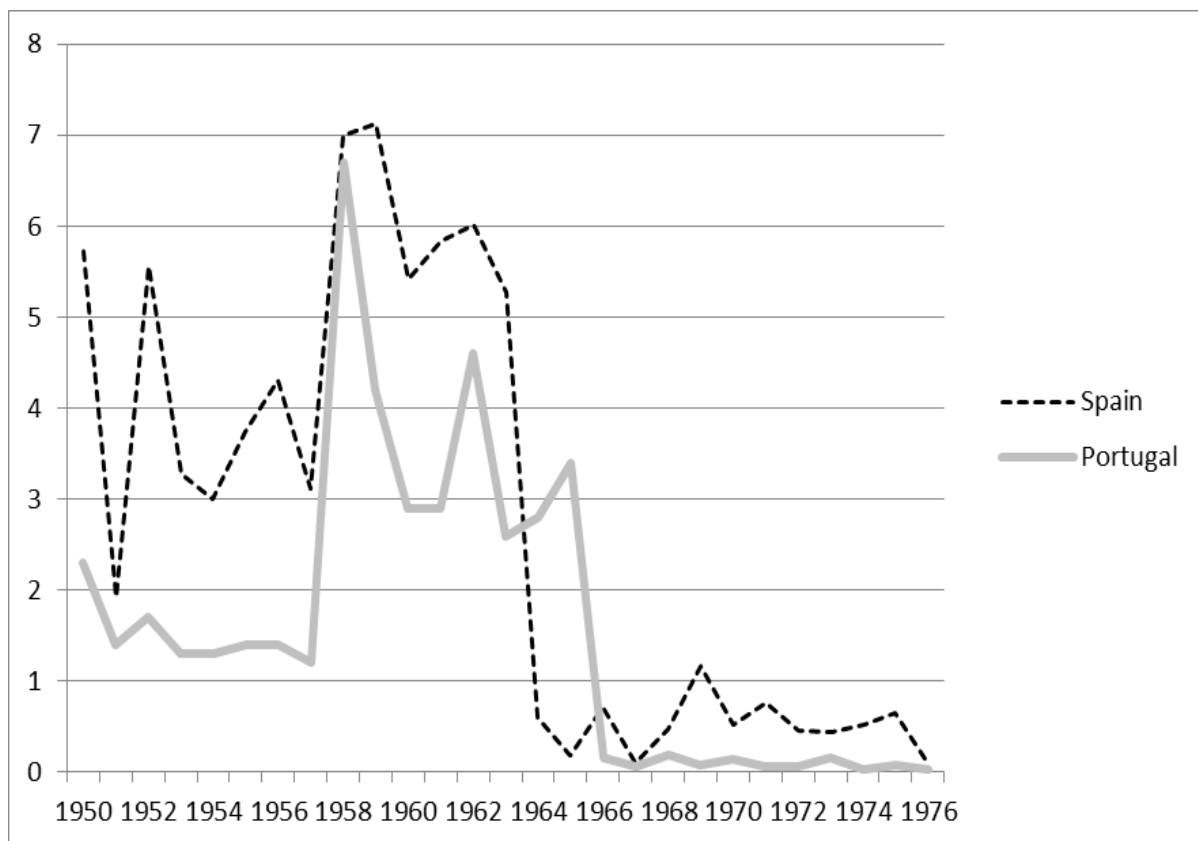
In Portugal the connection of this campaign with the beginning of the Programa Nacional de Vacinação (National Vaccination Program) allowed a better control of the vaccinations, which did not happen in Spain until 1975, year of the introduction of the Calendario Vacunal (Vaccination Schedule).⁴ Since 1966, the morbidity rates in Portugal did not surpass 0.1 (with the exception of the outbreak which took place in Madeira, in 1972) and since 1974 they were even lower, with 1977 as the first year with no case of polio registered. Spain, nevertheless, had, due to the referred reasons, higher morbidity rates than Portugal and the surrounding countries throughout the period and only managed to achieve an effective

2 European Centre for Disease Prevention and Control. “Risk of introduction and transmission of wild-type poliovirus in EU/EEA countries following events in Israel and Syria – updated risk assessment (9 december 2013). In http://ecdc.europa.eu/en/publications/layouts/forms/Publication_DispForm.aspx?List=4f55ad51-4aed-4d32-b960-af70113dbb90&ID=983 [15-01-2014]

3 Rodríguez-Sánchez, Juan Antonio and Jesús Seco Calvo, “Las campañas de vacunación contra la poliomiélitis en España en 1963,” *Asclepio* 61(1) (2009), 81–116; Guerra Santos, Inês, “A poliomiélite em Portugal: o ‘Refúgio da Paralisia Infantil’,” pp. 177–194 in Dilene Raimundo de Nascimento, org., *A história da poliomiélite*, Rio de Janeiro, 2010; Pinto, Sandrine Martins, Inês Guerra, Juan Antonio Rodríguez-Sánchez, João Rui Pita y Ana Leonor Pereira, “De las campañas de vacunación al calendario vacunal: el Programa Nacional de Vacinação português y las Campañas Nacionales de Vacunación Antipoliomielítica en España (1963–1976),” pp. 203–209, in Ricardo Campos Marín, Ángel González de Pablo, María Isabel Porras Gallo y Luis Montiel, eds, *Medicina y poder político*, Madrid, 2014.

4 Gil Prieto, Ruth, “Evolución de los calendarios vacunales en España,” pp. 139–156 in Enrique Perdiguer Gil, Enrique and Josep M. Vidal Hernández, coords., *Las vacunas: historia y actualidad*, Menorca, 2008.

Figure 1. Poliomyelitis morbidity in Spain and Portugal (1950–1976). Rate 0/0000



Source: Authors' own elaboration based on *Revista de Sanidad*, *Anuário Estadístico* and *Boletim Epidemiológico*.

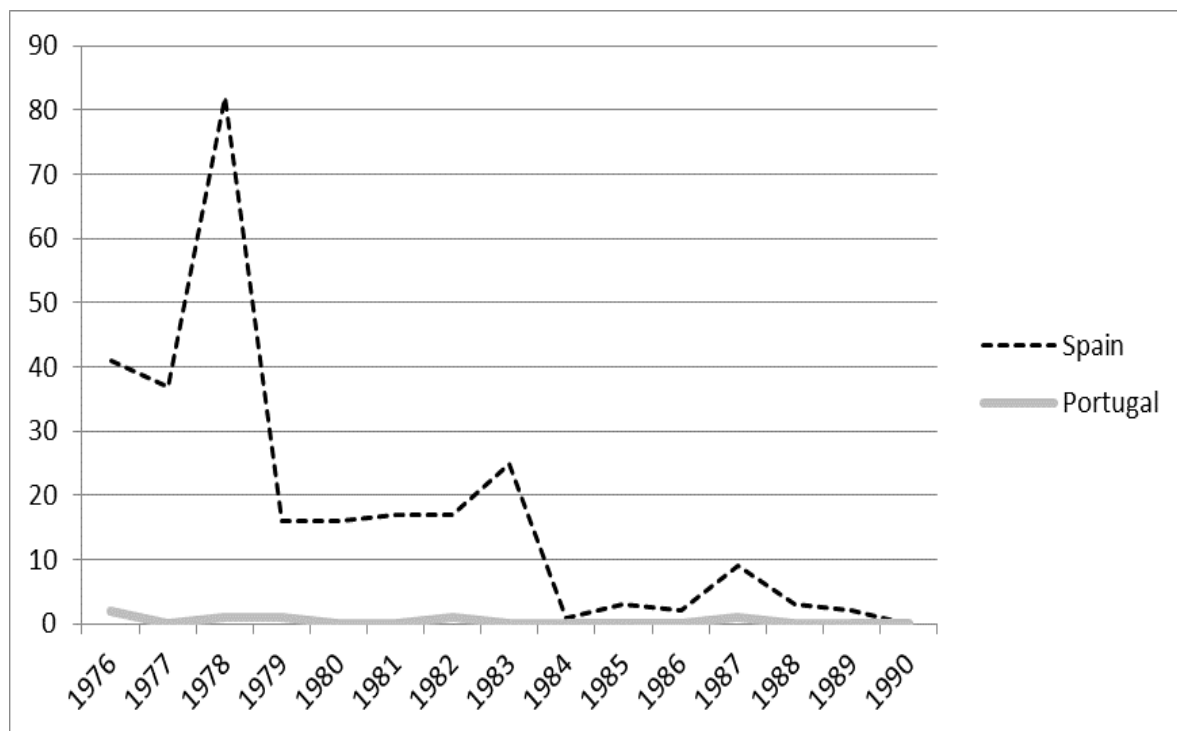
reduction in the 80s, when the new aid policies allowed reaching the whole children population.⁵

In Portugal, since 1979, there were only two cases of poliomyelitis, one in 1982 and, the last one, in 1987. In Spain it was not until 1989, that the cases of polio disappeared (Fig. 2).

This evolution of polio should be taken into account, for both the countries in the Iberian Peninsula and those in the whole of the European region and the world, to understand the social presence of its image and rapid forgetfulness, connected to the strong cultural imprint of a disease which affected younger children, leaving them with paralytic sequelae. Erase polio from the memory was a tacit strategy in the societies officially declared free of it, but little in accordance with the reality of those still living with the sequelae of polio, its late effects and even the appearance of the post-polio syndrome. Therefore, this work analyses the presence of polio in

⁵ Rodríguez-Sánchez, Juan Antonio, "Responsabilidades não assumidas: a poliomielite na Espanha (1954–1967)," pp. 195–224, in Dilene Raimundo de Nascimento, org., *A história da poliomielite*, Rio de Janeiro, 2010; Pinto et al, 2014.

Figure 2. Poliomyelitis morbidity in Spain and Portugal (1976–1990). N° of cases



Source: Authors' own elaboration based on Revista de Sanidad, Anuário Estadístico and Boletim Epidemiológico.

the Spanish and Portuguese press in a period marked by the eradication and the absence of the disease.⁶ The temporal dimension is marked by both international events: the first successful results in the global eradication of the disease – with the award of the certificate in the Region of the Americas in 1994 – and the first public recognition of the difficulties in meeting the eradication goals (with the creation of the Strategic Plan for 2010 by the WHO) and the implied goals for oblivion, as in 2010, the ICD finally recognised the post-polio syndrome as a nosological entity.

The Media Construction of the End of Polio

From a theoretical point of view it is considered that the news production corresponds to a social construction of reality in which social meanings are defined and redefined, formed and reformed. From this point of view and facing the objectives of this study, we have chosen to resort to the theories of agenda-setting and framing, two of the most representative contemporary theories of communication. Both developed from the seventies of the last century onward. The first one starts off with the studies of Maxwell McCombs, Bernard Cohen and

⁶ Smallman-Raynor, Mathew and Andrew D. Cliff, *Poliomyelitis: Emergence to Eradication*. Oxford, 2006, pp. 563–629.

functionalist paradigm, while the second originates in the streams of cognitive psychology and the sociology of Goffman.

The basic assumption of the theory of the agenda is that the issues highlighted by the media determine what the audience thinks. In other words, we can consider that the fact that the media are selective about the topics to which they pay more or less attention determines the importance that the audience itself will grant them. This fact acquires more importance if we think that this selection not only has an impact on public opinion, but it can also justify (or not) certain political actions (third level of performance of the agenda of the media, as suggested by Rogers and Dearing, 1988).⁷

In the same sense, the classical study by Lippman (1922) considers that the media determine the “cognitive maps of the world”, given that they transfer and grant highlight to certain images or discourses on certain themes.⁸ It is a simple principle: the elements which are more often highlighted by the media gain more relevance and importance for the audience. However, this principle cannot be considered new: the content analysis proposed by Bardin presupposed that the number of times a word or a group of words is repeated has a direct connection with the importance granted to a certain theme. The differential aspect raised by the theory of agenda is that perception of the importance of a theme is transferred to the audience itself, thus conditioning its priorities agenda, that is to say that the priorities of the first become those of the latter. Obviously, it is important to highlight that, if there are subjects which are emphasized, there are also others which tend to be deferred and even ignored.

If the theory of the agenda tells us about its impact on the matters, the theory of framing takes a step further in considering that not only is what to think defined, but also the content of that thought. For Entman (1993, p. 52), framing would mean relating certain aspects of the perceived reality and turn them more relevant in the communicative text with the goal to promote a particular definition of a problem.⁹ Although both theories tend to be confused, we can interpret the second one as an extension of the first, stepping from the domain of attention or focalisation to a different dimension: that of interpretation, understanding and interiorising (which leads to the subjective plan of opinion). The framing assumes contextualisation, identification of attributes (often distorted from reality), patterns of selection, inclusion/exclusion and emphasis/relegation.

7 Rogers, E. and J. Dearing, “Agenda Setting research: where has it been, where is it going?,” pp. 555–593, in J. Anderson, ed., *Communication yearbook II*, Newbury Park, CA, 1988.

8 McCombs, Maxwells, A Teoria da Agenda: a mídia e a opinião pública. Petrópolis, 2009.

9 Entman, R.M., “Framing: Toward clarification of a fractured paradigm,” *Journal of Communication* 43(4) (1993), p 52.

Entman (1991, p. 2) suggests that the new framing should be built on a basis of keywords, metaphors, symbols and images emphasized from the news, which ends up having an impact on the audience.¹⁰ Santos (2012) highlights that such influence surpasses the simple persuasion to imply alterations and variations in the relevance granted to a subject or another. The audience emerges then as a passive element.¹¹

The impact of the media on the public opinion may be justified by a sort of need for guidance. On the one hand, the audience wishes for such guidance to serve as a basis for their own constructions of reality and, on the other, the media have an opportunity to demonstrate, reinforce and legitimise their action. It is then understood that McCombs (2006) suggests that the bigger the need for guidance by the individuals, the greater the possibility that they will pay attention to the agenda of the media and undertake it as theirs, with an impact that may affect their own behaviour.¹² For this author, uncertainty would be another element to take into account, given that the increase of the degree of uncertainty is related to higher levels of the need for guidance. To this element we may add that of relevance: Severo (2007) relates this concept with that of uncertainty in the sense that a higher relevance tends to lead to a greater search for information to reduce that uncertainty and when it considerably diminishes, the audience resorts to the media only to follow possible changes in such an already known situation.¹³

One other element to be taken into account is the so called time-lag, the time interval which elapses between the media coverage by the media and the audience agenda, revealing the degree of importance attributed to the various themes.

Santos (2012) suggests that the agenda of the media is conditioned by a series of external factors, such as political pressure or the business strategies, which is also important to bear in mind.¹⁴

Finally, we must consider that the level of exposure to the media is decisive. The higher the individual's exposure to the media, the higher the probability that they will condition the thought; on the other, the larger the coverage / audience of the media, the larger its impact.

The resource to these theories as theoretical support implies a combination of quantitative and qualitative methodologies in order to identify, for example, which are the themes considered more relevant at a certain period of time and, simultaneously, which meaning is attributed to them.

10 Entman, R.M., "Framing U.S. coverage of international news: Contrast in narratives of the KAL and Iran air incidents," *Journal of Communication* 41(4) (1991), p 2.

11 Santos (2012) Santos, João de Almeida, *Media e poder: O poder mediático e a erosão da democracia representativa*. Lisboa, 2012.

12 McCombs, Maxwells, *Estableciendo la agenda: El impacto de los medios en la opinión pública y en el conocimiento*. Madrid, 2006.

13 Severo, Bruna Meireles, *A Imprensa e seus efeitos sobre a audiência*. Rio de Janeiro, 2007.

14 Santos, J.A, 2012.

In this article we start from the assumption that the media, particularly the journalistic writing, stopped perceiving polio as a problem in the countries of the Iberian Peninsula, progressively linked polio to programs of international cooperation and development (ICD) in countries in Africa and Asia and thus built an image of a distant and foreign disease which was already part of the past, both in Portugal and Spain. This fact, led to the reduction of information about polio – with the consequent neglect of it – and especially, and with worse consequences, about the post-polio syndrome. So being, polio and post-polio syndrome have been forgotten in the agenda of the media and, consequently, in that of the audience and even in the political agenda.

To this end we have analysed two newspapers in each country, of general information, paid, with a national scope, selected due to the fact that they are those with the largest circulation and readership in their respective countries and presented a broad ideological spectrum: *El País* (Prisa), *El Mundo* (Unidad Editorial, RCS Media Group), *Jornal de Notícias* (ControlInveste) and *Público* (Sonaecom). While the *El País* and the *Público* can be considered as having many common elements (not only their centre-left position, but also due to their membership in the World Media Network), the *El Mundo* is linked – through the Rizzoli group – to newspapers such as the Italian *Il Corriere della Sera* and its position is defined as liberal, close to the centre-right parties in Europe and very critical of the Partido Socialista Obrero Español (Spanish Socialist Workers Party). Also in the centre-right, more conservative than liberal, is the *Jornal de Notícias*, with a clear populist and regionalist trend. We must consider that in Portugal the diffusion rate of the written press was three times lower than the European average in the period of time analysed (and, together with Greece, the country of the European Union with less development of the daily press), although the audience (reading pervasiveness rate) was greater than the Spanish, which one needs to know to qualify the conclusions.

We conducted our research on their digitised printed editions (1995–2009), both to study a broad chronological period (15 years) and to explore the presence of polio not only as an article, but also in all references to it and the contexts in which they were produced, as the social impact of the disease has become part of a collective imaginary which grants it's with metaphorical uses and therefore associates it with hardly identifiable themes without resorting to automated digital search.

The problem met was the lack of digitisation of the Portuguese press for that period and also the hard and costly access to the one which was digitised. That motivated that, in the case of the *Público*, we only counted on the digital information as of the year of 2000, when its first graphical redesign occurred. The criteria for maintaining the daily *Público* as one of the objects of our research were due to the following considerations: the journalistic style, more reflexive, critical

and rigorous, and because it is a newspaper which despite the fact that in its print edition is not the most read, it is the one with the largest number of subscriptions in its digital edition. Methodologically, given that the inclusion criteria used result from a definition imposed by external conditions, understandable and reasonable, it allows us to consider that the results achieved are valid, as they result from objective proceedings, based in the same analysis criteria.

This methodological validity is reinforced by the criterion of comprehensiveness which conducted the research and analysis. For the research we used truncations and logical operators, starting from the intersection of more specific terms to progressively incorporate others, wider, until the exclusive use of the truncation *polio*. Albeit the documentary noise increases, it also allows us to check the comprehensiveness. The results have been divided into “entries” (or items) which are those informative or publicity pieces where poliomyelitis is referred and “articles” which are those informative pieces where polio is the main theme (it is present in the title, subtitle or opening paragraph, photo captions or a main approach in the body of the article). The specific features of inclusion and exclusion have been determined.

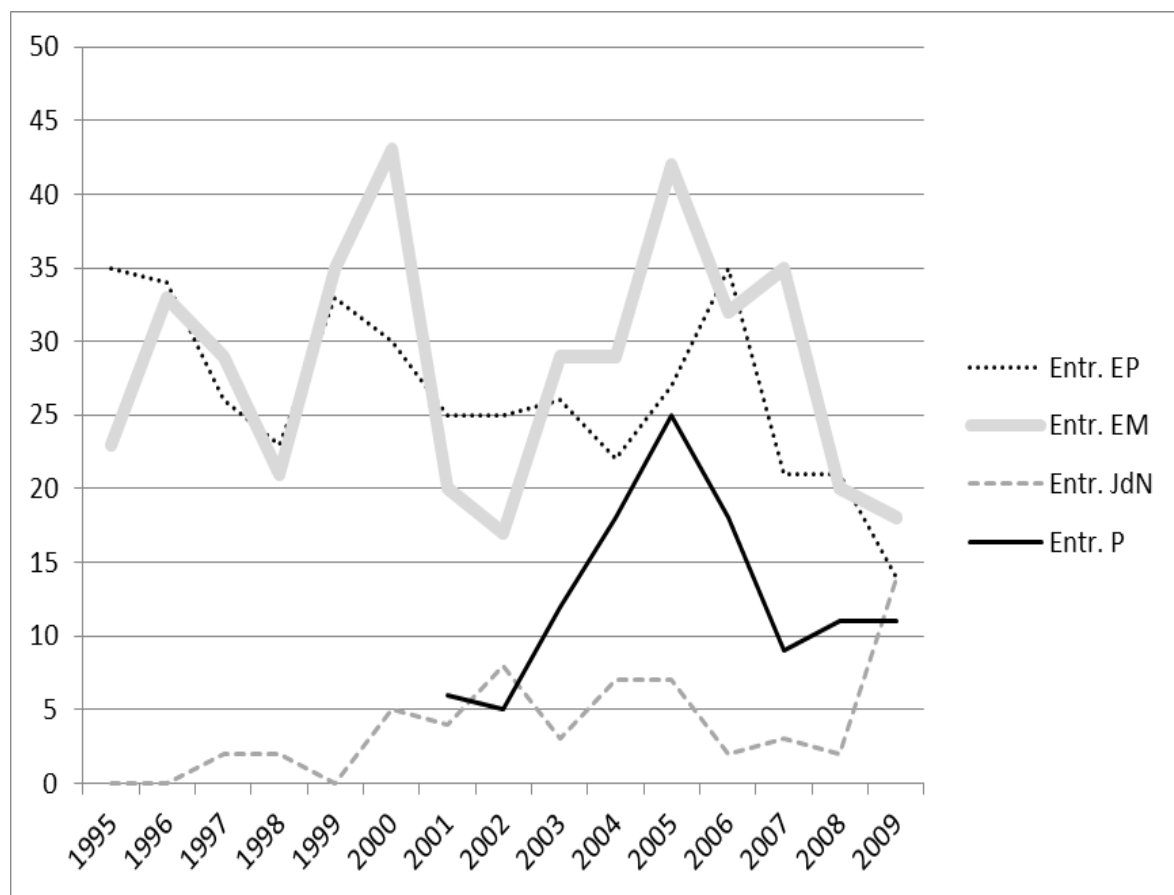
The quantitative results are presented on table 1 and figures 3 and 4.

Table 1. Entries and articles about polio and PPS in Spanish and Portuguese newspapers (1995-2009)

| Year | Entries polio | | | | Art. polio | | | | Entries PPS | | | | Art. PPS | | | |
|--------------|---------------|------------|-----------|------------|------------|-----------|-----------|-----------|-------------|----------|----------|----------|----------|----------|----------|----------|
| | EP | EM | JN | P | EP | EM | JN | P | EP | EM | JN | P | EP | EM | JN | P |
| 1995 | 35 | 23 | 0 | | 5 | 1 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1996 | 34 | 33 | 0 | | 5 | 3 | 0 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1997 | 26 | 29 | 2 | | 3 | 4 | 0 | | 0 | 1 | 0 | 0 | 0 | 1 | 0 | 0 |
| 1998 | 23 | 21 | 2 | | 0 | 0 | 0 | | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 |
| 1999 | 33 | 35 | 0 | | 1 | 1 | 0 | | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2000 | 30 | 43 | 5 | | 3 | 6 | 1 | | 2 | 2 | 0 | 0 | 1 | 0 | 0 | 0 |
| 2001 | 25 | 20 | 4 | 6 | 2 | 5 | 0 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2002 | 25 | 17 | 8 | 5 | 8 | 6 | 3 | 3 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2003 | 26 | 29 | 3 | 12 | 4 | 2 | 0 | 3 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2004 | 22 | 29 | 7 | 18 | 8 | 7 | 2 | 4 | 1 | 1 | 0 | 0 | 1 | 0 | 0 | 0 |
| 2005 | 27 | 42 | 8 | 25 | 6 | 6 | 2 | 6 | 1 | 0 | 0 | 0 | 1 | 0 | 0 | 0 |
| 2006 | 35 | 32 | 2 | 18 | 4 | 2 | 0 | 2 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2007 | 21 | 35 | 4 | 10 | 2 | 2 | 1 | 2 | 1 | 0 | 1 | 0 | 0 | 0 | 0 | 0 |
| 2008 | 21 | 20 | 5 | 11 | 1 | 1 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| 2009 | 14 | 18 | 17 | 11 | 2 | 5 | 1 | 0 | 2 | 2 | 0 | 0 | 1 | 0 | 0 | 0 |
| TOTAL | 397 | 426 | 67 | 115 | 54 | 51 | 10 | 22 | 14 | 7 | 1 | 0 | 7 | 1 | 0 | 0 |

Source: Authors' own elaboration.

Figure 3. Entries about polio in Spanish and Portuguese newspapers (1995–2009)

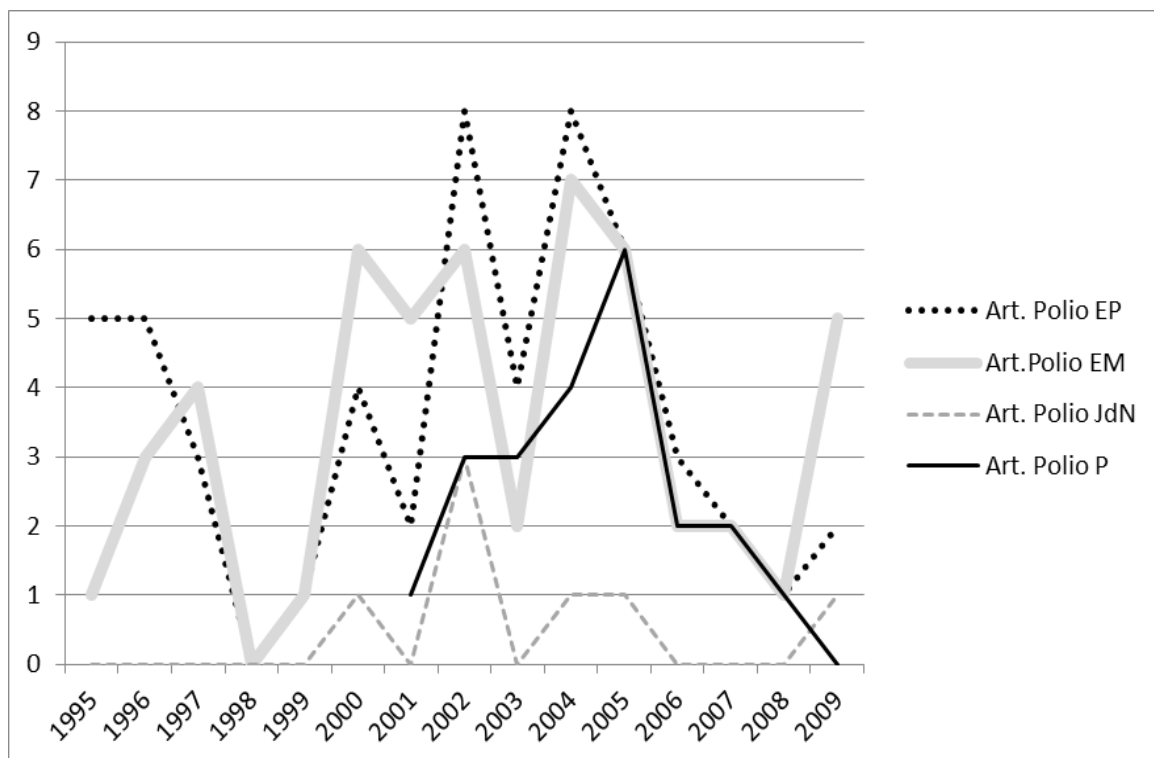


Source: Authors' own elaboration.

The various lines found between the entries or references found for Portugal and Spain (Fig. 3), especially in the case of the *Jornal de Notícias*, may also be attributable to the distinct precision in the information search and recovery system, normally resulting from the quality of the digitisation, given that the latter conditions the exactitude of the optical character recognition software (OCR). Notwithstanding, this consideration is only applicable to the entries with smaller characters (commercials, billboards, television), which are also those of lesser informative relevance and never to the articles.

The articles were subjected to a qualitative analysis (with the Atlas.ti software). The analysis was based on the grounded theory, initially free coding and later definition of hierarchies and creation of families of codes. From the results achieved, we have identified the main problems approached, which are those that structure the following presentation.

Figure 4. Articles about polio in Spanish and Portuguese newspapers (1995–2009)



Source: Authors' own elaboration.

A Disease Remote in Time and Space

The last case of poliomyelitis occurred in Spain, in 1988. In Portugal the last case took place in 1987, after a decade in which only three cases had been reported. The reduced morbidity rates and years free of polio cases led to a quick forgetfulness of the disease and its sequelae. The newspapers did so recognise and, although the certificate of polio eradication in the European Region was only achieved in 2002, their agendas stopped including polio as an important information theme.

For the period analysed, polio is approached from two points of view conditioned by the alienation of the problem. Polio becomes a health problem in countries in Africa and Asia which requires intervention according to the premises of international cooperation; a problem which not only appeals to solidarity, but also to the awareness of the effects it could have on the polio-free West to a new expansion of the virus. Therefore, the goal of eradication feeds, in the pages of the press, from both solidarity and fear.

The second perspective is that of polio in some countries in which there is no memory of it; consequently its image will emerge associated with the past through the sequelae of those who suffered from it, even if they will just have informative relevance when the virus is associated with other diseases that do constitute a public health problem or are part of scientific researches with various implications.

Therefore, we first analyse the information content referring to polio outside the Iberian Peninsula, and then we consider the issues about polio in Spain and Portugal which were object of attention for the press in the study period. The timing will be discussed later, as well as the issues that were not given informative relief.

From Charity to Solidarity

In the analysed period, the press builds a picture of poliomyelitis associated with poor countries and totally divorced from the reality of Portugal and Spain. The photographs accompanying the articles on vaccination campaigns are significant, whether or not they are photos of polio: the administration of oral vaccine becomes a symbol for vaccination and those who receive it are always children of readily identifiable ethnic groups (by race or clothes) and from other continents.

Polio is associated with poverty and ignorance, which, in the case of the Spanish press, has a more obvious approach in the *El País*: the descriptions of the remote areas where new outbreaks occur often present them as economically depressed and the most common obstacle to the success of vaccination campaigns would be the beliefs that would support the anti-vaccination. The difficulties for the eradication are mainly attributed to cultural reasons, although the role of armed conflicts is also highlighted. In the Spanish press, *El Mundo* will be the one which more explicitly expresses the economic cost of vaccination campaigns as one of the difficulties.

From this perspective, the countries affected by polio are portrayed as recipients of international cooperation actions for health, led by the WHO and UNICEF.

For the period under analysis, we can observe the movement of the forms of solidarity towards polio. Unlike Portugal, Spain had, since 1963, a specific association for people affected by polio. The date of creation indicates that this was an organization tolerated by the government of the Franco dictatorship and that it posed as a charity. For the period analysed, the ALPE (Asociación Española de Lucha contra la Poliomiélitis – Spanish Association against Polio) maintained these typical charitable activities through the collection of donations through concerts or auctions, whose funds would go to people with polio sequelae.¹⁵ The advertisements for these activities are abundant in the early years analysed and until the year of 2000, when financial problems led to the seizure of their property. In Portugal, people with polio integrated themselves into broader associative movements for people with disability, which contributed to their invisibility.

It is precisely the turn of the millennium which will mark this significant change, when the beneficence of ALPE towards people with polio from “here” would be

15 Rodríguez-Sánchez, Juan Antonio, “Las secuelas sociales de la polio: los inicios del movimiento asociativo en España (1957–1975),” *Dynamis* 32(2) (2012b), 391–414.

displaced by the demands of international organizations for cooperation in the eradication of polio in distant countries. The WHO and UNICEF thus became the organizations more strongly linked to polio in the press, which would be joined by the Rotary Club (and in particular, Rotary International), although the methods of fundraising remained similar: auctions and charity events, even though the latter would have the support of their television broadcasts.

In Portugal, the *Jornal de Notícias* maintained a connection between polio and charity, through a section of Catholic charity called “Every Man is your brother”, where there were requests for monetary assistance for people with financial difficulties who needed wheelchairs and other devices. This type of discourse can be considered residual of that evident connection to Catholicism - charity / welfare - disability which occurred in the countries of the Iberian Peninsula.¹⁶

The geographical distance between readers and disease is also reflected in the information about donors and Spanish researchers who will conduct their activity in countries with polio: Medicus Mundi, Intervida, Ayuda en Acción or missionaries from various religious congregations, present themselves as examples of international cooperation for the development, which include actions on polio.

In the case of Portugal, there would have to be the qualification of the special circumstance of proximity in time to the colonial era, which would justify the interest in polio in Angola (also discussed in the Spanish press, but less frequently), Mozambique, Cape Verde or Timor, close in time to its independence (1975), although geographically distant, which allowed to highlight the epidemiological break with the other links.

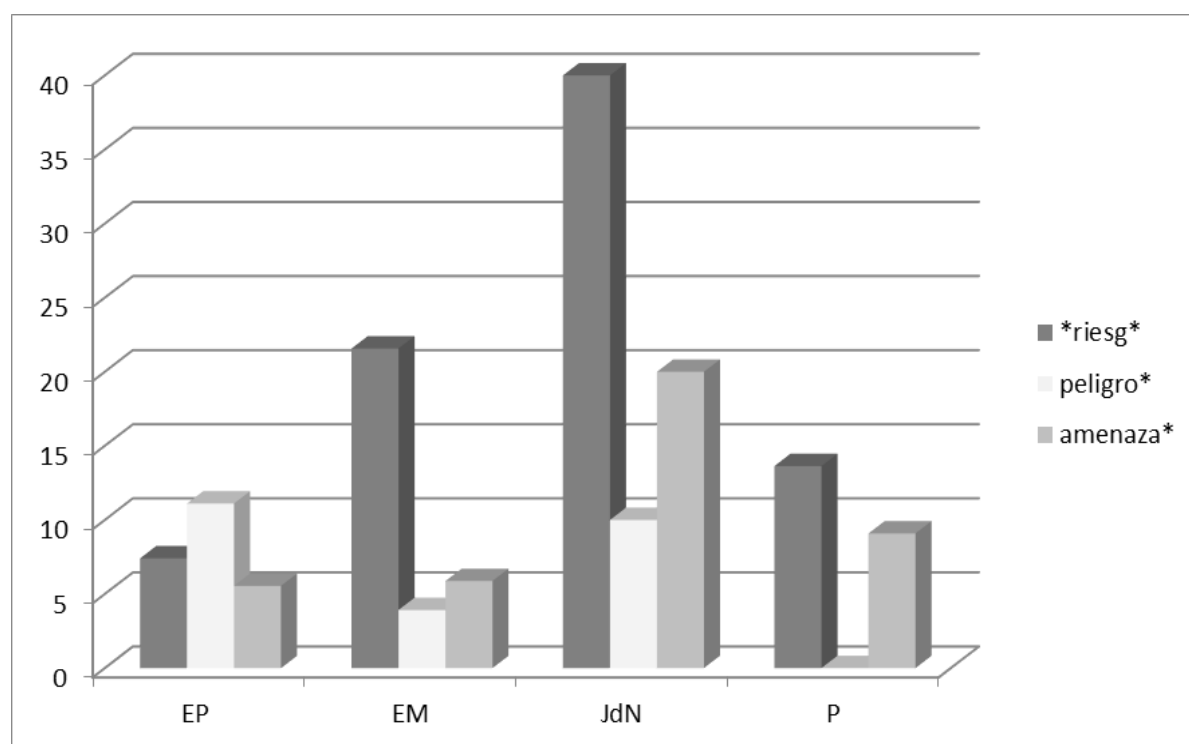
The Danger is the other: Polio as a Metaphor

The calls made by the media for solidarity to contribute financially to vaccination in countries with epidemics do not prevent these people from also being presented as an obstacle to the eradication and a constant danger due to the transmission of a virus that could return to the West .

Polio, in the newspaper articles analysed, is associated with terms like risk, danger or threat (Table 2 and fig. 5).

16 Rodríguez-Sánchez, 2012b; Rodríguez-Sánchez, Juan Antonio, Rosa Ballester Añón and Inês Guerra Santos, “El movimiento asociativo: una perspectiva internacional, nacional y de los casos de Madrid, Valencia y Castilla – La Mancha,” pp. 233–257, in María Isabel Porras Gallo, Mariano Ayarza Güena Sanz, Jaime de las Heras Salord y María José Báguena Cervellera, coords., *El drama de la polio: un problema social y familiar en la España franquista*, Madrid, 2013.

Figure 5. Articles about poliomyelitis and risk in Spanish and Portuguese newspapers (1995–2009). Rate 0/0



Source: Authors' own elaboration

Table 2. Articles about polio and risk (1995-2009)

| Year | Entries polio | | | | Art. polio | | | | Entries % | | | | Art. % | | | |
|----------|---------------|----|----|---|------------|----|----|---|-----------|-------|-------|------|--------|-------|----|-------|
| | EP | EM | JN | P | EP | EM | JN | P | EP | EM | JN | P | EP | EM | JN | P |
| *riesg* | 63 | 58 | 10 | 5 | 4 | 11 | 4 | 3 | 15,87 | 13,61 | 14,92 | 4,35 | 7,41 | 21,57 | 40 | 13,64 |
| peligro* | 49 | 43 | 3 | 2 | 6 | 2 | 1 | 0 | 12,34 | 10,09 | 4,48 | 1,74 | 11,11 | 3,92 | 10 | 0 |
| amenaza* | 28 | 23 | 3 | 4 | 3 | 3 | 2 | 2 | 7,05 | 6,57 | 4,48 | 3,48 | 5,55 | 5,88 | 20 | 9,09 |

Source: Authors' own elaboration.

The concern for the importation of the virus is clearly found in Portugal, due to the connection with the former colonies. The *Jornal de Notícias* develops such a discourse on early (the first article registered dates from 17-12-1997) and constant dates (1998, 2000, 2003 and 2004). Despite the vaccination coverage in the countries of the Iberian Peninsula, the immigrant begins to be seen as a potential threat, the bearer of microorganisms that were already part of the past. In the regional pages of the Madrid edition of the *El País* of 03-07-2005, we found the headline: "Healthcare is preparing a specific vaccination schedule for poorly immunized immigrants. There are outbreaks of diseases that were virtually

eradicated in the Community.” None of these outbreaks was polio, but vaccination was reinforced.¹⁷

To the extent that the dates shuffled to achieve eradication (2000 and 2005) evidence the failed attempt, newspapers (and the WHO) provide explanations in the form of news. The discourse focuses on the easy transmission of the virus and the vaccination campaigns as the only way to stop it. The risk for neighbouring countries becomes an image of global threat. In 2004 we find similar headlines in Portugal and Spain: “WHO alerts to poliomyelitis outbreak in Africa” (*Público*, 23-06-2004), “WHO warns of expansion of the biggest polio epidemic of the last few years in Africa” (*El Mundo*, 24-06-2004). Meanwhile, the *Jornal de Notícias* considered that the outbreak in Darfur (Sudan) posed a high risk of infection (*Jornal de Notícias*, 10-10-2004). One of the most descriptive headlines of this discourse can be found in the *El Mundo*: “Polio reappears in 17 countries / Experts located the source of new outbreaks in Nigeria, where there was a boycott of the vaccine in 2003 / This year, Yemen and Indonesia are the most affected” (*El Mundo*, 11-5-2005). The article, signed by Rosa M. Tristan, renders account of the problems in the region of Kano, in Nigeria, which led to an outbreak that spread across the north of the country and from there spread to neighbouring countries and other Islamic countries, due to pilgrimages to Mecca. It is quite interesting to transcribe the way it is narrated: “Two years ago, the most extreme Islamic authorities launched a boycott against the childhood vaccination campaigns which WHO and UNICEF had begun. They were accused of endangering their children in an international conspiracy against Muslims and refused immunization for months, until they are convinced that vaccines were reliable” (*El Mundo*, 11-5-2005, 38).

The way the Nigerian outbreak is interpreted also shows different journalistic uses of polio, closer to metaphor rather than objective information. The association between polio and Islam occurs more clearly in the Spanish press, and specifically in the newspaper *El País*, which will associate Nigeria with polio triple the times the *El Mundo* did so (45 times versus 15), having a clear position in the Nigerian anti-vaccination posture, promoted by fundamentalist religious leaders as the source of the spread of the epidemic. Beyond this explanation given by the WHO itself, the different distribution of the same in the two countries, and especially between the two Spanish newspapers, requires careful reflexion.

The chronological analysis of the association between polio and Islam that makes *El País* evidences that, of the 54 articles analysed, the term “Islamism” only appears in articles on polio as of July 29th 2003 (Fig. 6) . None of the 30 previous

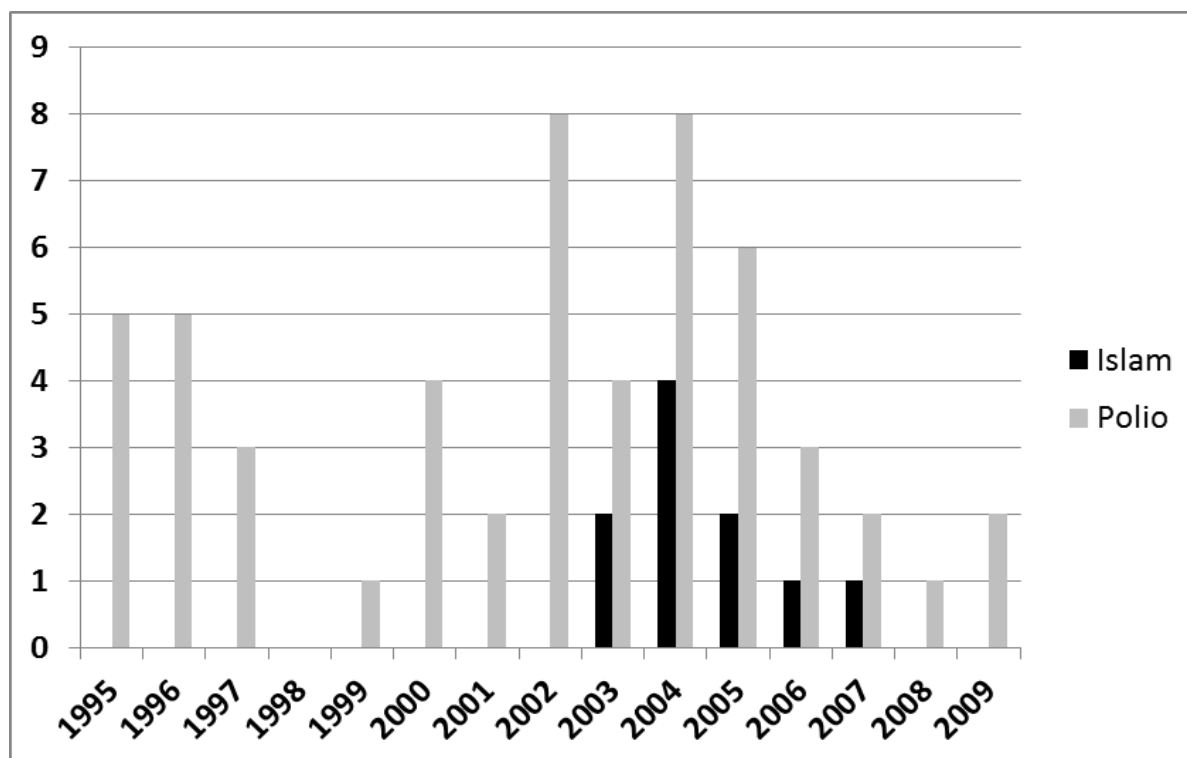
17 Otero García, Laura, Aproximación a las representaciones sociales sobre la salud de la población inmigrante en el discurso periodístico en prensa escrita española (2000–2006). Madrid, 2011.

Table 3. Relationship between polio and Islam (1995-2009)

| | EL PAÍS | EL MUNDO |
|----------------|---------|----------|
| Islam* | 17 | 2 |
| Fundamentalis* | 0 | 1 |
| Integris* | 4 | 0 |
| TOTAL | 21 | 3 |

Source: Authors' own elaboration based on *El País* and *El Mundo*.

Figure 6. Relationship between polio and Islam in *El País* (1995–2009)



Source: Authors' own elaboration.

articles linked both concepts, in contrast with 45.83% of the 24 posterior articles which did so. Some of the headlines raise no doubt, with the use of terms such as Islamists (fundamentalists, radicals) and boycott.¹⁸ An explicit statement dated 02-03-2004 assimilated fundamentalism with Islam and introduced the guilty verdict: “Up to seven countries have registered polio cases, in the last year, because of the Islamic authorities in northern Nigeria”.

While the first article offered more objective information (the Council of the Nigerian Sharia considered that vaccines contained the HCG hormone which would prevent fertility), the latter showed the Nigerian anti-vaccination devoid of background or context, prevailing only the image of fundamentalism. The article dated 30-03-2006, signed by Celia Dugger and Donald McNeil Jr. of the *The New York Times* (which would weekly select news from *El País* for publication in

18 López Gil, Pablo, Miguel Otero Iglesias, Miguel Pardo Pereira y Miguel Vicente Mariño, dirs., *La imagen del mundo árabe y musulmán en la prensa española*. Sevilla, 2010.

Spanish) allows acknowledgement of a full, more simplistic and radical construction, of how the Nigerian Sharia offered opposition to the vaccination of the West: the conspiracy theory had been sponsored by Dr. Ibrahim Datti Ahmed (Chairman of the Supreme Council of Sharia in Nigeria, political and religious opposition in northern Nigeria) during the 2003 elections when he did not obtain a position in the Department of Health of the secular federal government of the country.

It is noteworthy that the only article in the *El Mundo* that clearly associates fundamentalism and anti-vaccination against polio also comes from foreign signatories, in this case Declan Walsh (*The Guardian*): “Fundamentalism boosts childhood polio in Pakistan / Thousands of parents refuse to vaccinate their children against the disease because some clerics tell them that this is an American plot to sterilize them” (*El Mundo*, 16-02-2007). Its structure is very similar to that which had already been seen and, in the text, the Nigerian Anti-vaccination reappears as the source for the virus spreading to twelve countries which were free of polio.

Notwithstanding, it will be the newspaper *El País* to give some clues to understand the problem: the articles dated 28-10-2003 and 23-06-2004, signed by Emilio de Benito (specialist in health matters) refer that in 1996 Pfizer carried out a clinical trial of a drug against meningitis in northern Nigeria (the main opposition to the vaccine), in the region of Kano causing 11 deaths and serious sequelae in 200 other children; something which the Portuguese newspaper *Público* three years later echoes (“Nigerian state of Kano sues Pfizer for trial of drug which victimised children” *Público*, 6-6-2007). Only at the end of a short article of 31-07-2004 can we find another element to understand the anti-vaccination: “Doctor Bashir Sadiq Wali, head of the team in charge of the confirmation of the condition of the vaccines, states that the suspension of the campaign is due to 'the public mistrust towards the West’” (*El País*, 31-07-2004).

The different attitude among Spanish newspapers must be related to the events which were taking place in their own country: the participation of Spain in the invasion of Iraq rendered the country to be considered as target of jihadist terrorism, with the appalling consequences of the attack which took place on 11-05-2004. The different political views of both newspapers about the authorship of the Atocha terrorist attack should be considered as determinants in the development of such different discourses regarding polio and its expansion: from the perspective that Islamic fundamentalism is “the” threat, polio works as representing it.

A Two Faced Science

The information on polio in the analysed press offers different aspects once their presence in the West is contemplated and especially in the countries studied. Here information is usually linked to scientific aspects, primarily those involving new contributions, but also those which entail risks, feeding a wide range of anti-vaccination theories which, without any higher reliability than that seen in developing countries, are informatively treated with greater respect.

Virus, vaccine and vaccination become models: the virus for its structural simplicity; the vaccine for its efficiency; and vaccination as an example of great global project which will lead to eradication. This aspect does not motivate articles nor is it present in the headlines, but it is constant when analysing the operating framing. For this reason cross references are very common when any other issue is dealt with, given that polio provides for a comparison element known to readers and easily assimilated; it is therefore cited with reference to diseases such as HIV / AIDS, influenza, malaria, smallpox, tuberculosis and leprosy, in order of highest to lowest frequency.

The Poliovirus

On July 12th 2002, the *Jornal de Notícias* collected the opinion of American researchers about the danger of the production of the poliovirus in a laboratory. Those opinions were also reported by *Público* (12-07-2002) and on the following day, by *El Mundo* and the *El País*, which gave it front page coverage: “Pentagon-funded scientists created, in a laboratory, the poliovirus.” The subtitle left even clearer what the piece of news intended to convey: “The experiment, with DNA purchased by mail, raises the spectre of bioterrorism.” The article rendered account of the publication in the *Science Magazine* of the work by Eckard Wimmer’s team in the synthesis of the poliovirus from the available genetic information on it and emphasized the most dangerous aspects of the achievement. Wimmer himself understood, in an article dated 12-10-2002, the causes for alarm: “The project was approved in 1998, it had nothing to do with September 11th. If we had we published the results before that date, they probably wouldn’t have caused such an outrage. The fear of bioterrorism allowed emotions to run wild.” An increasing fear throughout the West.¹⁹

On April 15th 2003, the *Jornal de Notícias* abounded in the connection between polio and bioterrorism, with no need for synthesis, while reporting that a laboratory

19 Hecht, Alana, *Polio*. New York, 2009. 2nd ed., pp. 82–100.

had been looted from Iraq and free access to the virus had been achieved. In contrast, the *El Mundo*, which initially gave little importance to the artificial creation of the poliovirus (middle column on the 13-07-2002), explored the possibility of bioterrorism only after the publication of an article, on the 08-10-2004, about the creation in a laboratory of the virus of the Spanish flu of 1918. However, the most serious consequence of the achievements of artificially producing a virus was only featured in the headlines of *El País* on the 12-10-2002 “Never again will it be possible to eradicate a virus.” Eradication presents itself as utopia and vaccination as a continuous need.

The Vaccine

For the press, the polio vaccine is the one administered directly, with a few drops ingested orally, although paradoxically it never shows the name of Albert Sabin, despite constantly having the name of Jonas Salk connected to it, as if it were a surname, the “discoverer of the polio vaccine.” This connection goes further beyond Salk himself extending to his Institute, so that all studies on a vaccine against HIV were hopefully associated with polio, but always marking the difference between the simplicity of this vaccine compared to the highly complex ones which immunize against plasmodium or HIV. Other informative occurrences do not have any special meaning because they appear jointly with the periodic announcement of the vaccination schedules and their alterations, such as the introduction of the hexavalent vaccine, although it was advertised for the convenience of reducing “sticks” but without analysing the reasons and consequences of changing an attenuated virus for an inactivated one.²⁰

It is precisely this relationship with HIV that feeds one of the critical theories towards vaccines which has occupied more space in the press. It was disclosed by journalist Edward Hooper in his book *The River* (1999); he considered that during the tests for an oral polio vaccine (performed in the Belgian Congo by Hilary Koprowski, for the Wistar Institute in Philadelphia) would have unintentionally introduced simian immunodeficiency virus in the new vaccine. The *El Mundo* did not hesitate to give it the entity of article with a sensationalist title: “A laboratory in the USA could have created AIDS”, which, although being referred in the subtitle, is subsequently fostered by the drafting of a text which begins with “AIDS is the work of man” (*El Mundo*, 16-11-1999). In 2000 studies were performed which

20 Beale, A. John, “The Development of IPV,” pp. 179–187 in Stanley A. Plotkin, ed., *History of Vaccine Development*, New York, 2011.

dismissed this origin and refuted this theory,²¹ of which both the *El País* and the *Jornal de Notícias* gave information, this time as articles. The *El Mundo* also mentioned it, but only with a brief 11-line article.

Three other links were established between the polio vaccine and other diseases. The contamination of the polio vaccine with a virus found in apes (the SV40) was mentioned in articles like the one that dealt with the xenotransplantation by exposing the possibility of transmitting animal viruses to humans with unpredictable consequences (*El País*, 28-01-1998, 37). José Antonio López Guerrero, a virologist at the Autonomous University of Madrid, wrote an article in the *El Mundo* about the collateral damage of vaccines and echoed the studies of the Samaniego group which placed the SV40 transmitted by the polio vaccines as the source for lymphoma of unknown etiology (*El Mundo*, 17-06-2004).

Without having a specific character for polio, but rather for vaccines in general, some articles appeared on the mercury content of thimerosal – used as a preservative in vaccines – as the cause for autism (*El País*, 07-07-2005, sup. 5). The polio vaccine was one of the vaccines which, for this reason, the Americans anti-vaccination began to reject. The information came from the *NYT*, from which the *El País* offered the Spanish version of some selected articles. Nevertheless, the year before, the *El Mundo* had published an article in which, supported by scientific publications, the relationship between vaccines and autism or Type I diabetes was discarded (*El Mundo*, 03-04-2004).

A much more alarming situation which was reflected in the press of both countries in an immediately and simultaneous manner was that of the noncompliance, by the pharmaceutical company Medeva, of the European norm on bovine spongiform encephalopathy, which prohibited the use of bovine derivatives in the process of making medication, given that this disease, active in the cattle, could be transmitted to humans. Medeva have marketed bovine serum used in the preparation of vaccines against polio, which would open a possibility for the production of Creutzfeldt-Jakob disease. Although with some nuances, the three newspapers presented headlines on October 21st 2000: “The UK withdraws a polio vaccine” (*El Mundo*), “London and Dublin remove, out of fear of the 'mad cow' disease, a vaccine applied to thousands of people” (*El País*), “Vaccines against polio are safe in Portugal” (*Jornal de Notícias*). While the Portuguese headlines sought to reassure, the headline in the *El País* fired alarms.

The amount of information about vaccine risks and potential sustaining theories of anti-vaccination is not only not ridiculed as we have seen in the case of Islamic countries, but they are even sponsored, but ultimately refuted or a compensatory image of the benefits of vaccination is offered. The possible influence of the agenda

21 Koprowski, Hilary and Stanley Plotkin, “History of Koprowski Vaccine Against Poliomyelitis,” pp. 155–166, in Stanley A. Plotkin, ed., *History of Vaccine Development*, New York, 2011.

and framing is not manifested in actions consistent with the alarm or uncertainty that could have been generated, but the percentage of children vaccinated rises from 90% to almost 96%.²² This fact allows us to question the power of influence of the media agenda against a reality with a standardization supported by pragmatism.

Polio after Vaccination

The oral vaccine and its role in immunization save themselves with a balance in their favour within the information provided by the press. However, the risks of vaccination with attenuated viruses (such as the oral vaccination) always involve a small risk of producing what is called vaccine associated paralytic polio (VAPP). Another issue widely discussed, denied and disputed, is that of mutations of the virus in the environment and the recovery of its infecting and paralytogenic power.

Until 2000, *El País* published three articles (out of 14) which questioned vaccination: a brief note dated 23-10-1995 conveyed the American CDC recommendation to move on to the injectable vaccine in consequence of the cases of paralytic post vaccine polio presented; this is confirmed in another article dated 22-06-1996 and crowned with an article about a case of post-vaccine polio seven years after having been vaccinated (*El País*, 19-07-1997), all of which in the United States.

The dates and the type of articles were earlier than those published in the *El Mundo*, which only reports about the VAPP from 2000 onwards, with a good article by Carlos Marina Lopez within a long report dedicated to polio and its eradication (*El Mundo*, 12-04-2000). On the 25-11-2000, the column by Deborah Mackenzie, of the *New Scientist*, was reproduced; it reported on Mahoney varieties of the poliovirus in the French sewage and the risks involved. Some risks, such as those in the Dominican Republic and Haiti.²³ in that same year and in 2001, where an oral vaccine caused an outbreak of polio, as confirmed by ScienceXpress (*El Mundo*, 16-03-2002). It is noteworthy that all references of polio cases caused by the vaccine are backed with the signature of experts.

This important element of the persistence and outbreaks of poliomyelitis due to mutations of the virus (either the wild poliovirus or the vaccine virus) do not develop a reading that can taint the pro-eradication discourse: although the *El País* reported, on 12-10-2007, on a mutation of the virus in Nigeria, only the last article analysed in the *El Mundo*, a loose one which invites to further the information on the website of the newspaper, published on 29-09-2009, recognized one of the

22 Vigilancia de la Parálisis Flácida Aguda. Informes 2002–2012. Madrid: Centro Nacional de Epidemiología, 2009, 7.

23 Seytre, Bernard and Mary Shaffer, The death of a disease: a history of the eradication of poliomyelitis. New Brunswick, 2005.

problems: “since 2000 there have been 383 cases of polio caused by the vaccine in 11 countries.”

We can interpret that this theme is not coincident with the main axes of support to the eradication followed by newspapers analysed and that the dates of 2000 and 2005 as keys to get it will function as deterrents for the publishing of critical articles. The pro-eradication discourse of the early years, full of triumphalist optimism, silenced the reflections on the “collateral damages” of vaccination and, given the difficulties in achieving the goals of the WHO, the new discourse which held the Islamist anti-vaccination responsible for the failure only offered a monochromatic interpretation of the motives.

The Personal Dimension

Gallery of Famous People with Polio

Due to all that has been exposed, we can consider that polio in Spain and Portugal was associated with a distant and impersonal image, mainly consisting of numbers (of disease, of vaccine doses administered, of vaccinated children, of money invested or the need to achieve eradication). However, the strong imprint of the epidemics in the fifties survived in certain forms that show the lasting image of the polio created at that time.

The term poliomyelitis sometimes appears outside the health contexts to represent other ideas symbolized by polio, the most frequent of which are paralysis or immobility. One example for that is a sports article in which reference is made to a team that showed “superiority against an opponent with football polio and therefore limp since the race began” (*El Mundo*, 22-02-2004). This use of the term in one of the sections is interesting, that of sports, inasmuch as it is common to find references to athletes who suffered from polio. It is not only about the information on specific competitions and the Paralympic Games, but uses of another great stereotype of a person with polio as an example of continuous effort and overcoming difficulties. In this sense, the sports pages continuously associate Wilma Rudolph, Haile Gebrselassie or “Garrincha” who suffered from the condition and the tenacity with which they fought against adversity.

The pros and cons of praising effort, while standardization of a single desirable and possible principle for the social integration of people with polio sequelae, are unmasked in the use of language when referring to people. A comparison between the usage the two Spanish newspapers make of the words “discapacitado” (disabled) or “minusválido” (literally “with less value”, handicapped) when referring to people

with polio, shows that the first term is used most frequently by the *El País* (54.48% of the time compared to 49.51%), while the label of “handicapped” is used by the *El Mundo* in 83.02% of cases (compared to 61.90% of the *El País*). These differences in the implementation of the conventions of the “politically correct” language lead to the fact that the *El Mundo* even uses words like “diminished.”

The visibility of people who have had polio and had or have consequences arising therefrom, may be considered, according to the framing, in three different areas, but all of them defined according to the individual characterization, providing stereotypical features built in the collective imaginary surrounding the disease and those who suffered from it. The first scope and the more abundant one is that of celebrities in whose biographies the episode of having suffered from polio is constantly repeated. It is not only about the cases of Franklin D. Roosevelt or Frida Kahlo, but also a wide range of artists with not apparent polio sequelae, but for whom the condition is always associated with long time loneliness and isolation during their childhood, as well as personality traits which include a strong willpower, perseverance, the ability to overcome or the empathy for those who suffer. In some cases the predominant image is that of pain and suffering (the model of Frida Kahlo is reproduced in Chavela Vargas or Tanaquil Leclercq), in others that of overcoming it (the FDR model is shared primarily with athletes). Most notable is the absence of references to Portuguese or Spanish celebrities that had polio. We have only found a reference to the harm suffered by the singer Martirio (*El País*, 19-05-2002, 239) or a brief comment on the television comedian Mariano Mariano (*El Mundo*, 22-02-1997, 48); apart from the obituary of the music critic Gonzalo Badenes (*El País*, 22-09-2000, 40) or that of the writer Vicente Tortajada (*El Mundo*, 07-06-2003). This absence is not exclusively attributable to the press, but rather to the self-perception of those personalities about the stigma and discrimination from a hostile environment, which is common to others with minimal sequelae and greater integration capabilities that chose to disguise them and silence their origin.

The environment has hindered the personal and professional development of people with polio sequelae, far more when they are more severe, reducing the number of those who then achieve success. The media in Spain enable us to identify a second type that of people who are known for their activism in social movements associated to disability. In such cases we find that a significant proportion of its leaders were affected by polio, something consistent with the role that people with polio sequelae played during the Transition in the vindication of the rights of people of functional diversity.²⁴ In the Portuguese press there are only references to polio cases of celebrities, always foreigners, highlighting the main problem in the news agendas: the weak existing Portuguese association movement

24 Rodríguez, 2012.

was not been able to raise awareness in the media to include the issue in their agendas, which prevents the provision of information which allows the awareness of the problems caused by polio.

However, the third scope of the relation between celebrities in the media, and the affectation by polio, is a part of a style of articles which oscillate between the denunciation of social exclusion of the disabled and sensationalism, which is unevenly treated according to each newspaper. Here, the use of language, which we referred, is much more significant and polio sequelae are yet another element in the portrait of poverty and social exclusion.

One must mention polio as a feature of the person which it transcends due to the political use which the news agenda grants it. This is the case of a demonstration by the Asociación de Víctimas del Terrorismo (Association of Victims of Terrorism), in which a man suffering from polio participated in a wheelchair and was publicly accused by two socialist leaders to impersonate a victim of attack. The *El Mundo* repeatedly reported the case between 16-12-2006 and 14-02-2007, appearing in 16 entries, whereas in the *El País* we only find this reference once. This uneven use converts Joaquín Merino into the person with polio most quoted by the *El Mundo* about the origin of their disabilities, above FDR and Frida Kahlo.

The Post-Polio Syndrome (PPS)

The invisibility of people with polio and the agenda of each newspaper are a vicious circle difficult to break and with serious consequences on misinformation of people with polio sequelae on the health problems they may face. In the reporting period, neither the *Jornal de Notícias* nor the *Público* dealt with the post-polio syndrome (with the exception of a reference in the *Jornal de Notícias*, in 2007) we have not been able to confirm its presence despite the existence of an association of people affected by the disease, the Associação Pós-Polio de Portugal (Post-Polio Association Portugal), which even held two meetings and published three books on the matter. Its short life (1998–2007) and its intervention scope too close to Évora minimized its influence and thwarted its attempt to incorporate the post-polio syndrome into the agenda of the Portuguese press.²⁵

On the other hand, the Spanish newspapers analysed in this study provided the first reference to the PPS in 1997, in an article in which, for the first time, we can find the word in the Spanish press, in an entry: under the title “The benefits of the magnet,” the article focused on magnet therapy studies conducted by Carlos Vallbona, at Baylor College of Medicine, in Houston. The investigation had been conducted with patients of PPS and, of the three columns of the article, the journalist Myriam López Blanco spent one explaining what the disease was (*El*

25 Rodríguez, Ballester, Guerra, 2013, p. 251.

Mundo, 27-11-1997). The *El País* gave the same information in the following year (20-07-1998) and the *El Mundo* still continued to report the issue on two other occasions (16-06-1998 and 11-03-2000), the last one to mention studies which refuted the usefulness of therapy. The only other initial mention made to PPS in these year will be a reference to suffering by Arthur C. Clark (*El País*, 01-11-1999 and, belatedly, the only reference to PPS in the Portuguese press, in the *Jornal de Notícias*, in 2007).

Nevertheless, the references to post-polio syndrome are rare (only 21 in 15 years) and only from 2000 onwards is it located in Spain. *El País* doubles the number of entries regarding the *El Mundo* (15 versus 7) and when the subject is approached it usually is so extensively (7 articles compared to only 1 in the *El Mundo*, quoted on Vallbona, in the United States). We must also consider that the articles in the *El País* account for 50% of the references made to the PPS and almost 13% of all the articles on polio (Table 4).

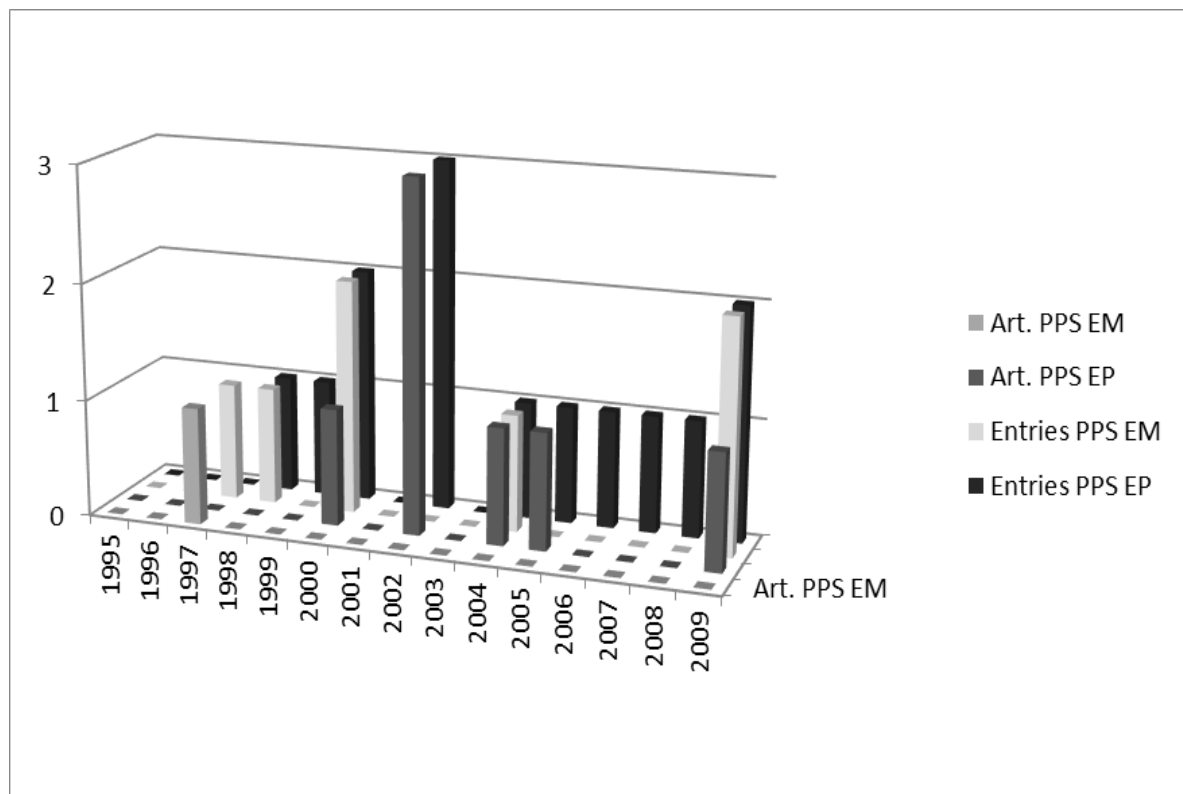
Table 4. Entries and articles about polio and PPS (1995-2009)

| Año | Entries polio | | Artículos polio | | Entries PPS | | Articles PPS | |
|--------------|---------------|------------|-----------------|-----------|-------------|----------|--------------|----------|
| | EP | EM | EP | EM | EP | EM | EP | EM |
| 1995 | 35 | 23 | 5 | 1 | 0 | 0 | 0 | 0 |
| 1996 | 34 | 33 | 5 | 3 | 0 | 0 | 0 | 0 |
| 1997 | 26 | 29 | 3 | 4 | 0 | 1 | 0 | 1 |
| 1998 | 23 | 21 | 0 | 0 | 1 | 1 | 0 | 0 |
| 1999 | 33 | 35 | 1 | 1 | 1 | 0 | 0 | 0 |
| 2000 | 30 | 43 | 3 | 6 | 2 | 2 | 1 | 0 |
| 2001 | 25 | 20 | 2 | 5 | 0 | 0 | 0 | 0 |
| 2002 | 25 | 17 | 8 | 6 | 3 | 0 | 0 | 0 |
| 2003 | 26 | 29 | 4 | 2 | 0 | 0 | 0 | 0 |
| 2004 | 22 | 29 | 8 | 7 | 1 | 1 | 1 | 0 |
| 2005 | 27 | 42 | 6 | 6 | 1 | 0 | 1 | 0 |
| 2006 | 35 | 32 | 4 | 2 | 1 | 0 | 0 | 0 |
| 2007 | 21 | 35 | 2 | 2 | 1 | 0 | 0 | 0 |
| 2008 | 21 | 20 | 1 | 1 | 1 | 0 | 0 | 0 |
| 2009 | 14 | 18 | 2 | 5 | 2 | 2 | 1 | 0 |
| TOTAL | 397 | 426 | 54 | 51 | 14 | 7 | 7 | 1 |

Source: Authors' own elaboration based on *El País* and *El Mundo*.

Notwithstanding, the chronological distribution of these articles evidences that the attention they received was directly related to the informational interest aroused

Figure 7. Post-Polio Syndrome in *El País* and *El Mundo* (1995–2009)



Source: Authors' own elaboration.

by polio at certain times. This is the case of the year of 2002, the year in which more references and articles were published on the PPS, but also the year when the certification of polio eradication was obtained in the European region and the artificial virus was produced (Fig. 7).

In the seven pieces of information from the *El País* classified as articles, we considered how the PPS was presented, either with more emphasis on polio and presenting it as a result thereof or focusing on the PPS as a current problem. As the number of articles was so scarce, the determining factor seems to have been the journalist. The first articles, signed by Gabriela Cañas, focused on a dramatic image of the vengeful return of the virus: “The post-polio syndrome, the revenge of a virus that the world is about to eradicate” (07-03-2000) “The post-polio syndrome strikes the survivors 30 years later” (05-02-2002). A different view compared to the posterior articles by Emilio de Benito, focused on the claims of those affected, “Congress demands support for those affected by the post-polio syndrome” (19-03-2002), “A judge asks if there is negligence of the State in 36.000 cases of post-polio” (18-07-2005).

It is important to bear in mind this presentation of the syndrome by the effect it has on the readers, and especially on those with polio sequelae. Only the first article of Gabriela Cañas clarifies that not all people will suffer (and endorses this perspective with rehabilitation experts, such as Ana Águila Maturana), whereas the second one presents the PPS as inevitable. The ambiguity present in scientific

studies (thus, before a formerly described clinical entity, baptized in 1985, but only recently made official - in 2010 - there are no reliable case studies to enable a well-founded prognostic) offers a large margin for speculation, which consciously or unconsciously, is used ever since the association movement for its claims. Here, it is important to consider the context, since most of the articles on PPS will dispense the testimony of health professionals and will be based only on the number of people affected and one of their associations (the Asociación Afectados de Polio y Síndrome Post-polio, AAPSP, Association for the Affected by Polio and Post-Polio Syndrome), demanding judicial accountability by the State for the cases of polio that could have been avoided and those of post-polio that could have been assisted and criticises oral vaccination with attenuated virus.²⁶ Emilio de Benito renders account of the data provided by the association: facing the 30.000 affected by polio (according to the unreliable and incomplete official statistics of the Franco administration), the association sustains that there are 300.000 and applying the forecast of how many can come to develop PPS, it estimates there will be about 150.000, a figure which the journalist turns into subtitle of the article. Nevertheless, the report made by the Agencia de Evaluación de Tecnologías Sanitarias (AETS, Agency for Health Technology Assessment), following the contrast of varied databases, had ciphered, in 2002, the existence of 42.651 people in Spain with some degree of disability derived from polio sequelae, which enabled them – applying the wider ranking of prognosis for the appearance of PPS in people affected by polio (between 22% and 85%) – to estimate that, in Spain, there could be between 9.383 and 36.253 people with the syndrome.²⁷ These conclusions were presented in an article dated 30-07-2002, despite which the same article continues to include the figures estimated by the association, for anyone who had had polio but had not had paralysis may develop the dreaded PPS. Nevertheless, now in the headline the figures are those provided by the AETS.

It is interesting to contrast this framing of the *El País* with the one offered by the *El Mundo* for the first reference to the PPS at the national level, something which happens in the context of a comprehensive report on the eradication of polio in the world (*El Mundo*, 21-02-2004). The section is titled “Pain, fatigue and tiredness several decades after” and is signed by Isabel F. Lantigua, a reporter specialized in health matters. This fringe at the bottom of the page again is centred yet again on the information which comes exclusively from patients and specifically from the AAPSP. More cautious regarding the figures, the final reference in the report by

26 Rodríguez-Sánchez, Juan Antonio, “La persona enferma como experta: los cambios sociosanitarios promovidos por el asociacionismo polio-postpolio en España,” *Estudios do Século XX* 12 (2012a), 104–122.

27 Bouza Álvarez, Carmen , Ana Muñoz van den Eynde y José M^a Amate Blanco, Síndrome post-polio:Revisión de la literatura, situación en España y posibles líneas de actuación. Madrid, 2003.

the AETS places the incidence between 10.662 and 36.253 affected. The perspective assumed by the journalist does not explore the past but focuses on the present and, specifically, on the problems arising from the lack of knowledge on polio and PPS by most health professionals, which makes the diagnosis harder to achieve.

This agenda and framing of the *El País* towards the PPS had another clear effect on the public agenda and, particularly, on those affected by polio as it promoted the active search for information through the associations. It is said that the articles, though rare, were widespread. All but one contained a photograph of the president of the AAPSP, Lola Corrales, and in the first four there was the URL address and the phone number. The positioning of the newspaper in favour of associations is also seen through the endorsement of the “politics of numbers” used by the associations affected by diseases of low prevalence, presenting to the headlines higher prevalence estimations.²⁸ The effect on the public agenda was observed by the AAPSP itself, because after each occurrence in the press they were contacted by people who thought they could suffer from the syndrome, according to testimony from the president herself. Thus not only is the power of the media agenda ratified, but also the strategies needed for the associations of those affected are shown in order to get the disease introduced.²⁹

Reality and News: Chronological Analysis

The lack of information about post-polio syndrome and the rare mentioning of the problems experienced by people with polio sequelae are not the only maladjustment between reality and what is considered news, and that which becomes part of the news agendas in Portugal and Spain. The evolution of the news during the period analysed reveals common trends, although with some variations according to the newspaper.

In some countries with no new cases of polio for more than some years, the international health agendas marked the Iberian news agendas. Therefore we can establish a separation into two periods, whose dividing date would be the year of 2000, a year full of symbolism and the first of those considered by the WHO as the year when polio would be eradicated from the world. In fact, both the entries and

28 Rabeharisoa, Vololona, Michel Callon, Angela Marques Filipe, João Arriscado Nunes, Florence Paterson and Frédéric Vergnaud, “From ‘politics of numbers’ to ‘politics of singularisation’: Patients’ activism and engagement in research on rare diseases in France and Portugal,” *BioSocieties*, 2014, 1–24, in <http://www.palgrave-journals.com/biosoc/journal/v9/n2/pdf/biosoc20144a.pdf> [12-06-2014]

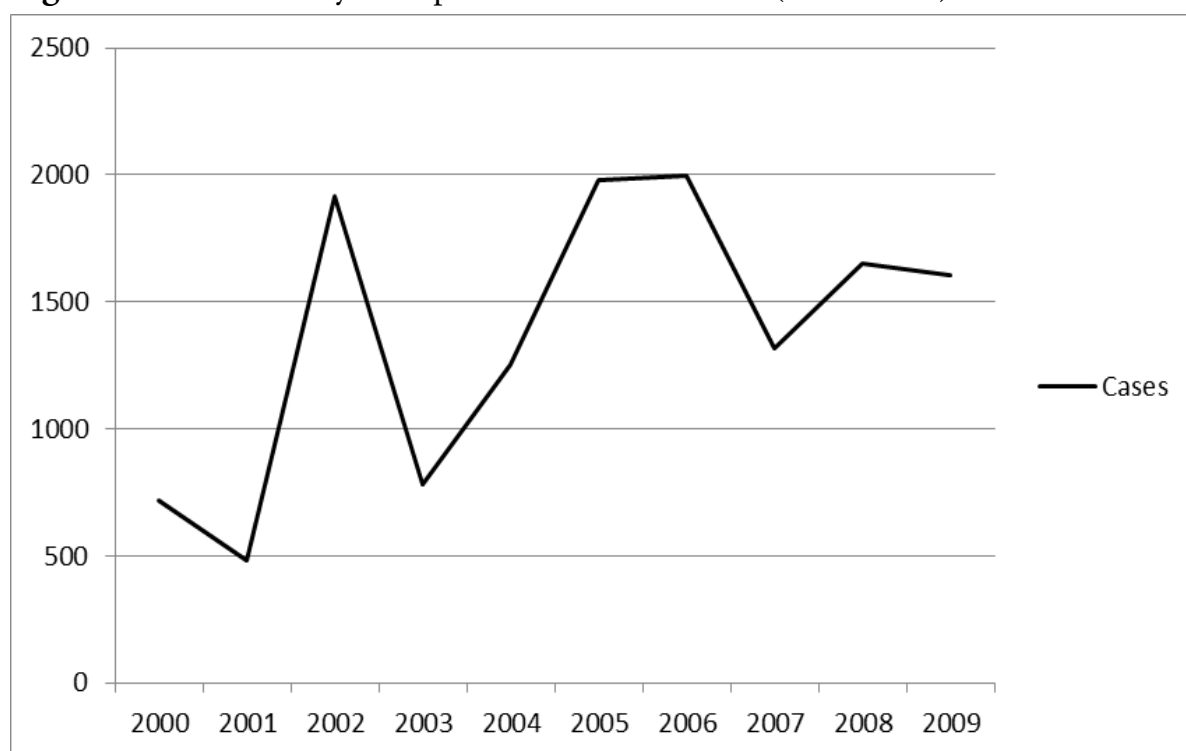
29 Talley, Colin, “The Combined Efforts of Community and Science: American Culture, Patient Activism, and the Multiple Sclerosis Movement in the United States,” pp. 39–70, in Randall M. Packard, Peter J. Brown, Ruth L. Berkelman and Howard Frumkin, eds, *Emerging Illnesses and Society: Negotiating the Public Health Agenda*, Baltimore, 2004.

the articles produced in this first phase are encouraged by the announcement by the WHO on this deadline for the eradication: in 1995, the WHO chose as motto for the World Health Day “A World Without Polio” and the following year the virology congress held in Toledo offered some titles to the press which occupied the front page of the *El País* in 13-05-1996 (“Polio and measles soon be eradicated worldwide”). Failing to announce eradication on the due date, the *El País* also turned into news the fact that “The poliovirus has disappeared from Europe” (*El País*, 26-12-1999), after one year elapsed with no cases reported in the European region. Meanwhile, the *El Mundo* put corollary to this first phase of optimism devoting a large report on polio in its supplement “El Cultural” of 12-04-2000, with two articles, one on “The End of Polio” and another on “New vaccines”, respectively signed by Jorge Alcalde and Carlos Marina López,

It is necessary to focus the analysis for this early period, in the Spanish case, on the articles, as the entries are increased by the announcements made by ALPE of their charities, which are repeated on successive days. However, both entries and articles evidence a marked decline in 1998, when no article on the subject is published. This seems to reflect how the information shown was connected to the campaigns by international organizations.

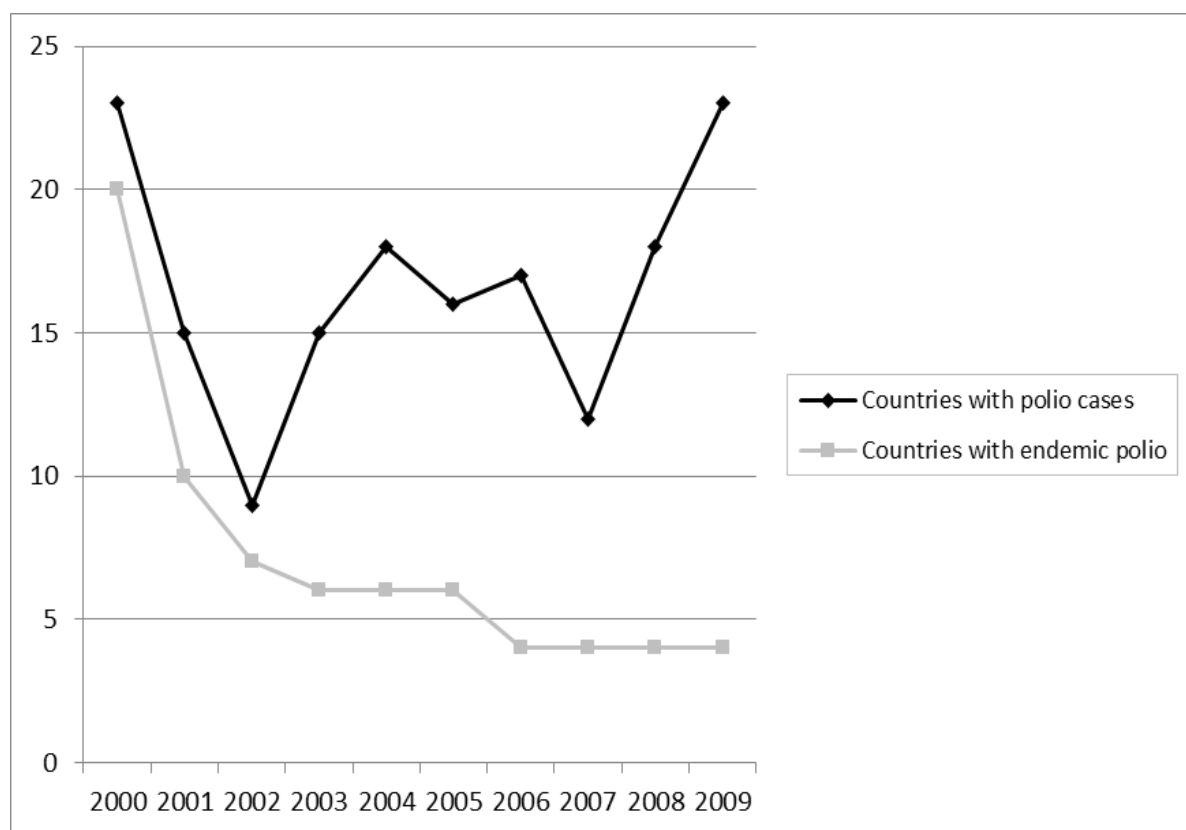
This relationship is clearer in the next period, marked by the failed first announcement of eradication in 2000 and a similar failure in the goal set for 2005. It is important to correlate the articles which the press dedicated to polio with three parameters which enable us to know what was happening with the disease, in the world: the number of reported cases, the number of countries reporting cases, many of them considered of endemic polio and finally how many of the cases reported did it in countries with endemic polio and how many in those where it was not. The following three graphs evidence such evolution.

Figure 8. Polio cases by wild poliovirus in the world (2000–2009)



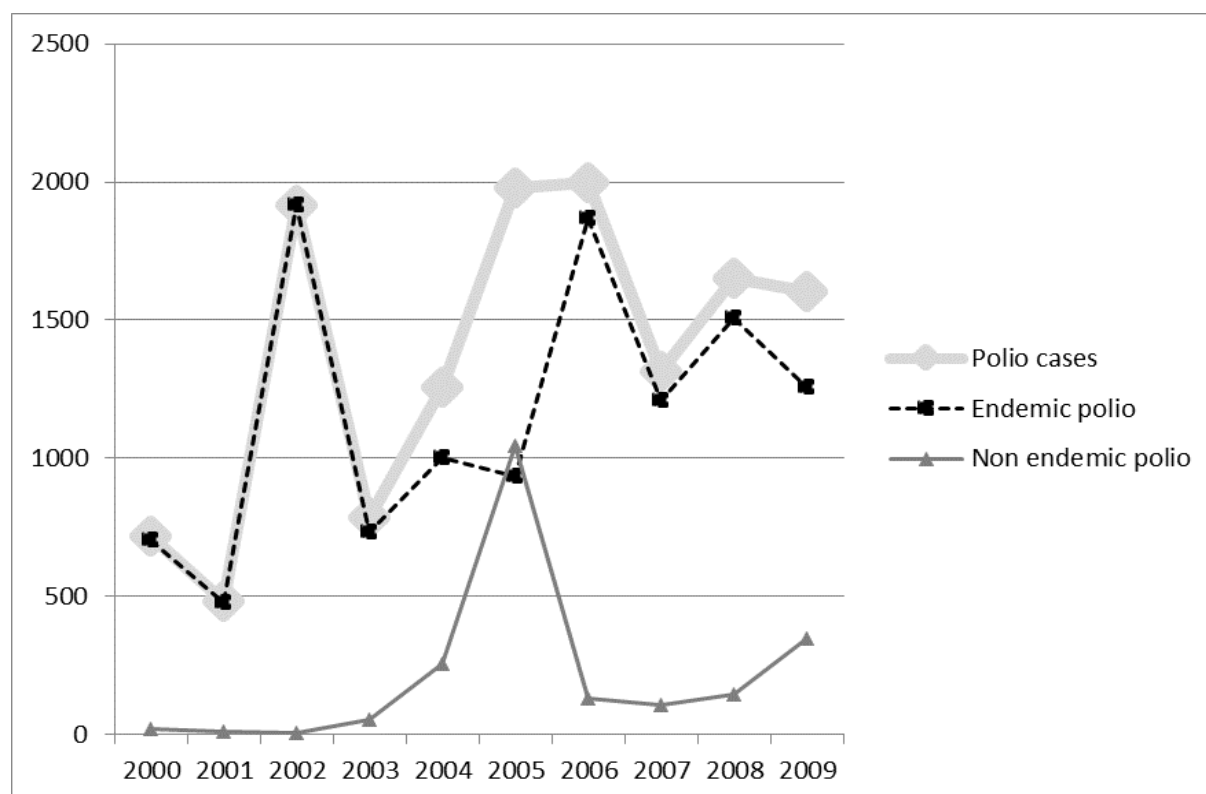
Source: Authors' own elaboration based on Global Polio Eradication Initiative.

Figure 9. Polio cases in the world: endemic countries (2000–2009)



Source: Authors' own elaboration based on Global Polio Eradication Initiative.

Figure 10. Polio cases in endemic and non-endemic countries in the world (2000–2009)

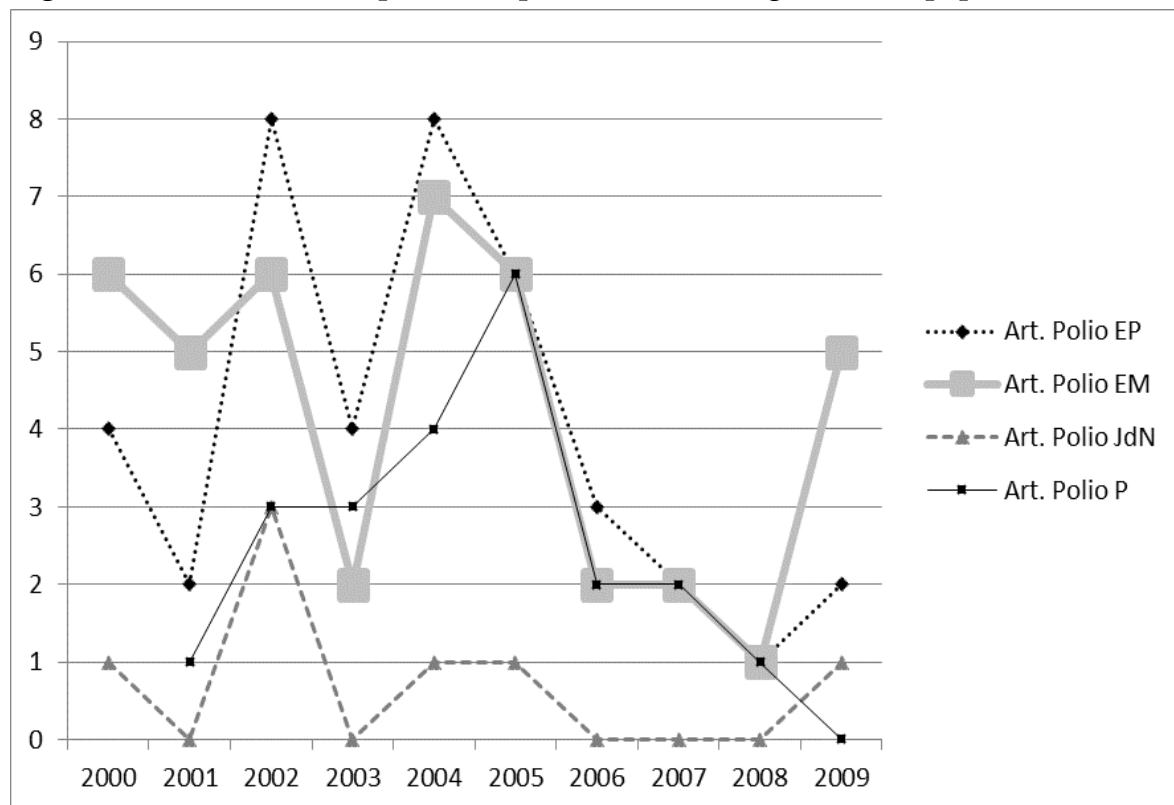


Source: Authors' own elaboration based on Global Polio Eradication Initiative.

The year of 2002 represented an increase of cases of polio in countries where it was considered endemic, although the number of countries with polio cases was the lowest of the period, with only 9. That was a seeming paradox: the following year the number of polio cases worldwide decreased due to the vaccination campaigns carried out, but polio had spread to other non-endemic countries, in a process that continued until the end of the period, with the exception of 2007, ascending from 15 in 2003 to 23 countries in 2009 (Fig. 9). The number of polio cases managed to be reduced in 2007 and its growth was slowed down, minimizing its appearance outside the countries with endemic polio. Two dates are noteworthy: the high number of cases of polio in 2005 and 2006, noting that in 2005 there were more cases in non-endemic countries than in endemic ones and, above all, the situation in 2006. In 2006 the number of countries which declared polio increased and the highest number of polio cases (1.997) was registered, almost everyone in endemic regions where there was an alarming increase (Fig. 10).

These extremely discouraging figures on the chances of eradicating polio, no longer on the announced dates, but in a near future, were not reflected in the production of news, as shown in the chart below, but rather in the removal of the latter (Fig. 11). In fact, 2006 is one of the years with fewer articles, a coincidence verified in the four newspapers.

Figure 11. Articles about polio in Spanish and Portuguese newspapers (2000–2009)



Source: Authors' own elaboration.

The informative peaks of 2004 and 2005 are related, as did the prior in 2000, to the goal of eradication and the news agenda of the international organizations with a clear strategy of alternating alarms and triumphant hope. As an example we have the articles published in 2004 in which the WHO reported the largest polio epidemic in Africa, with an expansion into countries where it was eradicated (*Público*, 23-06-2004, *El País*, 23-6-2004, *El Mundo*, 24-06-2004), and only two months later, the optimistic headlines announcing the elimination in 2005 according to the same WHO (*Público*, 05-08-2004; *El Mundo*, 06-08-2004).

The informative peak of 2002, however, does not correspond with what might seem a priori, as the most important event: that of obtaining the certificate of polio eradication in the European region. It is true that the newspapers from both countries provided that piece of information on 22-06-2002 in the form of articles, but with no greater continuity in other articles or entries. The abundance of articles and entries in 2000 and 2002 had a close relationship with the aforementioned social alarms: in 2000 it was the relationship of the vaccine with the origin of HIV or with the transmission of “mad cow disease” and in 2002 the artificial synthesis of the virus in a laboratory and speculation about bioterrorism.

The striking increase in articles in the *El Mundo* in 2009 is apparent, since four of the five articles have been classified as such because they had the term polio in

the title or intro, although the content only tangentially relates to the object of study.

The evolution of information in the press about polio also offers, in the analysis of its contents (and silences), a chronicle of disappointment: with a marked optimism and confidence in the eradication which is held until 2005, the second failure means entering a phase of disinterest in the subject in which the reference to eradication is part of a stereotyped discourse. The minimal attention to late effects of polio in Spain and Portugal clearly shows the lack of interest and there is only a resort to the problem of PPS to build a comprehensive discourse and therefore subordinated to the ephemerids.

Concluding Remarks

The disappearance of polio from the countries of the Iberian Peninsula, in the late eighties, led to an immediate and desired forgetfulness of the disease. For Portugal, polio cases were exceptional already in the decade of the seventies and for Spain they began to be so in the following decade. Polio and its sequelae were no longer on the agenda of the media to the point that the achievement of the certificate of polio eradication in the European region, granted by the WHO in 2002, had little impact in the newspapers of both countries, although this piece of news was placed in the article category and appeared simultaneously in all. But for those dates, the news about polio already had to include an explanation on what the disease was and what were its consequences.

This context led to the fact that information about polio came from other countries where they still continued to be produced and, therefore, the agendas of the analysed newspapers were directly related to the communication policies of international organizations fighting for the eradication of disease. Thus the international discourse about polio followed the guidelines of the reporting agencies of the WHO, with its messages of encouragement, hope, fear or disappointment, according to the evolution of morbidity worldwide. Therefore, polio became a disease of poor and distant countries from which it was possible to eradicate it through international cooperation and development programs. Until the beginning of the XXI century, the discourse of the media on polio was optimistic and confident in science and in the imminent eradication, a discourse which changed after the last missed deadline in 2005 and which transformed information on polio into a tell-tale silence, for the cases of polio in countries considered endemic remained a serious problem, despite the fact that the transmission to non-endemic countries diminished, which reassured Western countries and excluded the disease from the news agendas.

The global scope of the disease also shows different agendas in the two newspapers analysed. On the one hand, we find a different focus between the Spanish and Portuguese press on certain countries threatened by the spread of polio, this being greater in the Portuguese press and focused on the countries which were once colonies, especially Angola and Mozambique. This also explains their greater presence in the *Jornal de Notícias*, given its more popular character.

Furthermore, we also identified a different use of the discourse on polio in the world between the two Spanish newspapers that lead to the fact that the *El País* develops a discourse on the risk of expansion of polio as a metaphor for the threat of Islamic fundamentalism, a difference between the two Spanish newspapers coincident with their analysis on the Madrid terrorist attacks on May 11th 2004. Nonetheless, it is common for the considerations on the risks of each new outbreak of polio for the spread of infection to neighbouring and poorly immunized countries should turn into a veiled warning to the health risks of immigration.

Facing this focus on the global situation, polio in the countries studied was not given much attention, except to include it in the information on vaccination schedules. This dissociation of poliomyelitis in Spain and Portugal is undoubtedly connected to the disappearance of new cases, but it means that people affected and with paralytic sequelae, and even those who presented the so-called post-polio syndrome, are invisible. This is one of the major problems identified, as it establishes a vicious circle: post-polio syndrome is not reported because there are no diagnoses for it, leading to the affected people and the whole society to remain unaware of its existence and not to consider such a possibility. Let us consider that the PPS, like other rare diseases, force the patient (or their families) to acquire an active role in finding a diagnosis. In Portugal there was no news about the PPS (except for an occasional reference to it in the *Jornal de Notícias*), while in Spain, only the newspaper *El País* granted it some informative importance in those moments when polio was on the international agenda. Nevertheless, this fact allows us to understand the social role of the news agenda: the emergence of associations in the Spanish press influenced the agenda of a particular audience, that affected by polio, and strengthened its organization; however, the absence of the Portuguese association of PPS in the news agenda hid the movement, which led to the persistence of ignorance about the syndrome and, consequently, an extreme associative weakness. It is thus confirmed that the media (among other means of communication) determines the low relevance / importance that the public grants to the subject and determines the content of its thought.

This consideration of those affected also shows significant differences between the newspapers analysed, differences established through language that led to more often use of the word “inválido” (invalid) by the *El Mundo* or the fact that the *Jornal de Notícias* recurrently included references on the matters in sections dedicated to charity and validated the idea that a person with functional diversity

was a “poor needy”. Both Portugal and Spain are countries where the press has not local famous people who were affected by polio and the polio illustration gallery has always been foreign, depriving references and validating invisibility.

However, despite the passage of time, the silence and the imposition of oblivion, polio continued endowed with a great potential to raise fears and be associated with new types of threats, which led to the fact that informative peaks about it were related with events of international scope that could impact on the national one: the artificial creation of the virus and its potential applications for bioterrorism (a vision influenced by the proximity to September 11th 2001) and the risks of the vaccine due contamination or its composition (presence of mercury, contamination with SV40, prohibited bovine serum due to spongiform encephalitis or the denial of the origin of HIV). Nonetheless, although this traditional discourse on the risks and limitations of science can be a sponsor of Western anti-vaccination, a defence of the achievements predominates. The polio post-vaccine, the development of the virus of the vaccine in the environment and its implications for eradication are not given much attention, in a triumphant discourse in which polio is equated with smallpox, as a paradigm of the power of science in controlling the environment.

Juan Antonio Rodríguez Sánchez is Profesor Titular of History of Science at the Department of Biomedical and Diagnosis Sciences, University of Salamanca (Spain). *Inês Guerra Santos* is Professor Auxiliar at the Department of Communication Sciences and Information Technologies, Instituto Superior da Maia (Portugal).

References

- Ballester, Rosa and María Isabel Porras, “La lucha europea contra la presencia epidémica de la poliomielitis: una reflexión histórica,” *Dynamis* 32(2) (2012), 273–285.
- Beale, A. John, “The Development of IPV,” pp. 179–187 in Stanley A. Plotkin, ed., *History of Vaccine Development*. (New York, 2011).
- Bouza Álvarez, Carmen , Ana Muñoz van den Eynde y José M^a Amate Blanco, *Síndrome post-polio:Revisión de la literatura, situación en España y posibles líneas de actuación*. (Madrid 2003).
- Entman, R.M., “Framing U.S. coverage of international news: Contrast in narratives of the KAL and Iran air incidents,” *Journal of Communication* 41(4) (1991), 6–27.
- Entman, R.M., “Framing: Toward clarification of a fractured paradigm,” *Journal of Communication* 43(4) (1993), 51–58.
- European Centre for Disease Prevention and Control. “Risk of introduction and transmission of wild-type poliovirus in EU/EEA countries following events in Israel and Syria – updated risk assessment (9 december 2013). In http://ecdc.europa.eu/en/publications/_layouts/forms/Publication_DispForm.aspx?List=4f55ad51-4aed-4d32-b960-af70113dbb90&ID=983 [15-01-2014]
- Gil Prieto, Ruth, “Evolución de los calendarios vacunales en España,” pp. 139–156 in Enrique Perdiguero Gil, Enrique and Josep M. Vidal Hernández, coords., *Las vacunas: historia y actualidad*. (Menorca, 2008).
- Guerra Santos, Inês, “A poliomielite em Portugal: o ‘Refúgio da Paralisia Infantil,’” pp. 177–194 in Dilene Raimundo de Nascimento, org., *A história da poliomielite*. (Rio de Janeiro, 2010).
- Hecht, Alana, *Polio*. (New York, 2009. 2nd ed.).
- Heras Salord, Jaime de, María Isabel Porras Gallo y María José Báguena Cervellera, “El drama de las víctimas de la poliomielitis visto por la prensa, por ellas mismas y sus contemporáneos,” pp. 170–192, in María Isabel Porras Gallo, Mariano Ayarza Güena Sanz, Jaime de las Heras Salord y María José Báguena Cervellera, coords., *El drama de la polio: un problema social y familiar en la España franquista*. (Madrid, 2013)
- International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10 Version: 2010), in <http://apps.who.int/classifications/icd10/browse/2010/en> [12-07-2012]
- Koprowski, Hilary and Stanley Plotkin, “History of Koprowski Vaccine Against Poliomyelitis,” pp. 155–166, in Stanley A. Plotkin, ed., *History of Vaccine Development*. (New York, 2011).

- W. Lippmann, *Public Opinion*. (New York, 1922).
- López Gil, Pablo, Miguel Otero Iglesias, Miguel Pardo Pereira y Miguel Vicente Mariño, dirs., *La imagen del mundo árabe y musulmán en la prensa española*. (Sevilla, 2010).
- McCombs, Maxwells, *Estableciendo la agenda: El impacto de los medios en la opinión pública y en el conocimiento*. (Madrid, 2006).
- McCombs, Maxwells, *A Teoria da Agenda: a mídia e a opinião pública*. Petrópolis, 2009.
- Nascimento, Dilene Raimundo do, Marcos Cueto, Eduardo Ponce Maranhão and Deepak Sobti, “A erradicação da poliomielite na América Latina: comparando Brasil e Peru,” pp. 161–176, in Dilene Raimundo de Nascimento, org., *A história da poliomielite* (Rio de Janeiro, 2010).
- R. Navarro García, dir., *Análisis de la sanidad en España a lo largo del siglo XX*. Madrid, 2002.
- Otero García, Laura, *Aproximación a las representaciones sociales sobre la salud de la población inmigrante en el discurso periodístico en prensa escrita española (2000–2006)*. (Madrid, 2011).
- Pinto, Sandrine Martins, Inês Guerra, Juan Antonio Rodríguez-Sánchez, João Rui Pita y Ana Leonor Pereira, “De las campañas de vacunación al calendario vacunal: el Programa Nacional de Vacinação portugués y las Campañas Nacionales de Vacunación Antipoliomielítica en España (1963–1976),” pp. 203–209, in Ricardo Campos Marín, Ángel González de Pablo, María Isabel Porras Gallo y Luis Montiel, eds, *Medicina y poder político*. (Madrid, 2014).
- Polio Global Eradication Initiative. *Plan Estratégico 2010–2012*. (Organización Mundial de la Salud, 2010).
- Rabeharisoa, Vololona, Michel Callon, Angela Marques Filipe, João Arriscado Nunes, Florence Paterson and Frédéric Vergnaud, “From ‘politics of numbers’ to ‘politics of singularisation’: Patients’ activism and engagement in research on rare diseases in France and Portugal,” *BioSocieties*, 2014, 1–24, in <http://www.palgrave-journals.com/biosoc/journal/v9/n2/pdf/biosoc20144a.pdf> [12-06-2014].
- Rodríguez-Sánchez, Juan Antonio, “Responsabilidades não assumidas: a poliomielite na Espanha (1954–1967),” pp. 195–224, in Dilene Raimundo de Nascimento, org., *A história da poliomielite*. (Rio de Janeiro, 2010).
- Rodríguez-Sánchez, Juan Antonio, “La persona enferma como experta: los cambios sociosanitarios promovidos por el asociacionismo polio-postpolio en España,” *Estudios do Século XX* 12 (2012a), 104–122.
- Rodríguez-Sánchez, Juan Antonio, “Las secuelas sociales de la polio: los inicios del movimiento asociativo en España (1957–1975),” *Dynamis* 32(2) (2012b), 391–414.

- Rodríguez-Sánchez, Juan Antonio and Jesús Seco Calvo, “Las campañas de vacunación contra la poliomielitis en España en 1963,” *Asclepio* 61(1) (2009), 81–116.
- Rodríguez-Sánchez, Juan Antonio, Rosa Ballester Añón and Inês Guerra Santos, “El movimiento asociativo: una perspectiva internacional, nacional y de los casos de Madrid, Valencia y Castilla – La Mancha,” pp. 233–257, in María Isabel Porras Gallo, Mariano Ayarza Güena Sanz, Jaime de las Heras Salord y María José Báguena Cervellera, coords., *El drama de la polio: un problema social y familiar en la España franquista*. (Madrid, 2013).
- Rogers, E. and J. Dearing, “Agenda Setting research: where has it been, where is it going?,” pp. 555–593, in J. Anderson, ed., *Communication yearbook II*. (Newbury Park, CA, 1988).
- Santos, João de Almeida, *Media e poder: O poder mediático e a erosão da democracia representativa*. (Lisboa, 2012).
- Severo, Bruna Meireles, *A Imprensa e seus efeitos sobre a audiência*. (Rio de Janeiro, 2007).
- Seytre, Bernard and Mary Shaffer, *The death of a disease: a history of the eradication of poliomielitis*. (New Brunswick, 2005).
- Smallman-Raynor, Mathew and Andrew D. Cliff, *Poliomyelitis: Emergence to Eradication*. (Oxford, 2006).
- Talley, Colin, “The Combined Efforts of Community and Science: American Culture, Patient Activism, and the Multiple Sclerosis Movement in the United States,” pp. 39–70, in Randall M. Packard, Peter J. Brown, Ruth L. Berkelman and Howard Frumkin, eds, *Emerging Illnesses and Society: Negotiating the Public Health Agenda*. (Baltimore, 2004).
- Vigilancia de la Parálisis Flácida Aguda. Informes 2002–2012. Madrid: Centro Nacional de Epidemiología.

Acknowledgements

This work has been carried out within Project HAR2012-39655-C04-03 of the Spanish Ministry of Innovation, Economy and Competitiveness (MINECO) and SA359A12-1 (Junta de Castilla y León).

Poliomyelitis vaccination campaigns in Brazil resulting in the eradication of the disease (1961–1994)

Dilene Raimundo do Nascimento

In 1994 Brazil received its certificate of poliomyelitis (polio) eradication. It was an achievement for the health sector that resulted not only in the eradication of a disease that caused great suffering throughout the lives of those who had it, but also contributed towards the development of a culture of preventing preventable diseases by immunization. The historical process of polio control and eradication clearly reveals the development and legitimization of national and international public health policies, the incorporation of new technologies, and medical practices and discursive constructions.

The aim here is to investigate the historical process concerning the policy for the control and eradication of polio in Brazil. Especially the vaccination campaigns held after the advent of the Salk and Sabin vaccines, and the National Vaccination Days, which constituted a model that was replicated in other parts of Latin America, resulting in the eradication of polio throughout the Americas. Another objective is to show that not only were these technologies prerequisites for the control and subsequent eradication of the disease in the country, but that political will and negotiation were also essential ingredients.

In the early twentieth century, developed countries with good sanitation conditions were struck by major epidemics of polio, posing a challenge to the prevailing view held by physicians and scientists that correlated the occurrence of infectious diseases with dirt¹. Yet in the case of polio, poor sanitation and hygiene actually made it easier for children to come into contact with the virus at a very early age, when they developed the disease in its mild form, resulting in immunity. In the first years of life, infection rarely produced serious symptoms, and was often mistaken for a cold. The better the sanitation and living conditions, the later

1 Naomi Rogers. *Dirt and Disease: polio before FDR*. New Brunswick, NJ, Rutgers University Press, 1996.

children would come into contact with the virus and the higher their chances of developing paralysis².

The poliomyelitis virus mainly infects children up to 5 years of age, and may be asymptomatic. However, in 1% of cases it causes the rapid onset of acute flaccid paralysis, generally of a lower limb, although it can also affect upper limbs and even the muscles used for breathing or swallowing, when it can lead to death. Difficulty standing and walking, muscle weakness, pain and fatigue are the most common complaints amongst children who have polio up to 5 years of age. The sequelae, mostly irreversible, tend to worsen with age.

Developed countries invested heavily in researching the disease and developing technologies to fight it³. According to Nascimento and Maranhão, “it came clear that the virus multiplied in the gastrointestinal tract and that infection could be transmitted by the fecal-oral route, meaning that it was transmitted by water or substances contaminated by feces and ingested orally.”⁴

Thanks to these discoveries and the use of new tissue culture techniques, the possibility of a vaccine became real⁵. In the 1950s two specific polio vaccines were produced: the Salk vaccine and the Sabin vaccine. By the mid-1960s, after these vaccines were approved in a process that involved intense debate to identify which one was more effective – to the point that one of the most heated topics at the 5th International Poliomyelitis Conference in Copenhagen on July 26–28, 1960, was the relative merits of these two vaccines⁶ – the disease was no longer found in the countries where they were used *en masse*⁷.

In most industrialized countries that managed to obtain good immunization coverage using the Sabin and Salk vaccines, paralytic polio became almost unheard of. Some less developed countries, like Cuba and Costa Rica, managed to eliminate the disease by the end of the 1960s. In the U.S.A., the introduction of the Salk vaccine in 1955 resulted in a drop in the incidence of paralytic polio in the country,

2 Acute flaccid paralysis is the most characteristic clinical symptom of polio. In most cases, it affects the lower limbs. When it affects the chest muscles, it usually results in death because the patient is unable to breathe.

3 Naomi Rogers, 1996, op. cit.

4 Nascimento, Dilene R. and Maranhão, Eduardo P. “Uma gota, duas doses: Criança sadia, sem paralisia”, pp.229-241 in: Dilene Raimundo do Nascimento & Diana Maul de Carvalho, eds. *Uma história brasileira das doenças*. Brasília: Paralelo 14, 2004, p. 230.

5 Naomi Rogers, 1996, op. cit., p. 173; Nascimento & Maranhão, 2004, op.cit., p. 230.

6 *O Estado de São Paulo*, July 27, 1960, p. 9.

7 Robbins, F. C. The History of Polio Vaccine Development. In: Plotkin, S. A. & Orenstein, W.A. (eds). *Vaccines*. Philadelphia: Saunders, 1999; Koprowski and Stanley, H. La histoire alternative de la vaccin oral. In: MOULIN, A.-M. (ed.). *La aventure de la vaccination*. Paris: Fayard, 1996.

and this trend continued as of 1963 when it was largely replaced by the Sabin vaccine. By 1969, only about a dozen cases were reported in the country.⁸

Poliomyelitis in Brazil

In Brazil, although there are records of cases of polio in the last few decades of the nineteenth century, the literature indicates an increase in the number of observed cases in the early twentieth century. The first records of outbreaks in Rio de Janeiro are from 1909 and 1911, described by Fernandes Figueira, director of the Polyclinic for Children (Policlínica de Crianças) and a pediatrician at the National Hospice for the Mentally Ill (Hospício Nacional de Alienados) at the time⁹. A report by another physician, Francisco de Salles Gomes Júnior, describes an outbreak of polio in Vila Americana, São Paulo state, where 17 children were affected between January 1 and April 30, 1917. He observed that all the children were under 5 years of age and that the community could have been infected by people who had recently arrived from New York, where there were major epidemics between 1916 and 1918.¹⁰

In 1930, a number of sizeable epidemics were recorded in São Paulo and other state capitals in Brazil. As of 1950 outbreaks were also described in various towns in the interior of the country, and in 1953 Rio de Janeiro witnessed its biggest ever epidemic, at a rate of 21.5 cases per 100,000 inhabitants.

Brazil's polio records for the first half of the twentieth century are very sketchy, and are probably not a true representation of the magnitude of the problem there, since they were written sporadically by physicians based on their own observations. The disease was also not on the country's public health agenda. At this time, the only people discussing polio were medical professionals themselves, interested in understanding the scientific models that explained the disease and how it occurred in epidemics.¹¹

8 Mackay H W, Fodor A R, Kokko U P. Viremia. Following the Administration of Live Poliovirus Vaccines. *AM J Public Health* 53:274, 1963.

9 Antônio Fernandes Figueira. *Doença de Heine-Medin no Rio de Janeiro*. Rio de Janeiro, Tipografia do Jornal do Comércio, 1911.

10 Francisco de Salles Gomes Júnior, *Epidemia de poliomielite infantil em Villa Americana*. São Paulo, Serviço Sanitário do Estado de São Paulo/Officinas Gráficas Olegário Ribeiro, 1919.

11 André Luiz Vieira de Campos. A história da poliomielite no Brasil antes da vacina: modelos, epidemias e dilemas. In: Dilene Raimundo do Nascimento (ed.). *A história da poliomielite*. Rio de Janeiro, Garamond, 2010.

As of the 1950s, the acquisition of new technologies like the Salk and Sabin vaccines, the development of laboratory techniques for diagnosing the disease,¹² the definition of the concept and implementation of disease surveillance procedures,¹³ and the design of vaccination strategies¹⁴ shifted the focus of discussion to the arena of public health and enabled the implementation of policies for controlling the disease in the country.

As soon as the Salk vaccine was authorized in the United States (1955), some pediatricians and state and municipal health departments in Brazil started to apply the vaccine, in the latter case in small-scale immunization campaigns. In 1960 the Sabin vaccine was introduced to Brazil, and with it the debate already ongoing in the United States about the relative advantages and disadvantages of the two vaccines.

In May 1961, the Guanabara state health secretary, Dr. Marcelo Garcia, evaluated the new and revolutionary discovery for the fight against polio: the Sabin vaccine. While he claimed that the results obtained by this vaccine were more promising than those obtained by the Salk vaccine, Garcia was clear that it could not be used immediately in Brazil because “its application should be made *en masse* and all at once, which requires complex public health planning”.¹⁵

Various medical forums occupied themselves with discussing the two vaccines, especially the Brazilian Society of Pediatrics (Sociedade Brasileira de Pediatria) and the Brazilian Society of Hygiene (Sociedade Brasileira de Higiene).

A month earlier, the minister of health under the Jânio Quadros administration, Edward Catete Pinheiro, had set up a commission of leading physicians to give their opinion on the advantages and disadvantages of the two polio vaccines. Its members were: Joaquim Travassos, director of the Oswaldo Cruz Institute (Instituto Oswaldo Cruz); José Martinho da Rocha, professor of pediatrics at the University of Brazil (Universidade do Brasil); Paulo de Góes, professor of microbiology at the same university; Oswaldo Pinheiro de Campos, orthopedist; Madureira Pará, virologist; Bichat de Almeida Rodrigues, director of the National Health Department, and Álvaro Aguiar, chairman of the Brazilian Society of Pediatrics. The commission opted for the Sabin vaccine, citing its lower cost, ease of administration (oral), more prolonged protective effect, and capacity to multiply

12 Schatzmayr, Hermann et al. “Erradicação da poliomielite no Brasil: a contribuição da Fundação Oswaldo Cruz”. *História, Ciências, Saúde – Manguinhos*, vol.9(1) pp. 11-24, jan.-abr., 2002.

13 Thacker & Berkelman. *History of Public Health Surveillance*. In: *Public Health Surveillance*. Edited by William Halperin & Edward L. Backer Jr. Van Nostrand Reinhold, New York, 1992.

14 Risi Jr., João Batista. “Considerações sobre a consultoria prestada pelo doutor Sabin ao Ministério da Saúde – Esclarecimentos necessários em face das repercussões de seu afastamento”. Brasília, April 18, 1980.

15 *Correio da Manhã*, October 15, 1961, p. 3.

in the digestive system, enabling the elimination of the vaccine-derived virus in the environment.¹⁶

Following the commission's recommendation, the Ministry of Health officially adopted the trivalent oral vaccine of live attenuated strains of the virus – the Sabin virus – and started its campaigns for the immunization of children in a few municipalities in the states of São Paulo and Rio de Janeiro.

Polio Vaccination Campaigns

In July 1961 a pilot experiment using the Sabin vaccine was run in three towns in the state of São Paulo – Santo André, São Bernardo and São Caetano – to vaccinate 25,000 children. A similar experiment was run in the city of Rio de Janeiro in September of the same year.¹⁷

“One drop, two doses: one healthy child free of paralysis” was the slogan under which the campaign was introduced to Rio de Janeiro. A total of 278 vaccination centers were set up throughout the city, manned by 2,500 volunteers and assisted by a variety of government and private institutions. The target was to vaccinate 500,000 children aged between four months and 6 years from October 16 to 21, 1961¹⁸. The campaign received daily coverage in the newspapers, which hailed it as a success and expressed the hope it would be made nationwide. They also reminded readers of the need for the children who received this first dose to take a second dose 60 days later to assure immunization.

Neither of these campaigns had the range or continuity needed to control the disease, mainly because of problems in the supply and distribution of the vaccines.

It was at this time that the laboratory technique for diagnosing polio was introduced to Brazil via the Oswaldo Cruz Institute – a technology of the utmost importance for obtaining a differential diagnosis from other forms of paralysis similar to acute flaccid paralysis, and for effectively diagnosing the type of virus and occurrence when there were outbreaks.¹⁹

Still in the 1960s, the concept of epidemiological surveillance was introduced. The main mentors and advocates of the power of surveillance as a public health tool were an American epidemiologist, Langmuir, and a Czech epidemiologist, Raska²⁰. The World Health Organization (WHO) introduced the concept when, in 1965, it

16 *Correio da Manhã*, April 8, 1961, p. 3.

17 Cf. Nascimento and Maranhão, 2004, op. cit.

18 *Correio da Manhã*, October 15, 1961, p. 3

19 Schatzmayr, Hermann et al. “Erradicação da poliomielite no Brasil: a contribuição da Fundação Oswaldo Cruz”. *História, Ciências, Saúde – Manguinhos*, 9(1) pp. 11-24, jan.-abr., 2002.

20 Thacker and Berkelman, 1992

created an Epidemiological Surveillance Unit at the Division of Communicable Diseases. In Brazil, the Foundation for Special Public Health Services (Fundação de Serviços Especiais de Saúde Pública) created the Center for Epidemiological Investigations (Centro de Investigações Epidemiológicas) in 1968, making the notification of polio mandatory throughout the country.

Even after the acquisition of new technologies, the severity of the polio problem was yet to be overcome. It was known that only 1% of polio cases resulted in paralysis, but just one paralytic child implied high economic and social costs.

In 1971, after repeated outbreaks of the disease in different parts of the country, the Ministry of Health introduced the National Plan for the Control of Poliomyelitis, which was piloted in the state of Espírito Santo, then radiated out to 14 Brazilian states in 1972 and 1973. This was the first nationally coordinated attempt to control the disease in Brazil. It went on until 1974, when it was abandoned, and routine vaccination as part of primary healthcare was prioritized under the coordination of the National Immunization Program created in 1973.

This strategic shift was due to changes at the Ministry of Health. In 1974, under President Geisel, Paulo de Almeida Machado, from the Faculty of Public Health, University of São Paulo (Universidade de São Paulo), was appointed minister of health. His position was that the actions of health centers, routine health measures, and health education were the key to public health, and the campaigns were accordingly discontinued, and replaced with routine vaccination as part of the primary health system.

Epidemiological data indicate that routine vaccination was not enough to control polio, not least because most of the population did not have regular access to health services, which were unavailable in many parts of the country. In 1975, 3,600 cases of polio were notified – the highest incidence reported until then – and in the following four years there were outbreaks of the disease in almost every state of Brazil.²¹

National Vaccination Days

It was only in 1980 that the Ministry of Health introduced a new strategy specifically for polio. In response to the seriousness of the problem in Brazil, which was even recognized in meetings held by the WHO to evaluate the disease in the Americas, and to the national repercussions of the epidemics in the south of the country in December 1979 – a region where high levels of vaccination were

21 João Baptista Risi Jr. “El control de la poliomiélitis en el Brasil”. In *Simposio Internacional sobre el Control de la Poliomiélitis*. Publicación Científica de la OPS N°484, pp. 147-151, 1985.

maintained – the newly appointed health minister, Waldir Arcoverde, decided to tackle the issue of polio in Brazil head on.

There were epidemics in the southern states of Paraná and Santa Catarina, and, contradicting the findings of Rosenberg²², who argues that the authorities tend to deny the existence of epidemics when they first break out, the Paraná state secretary for health, Oscar Alves, appeared on the television to announce that there was indeed an epidemic, attributing it to the negligence of the federal government. Shockwaves spread around the country at the tail end of 1979. In his analysis of this attitude, Risi²³ supports Rosenberg's position, saying that the Paraná state secretary for health "took an unusual political position; it would have been normal for the secretary to set up a campaign and say that the matter was under control."²⁴

By this point in time, many epidemiological features of polio had already been studied – not just its spatial and temporal occurrence, but also other important variables such as age, prior vaccination status, type of poliovirus isolated, place of occurrence, and sequelae. It was clear that polio was endemic throughout Brazil, and was most common amongst unvaccinated children aged 0 to 4, and especially between 6 months and 2 years of age, who lived in urban areas, with the main cause being type 1 poliovirus.²⁵

These elements formed the foundations for the approach to the disease in Brazil. The basic strategy was already drawn up in the early days of January 1980: blanket vaccination of children aged 0 to 5 over a short period of time across the entire country, twice a year.²⁶

There was some resistance to this plan. At the time, a national public health reform movement was calling for more primary care, and considered the campaign strategy counterproductive in terms of awareness-raising and educating the population about their routine healthcare needs. Risi²⁷ comments that the WHO, which had held an international conference in Alma Ata, was also against the idea of a "national day," and Carl Taylor, a consultant in preparing the documents for this conference, was one of the strongest opponents. However, Brazil's military

22 Rosenberg, C. *Explaining Epidemics and Other Studies in the History of Medicine*. Cambridge, University Press, 1992.

23 João Baptista Risi Jr ran the National Secretariat for Basic Health Actions at the Ministry of Health, to which the vaccination program was linked.

24 João Baptista Risi Jr., testimonial, 2000. *Memória da poliomielite: acervo de depoimentos orais*. [ed.] Anna Beatriz de Sá Almeida, Dilene Raimundo do Nascimento, Laurinda Rosa Maciel. Rio de Janeiro, Fiocruz, 2005.

25 Risi, op. cit., 1980.

26 Roberto Becker, testimonial, 2002. *Memória da poliomielite: acervo de depoimentos orais*. [eds] Anna Beatriz de Sá Almeida, Dilene Raimundo do Nascimento, Laurinda Rosa Maciel. Rio de Janeiro, Fiocruz, 2005.

27 João Baptista Risi Jr, op. cit., 2000.

government was interested in adopting social policies to bolster its legitimacy, and lent the proposal its unconditional support.

The Ministry of Health invited Albert Sabin to advise the team on how to improve the intervention model, as this was the strategy he himself recommended when his oral vaccine was to be used with the purpose of eliminating polio from a country. However, after accepting the job in Brazil, he started questioning the epidemiological data the ministry gave him on the disease in the country, and proposed new research to identify the prevalence of sequelae in schoolchildren, which would mean examining 1.400.000 children to estimate the magnitude of the disease in the country and thence to define the best strategy to control it.

The ministry's specialists were convinced they had enough data to design a vaccination strategy, and also thought Sabin's proposal was unfeasible because it would demand considerable resources and time, delaying a particularly pressing measure.²⁸

The unwillingness of the ministry to accept Sabin's advice led to a major falling out between the two parties, with Sabin withdrawing from the collaboration, resulting in considerable negative national and international repercussions for the ministry. Sabin wrote a letter to the president of Brazil, which was published in a mainstream newspaper, in which he stressed the need for accurate statistical data, since "as in military operations, imprecise information about the enemy can lead to disasters, with the same thing happening when one goes about fighting an epidemic disease".²⁹

Waldir Arcoverde's position at the ministry was under fire, but he won the president's backing, who said that the "Sabin case [had] alerted the people" and "helped to raise social awareness about the problem of paralytic poliomyelitis and the need for mass vaccination."³⁰ Arcoverde also believed that ultimately much of the scientific community had had their pride wounded by Sabin's criticisms, and would end up supporting the government's program to control polio on its National Vaccination Days.

To get political support for these vaccination days, Waldir Arcoverde had made a speech to the Chamber of Deputies on April 23, 1980. He summed up the epidemiological status of polio, and provided justifications for the idea of holding national vaccination days, stressing that "data published by the WHO show that after India, Brazil is the country that recorded the highest number of cases of polio in the world between 1976 and 1978," and that a "detailed analysis of the data provided by the epidemiological surveillance system indicates that the occurrence of

28 Risi Jr., op. cit., 1980.

29 *O Globo*, March 28, 1980:14.

30 *Jornal do Brasil*, March 22, 1980, "1º Caderno" supplement.

poliomyelitis in the country will not be controlled if the only strategy is to maintain routine vaccination³¹.” Concerning the control of polio in Brazil, he explained that:

[t]he adoption of a special polio vaccination strategy, namely, to hold annual campaigns on set days, is founded on the following reasons:

- a) the administration of the oral poliomyelitis vaccine to the greatest possible number of children in the shortest possible space of time produces the extensive natural dissemination of the virus, which temporarily removes other enteric viruses capable of interfering in the multiplication of the vaccine-derived virus, hampering immune response to the vaccine;
- b) the mass dissemination of the vaccine-derived virus by vaccinated children will also tend to immunize unvaccinated children, and those who, on the campaign day, have an intestinal infection caused by an enteric virus capable of preventing the multiplication of the vaccine-derived virus;
- c) the administration of the Sabin vaccine does not require special techniques, and can be executed by any person from a community after receiving proper guidance;
- d) mass vaccination on a single day fosters the widespread use of community resources and the intensive participation of volunteers, reducing the operating costs of the program;
- e) broad-based community mobilization will enable the vaccination of larger numbers of children;
- f) the effectiveness of this strategy has been proven in other developing countries, where poliomyelitis has been controlled;
- g) the urgent need to control poliomyelitis deserves special attention by the public sector for reasons of a socio-economic order:
 - ° improved housing, hygiene and basic sanitation, typical of cities, may be a factor that limits the spread of the wild virus, and could help propitiate the appearance of large numbers of people susceptible to the virus, with a consequently increasing risk of outbreak of epidemics;
 - ° even in areas with precarious sanitation conditions, a high incidence of the disease has been reported, with occasional epidemics breaking out when these areas receive flows of migrants with high percentages of susceptible people;
 - ° the psychosocial impact caused by outbreaks of poliomyelitis is extremely harmful, in view of the dramatic nature of the disease;
 - ° the cases of paralysis generally have permanent sequelae and constitute a high burden on society, accounting for much of the demand for physical rehabilitation services.³²

In the same speech, the minister reported on his difference of opinion with Sabin, concluding that “disagreements about the evaluation needs and the methodology

31 Exposição do Ministro da Saúde, Dr. Waldyr Mendes Arcoverde, na Câmara dos Deputados. Brasília, 1980, p. 3.

32 *Ibid.*, pp. 4-5.

used led to relations being severed. Dr. Sabin abandoned his consultancy for the Ministry of Health³³.”

The first National Vaccination Day was eventually held in June 1980. According to Mozart Abreu Lima³⁴, 20 million children were vaccinated. “The population was galvanized in mass; it was a celebration of Brazilian society.”³⁵ Consequently, the number of cases of the disease dropped sharply, from 1,290 in 1980 to 122 in 1981. The following year, the lowest ever number of confirmed cases of polio was reported: just 45. The National Vaccination Day strategy was repeated every year, and the number of cases dropped close to zero.

Public recognition of the National Vaccination Days was the ultimate approval of this strategy, which is still employed systematically in the country. In the 1980s and 90s – a period marked by political instability and administrative discontinuity with dire repercussions for the health sector – this strategy stands out as an exception.

It subsequently took on an international dimension when the Pan-American Health Organization (PAHO) recommended it as the model for interrupting the transmission of wild poliovirus in the Americas – i.e. the eradication of poliomyelitis in the whole continent.

The Polio Eradication Process

In the field of public health, a number of different concepts of eradication have been debated. First contemplated in the nineteenth century as new scientific knowledge emerged about the causes and transmission mechanisms of different diseases, the term eradication has been given different definitions over time, leading Alfred Evans³⁶ to suggest that the real global eradication of notifiable diseases is more myth than reality.³⁷

Another epidemiologist, Yekutieli, has proposed six preconditions for eradication programs: 1) control measure completely effective in breaking transmission, simple in application, and relatively inexpensive; 2) the disease should have epidemiological features allowing timely and effective case detection and surveillance in the advanced stages of the program; 3) the disease must be of

33 *Ibid.*, p. 9.

34 Mozart Abreu Lima was the general secretary of the Ministry of Health.

35 Mozart Abreu Lima, testimonial, 2002. *Memória da poliomielite: acervo de depoimentos orais*. eds Anna Beatriz de Sá Almeida, Dilene Raimundo do Nascimento, Laurinda Rosa Maciel. Rio de Janeiro, Fiocruz, 2005.

36 Alfred Evans is an epidemiologist at the Department of Epidemiology and Public Health, Yale University School of Medicine, New Haven, Connecticut, USA.

37 Evans, Alfred, “The eradication of communicable diseases: myth or reality?” *American Journal of Epidemiology*, 122(2), pp. 199-207, 1985.

recognized national or international socio-economic importance; 4) there should be a specific reason for eradication rather than control of the disease; 5) there should be sufficient financial and administrative capacity and health service resources; and 6) there should be the necessary socioecological conditions.³⁸

In Evans's opinion, these preconditions did not apply to any disease at the beginning of the 1980s: while the global eradication of smallpox was hailed as a marvelous achievement, it could not apply to any other disease. Different specialists involved in the smallpox eradication campaign agreed with this view. The received opinion at the time was that important lessons could be learnt from the eradication of smallpox, but that these would not lead to another disease being picked for global eradication.

Donald Henderson³⁹, who spearheaded the smallpox eradication campaign, did not believe polio could be eradicated because of two main issues: the difficulty of detecting the presence of the polio virus in a given region ("a patient with paralysis caused by polio is only the tip of the iceberg that is infection in the community"), and the fact that the polio vaccine may not be as thermostable as the smallpox one⁴⁰.

Frank Fenner, an internationally renowned virologist and leader of the team that evaluated the smallpox program, commented in a speech about eradication in the early 1980s that "were this meeting to limit itself to other candidates for immediate global eradication, we might as well pack up and go home".⁴¹

However, at the PAHO and Unicef,⁴² the need to bolster the credibility of immunization strategies was on the discussion agenda, building on the success of the global eradication of smallpox. The decision was therefore taken to eradicate polio in the Americas, since several countries had already had some success in its control. Uruguay, Chile, Venezuela and Argentina had all run vaccination campaigns in a short space of time, the Argentinean campaign being the largest, vaccinating 20 million children on each national vaccination day. Brazil, with its continental scale, had vaccinated 20 million children on each of its National Vaccination Days.

The repercussions of this achievement were great, not just for the impact on the incidence of polio in the country, but also because it showed the feasibility of the strategy of vaccinating the whole population on a single day, as expounded by

38 Yekutieli, P. *Eradication of Infectious Diseases. A critical study*. New York, Karger, 1980.

39 Donald Henderson ran the WHO's Smallpox Eradication Program from 1966 to 1977.

40 Donald Henderson. "Como é que a varíola mostrou o caminho". *A Saúde no Mundo*, Organização Mundial de Saúde, pp. 19-21, 1989, p.20.

41 Evans, op. cit., 1985, p. 204.

42 James P. Grant (1922-1995) became executive director of Unicef in January 1980. As of 1982 he was responsible for major investments by Unicef in its Universal Childhood Immunization program to fight what he called the "silent global emergency" that was the death of millions of children of preventable diseases.

Sabin. This reinforced the PAHO's decision to design a strategy for the disease in the whole of the Americas.

Having acquired "strong enough political will,"⁴³ the PAHO announced its target of interrupting the transmission of wild poliovirus in the Americas by 1990, disregarding the opinion of international authorities who had taken part in the smallpox program.

At the 31st meeting of the PAHO's Directing Council in September 1985, the member countries approved and committed to this initiative. In Brazil, breaking the transmission of wild poliovirus was included in the social priorities of Brazil's post-military government in 1986.

Although the modern concept of eradication⁴⁴ established at the 1st International Conference on Disease Eradication in 1980 implies a global reach, the controversies over the use of the concept persist, and the proposal to interrupt the transmission of wild poliovirus in the Americas, despite its regional footprint, came to be regarded as an eradication program.

As Moulin⁴⁵ explains, immunization is an extremely complex act, involving laboratories, the pharmaceutical industry, national and international policies, the perception of the disease to be prevented, rights and protection of liberties, among other aspects. The "adventure of vaccination" could not exist without political validation and the activation of a type of social compact.

And just such a compact was established between the PAHO, Unicef, the Inter-American Development Bank (IDB), USAID, Rotary International, and the governments of all the countries in the continent. The participation of international agencies was fundamental for the success of the proposal to eradicate the transmission of wild poliovirus in the Americas.

The role of Rotary International is particularly worthy of note in global efforts to eradicate polio. In 1985 it set up a program called Polio Plus to help with the immunization of all the children in the world, first until 2005, but since then until the disease has been wiped out. Not only is it the biggest non-governmental donor, but hundreds of thousands of its volunteers around the world have helped deliver the vaccines, mobilize society, and provide logistical planning. These voluntary efforts by Rotarians were extremely valuable in eradicating polio in the Americas.

In 1986, a working group for polio eradication was set up in Brazil, tasked with making vaccination coverage more efficient, improving the quality of the surveillance of the epidemiological behavior of poliomyelitis, and establishing

43 Evans, 1985, op. cit., p. 199.

44 "Eradication of an infection means that the infection has disappeared completely from all countries in the world because transmission of the causative organism has ceased completely." (Reviews of Infectious Diseases, 4(5), sept/oct.1982. p. 16).

45 Anne Marie Moulin (ed.) *L'Aventure de la vaccination*. Paris, Fayard, 1996.

whatever control measures were needed, with adequate oversight and evaluation processes.

The polio eradication program was built on two pillars: increasing immunization in order to attain and maintain high, homogeneous vaccination coverage (around 90%), and new or expanded disease surveillance activities and measures for controlling outbreaks.

In response to the cases it investigated and new clinical and epidemiological knowledge produced on the disease, the program reviewed and modified its surveillance concepts and methods. One new measure was to create clinical evaluation commissions of neurologists to identify cases of polio in the absence of stool samples.

In March 1989 the last case of wild poliovirus was notified in the country, in the municipality of Souza, Paraíba state.⁴⁶ As of 1990, while maintaining the strategies it had used thus far to eradicate polio, Brazil reoriented the program towards fulfilling the criteria established by the International Commission for the Certification of Poliomyelitis Eradication.

This commission convened in Washington in August 1994, where it declared that wild poliovirus transmission had been interrupted in the Americas. Polio had been eradicated from Brazil.

Concluding Comments

While Brazil's polio vaccination campaigns failed to cover the whole country and to be run consistently without breaks, they were unable to control the disease in the country. The National Vaccination Day strategy proved an effective policy for fighting polio in Brazil with the objective of controlling it.

After the National Vaccination Days earned public recognition, they were employed as a strategy that has survived to this day. They acquired an international dimension when the Pan-American Health Organization recommended them as a model for interrupting wild poliovirus transmission in the Americas; i.e., the effective eradication of poliomyelitis in the region.

To eradicate the disease, sufficient political will was needed in intergovernmental negotiations to get all the stakeholders behind the idea of running an Americas-wide campaign. This immunization campaign was led by the PAHO in conjunction with Unicef, the IDB and Rotary International, and was showcased as an example of partnership between the public and private sectors and community engagement in public health activities.

⁴⁶ The last case of polio in the Americas was in Peru in June 1991.

The policy to eradicate polio from the Americas was a successful health strategy that involved the engagement of several sectors of civil society, and brought gains beyond the eradication of the disease, such as the strengthening of vaccination programs, which were expanded considerably and had new vaccines included, and the development of a culture of prevention in society.

Dilene Raimundo do Nascimento, is researcher and professor in the Graduate Program in the History of Science and Health at Casa de Oswaldo Cruz, Fundação Oswaldo Cruz.

References

- Abreu, M. Lima, testimonial, 2002. *Memória da poliomielite: acervo de depoimentos orais*. eds de Sá Almeida, A. B., Nascimento, D.R. & Maciel, L. R.. (Rio de Janeiro, Fiocruz, 2005).
- Becker, R. testimonial, 2002. *Memória da poliomielite: acervo de depoimentos orais*. eds Anna Beatriz de Sá Almeida, Dilene Raimundo do Nascimento, Laurinda Rosa Maciel. (Rio de Janeiro, Fiocruz, 2005).
- Correio da Manhã*, October 15, (1961), p. 3.
- Correio da Manhã*, April 8, (1961), p. 3.
- Evans, A., “The eradication of communicable diseases: myth or reality?” *American Journal of Epidemiology*, 122(2), (1985), pp 199-207.
- Exposição do Ministro da Saúde*, Dr. Waldyr Mendes Arcoverde, na Câmara dos Deputados. (Brasília, 1980)
- Figueira, A. F., Doença de Heine-Medin no Rio de Janeiro. Rio de Janeiro, *Tipografia do Jornal do Comércio*, (1911).
- Henderson, D. “Como é que a varíola mostrou o caminho”. *A Saúde no Mundo*, Organização Mundial de Saúde, pp. 19-21, (1989), p. 20.
- Jornal do Brasil*, March 22, 1980, “1º Caderno” supplement
- Koprowski and Stanley, H. La histoire alternative de la vaccin oral. In: Moulin N, A.-M. ed. *La aventure de la vaccination*. (Paris: Fayard, 1996).
- Mackay H W, Fodor A R, Kokko U P. Viremia. Following the Administration of Live Poliovirus Vaccines. *AM J Public Health* 53(274) (1963).
- Moulin, A.M. (ed.) *L’Aventure de la vaccination*. (Paris, Fayard, 1996).
- Nascimento, D. R. and Maranhão, E. P. “Uma gota, duas doses: Criança sadia, sem paralisia”, pp.229-241, in: Nascimento, D.R. & Carvalho D.M. eds *Uma história brasileira das doenças*. Brasília: Paralelo 14, (2004), p. 230.
- O Estado de São Paulo*, July 27, (1960), p. 9.
- O Globo*, March 28, 1980:14.
- Risi Jr., J. B., “Considerações sobre a consultoria prestada pelo doutor Sabin ao Ministério da Saúde – Esclarecimentos necessários em face das repercussões de seu afastamento”. Brasília, April 18, (1980).
- Risi Jr., J. B. testimonial, 2000. *Memória da poliomielite: acervo de depoimentos orais*. (ed.) Anna Beatriz de Sá Almeida, Dilene Raimundo do Nascimento, Laurinda Rosa Maciel. (Rio de Janeiro, Fiocruz, 2005).
- Robbins, F. C. The History of Polio Vaccine Development. In: Plotkin, S. A. & Orenstein, W. A. eds. *Vaccines*. (Philadelphia: Saunders, 1999).
- Rogers, N.. *Dirt and Disease: polio before FDR*. New Brunswick, NJ, (Rutgers University Press, 1996).

- Rosenberg, C. *Explaining Epidemics and Other Studies in the History of Medicine*. (Cambridge, University Press, 1992).
- Salles Gomes Júnior, F. *Epidemia de poliomielite infantil em Villa Americana*. São Paulo, Serviço Sanitário do Estado de São Paulo/Officinas Gráficas Olegário Ribeiro, (1919).
- Schatzmayr, H. et al. “Erradicação da poliomielite no Brasil: a contribuição da Fundação Oswaldo Cruz”. *História, Ciências, Saúde – Manguinhos*, 9(1), 11-24, jan.-abr., (2002).
- Thacker & Berkelman. History of Public Health Surveillance. In: *Public Health Surveillance*. Edited by William Halperin & Edward L. Backer Jr. Van Nostrand Reinhold, (New York, 1992).
- Vieira de Campos, A.L. A história da poliomielite no Brasil antes da vacina: modelos, epidemias e dilemas. In: Nascimento, D.R. ed. *A história da poliomielite*. (Rio de Janeiro, Garamond, 2010).
- Yekutieli, P. *Eradication of Infectious Diseases. A critical study*. (New York, Karger, 1980).

Guaman Poma de Ayala's "New Chronicle and Good Government"

A testimony on the health of the Indigenous populations in XVIth century Peru

Axel M. Klohn and Philippe Chastonay

Introduction

Felipe Guaman Poma de Ayala's illustrated autograph manuscript of nearly 1200 pages: *Nueva corónica y buen gobierno* (New Chronicle and Good Government), probably written between 1600 and 1615, has particular importance as a rich, in-depth account of early colonialism, seen in an indigenous perspective. The book is attested at the Royal Library of Denmark for more than two centuries¹. It is available online as a searchable digital edition². Guaman Poma's work, addressed to King Philip III of Spain, was also explicitly intended for the hierarchy of the state and the church³ and for a more general public, both Spanish and native⁴. Some critical messages are reserved to Quechua language speakers⁵.

A full-blooded native, Guaman Poma descended from members of an ethnic community, the *mitmaqkuna*, sent with special privileges by the Inka to settle a newly conquered area⁶. His family, including the priest Martin de Ayala, his half-brother and instructor, appears to have had a special linkage with the hospital of Huamanga⁷ (today: Ayacucho). This situation, as well as the proximity of mercury

1. Rolena Adorno, *Guaman Poma and His Illustrated Chronicle from Colonial Peru: From a Century of Scholarship to a New Era of Reading* (Copenhagen, 2001)

2. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. No. GKS 232, 4. (Copenhagen 1615/1616). Available at: <http://www.kb.dk/permalink/2006/poma/info/en/frontpage.htm>

3. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. pp. 715–716.

4. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 1.

5. Rolena Adorno, *Guaman Poma: Writing and Resistance in Colonial Peru* (Austin, 2000), p. 27.

6. Rolena Adorno, *Guaman Poma and His Illustrated Chronicle from Colonial Peru: From a Century of Scholarship to a New Era of Reading*. p. 27.

7. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. pp. 15–20.

mines in the region, might explain Guaman Poma's particular attention to the "azogados", the miners poisoned by mercury.

Guaman Poma served the colonial authorities in various activities, notably as a transcultural communicator, an assistant to surveyors of the state of the Church and the Colony, "as a translator, conversing, asking questions to the Spanish poor, the Indian poor, and the black poor"⁸. He presents the greater part of his work under the form of the report of a *visita general*, an overall survey carried out by himself^{9,10}.

Regarding his activity as a graphic artist, his hand has been recognized in drawings illustrating a book by the Mercedarian friar Martin de Murúa, dated 1590¹¹. Guaman Poma's life and views took a radical turn after a traumatic event in December 1600. He lost a protracted legal battle for the control of ancestral lands, was denied dignity and entitlements, and sentenced to public flogging and exile. Guaman Poma then widened his quest for rights - both personal and collective - exposing the regime's injustice and excesses, and appealing to the King (of Spain) as a last resort¹². In his extensive, complex and multi-faceted work, we focus on his observations directly related to health of the population.

Guaman Poma's text

The extinction of the Andean rural population as a cause of concern and a warning

Guaman Poma's work is presented as an imaginary dialogue with the King¹³, where he assumes the role of a knowledgeable counsellor. The extinction of the indigenous population is a major cause of concern, stated in the warning: "Holy Catholic Majesty, I say that this kingdom sees the end of the Indians, there will not be any more of them"¹⁴. The situation is so severe that "where there was a thousand

8. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 715.

9. Rolena Adorno, *Guaman Poma: Writing and Resistance in Colonial Peru*. p. liiii.

10. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. pp. 455–459.

11. Rolena Adorno, Ivan Boserup, *Guaman Poma and the manuscripts of fray Martin de Murúa. Prolegomena to a critical edition of the "Historia del Perú"*. *Fund og Forskning* 44 (2005).

12. Rolena Adorno, *La génesis de la Nueva crónica y buen gobierno de Felipe Guaman Poma de Ayala*. *Taller de Letras* (Santiago de Chile, 1995), p. 32.

13. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. pp. 974–999.

14. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 982.

souls, less than a hundred are left, and so old that they cannot multiply anymore”¹⁵. “Where there were once a hundred Indian tributaries counted in the general survey, less than ten are to be found today”¹⁶. More dramatic examples follow: “In Uchuc Marca there used to be twelve thousand soldiers, and in Uruysa eight thousand. In one or the other of these places there aren’t even fifteen tributary soldiers left”¹⁷. Dire economic consequences are predicted: “the land will be lost, the whole kingdom will remain solitary and deserted, and the King will be impoverished”¹⁸. The Andean population is depicted as a key asset at the service of the King: “there will be no Indian in this kingdom by which your royal crown and the defence of our holy Catholic faith might be served. Because without the Indians, your Majesty is worth nothing. Because one must remember that Castile is Castile because of the Indians”¹⁹ (translation by Rolena Adorno²⁰). Threats to the ability to maintain production and income, such as a decline in the labor force, were prone to attract preferential attention by the Spanish authorities²¹.

The causes of depopulation in the villages according to Guaman Poma

All along his book, Guaman Poma conveys images of *diffuse social disintegration and disorganization*. The ancient order is broken, but the new colonial order is detailed as false, corrupt, unjust and ruled by greed and violence. The world is “upside down”²² at all levels, and depopulation is the result. Sexual colonization and sexual violence are forefront themes in Guaman Poma’s work²³. They are indeed quoted among the causes of demographic decline of the indigenous population: “...They do not multiply because the best among the women and maidens are taken by priests, corregidores, encomenderos and their butlers, lieutenants and officers”²⁴. Several of Guaman Poma’s illustrations show native women brutalized by white

15. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 983.

16. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 945.

17. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 985.

18. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 448.

19. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 982.

20. Rolena Adorno, *Guaman Poma: Writing and Resistance in Colonial Peru*, p. 24.

21. Noble David Cook, *Demographic Collapse, Indian Peru, 1520–1620* (Cambridge, 1981), p. 208.

22. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. pp. 222, 411, 450, 618, 776, 1136, 1138.

23. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. pp. 448, 504, 507, 539, 543, 567, 570, 577, 579, 582, 604, 708, 709, 710, 869, 892, 893, 920, 928, 943, 945, 984, 1113, 1125.

24. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 976.

men, including priests, and forced to work to produce textiles²⁵. Accusations of concubinate are used as pretext to sequester the woman and plunder the aborigine's possessions²⁶.

The general situation is a cause of despair and of mass suicides: "Facing such damage and grievances, they hang themselves like the Changas Indians in Andaguayllas, where there is a small hill full of (dead) Indians. They prefer to die at once rather than see themselves in dire straits"²⁷. The offspring stemming from sexual abuse, mestizos, were dispensed from servage and forced work. The privileges of the mestizos tended to further concentrate the burden of forced work on the remaining "indians". The reforms introduced by Viceroy Francisco de Toledo, which included forced relocation and population concentrations, meant a menace by themselves²⁸.

Forced work in the mines is associated with high lethality, especially in the mercury mines of Huancavélica where "the poor Indians are subject to many punishments and cruel treatments, and there are many deaths"²⁹, both because of the physical dangers incurred and as an outcome of corruption and bad treatment inflicted to the forced workers: "To begin, they receive great damage from the miners and authorities who get there. They are hanged by the feet and flogged nude... they are forced to work day and night, and they do not receive any pay. If they ever get paid, half of the amount is stolen. They are expelled to the plains where they are left to die. Of eleven Indians, only one gets out of there"³⁰. *Fear of cruel treatment and death in the mines are a cause of flight*, deserting the villages: "Because of all these offenses, they go missing from their villages so as to avoid the hell of the mines and suffering pains and torment from the devils. Others flee from the mines, others from the roads, to avoid going to the mines and dying an early death. They prefer death to life, they say that they would prefer to die at once, because if they catch the illness from mercury, they dry up as wood, they get asthma and they cannot live day or night. It goes on in this manner for a year or two, then they die"³¹. Many of the fugitives migrate to the cities. In Lima "I saw quantities of absentee and fugitive Indians working as servants... they dressed like the Spanish... so as to avoid paying the tribute and serving in the mines. You see

25. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. pp. 578, 659, 661.

26. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. pp. 578, 668, 976.

27. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 977.

28. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 448.

29. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 530.

30. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 982.

31. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 531.

here the world upside down. As they see those absentee Indians, others leave their villages and no one is left to pay the tributes and to serve in the mines”³².

Guaman Poma also reports on the disruption caused by the policies of *forced relocation and concentration* (“reduction”) of the indigenous populations carried out by Viceroy Francisco de Toledo with the aim of increasing control³³ and streamlining the collection of taxes and services: “He ordered the reduction and relocation of the Indians, some in good places, some in bad places, according to chance. Because of this, the Indians were uprooted from their homes, having their fields so far away”³⁴. Urban areas carry risks of their own: death by “pestilence” is associated with cities and villages³⁵. Elsewhere, Guaman Poma mentions epidemics as causes of mortality starting in early contact years: “There were huge pestilences of measles and smallpox in times of the Inca Huayna Capac. Many people died, including the Inca himself. It is said that he went hiding in a cavern, for fear of the pestilence, and there he died”³⁶. Later on, in times of Viceroy Fernando de Torres y Portugal, “There was a big earthquake that brought down houses and walls. And there was pestilence of measles, smallpox and typhus, causing many deaths in this kingdom, as well as a dire lack of food. And there were many poor, orphans and widows, and many blind”³⁶. The effects of “pestilence” were well known by Guaman Poma, but he does not enlist them among the main concerns about depopulation.

Guaman Poma’s reform proposals

Rolena Adorno noted that the final report by Viceroy Juan de Mendoza y Luna³⁷ and Guaman Poma’s book (both are dated 1615) share many recommendations for reform and criticisms of the abuses committed at the expense of the Andean natives. Guaman Poma’s proposals for administrative, civil and ecclesiastic reform are distributed throughout his manuscript. They have been identified as fluctuating between “Toledan” (reformist, authoritarian) and “Lascasian” (autonomy and self-government) poles³⁸. The latter deal with the restitution of power to the traditional indigenous chiefs³⁹, yet excluding alcoholics as well as addicts to gaming or to

32. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 1138.

33. Juan López de Velasco, *Geografía y descripción universal de las Indias* (Madrid, 1894), p. 35.

34. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 447.

35. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 1073.

36. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 288.

37. Juan de Mendoza y Luna, *Luz de materias de Indias del Marques de Montes claros* (Lima 1615).

38. Rolena Adorno, *La génesis de la Nueva crónica y buen gobierno de Felipe Guaman Poma de Ayala*. Taller de Letras (Santiago de Chile, 1995).

39. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. pp. 945, 987.

coca⁴⁰. These chiefs should be fluent in both Spanish and Quechua, and, “if possible, they should know Latin, to read, to write, to count, and to make petitions and questionnaires to defend their Indian subjects”⁴¹.

Guaman Poma’s core points are sharp and clear: The existing laws should be applied, the Spanish should behave, and the natives left in peace: “That the priests, friars, *encomenderos* (trustees of christianization), *corregidores* (civil authorities) and other Spaniards, as well as the Indigenous chieftains, should live as Christians and according to your Majesty’s rule, without infringing it, and leave them (the Indians) the usage of their wives and properties, and leave alone their maidens”⁴². “All the Spanish should live as Christians, should try to marry ladies within their own quality, and leave alone the poor Indians to multiply, and leave alone their possessions of lands and houses. What has been taken by force should be returned to them, and they should be compensated for the improper use”⁴³. The judges should not set obstacles to justice: “and if the judge refuses to execute the sentence, he should be condemned to the same penalty”⁴³.

Practical proposals further develop out of those main points: The *encomenderos*⁴⁴, the Spanish and the mestizos, all of the non-Indians⁴⁵ should be barred from entering the villages of the Indians. Guaman Poma describes this measure among the (unapplied) rulings of Viceroy Francisco de Toledo. So is the recommendation “that officers, priests and *encomenderos* should live on their allocated salaries”⁴⁶. “The administrators of Indian possessions, of Church possessions and of hospitals should receive a salary and be brought to book every six months”⁴⁷.

Priests, trustees and other Spanish should stop administering justice and this task should be reserved to trained professionals. Infringers should be punished and exiled⁴⁸. Alimony collected by priests during the masses should be enough to sustain them and they should be barred from collecting taxes and tributes⁴⁹. They should keep an account of alimonies and donations, and the balance should be employed in paying for masses⁵⁰. Priests should be held to put down a deposit before going to

40. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. pp. 785, 945, 987.

41. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 785.

42. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 977.

43. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 984.

44. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 987.

45. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. pp. 448, 1127, 1128.

46. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 449.

47. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 985.

48. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 985.

49. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 978.

50. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 635.

any indigenous village, even for a single day. If they commit any abuses, they should be punished and not simply rotated among parishes⁴⁸. All of the children and youth, boys and girls, should be taught to read and write, and the teachers should be paid with the church's revenues⁵¹. There should be schools in every village, small or large⁵². Each village should have its scribe, acting as book-keeper and authorized to bear witness⁵³.

Some of Guaman Poma's proposals directly address health and health care, especially in the mines: "Your Majesty should mandate and pay an Indian, or a black, or a Spanish, someone who knows how to treat and cure the mercury intoxications, then the Indians will multiply and will not fear work [in the mines]"⁵⁴. "Children and the young should not enter any mine of mercury, silver or gold, nor should they work at the smelter ovens"⁵⁵. A work schedule and rotations should be adapted so as to reduce exposition times and lower the risk of illness⁵⁵.

Discussion

Is emphasis on the sole role of epidemics justified? Fresh evidence for the destructive power of social disruption

There is a generally accepted evidence of a XVIth century demographical collapse in the major societies of the Americas. Nathan Wachtel estimated the 1530-1580 population reduction of Peru at 80% of a pre-contact population of 8 – 10 million⁵⁶.

Yet multidisciplinary research is showing "compelling evidence that the arrival of Europeans did not occasion a sudden pandemic of smallpox in the early sixteenth century": populations were variously affected by the new infectious diseases, in an heterogeneous pattern⁵⁷. According to Cook, on the basis of reconstructed population data for Perú, the population decrease was more pronounced in the coastal areas and in the lowlands (-2.4 to -3.5 percent yearly). High-altitude areas experienced a slower population loss (-1.4 percent yearly). This author attributes the differences observed to epidemic diseases. Overall "the native Andean resident

51. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 685.

52. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 686.

53. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 829.

54. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 982.

55. Felipe Guaman Poma de Ayala, *El primer nueva corónica y buen gobierno*. p. 988.

56. Nathan Wachtel, *La vision des vaincus. Les Indiens du Pérou devant la Conquête espagnole 1530–1570* (Paris, 1971).

57. Clark Spencer Larsen, "In the wake of Columbus: native population biology in the postcontact Americas". *Yearb Phys Anthropol* 37 (1994), pp. 109–154.

risked less mortality living near and, in fact, perhaps working as a mitayo at Huancavélica than did the Indian resident of Piura, Trujillo, Canamá, or elsewhere on the Peruvian coast or in the northeastern frontier of the Amazon basin”⁵⁸. In the central highlands, the rapid depopulation is attributed to “both deaths and migration to avoid mita service. By moving to another corregimiento, Indians, as forasteros (strangers) were exempt from mita service”⁵⁹.

According to this view, infectious diseases would be taking a heavier toll than even the deadliest of the mines. Yet the analysis is not quite satisfying. There is more to Indian’s mortality than the simple spread of imported infectious diseases: Bioarcheology research has been showing patterns of post-contact increases in biological stress indicators throughout the Americas. A sustained post-contact decline in mean adult stature has also been observed in Middle and South America, sustained well into the XXth century⁶⁰. In Perú, Klaus and Tam have recently evidenced significant post-contact increases of porotic hyperostosis and periosteal inflammation, both systemic biological stress indicators, as well as sub-adult growth faltering and depressed female fertility⁶¹. What was the source of the observed biological stress? Upon conquest, and with the aim to maximize the extraction of revenue and work, the Spanish embarked in a vast enterprise that transformed every aspect of the environment and life of the indigenous populations, radically altering their risk and vulnerability profiles. Just as in the Lambayeque valley complex, previously dispersed uphill settlements were concentrated down in marginal environments, with large increases in population density. Work, water supply and the best soils were diverted to plantation crops for the colonialists. The resulting weakening of the native populations, increased population density, deep transformations of the environment and of social organization, all concurred to convert colonial reductions into “disease reactors”⁶¹.

In the highlands, mining operations had effects not unlike plantation crops in the lowlands. The mercury mines of Huancavélica were known as “the mines of death”. According to a rough estimation by Kendall W. Brown, by 1600 about two thirds of the miners died of mercury intoxication. The death toll in the Huancavélica mines, with its forced labour, appears to have been significantly heavier than in the Old World mercury mines of Almadén, where mostly free miners were employed. Incompetence, uncertain tenure and racial prejudice could explain this large difference in mortality: the indigenous workforce was treated as

58. Noble David Cook, *Demographic Collapse, Indian Peru, 1520–1620* (Cambridge, 1981), p. 208.

59. Noble David Cook, *Demographic Collapse, Indian Peru, 1520–1620*, p. 210.

60. Barry Bogin, Ryan Keep, “Eight thousand years of economic and political history in Latin America revealed by anthropometry”, *Ann Hum Biol.* 26 (1999), pp. 333–351.

61. Haagen D. Klaus, Manuel E. Tam, “Contact in the Andes: Bioarchaeology of systemic stress in colonial Mórrope, Peru”. *Am J Phys Anthropol* 138 (2009), pp. 356–368.

an expendable resource. Several official reports acknowledged the gravity of the situation in Huancavélica; a senior officer qualified the mine as “a public slaughterhouse”, and the closure of the mine was considered. However, short-term economic advantage prevailed over any other concern, since mercury was needed in the process to extract precious metals, and the mines, however lethal, were kept in function⁶².

*The causes of the extinction of the native populations
according to other contemporary authors*

Contemporary scholars stress the importance of contextual factors, social disruption and mistreatment in the demographic collapse of the native populations. This was already well known to XVIth century chroniclers: much data on the colonies was available thanks to systematic surveys⁶³, as well as an official policy promoting an open flow of information⁶⁴.

According to Bartolomé de Las Casas, who had personal experience of colonial wars in the Caribbean islands, war and ruthless exploitation were the two main causes of extinction of the indigenous populations:

There are two main ways in which those who have travelled to this part of the world pretending to be Christians have uprooted these pitiful nations and wiped them from the face of the earth. First, they have waged war on them: unjust, cruel, bloody and tyrannical wars. Second, after having murdered anyone and everyone who might aspire or think about liberty, or about escaping the torments they suffer - including the native leaders and the adult males (given that the Spaniards normally spare only women and children), by oppressing them under the harshest, most horrible and brutal servitude ever suffered by men or animals alike... The only reason for which Christians have destroyed so many souls, in such infinite numbers, has been to get hold of the gold, and to get rich in a very short time...⁶⁵

Those points are further developed and refined by de Las Casas in his later works. Exploitation may not always be the immediate cause of death, but a

62. Kendall W. Brown, “Workers’ Health and Colonial Mercury Mining at Huancavélica, Peru”. *The Americas*, 57 (2001), pp. 467–496.

63. Howard Francis Cline, “The Relaciones Geograficas of the Spanish Indies, 1577–1586”, *Hispanic Am Hist Review*, 44 (1964), pp. 341–374.

64. Lewis Hanke, “Free Speech in Sixteenth-Century Spanish America”, *Hispanic Am Hist Review*, 26 (1946), pp. 135–149.

65. Bartolomé de las Casas, *Très brève relation de la destruction des Indes* (Paris, 1996), p. 52.

contributing factor. In “History of the Indies”, he reports on a devastating epidemic of smallpox spreading in the Caribbean in 1518-19:

A terrible plague came, by which almost all of the Indians died, and only a small number remained in life. This was smallpox, brought by someone from Castile.

But contextual factors related to exploitation contributed to increase vulnerability:

The condition of frailty and weakness due to lack of food, the nudity, sleeping on the ground, the excess of work imposed on them, and, on the side of those who used them, utter lack of concern for their health and conservation.⁶⁶

Their deaths result from negligence and greed:

The intention was not outright to kill them, but to use them as if they were animals, putting the physical and spiritual health of the Indians after their own interests, greed and earnings.⁶⁷

The economic benefits extracted by forced work could indeed explain the colonialist’s fierce hostility against any attempt at instating protection measures for the indigenous population, such as the “New Laws” promoted by de Las Casas⁶⁸ and made effective in 1542. According to Francisco López de Gómara:

Perú was the place where they [the colonialists] rebelled more strongly against them, as [the laws] were brought from village to village. In many of those, the bells were rung as tocsin, and people howled with rage while reading them. Some would sadden, fearing execution. Others pestered, and all cursed Fray Bartolomé de Las Casas, who had impulsed them. Men would stop eating, women and children cried, the Indians became arrogant and the cause of much concern.⁶⁹

Ultimately, attempts at enforcing the “New Laws” were effectively opposed by local colonial interests. This conflict was in fact a main cause of the civil war in Peru from 1542 to 1548. As a consequence, enforcement of most of the laws destined to the protection of the Indians was postponed *sine die* and mistreatment continued.

Some XVIth century scholars, such as Juan López de Velasco, official chronicler and cosmographer to the Council of Indies and to King Philip II, made remarkable

66. Bartolomé de las Casas, *Historia de las Indias V* (Madrid, 1875), p. 23.

67. Bartolomé de las Casas, *Histoire des Indes III* (Paris, 2002), p. 166.

68. Matthias Morys, “Fray Bartolomé de Las Casas y su influencia sobre las Leyes nuevas de Indias de 1542”, *Studium* 43 (2003), pp. 117–146.

69. Francisco López de Gómara, *Historia general de las Indias* (Madrid, 1922), p. 96.

uses of “general survey” techniques based on directed questionnaires⁷⁰. About the causes of the disappearance of the indigenous population, this author states:

In all of the discovered lands, at the beginning the natives were many more in numbers than those who have followed. In some provinces, where there were a great many of them, they have gone almost into extinction. At the beginning the causes of their disappearance were wars, because of the many who died in battles and skirmishes. Desperate to see themselves defeated, not willing to submit in peace, others left for the mountains, abandoned their cultures, and died of hunger. Then followed, in the prime years, widespread deaths and diseases never seen in those places, such as the smallpox brought by the Spanish. Later on, in more recent times, many more have disappeared as a result of mistreatment at the hands of the Spanish, excessive work with excessive loads, because at the beginning there were no other pack animals but them, and with the work in the gold and silver mines, pearl fisheries, country haciendas and in the building of edifices...⁷¹

This text suggests a quite clear picture of multiple causes for the extinction of the indigenous peoples, with forced work among the main factors. Writing about the Kingdom of New Granada (today's Colombia), the same author signals differential mortality among hot (humid tropical) and cold (highland) places: “every day there are less and less Indians in the hot lands, and those from the cold are increasing”. The causes, according to him, are also directly related to work:

They say the reason is, the Indians of the cold lands are many and slow, and do not have so much work, while the others must work in the mines.⁷²

Fifty years after Guaman Poma's work, Accarette du Biscay witnessed the established practices in the reputedly “milder” Potosí silver mines:

[It is in the interest of the King] that a sufficient number of them [Indians] be available to work in all of the mines. For those ends, the *curacas* or chiefs of the savages are forced to provide a certain number of workers that must be available at any time, least they (the *curacas*) pay in silver twice the amount that the absentees would have received if they were present... They are brought to a big enclosed terrain at the foot of the mountain. There, every Monday the *corregidor* distributes them [the Indians] among the foremen of the mine according to the number of workers they need. Next Saturday, after six days of continued work, the foremen return them to the same place... They count how many of them have died, for *curacas* to replace the

70. Howard Francis Cline “The Relaciones Geograficas of the Spanish Indies, 1577–1586”, *Hispanic Am Hist Review* 44 (1964), pp. 341–374.

71. Juan López de Velasco, *Geografía y descripción universal de las Indias*, p. 26.

72. Juan López de Velasco, *Geografía y descripción universal de las Indias*, p. 359.

missing numbers, as not a week passes without some deaths, caused by various accidents, such as mine collapses, falling stones and other fortuitous cases, or by diseases. Sometimes they are much incommodated by the wind that blows in the galleries. In some places, the harsh cold of the wind and of the ground is such that, were it not for the coca leaves they chew to warm up and inebriate themselves, it would be intolerable. In other places they suffer from strong sulfurous gases and minerals that dry them up, sometimes to the point that they are prevented from normal breathing.⁷³

Conclusions

Guaman Poma emerges as a most valuable primary source on indigenous health conditions and the problems predominant in late XVIth-early XVIIth century in Central Perú. His observations are consistent with and reinforce the current evidence on the health of the post-contact native populations in this area. All along his book, he exposes double standards and duplicity at all levels of the colonial power structure. If both las Casas and Guaman Poma knew well about the devastation caused by epidemics, it can be argued that they focused on the more directly evitable causes of mortality: those related to mistreatment and misbehaviour by the colonials.

The XVIth century appears as a flash point in the emergence of the modern concepts and practices, from the onset of the colonial “New World” order. The revulsion caused by the “worst genocide ever”⁷⁴ would in turn fuel the elaboration, heeded by Bartolomé de Las Casas and Francisco de Vitoria, of the fundamentals of a doctrine of universal rights (Las Casas would however disagree on the latter’s troubling concepts about a “just war”). But the resulting laws, a compromise tailored to protect the indigenous populations, were never applied. Guaman Poma’s work would lay forgotten in shelves for more than 300 years, and Las Casas texts were barred from publication after his death: by 1600, the XVIth century “free speech” practice was already a thing of the past⁷⁵. Colonial order appears, according to the terms of Las Casas, as “a tyranny by fact, not by law”⁷⁶ characterized by the predominance of de facto power structures, and a persistent disregard towards the laws emanating from the central authority. This mode of organization of the conquistadors and their successors has its roots in a primitive, pre-contractual, early

73. Accarette du Biscay, *Viajes al Río de la Plata y a Potosí (1657–1660)* (Doral, FL, 2008)

74. Tzvetan Todorov, *La conquête de l’Amérique. La question de l’autre*, (Paris, 1982), p. 170.

75. Lewis Hanke, “Free Speech in Sixteenth-Century Spanish America” *Hispanic Am Hist Review*, 26 (1946), pp. 135–149.

76. Bartolomé de las Casas, *Historia de las Indias V* (Madrid, 1875), p. 10.

middle ages feudal custom⁷⁷. It would spread to many more territories as other countries entered the colonial competition. Ultimately, more or less tacit territories “beyond the line”, where ordinary laws are suspended and remain unapplied, akin to a permanent “state of exception”, would become a key feature of colonialism⁷⁸. In spite of apparent changes, a surprising continuity in *de facto* political power and institutions has been found in many of those territories^{79,80}. Avenues for further research might find fertile ground in the conditions for the post-colonial persistence, decline and re-emergence of spaces of suspended law, as they might still be among the main challenges to the improvement of access to health and the respect of the fundamental rights of indigenous populations. This acquires particular relevance given the worsening discrimination, exploitation, dispossession and racism experienced by the majority of indigenous peoples⁸¹.

Philippe Chastonay, MD, MPH, president of the scientific committee of the Swiss Society of Public Health.

Axel Max Klohn, MD, MPH, lecturer at the University of Geneva, Institute of Global Health.

77. Ruggiero Romano, *Les Conquistadores. Les mécanismes de la conquête coloniale* (Paris, 1972), p. 32.

78. Carl Schmitt, *Le nomos de la Terre dans le droit des gens du Jus Publicum Europaeum* (Paris, 2001), pp. 87–101.

79. Daron Acemoglu, James Robinson, “De Facto Political Power and Institutional Persistence” *American Economic Review*, 96 (2006), pp. 325–330.

80. Daron Acemoglu, James Robinson, *Persistence of Power, Elites and Institutions* (Cambridge, 2006).

81. Susana Sawyer, Terence Gomez, *Transnational Governmentality and Resource Extraction: Indigenous Peoples, Multinational Corporations, Multinational Institutions and the State* (Geneva, 2008).

References

- Acemoglu, Daron and James Robinson, "De Facto Political Power and Institutional Persistence," *American Economic Review* 96(2) (2006), 325–330.
- Acemoglu, Daron and James Robinson, *Persistence of Power, Elites and Institutions*. Cambridge, 2006
- Adorno, Rolena, "La génesis de la Nueva crónica y buen gobierno de Felipe Guaman Poma de Ayala," *Taller de Letras* 23 (1995), 9-32.
- Adorno, Rolena, *Guaman Poma: Writing and Resistance in Colonial Peru*. Austin, 2000.
- Adorno, Rolena, *Guaman Poma and His Illustrated Chronicle from Colonial Peru: From a Century of Scholarship to a New Era of Reading*. København, 2001.
- Adorno, Rolena and Ivan Boserup, "Guaman Poma and the manuscripts of fray Martin de Murúa. Prolegomena to a critical edition of the Historia del Perú," *Fund og Forskning* 44 (2005), 107-258.
- Biscay, Accarette du, *Viajes al Río de la Plata y a Potosí (1657-1660)*. Doral, 2008.
- Bogin, Barry and Ryan Keep, "Eight thousand years of economic and political history in Latin America revealed by anthropometry," *Ann Hum Biol* 26 (1999), 333–351.
- Brown, Kendall W., "Workers' Health and Colonial Mercury Mining at Huancavélica, Peru," *The Americas* 57(4) (2001), 467–496.
- Casas, Bartolomé de las, *Très brève relation de la destruction des Indes*. Paris, 1996.
- Casas, Bartolomé de las, *Histoire des Indes III*, Paris, 2002.
- Casas, Bartolomé de las, *Historia de las Indias V*, Madrid, 1875.
- Cline, Howard Francis "The Relaciones Geograficas of the Spanish Indies, 1577-1586," *Hispanic Am Hist Review* 44(3) (1964), 341–374.
- Cook, Noble David, *Demographic Collapse, Indian Peru, 1520-1620*. Cambridge, 1981.
- Guaman Poma de Ayala, Felipe, *El primer nueva corónica y buen gobierno*. København, 1615/1616.
- Hanke, Lewis, "Free Speech in Sixteenth-Century Spanish America," *Hispanic Am Hist Review* 26(2) (1946), 135-149.
- Klaus, Haagen D. and Manuel E. Tam, "Contact in the Andes: Bioarchaeology of systemic stress in colonial Mórrope, Peru," *Am J Phys Anthropol* 138 (2009), 356-368.
- Larsen, Clark Spencer, "In the wake of Columbus: native population biology in the postcontact Americas," *Yearb Phys Anthropol* 37 (1994), 109–154
- López de Gómara, Francisco, *Historia general de las Indias*. Madrid, 1922.
- López de Velasco, Juan, *Geografía y descripción universal de las Indias*. Madrid, 1894.

- Mendoza y Luna, Juan de, *Luz de materias de Indias del Marques de Montes claros*. Lima, 1615.
- Morys, Matthias, "Fray Bartolomé de Las Casas y su influencia sobre las Leyes nuevas de Indias de 1542," *Studium* 43(1) (2003), 117-146.
- Romano, Ruggiero, *Les Conquistadores. Les mécanismes de la conquête coloniale*. Paris, 1972.
- Sawyer, Susana and Terence Gomez, *Transnational Governmentality and Resource Extraction: Indigenous Peoples, Multinational Corporations, Multinational Institutions and the State*. Geneva, 2008.
- Schmitt, Carl, *Le nomos de la Terre dans le droit des gens du Jus Publicum Europaeum*. Paris, 2001.
- Todorov, Tzvetan, *La conquête de l'Amérique. La question de l'autre*. Paris, 1982.
- Wachtel, Nathan, *La vision des vaincus. Les Indiens du Pérou devant la Conquête espagnole 1530-1570*. Paris, 1971.

Foreign Bodies in the Nation

The “Health Problem of Immigration” in France during the Interwar Period

Virginie De Luca Barrusse

Introduction

The 1920s in France were marked by the entry of hygienists into an ongoing debate on immigration among other experts recognised in the economic field.¹ Here, “hygienists” were doctors specialized in the hygiene issue, who were working for a public administration and who publicised and diffused the “health problem of immigration” outside expert circles.² Their commitment would contribute to eventually introducing the topic of migrants' health into the political arena.

In the aftermath of the Great War, France had no immigration policy as such, public authorities reacted “on a case-to-case basis”³ under the pressure of influential groups associated with industrial and agricultural circles. The phenomenon admittedly went one by one before it receded under the effect of the economic crisis.⁴ In 1921, the population of France was 39.2 million. During the proceeding decade, immigration was particularly high in order to fill the gaps left by the Great War and to support the reconstruction effort. In 1931, 2.7 million foreigners, who came from Belgium, Poland, Italy and from the French colonies, particularly Algeria, accounted for 6.6% of the total population. With such figures France ranked second among the destination countries for immigrants after the United-States. Up to 1931, migratory growth had accounted for three quarters of the total

1 Gérard Noiriel, *Immigration, antisémitisme et racisme en France (XIXe–XXe siècles)* (Paris, 2007), p. 319, p. 326; Julie Fette, *Exclusions: Practising Prejudice in French Laws and Medicine, 1920–1945* (Cornell, 2012); Mary Lewis, *Les frontières de la République: l’immigration et les limites de l’universalisme en France, 1918–1940* (Marseille, 2010).

2 I thank the Comité d’Histoire de la Sécurité Sociale and its association for supporting this research.

3 Patrick Weil, “Racisme et discrimination dans la politique française de l’immigration, 1938–1945 et 1995”, *Vingtième siècle*, juillet-septembre (1995), 74–99.

4 See Gérard Noiriel, *Le creuset français. Histoire de l’immigration XIXe–XXe siècles* (Paris, 2006).

population increase. Natural increase was admittedly low because birth rate had been particularly poor, which raised many eyebrows among various circles worrying about “depopulation”⁵ in the country. The economic crisis of the 1930s discouraged both fertility and immigration. The number of foreigners in France decreased to 2.4 million in 1936, or a proportion of 5.9%. Migratory balance became negative and the total population growth was almost nil. The proportion of foreigners reached 5.9% in 1936.⁶

So, how and why was migrants’ health was publicly exposed by doctors who specialised in hygiene issues? Since this question is especially pertinent as it appeared that during in the inter-war period, the “health problem of immigration” only existed because of a construction effort supported by the hygienists’ collective efforts of those same hygienists.⁷ The emergence of this new social problem was the result of a mobilisation that which successfully propelled it to social visibility. For a migrants’ issue to become a public issue, it needed to be defined as such by these observers and they had to be sufficiently influential to pass on their fear to the public.⁸ Their success reflected their capacity for mobilisation. But what is the meaning of that mobilisation? We were clearly dealing with hygiene specialist doctors, an underrated specialisation that was craving legitimacy. Their motivation set the tone for the debate and arguments employed in their actions. Indeed, hygienists were doctors without clientele who turned towards public administration to perform their profession as private practice medicine faced a bottleneck.⁹ At the junction of the administrative field and the medical field, wage-earning work was depreciated by the private practice community of doctors. The two groups were often opposed, as the hygienist was the figurehead of health interventionism. In this way, the creation and organisation of the debate on migrant health appear as elements in a process for defining and exploiting hygienists’ competency.

But the “health problem of immigration” also reflected the convergence of issues that historically surrounded economic (a need for labour) and demographic (growing population as a political power factor) interests. Immigrated populations may indeed be valuable for lobbies as they alter the volume and composition of labour.¹⁰ However, the population as a whole is also modified because migrants

5 Virginie De Luca Barrusse, *Les familles nombreuses. Une question démographique, un enjeu politique* (Rennes, 2008).

6 Virginie De Luca Barrusse, *Démographie sociale de la France* (Paris, 2010), pp. 195–216.

7 Herbert Blumer, “Social problems as Collective Behaviour”, *Social Problems*, 18 (1971), 298–306.

8 *Ibid.*

9 Jacques Léonard, *La France médicale. Médecins et malades au XIXe siècle* (Paris, 1978); *La médecine entre les savoirs et les pouvoirs* (Paris, 1981).

10 Philippe Rygiel, “Indésirables et migrants désirés. Notes sur les pratiques de sélection des migrants dans quelques grands pays d’immigration (1850–1939)”, in P. Rygiel, ed., *Le bon grain et l’ivraie. La sélection des migrants en Occident 1880–1939*, (Paris, 2008), p. 29.

represent a labour force as well as a reproductive force contributing to demographic renewal.¹¹ The value of the foreigner is subordinated to their economic as well as demographic usefulness, as hygienists relentlessly reiterated. This demographic usefulness further implies maintaining, then assimilating foreigners into the population. Hygienists used the demographic argument;¹² they seized the issue by assessing the health risks of immigration compared to the potential economic benefits for the nation. To introduce the health criterion as the priority of a true immigration policy, to strive to mobilise public opinion so as to partake in that policy: such was the aim of hygienists.

My purpose here is to examine “the health problem of immigration” designated in this context - to repeat the definition given by Joseph Gusfield - as the process through which immigrants' health becomes the issue of reflection and of public protest as well as a target for public action.¹³ This work falls within a fertile field of research that examines barriers set up at national borders, particularly against infectious diseases. Some of the research approaches the issue from the viewpoint of globalised trade and international relations, providing an overview of the systems that were introduced and the efforts undertaken by nation-states to enforce health security at their borders.¹⁴ Other studies look at activities, networks and international conferences: they show how border security systems were negotiated outside national borders.¹⁵ Another area of research focuses on the risks that were perceived not only to be dangers to health but also to society. This is demonstrated above all in studies of venereal diseases.¹⁶ Overall, apart from a few national

11 Elisa Camiscioli, “Producing Citizens. Reproducing the “French Race” Immigration, Demography and Pronatalism”, *Gender and History*, 3 (2001), 593.

12 Paul-André Rosental, “L’argument démographique. Population et histoire politique au Xxe siècle”, *Vingtième Siècle. Revue d’Histoire*, 95, 3, (2007), 3–14. More generally, see Paul-André Rosental, *L’intelligence démographique: sciences et politiques de population (1930–1960)*, (Paris, 2003).

13 Daniel Cefaï, Dominique Trom, “Retour sur la sociologie des problèmes publics. Un entretien avec J. Gusfield”, *Secret/Public*, 0, 3, (2005), 1.

14 Alison Bashford ed., *Medicine at the Border: Disease, Globalization and Security, 1850 to the Present* (New York, 2006); Alison Bashford, *Imperial Hygiene. History of Colonialism, Nationalism and Public Health*, (New York, 2003); Roy Macleod, Lewis Milton, eds., *Disease, Medicine and Empire: Perspectives on Western Medicine and the Experience of European Expansion*, (London, 1988); Patrick Zylberman “Civilizing the State: Borders, Weak States and International Health in Modern Europe” in A. Bashford, ed., *Medicine at the Border: Disease, Globalization and Security* (New York, 2006), pp. 21–40.

15 Norman Howard-Jones, *The Scientific background of the international Sanitary Conference, 1851–1938* (Geneva, 1975); Paul Weindling, *International Health Organisations and Movements, 1918–1939* (Oxford, 2000).

16 Alison Bashford, Claire Hooker, *Contagion: Historical and Cultural Studies* (London, 2001); Deborah Lupton, *The Imperative of Health: Public Health and the Regulated Body* (London, 1995); Caroly Strange, Alison Bashford eds., *Isolation: Places and Practices of Exclusion*, (London, 2003). On venereal diseases cf. Philippa Levine, *Prostitution, Race and Politics: Policing Venereal Disease in the British Empire* (London, 2003).

examples, research on how monitoring systems and procedures were set up and on actual border practices reveals that the activities were structured by class and race relationships, particularly in the colonies.¹⁷ Finally, several analyses have been devoted to the scientific theories and concepts used to justify border security measures, especially their eugenic character.¹⁸ The French situation appears to have been an exception: eugenics in France were just as concerned with the quantity of the population as they were with quality.¹⁹ My research diverges from these studies, however, by shifting the focus of our observation to the way the health problem itself was constructed, prior to the measures adopted, and then focusing on how doctors went about defining a new field of knowledge. These professional stakes were the cornerstone for defining the immigration health problem.

I shall focus on this emerging issue and its legitimisation as well as on the underlying arguments employed by the actors involved. The first part of this article presents the situation of hygienists in the field of immigration health control. As early as 1925, the problem was clearly defined, the issues were decided upon, publicised and addressed to the public authorities. This new social problem entered the public arena,²⁰ a subject which we shall examine in a second part. Finally, we shall study the arguments put in place in order to expose a health issue that was associated with migrants entering French territory. We will also show the issues underlying those discourses that were used to shape preconceived ideas of uncontrolled immigration. The mobilisation of hygienists utilized a strong rhetoric, which consequently conditioned the ways of addressing and debating the issue of immigrant health. This rhetoric would also have significant consequences on foreigners entering the territory. We shall focus on the 1920s, but we shall also digress into the following decade in order to highlight this debate and its characterising arguments.

17 Anthea Hyslop, "Insidious Immigrant: Spanish Influenza and Border Quarantine in Australia, 1919", in L. Bryder and D. Dow, eds., *Migration to Mining: Medicine and Health in Australia History* (Darwin, 1997); Shah Nayan, *Contagious Divides: Epidemics and Race in San Francisco's Chinatown* (San Francisco, 2002); Alexandra Minna Stern, "Buildings, Boundaries and Blood: Medicalization and Nation-Building on the US Mexico Border, 1910–1930", *Hispanic American Historical Review*, 79 (1999), 41–81.

18 Laura Otis, *Membranes: Metaphors of Invasion in Nineteenth-Century Literature, Science and Politics* (Baltimore, 1998); Margaret Pelling, "The Meaning of Contagion: reproduction, medicine and metaphor", in A. Bashford and C. Hooker, eds, *Contagion: Historical and Cultural Studies* (London, 2001), pp. 15–38; Paul Weindling, *Epidemics and Genocide in Eastern Europe, 1890–1945* (Oxford, 2000).

19 William Schneider, *Quality and Quantity. The Quest for Biological Regeneration in the Twentieth-Century France* (Cambridge, 1990); Anne Carol, *Histoire de l'eugénisme en France* (Paris, 1995).

20 Daniel Cefaï, "La construction des problèmes publics. Définitions de situations dans les arènes publiques", *Réseaux*, 1996, 75, 57.

Up to 1923: A Loose Scheme

Beginning towards the end of the 20th century, the recruitment of foreign workers from Poland or Italy, for example, was being organised by private companies to meet the need for labour in France.²¹ In the departure zones, medical visits were organised to check migrants' ability to work.²² The rules were rather flexible and would vary according to the economic or social conjuncture or even the migrant's country of origin.²³ In addition to this form of organised immigration, a more spontaneous immigration, most often people living near borders, was only checked once at the borders. Provisory welcome and/or host facilities were set up at the national borders in the North-East, the South and the South-East of France to accommodate foreigners and colonial workers. In "settlements for foreigners workers", accommodation centres, border posts, administrative agents and hygienists were responsible for vetting the arrival of migrants. However, health control seemed to be mostly superficial: the medical visit boiled down to smallpox vaccinations, delousing those from regions prone to epidemic typhus, providing showers and disinfecting clothes and luggage. During the Great War, manpower shortage created the need to organize "under pressing urgency"²⁴ the recruitment of workers from the colonies. In the port of Marseille where they landed from Algeria or Italy for example, check points to verify the physical and professional aptitude of migrants were set up hastily.²⁵ Medical visits for colonial workers and rounds checking the hygiene of their barracks multiplied to support new emergency efforts.²⁶

The health system was first giving visibility during the war by the hygienists who, in medical and health journals, highlighted health aspects in retelling their experiences. They described their daily activities, the difficulties they encountered but also the strategies and innovations they implemented. The greatest freedoms were afforded to hygienists, who were at the center of the issue, and thus allowed to

21 Vincent Viet, *La France immigrée. Construction d'une politique 1914–1997* (Paris, 1998), p. 27.

22 Anne-Sophie Bruno, "Les acteurs de la sélection de la main-d'œuvre immigrée en France au XX^e siècle", in J-P. Le Crom, ed., *Les acteurs dans l'histoire du droit au travail* (Rennes, 2011), p. 399.

23 Anne-Sophie Bruno and Catherine Omnès, "Statut d'emploi, situation de travail et santé: histoires de femmes et d'étrangers", in A-S. Bruno, E. Geerkens, N. Hatzfeld and C. Omnès, eds., *La santé au travail entre savoirs et pouvoirs, XIX^e–XX^e siècles* (Rennes, 2011), p. 101. See also Paul-André Rosental, "Géopolitique et Etat-Providence. Le BIT et la politique mondiale des migrations dans l'entre-deux-guerres", *Annales Histoire, Sciences Sociales*, 61, 1 (2006), 99–134.

24 Vincent Viet, *La France immigrée*, p. 28.

25 André Payrault, *L'immigration organisée et l'emploi de la main d'œuvre étrangère en France* (Paris, 1927), pp. 34–42.

26 Laurent Dornel, "Les usages du racialisme. Le cas de la main d'oeuvre coloniale en France pendant la première guerre mondiale", *Genèses*, 20, (1996), p. 60.

set up systems for confining epidemics, quarantine programs, etcetera. Hygiene then became an open field of experimentation in an exceptional context, requiring high responsiveness from its actors. Hygienists endeavoured to disseminate their practices and investments by exposing their field experience and giving visibility to competences related to health administration.

During and immediately after the war, the most loquacious hygienist was Doctor René Martial who wrote many articles. His professional career was rather characteristic of these management, control and inspection roles in the field of hygiene, which proliferated during France's third republic. In 1909, he ran a sanatorium in northern France; in 1910, he was director of the hygiene office in Douai. In April 1916, he was appointed deputy technical director of the health department of the 16th military region, and then departmental delegate of that same region.²⁷ Just like him, scores of hygienists, departmental hygiene inspectors and directors of hygiene offices were turned into "medical executives", health constituency delegates or departmental delegates during the war.²⁸ Thus, Martial was entrusted with curbing health epidemics in a colonial worker compound in Castres.²⁹ At the Spanish border, he organised the fight against malaria and epidemic typhus in colonial worker compounds.³⁰ At the end of the war, Martial was appointed departmental hygiene director in the Aisne region and then director of the municipal hygiene office in Fez.³¹ The latter was for him an intense activity that he recounted in detail in several articles.

At the same time, hygiene was becoming an institution in itself. In 1921, in Paris, the management of the new Hygiene Institute was entrusted to Professor Leon Bernard. The implementation of a course in hygiene delineated and demonstrated the skills of hygienists. Furthermore, the creation of a higher education degree in hygiene within the Paris medical school conferred legitimate entry into the career of a hygienist doctor. Hygiene then gained further authority on May 21, 1924 when posts such as health technical advisers were created in the Ministry of Labour and of Hygiene. Professor Leon Bernard occupied one such post.

The doctors who opened and fuelled the debate on immigration came from a social hygiene background. Their status, therefore, was halfway between science,

27 Benoit Larbiou, "René Martial, 1872–1955. De l'hygiénisme à la raciologie, une trajectoire possible", *Genèses*, 60 (2005), 104.

28 *Ibid.*

29 Dr. Martial, "Epidémiologie d'un contingent de travailleurs algériens stationnés dans la XVI^e région. Etiologie, Réceptivité", *Montpellier médical*, 37, 15 décembre (1917), 1165–1170, quoted by Benoit Larbiou, *Connaitre et traiter l'étranger. Les constructions sociales d'un savoir politique sur l'immigration, 1914–1945*, unpublished PhD (Montpellier, 2003), p. 369.

30 Dr. Martial, "Typhus exanthématique, organisation de l'épouillage, problème de la quarantaine", *Revue d'hygiène et de police sanitaire* (1919), 559–560.

31 Benoit Larbiou, "René Martial", *Genèses*, 60 (2005), p. 107.

administration and social work, while also being backed by several other disciplines, such as medicine, public administration, and statistics.³² The new occupation was marked by the significance of associations, committees, and conferences: places where prominent contributors (scientists, politicians or administrators) from various combinations of these field were vying for power. Moreover, social hygiene was supported by men with political power, motivated by a feeling of general interest and for which the collective character of social issues is obvious but also and especially risky. For the social hygienist, man was always considered from a dual individual and social viewpoint.³³ Social hygiene is backed by the concept of forced solidarity between individuals and whole generations as determined by the conditions under which diseases, epidemics and hereditary illnesses propagate.³⁴ Whenever they wanted to fight against tuberculosis, syphilis, alcoholism, childhood mortality, social hygienists adamantly followed a perspective of solidarity. At the end of the day, they were interested in the convoluted causes that had possible consequences on the population as a whole.³⁵ Those who sought to highlight the health problem of immigration were involved in more than one way in this field. So, how many were they? We are able to identify some fifteen names who were publishing on this issue. However, if we decide to add the names quoted in their articles and who address the issue less radically, the network of professionals including migrants in the field of social hygiene was in fact much larger. Migrants were then considered as new agents of the possible transmission of diseases and diffusion of hereditary characteristics. René Martial for example was strongly involved in that field on a par with his colleagues. In 1923 he became a member of the editorial committee of the *Revue d'hygiène et de police sanitaire* (The journal for hygiene and health policy) and hygiene technical adviser for *Le Concours médical*. In 1924, he also became a member of the editorial committee of the *Mouvement sanitaire*. The following year, he became secretary of the Hygienist Union.

In December 1924, the National office for social hygiene was created. From this point forward, social hygiene was structured at the highest level. This new social space provided hygienists with the opportunity to gain positions of power. They could then feel entitled to highlight social issues, to the creation of which they had themselves contributed. The health of migrants was one such social issue constructed largely by the new institution of hygienists.

32 Gérard Jorland and Anne Rasmussen write the same comments about hygiene. Anne Rasmussen, "L'hygiène en congrès", in P. Bourdelais ed., *Les hygiénistes. Enjeux, modèles, pratiques* (Paris, 2001), p. 226; Gérard Jorland, *Une société à soigner. Hygiène et salubrité publiques au XIXe siècle* (Paris, 2010), p. 19.

33 Gérard Jorland, *Une société à soigner*, p. 43.

34 Op. cit., p. 304.

35 On the British case see Greta Jones, *Social Hygiene in Twentieth Century Britain*, (London, 1986).

Defining the Problem

In 1924, the *Société Générale d'Immigration*, grouping together various employer associations, was responsible for negotiating with foreign administrations to supply industrialists with workers. In order to select candidates for immigration, local infrastructures entrusted with ruling on immigrants' aptitude to work were set up. This was the case, for example in Poland in 1924 and in Czechoslovakia in 1925.³⁶ According to statistics provided by these organisation, more than one third of Poles and Czechoslovakians would then have been barred from entering France for medical reasons.³⁷ Health controls were subsequently enforced at the French borders. The conditions for entry varied according to the country of origin. Italians, for instance, were controlled only once at the borders.³⁸ As for workers from the colonies, the same year, on August 8, 1924, a memorandum dictated that "any native desirous of coming to France to occupy a wage-earning job should provide a medical certificate showing that he is physically capable of working in France and is not afflicted by any contagious disease".³⁹

At this stage, migrants' health had not been identified as a public concern. In the process of becoming one, a social space for discourse was required to echo and relay the arguments surrounding the issue and certainly to amplify said issue. The various journals, as places of presentations, of discussions and of propositions, played the role of the sounding board. *La revue d'hygiène et de police sanitaire*, *le Mouvement sanitaire*, *le Concours médical*, *la Presse médicale* and a few more original published articles or texts published elsewhere, commented on the debates of scholarly societies and incorporated presentations from conferences. Texts would circulate from one journal to the other, studded with many bibliographical references giving them an intellectual aura. A new social space was built by actors writing and reading these journals, but it was also built by the contents of these publications, the circulating projects and the tools for analysis used which then entered into the public arena. The Academy of Medicine also relayed the issues and by its high authority, the debate reached into the public and political sphere.

To blow the whistle on an issue, there must first be an opportunity. The American experience provided hygienists with the opportunity to open up the

36 Anne-Sophie Bruno, "Inaptitude et immigration en France au XXe siècle", in C. Omnès and A-S. Bruno, *Les mains inutiles. La construction sociale de l'inaptitude au travail*, (Paris, 2004), p. 126. On the international organisation of the migrations see Paul-André Rosental, "Migrations, souveraineté, droits sociaux. Protéger et expulser les étrangers en Europe du XIXe siècle à nos jours", *Annales Histoire et Sciences Sociales*, 2, 66 (2011), 335–373.

37 Quoted by Jean Pluyette, *La doctrine des races et la sélection de l'immigration en France* (Paris, 1930), p. 102.

38 Quoted by Anne-Sophie Bruno, "Inaptitude et immigration en France au XXe siècle", p. 135.

39 *Ibid.*, p. 128.

debate. The American laws of 1921 and especially of 1924 highly limited immigration by imposing quotas and by forbidding entry to certain categories of population.⁴⁰ These new provisions led to a multiplication of articles in various journals⁴¹. The authors presented the American methods and deplored the absence of comparable measures in France: “we are dealing here with a coherent, legal and competent organisation, certainly unparalleled in France which ought to be created by all necessity”.⁴² In its meeting dated March 9, 1926, at the end of a presentation of the American situation, the Société de Pathologie Comparée (Society of compared pathology) expressed the wish for “the measures adopted in the US for excluding and eliminating the undesirable aliens to be adopted in our country”.⁴³

Blowing the whistle also required a vivid announcement able to capture public attention. In September 1925, it was Professor Léon Bernard who made the issue more visible by publishing in the *Revue d'hygiène et de médecine préventive* (*Hygiene and preventive medicine journal*) on “the health issue of immigration”.⁴⁴ If other authors, such as Martial, have written on the subject, Léon Bernard could mention higher institutional positions, as a professor of the Paris faculty of medicine and as a member of the Medical Academy. He was committed to the fight against “social scourge”, tuberculosis especially, for which he was one of the acknowledged specialists. As such, he was secretary general of the *Comité national de défense contre la tuberculose* (the National defense committee against tuberculosis), which he represented in all levels of social hygiene. It was an authorised voice of the medical world and of social hygiene. In his article, Léon Bernard offered a set of convergent arguments around a unique issue - that of migrant health – applied to a general issue - the future of the nation. He put forward a number of statements which can be found in previous articles, to varying degrees and which were reflected in articles published after, systematically. The central idea was as follows: “a large number of diseased people are introduced in France due to immigration; these are agents of transmission of infectious diseases, sources of unproductive and illegitimate although inescapable expenses as well as deterioration factors of the race”.⁴⁵ Three keys to reading the health issue of immigration were given, to which we shall come back: the significant statistics of foreigners' hospitalisation, the frequency and the

40 See for example Robert L Fleegler, *Ellis Island nation. Immigration Policy and American Identity in the Twentieth Century* (Philadelphie, 2013).

41 For example, Dr. Forestier, “Les tendances actuelles de la politique d’immigration aux Etats-Unis”, *Le Mouvement Sanitaire*, 1924–1925, 552–562; Drs. Antheaume and Shiff, “Le problème de l’immigration aux Etats Unis”, *L’Hygiène mentale*, mai (1925), 121–122.

42 Dr. Martial, “De l’immigration”, *Le Concours médical*, 18 avril (1926), 1050.

43 Séance du 9 mars 1926, *La Presse médicale*, 1926, 7 avril, 437, quoted by Benoit Larbiou, *Connaître et traiter l'étranger*, p. 424.

44 Pr. Bernard, “Le problème sanitaire de l’immigration”, *Revue d'hygiène et de médecine préventive*, 47 (1925), 769–787.

45 *Ibid.*, 772.

dangerousness of the diseases they import and diffuse, the risks incurred by the population and the race.

Léon Bernard's purpose was to recount a given situation through its economic issues and the risks it incurred.

The health causes for exclusion set forth by the *Société Générale d'Immigration* in agreement with the Ministry of Labour met the concerns about working capacity more than the value of the population. [In terms of immigration], hygiene must here assert the significance brought about by the twofold concern of public health and of the future of the race.⁴⁶

This text attempted to reshuffle priorities over the sole pre-eminence of economic issues. The hygienists, after Léon Bernard, never failed to highlight the priority given to the economic issues and to the necessities of manpower rather than public health.

The consequence of that article was to throw the Medical Academy into the debate. In November 1925, it set up a “Commission on diseased foreigners in hospitals”, to be chaired by Léon Bernard. On January 19, 1926, his report led the Academy to take a stance whereas “they did not wish for the time being to be concerned with the whole issue of immigration in its ethnic, moral and economic repercussions, and while remaining faithful to France's tradition of hospitality as well as bearing in mind the considerable number of foreigners looked after in our hospitals even though they entered our country more or less recently, without being subjected to sufficient medical examination beforehand; moved by the regrettable consequences of that state of facts, from the point of view of care burdens as well as dangers implied for public health, (the Academy) requests thee public authorities to see to health control of immigration without delay”.⁴⁷ The Academy relays the alert without offering precise measures, however.⁴⁸ Its wish was largely diffused and commented upon in medical and hygiene journals.⁴⁹

The text of Léon Bernard, followed by his contribution in the Medical Academy led to competition for hygienists speeches on the health issue of immigration. The year 1926 was abundant in publications and positions. Articles proliferated in the *Annales d'hygiène publique, industrielle et sociale* or still in the *Concours médical*. Medical societies took a stand. For example, on May 26 1926, the Paris Medical Society,

...considering the increasing number of physically and psychically diseased foreigners, emigrating into France and becoming the nation's responsibility upon arrival expressed the wish of stringent selection or screening diseases upon migrants'

46 *Ibid.*, 770.

47 *Bulletin de l'académie de médecine*, 19 janvier (1926), 64–74.

48 Gérard Noiriel, *Immigration, antisémitisme*, p. 328.

49 For example, Dr. Bouquet, “Les malades étrangers en France”, *Le Monde médical*, janvier (1926).

entry, by the Ministry of Hygiene so as to reduce the burden and the number thereof.⁵⁰

The consequence of speeches and publications was also to encourage the production of theses on the subject: medical circles were henceforth convinced of the significance of this new issue.⁵¹

In November 1926, the 13th hygiene conference organised by the society of public medicine and of health engineering dedicated to the "issue of immigration" was the climax of that year. The topic of the demonstration was announced at the end of the 12th conference held from 19 to 23 October 1925, i.e. less than a month after the publication of Léon Bernard's article.⁵² It gathered hygienists who had already published on the matter, while others focused rather on social plagues such as tuberculosis, syphilis, and alcoholism, the central themes of social hygienists. As such, they took part in the activities of the national office for social hygiene. The conference was largely commented upon in medical journals. Presentations multiplied after a short presentation by the head of the Ministry of Labour cabinet in which they showed that the political arena would be henceforth challenged.⁵³ Upon completion of the event, the conference expressed several wishes aiming to strengthen health control and setting up a special tax for foreigners to fund said control.⁵⁴

Another consequence of the medical academy's presentation was also the de-partitioning of the debate which was not circumscribed solely to hygienist circles. The press, always prompt to relay alarmist remarks from academics, also gave it coverage thus arousing public attention. In January of 1926, *Le Matin*, a conservative newspaper, published on its front page a series of twelve articles entitled "Paris, the world hospital". Repeating the statistics on foreigners' hospitalisation that were at the heart of hygienists' arguments, journalists fed their papers with statements from doctors, politicians or even high-level government officials. On January 7, Dr. Marie stated that diseased foreigners cost 25,000 Francs per day to the Seine region.⁵⁵ The following day, it was the director of the "*Assistance publique*", Mourier who asserted that on account of foreigners' hospitalisation, "the Parisian was then deprived of his hospital bed"⁵⁶. On 8 December 1927, *Le Temps*, also rather conservative itself, stated that in 1926, immigrants accounted for 7.2% of the total burden on hospitals in the Seine region

50 Quoted by Benoit Larbiou, *Connaitre et traiter l'étranger*, p. 390.

51 For example, Victor Storoge, *L'hygiène sociale et les étrangers en France* (Paris, 1926); J. Bercovici, *Le contrôle sanitaire des immigrants en France* (Paris, 1926).

52 Benoit Larbiou, *Connaitre et traiter l'étranger*, p. 386.

53 "Compte rendu du XIII^e congrès d'hygiène", *Revue d'hygiène et de police sanitaire*, (1926), 993–1143.

54 *Ibid.*

55 Quoted by Ralph Schor, *L'opinion française et les étrangers* (Paris, 1985), p. 420.

56 *Ibid.*, 415.

and that, for half of them, the costs were not refunded by the country of origin.⁵⁷ The press then repeated these alarmist statistics, enough to cause a stir among their readers. A movement was launched, with the press contributing, after the hygienists, to spreading a certain social representation of the problem being discussed. During the 1930s, daily newspapers, tending to be conservative, repeated the statistics on hospital overload, the costs associated with foreigners' hospitalisation and insisted on the competition created between nationals and foreigners by the situation.

For their own part, employers, involved in the pre-eminence of economic interests reacted and attempted to reduce the health risks of immigration. In 1927, William Oualid, representing France in the International Labour Office ensured that “immigrating only physically healthy and mentally normal elements is the first concern [...]. A rigorous selection was imperative”.⁵⁸ He described the selection scheme, confessed to a few gaps but concluded to general efficiency. Some newspapers, which were hand in glove with business owners circles such as *L'Avenir* also attempted to be reassuring about the numbers of foreigners' rights in hospitals and about the selection efficiency of immigrant labour.⁵⁹ Another example from January 1928, appeared in the first issue of the *Revue de l'immigration*, written by Jean Lebel, a former director of the foreign labour department. He admitted to the necessity of an immigration policy and of an “efficient health control”, but attributed the health hazards to spontaneous immigration.⁶⁰ Others endeavoured to show that no significant epidemic could be attributed to foreign imported diseases and that the statistics are originated from major cities where migrant concentration was high.⁶¹ Although the significance of health control was acknowledged, the priority of economic issues was not questioned. If the primary selection criterion was not met by unanimous approval, it was because some professional group or expert or another could impose their views and their authority unchallenged.

The poor image of migrants undoubtedly tainted the debates. Xenophobia, latent since the early Third Republic, regained some of its lost vigour as of the mid-1920s.⁶² Hygienists spread the rumour that certain countries would get rid of their undesirable citizens by sending them to France. On December 15, 1925, before the Medical Academy, Doctor Remlinguer, Director of the Tangiers Pasteur Institute asserted that “in the cities of the Mediterranean basin, when a diseased person is an

⁵⁷ *Ibid.*, 416.

⁵⁸ William Oualid, “L’immigration ouvrière en France”, *Le Musée social*, mai-juin (1927), 313.

⁵⁹ Quoted by Ralph Schor, *L’opinion française et les étrangers*, p. 425.

⁶⁰ Jean Lebel, “Le contrôle sanitaire des immigrants”, *La revue de l’immigration*, 1, janvier (1928), 1.

⁶¹ Ralph Schor, *L’opinion française et les étrangers*, p. 425.

⁶² Laurent Dornel, *La France hostile. Socio-histoire de la xénophobie (1870–1914)* (Paris, 2004).

economic non-value and may be a long-lasting burden for his family, he is almost instinctively sent away to France so as to get rid of him”.⁶³ Some countries were accused of getting rid of their diseased citizens “by directing them systematically to France, assured that no barrier will stop them at the borders”⁶⁴ since “a nation tends naturally to dispose of its refuse and keep only healthy elements”.⁶⁵ There was a widespread perception that migrants were being pushed away from their countries of origin. This perception substantiated statements by hygienists and further fuelled xenophobia: although useful, foreigners were nevertheless suspect.⁶⁶ Hygienists didn’t stand away from such representations: a few years later, in 1933, they joined the Armbruster Act which prohibited foreigners from practicing medicine.⁶⁷ Racist representations and professional interests joined together here.

The debate on immigration issues and the arguments mobilised therein led to political intervention. The political arena – i.e. the Senate and the Parliament – looked into that matter. All the materials gathered, the investigations, the wishes expressed by the Medical Academy, the Hygiene Congress or the Paris Medical Society circulated and were discussed in the House of Representatives and in the Senate. A sizeable number of medical doctors were involved in this process.⁶⁸ On January 14, 1926, radical-socialist MP, Justin Godard, repeating the wishes of the hygiene congress introduced a bill proposing to “establish a health control tax and an alien assistance tax”. Too restrictive, impractical, the bill was not universally acclaimed. Filed on April 17, 1926, the proposition carried by Doctor Chauveau, chairman of the parliamentary medical group and chairman of the Senate hygiene commission found greater resonance. This led to the mandate of February 20, 1927 which was sent to the consuls and to the border posts: “any hiring document or work contract shall henceforth be accompanied by a medical certificate bearing the French consular visa”.⁶⁹

Social hygienists claimed a specific competence in matters of immigration with regards to social hygiene by publishing articles in prominent reviews in the field and highlighting the health risks of immigration. Further, the resonance they found with the Medical Academy thanks to Léon Bernard's contribution being disseminated outside, especially within the medical community as a whole but also

63 Dr. Remlinger, *Bulletin de l'académie de médecine*, 19 décembre (1925).

64 J Bercovici, *Le contrôle sanitaire des immigrants*, p. 83.

65 Dr. Forestier, “Les divergences de l’opinion sur la politique de l’immigration en France”, *Le mouvement sanitaire* (1925), 859–874.

66 Pierre Guillaume, “Du bon usage des immigrés en temps de crise et de guerre, 1932–1940”, *Vingtième Siècle. Revue d'histoire*, 7 (1985), 123.

67 Gérard Noiriel, *Immigration, antisémitisme*, pp. 417–419.

68 See Jack Ellis, *The Physicians-Legislators of France. Medicine and Politics in the early Third Republic* (Cambridge, 1990).

69 Quoted by Dr. Even, “Protection de la santé publique et contrôle sanitaire des transmigrants”, *Le mouvement sanitaire* (1930), 208–233.

with the administrative and political communities. Hygienists indeed requested multiplying health checks for candidates for immigration and regular follow-ups which they could perform. Their arguments were agreed upon and led to control measures.

Multiple Arguments Pointing Towards a Single Issue

Three arguments were used by Léon Bernard to highlight the health problem of immigration, then repeated by the hygienists joining in the debate after him. The first of these arguments is the cost of foreigners' hospitalisation. Léon Bernard referred to several articles by hospital doctors published since the beginning of 1924 and asserted that migrants accounted for 20% of admissions into Parisian hospitals.⁷⁰ “The considerable care costs involved for that enormous cohort of diseased people are for the French tax payer a heavy, but illegitimate as well as unavoidable burden”.⁷¹ The cost of hospitalisation had to be assessed to fathom and legitimize the health problem. Since the act of August 7, 1851, hospital establishments were indeed compelled to accommodate all the destitute patients, French or immigrant. Hospital administration was entitled to ask for the repatriation of sick migrants or the refund of the costs associated with their hospitalisation if and only if, the patient had been hospitalised for more than 45 consecutive days and if their country of origin had signed a reciprocity treaty with France.⁷²

Statistics were obtained by hospital doctors who joined in the debate after hygienists and located the migrants in their wards. Doctor Marie, head physician of the Sainte Anne asylum in Paris stated that out of some 4000 patients, 15% were foreign.⁷³ The use of proportions were used to analyse the overload in hospitals via the monopolisation of hospital beds by migrants. Doctors spread the rumour that French people could not find beds in their own hospitals any longer. On July 29, 1926, in front of the Medical Academy, Doctor Imbert claimed that between 1923 and 1925 the proportion of foreigners hospitalised in Marseille was between 25 and

70 For example, Dr. Berthoumeau, “Note sur la proportion des malades étrangers hospitalisés dans les services parisiens”, *Presse médicale*, 16 janvier, 5 (1924), 90–91; Dr. Imbert, “Les malades étrangers hospitalisés dans les hôpitaux de Marseille”, *Presse médicale*, 26 avril, 34, (1926), 709.

71 Pr. Bernard, “Le problème sanitaire de l’immigration”, 771.

72 In 1938, a reciprocity treaty was signed with Italia, Poland, Belgium, Luxembourg, Austria, Spain and Switzerland. Ralph Schor, *L’opinion française et les étrangers*, pp. 417–418. On this reciprocity treaty see Vincent Viet, “La politique de main-d’œuvre et les travailleurs étrangers et coloniaux entre 1914 et 1950”, *Histoire et Mesure*, septembre-octobre, 17 (2006), 35–40.

73 Dr. Marie, “A propos des indésirables”, *Bulletin de la Société de médecine de Paris*, 3, (1926), 107.

30%. “It follows that the thousands of foreigners accommodated are compensated for by a large number of French people who are not”⁷⁴. In the country, certain authors did not fail to remark that the proportion of hospitalised migrants did not reflect the general proportion of foreigners. Thus in Meurthe-et-Moselle, foreigners represented 14.7% of the population in 1926 but 20% of the hospitalised people in 1924 and 28% in 1925⁷⁵. According to *Statistique Générale de la France* (France's General Statistics services), 20,000 to 30,000 foreigners were hospitalised each year in the Seine region, in other words making up for 7-8% of the patients admitted to care establishments in 1927. After 1927, and during the 1930s, the proportion exceeded 10% but it varied from one ward to another.⁷⁶ Hygienists relied on the statistics generated by the hospital staff, which they reiterated to the extent that they were largely circulated.

Beyond the issue of in-hospital management, the health problem of immigration also lied in the pathologies developed by foreigners. “Among these patients, how many are contagious, especially how many tuberculosis or syphilitic patients spread their germs! As many sources of contamination weighing upon our prophylaxis organisations or escaping them and, anyway threatening our nationals” Léon Bernard wrote.⁷⁷ If the hygienists' articles describing their activities at the borders emphasised diphtheria, exanthematic typhus, smallpox or typhoid fever, other diseases also captured public attention, tuberculosis and syphilis especially. Foreigners were responsible for the upsurge of these illnesses or the limited effects of the anti-tuberculosis and anti-venereal policies implemented. Indeed, the debate was rising at the same time as statistics on those “social scourges” were being gathered. The result was an investigation into the maintenance of high levels in spite of health efforts proliferated⁷⁸ and whether migrants were responsible for those poor results. In June 1926, doctors Spillmann and Parisot asserted that among the diseased migrants “a large number of them are suffering from contagious affections, tuberculosis and syphilis especially; they become agents, even provide contamination zones”.⁷⁹ Syphilis was particularly dreaded. In 1926, doctors Cavaillon and Spillmann asserted that “if syphilis is on the increase again, instead of on the decrease, in the Lorraine region, one of the factors for that increase

74 Dr. Imbert, “Les malades étrangers dans les hôpitaux de Marseille”, *Bulletin de l'Académie de médecine*, 20 juillet (1926), 72–76.

75 Drs. Spillmann and Parisot, “La main d'œuvre étrangère et ses conséquences au triple point de vue médical, social et financier”, *Revue d'Hygiène* (1926), 1111–1118.

76 Quoted by Ralph Schor, *L'opinion française et les étrangers*, p. 416.

77 Pr. Bernard, “Le problème sanitaire de l'immigration”, 772.

78 Virginie De Luca Barrusse, *Population en danger. La lutte contre les fléaux sociaux sous la Troisième République* (Genève, 2013).

79 Drs. Spillmann and Parisot, “Du rôle joué par l'élément étranger au point de vue de l'assistance médicale en général, de la tuberculose et des maladies vénériennes”, *Revue d'hygiène*, juin (1926), 162.

indisputably originated from the presence of numerous workers of various nationalities in factories and in the countryside (...). Health control of immigration must be implemented so as to remedy that great danger which may compromise the brilliant results obtained in France by the fight against syphilis”.⁸⁰ Tuberculosis did not come far behind. Doctor Storoge started an investigation at the *Hôtel-Dieu* in Paris, where he measured 17% tuberculosis patients. “The overload in hospitals is not unique to Paris”⁸¹ and he hastened to mention other studies confirming “a prodigious overload” in hospitals by foreigners with tuberculosis. Other ailments were also attributed to foreigners. In July 1926, in the *Revue internationale du trachome*, Doctor Chappe highlighted “a trachoma immigration as such in France and it does not seem that we are taking all necessary precautions to fight against that plague”.⁸² Once forgotten diseases were now resurfacing and also being attributed to migrants, this was true for example with leprosy.⁸³ Throughout these years, the real problem was due to contagion and forced solidarity among individuals.

In his article, Léon Bernard listed a number of diseases regarded as hereditary and whose observed absence should be grounds for entry into French territory. “Indeed, those pathological states have heavy consequences on the progeny and the constitution of the race (...). The health barrier seemingly had to be high to cope with immigration”.⁸⁴ This list was repeated word for word in the ministerial mandate of June 9, 1927, a response to the mandate of February 20th on the subject of the medical certificate. After the February mandate a medical certificate was required along with the certificate of employment for all immigration candidates. The medical certificate was delivered only “if the examination shows the following: 1) The absence of mental disease, epilepsy, blindness and deaf-muteness; 2) The absence of drug-addiction; 3) The absence of active infectious or parasitic disease [...]; 4) Smallpox vaccination and disinsectisation will be performed when appropriate”.⁸⁵ In addition, the certificate must specify whether the migrant fulfils “the physical aptitude requirement for the work asked of him”.⁸⁶ The idea was to “enable a selection for filtering out the “scrap heap” and which should not turn

80 Drs. Cavaillon and Spilmann, “La prophylaxie antivénérienne chez les ouvriers étrangers. Organisation du contrôle sanitaire”, *Revue d'hygiène*, 46, (1926), 1120–1121. See also Drs. Jeanselme and Burnier, “La syphilis est-elle en décroissance dans la population ouvrière?”, *Bulletin de l'Académie de médecine*, tome XCV, 10, 9 mars (1926), 231.

81 Dr. Storoge, *L'hygiène sociale et les étrangers*, p. 38.

82 Quoted by Dr. Storoge, *L'hygiène sociale et les étrangers*, pp. 38–39.

83 Dr. Jeanselme, “Sur la prophylaxie de la lèpre en France”, *Bulletin de l'Académie de médecine*, tome XCIV, 36, 10 novembre (1925).

84 Pr. Bernard, “Le problème sanitaire de l’immigration”, 771.

85 Circulaire du ministère des Affaires étrangères du 9 juin 1927.

86 Circulaire du ministère des Affaires étrangères du 20 février 1927.

France “into a dump”, to use an expression of Léon Bernard’s”.⁸⁷ The aim here was indeed to avoid hospitalisation costs associated with diseased migrants as well as to raise the barrier regarding hereditary diseases or supposedly hereditary diseases, such as alcoholism and syphilis, which jeopardise the quality of generation renewal.⁸⁸

So as to emphasise the primacy of health issues over economic issues, hygienists resorted to the demographic argument.⁸⁹ In 1925, Léon Bernard asserted: “Two powerful factors induce immigration in France today: an economic factor and a demographic factor”.⁹⁰ The same year, Doctor Forestier confirmed: “Our economic and demographic situation leads us to consider immigration as a vital necessity for our countries”. The economic usefulness of migrants was assessed in light of their labour force, but it was indeed on account of their demographic usefulness that hygienists launched the debate and kept it at the forefront of the scene. The reasoning behind these arguments was that immigrants could contribute to the demographic recovery of France with their growing numbers and their offspring. Since demographers and statisticians showed that their fecundity was higher,⁹¹ immigration could then be seen as a palliative to a collapsing birth-rate.⁹² However foreigners could also undermine French demography by increasing its mortality due to their bad health conditions. Finally, they may threaten demographic renewal with the birth of children carrying hereditary flaws. The hygienists, captivated by eugenics introduced this criterion into the ongoing debate on immigration.⁹³ Several works have shown the singularity of French eugenics concerned with the quality of the population as well as with its volume.⁹⁴ Hygienists debating on the health problem of immigration saw an opportunity to control the population flows in quality as well as in quantity. The controls they offered, the diseases they wanted to screen for must therefore solve a demographic issue.

The aim was hence to control those who were going to be included and assimilated into the body of the nation.⁹⁵ These were the stakes of the health

87 Dr. Even, “Protection de la santé publique et contrôle sanitaire des transmigrants”, *Le mouvement sanitaire*, 1930, 208–233.

88 Virginie De Luca Barrusse, *Population en danger !*

89 Paul-André Rosental, “L’argument démographique. Population et histoire politique au XXe siècle” *Vingtième Siècle. Revue d’histoire*, 95, 3 (2007), 3–14.

90 Pr. Bernard, “Le problème sanitaire de l’immigration”, 770.

91 Virginie De Luca Barrusse, *Les familles nombreuses*, pp. 199–205.

92 Elisa Camiscioli, “Producing Citizens. Reproducing the “French Race”: Immigration, Demography and Pronatalism”, *Gender and History*, 3 (2001), 593–621 and *Reproducing the French Race. Immigration, Intimacy and Embodiment in the Early Twentieth Century* (Durham, 2009).

93 Anne Carol, *Histoire de l’eugénisme* (Paris, 1995).

94 See William Schneider, *Quality and Quantity...* (Cambridge, 1990)

95 Pierre-André Taguieff, “Face à l’immigration: Mixophobie, xénophobie ou sélection. Un débat français dans l’entre-deux-guerres”, *Vingtième Siècle*, 47, juillet-septembre (1995), 103–131.

problem of immigration created and fuelled by hygienists. Assimilation further implied a health diagnosis extending to the hereditary features of immigrants. By 1926, after the introduction before the 13th hygiene congress by doctors Dequidt and Forestier, inspector general of administrative departments and departmental inspector of hygiene respectively, hygienists distinguished between superficial health and deep health. “Superficial health” covers the features affecting the immigrant's productive force and the diseases he might transmit via immediate contagion. “Deep health”, supposedly inscribed in the foreigner's genes and blood, affects the reproduction conditions of that population and the possibilities of transferring its features to the national population, thus threatening successive generations.⁹⁶ This distinction was repeated up until the 1930s.

A cutaneous wound: superficial health, a kidney disease: deep health. Immigrant patients in hospitals: superficial health, births of degenerate, mad people or whose morals can simply not be assimilated: deep health of the nation and of the race. As regards immigration, deep health is by far the most significant since it commits the future of the country.⁹⁷

The link is clearly established between health issues and race issues. By 1926, these same doctors Dequidt and Forestier abundantly quoted the preface written by Vacher de Lapouge from the translation of the book by Madison Grand, *Le destin de la grande race*.⁹⁸ Their concern was “the harbinger of the twilight of our Western civilisation and the fall of the white race”. Presentations by the doctors showed their concerns about the racial proximity of immigrants with the French population.⁹⁹ Among goals formulated by congress were some that echoed said preoccupations. As congress considered that

The massive introduction in certain pockets of the territory of inadapted, inassimilable individuals, belonging to inferior groups or to groups who are too different from our national population, threatens by heredity in pure lineage or by racial crossings, the integrity and the health of the race, expressing the wish that the public authorities a) facilitate the admission of selected individuals, whose culture, civilisation, and ethnic type are close to the national stock and whose history has

96 William Schneider, “Hérédité, sang et opposition à l’immigration dans la France des années 1930”, *Ethnologie française*, 1, (1994), 104–117. On the racial thinking see Carole Reynaud Paligot, *La république raciale (1860–1930)*, (Paris, 2006) et *Races, racisme et antiracisme dans les années 1930*, (Paris, 2007).

97 Dr. Martial, “L’immigration et la santé publique”, *La science médicale pratique*, 1er octobre (1933), 630.

98 Lion Murard and Patrick Zylberman, “De l’hygiène comme introduction à la politique expérimentale (1875–1925)”, *Revue de synthèse*, 115 (1984), 313–341. On Madison Grand and Vacher de Lapouge see Carole Reynaud-Paligot, *De l’identité nationale. Science, race et politique en Europe et aux Etats-Unis XIXe-XXe siècle*, (Paris, 2011), p. 227.

99 Pierre-André Taguieff, “Face à l’immigration: mixophobie, xénophobie ou sélection. Un débat français dans l’entre-deux-guerres”, *Vingtième siècle*, 47, juillet-septembre (1995), 114.

demonstrated the qualities of assimilation, b) carefully control the entry of inadmissible people whose flow ought to be reduced, channelled, diluted.¹⁰⁰

Initiated by hygienists, the debate on migrants' health control introduces racial and eugenics criteria in the selection of candidates for immigration¹⁰¹. Racial thinking is extensively shared by the scientific community and not just by the medical world.¹⁰² In 1926, high official Marcel Paon, a member of the National Labour Council and of the High Agricultural Council, an expert with the permanent BIT emigration committee stated that: "if we wish to assimilate, integrate into the French population the foreigners who have come to settle in our country the necessary selections should be carried out at the frontier, selection of the races, selection of the individuals, selection of the workers finally".¹⁰³ Since the selected immigration policy must welcome at random "the unfit, the crazy, the undesirable", but "well receivable individuals, worthy of joining the French family".¹⁰⁴ The hygienists were not the only ones to use racial rhetoric, but they resorted to it to emphasise their expertise in public health issues. During the 1930s, hygienists pursued this debate and in support of the relevance of these selection criteria, fixated on new elements that they contributed to distributing widely, outside their own circles. The theory of assimilation began developing in 1928, by Doctor Martial within the subject of interracial transplants¹⁰⁵, which led to hierarchical ranking of geographical or ethnic groups of candidates for immigration. Hygienists also resorted to serology applying the discovery of blood groups and their distribution according to different regions in order to study migratory priorities.¹⁰⁶

Finally, at the heart of the health problem of immigration lied the demographic issue and the assimilation of migrants into the native population. The argument claiming burdens induced by uncontrolled immigration fooled no one. The aim of the argument was to show all the facets of a single problem: the entry into French territory of a population suspected of carrying contagious diseases and hereditary flaws. Additionally these flaws would spread both horizontally through contagious-

100 "Compte rendu du XIIIe congrès d'hygiène", *Revue d'hygiène et de police sanitaire*, (1926), 993–1143.

101 Benoit Larbiou, "Le corps médical et la race en 1930. Les usages médicaux du racialisme", in Carole Reynaud-Paligot, *Tous les hommes sont-ils égaux ? Histoire comparée des pensées raciales (1860-1930)*, (München, 2009).

102 Carole Reynaud Paligot, *La république raciale*, p. 314.

103 Marcel Paon, *L'immigration en France* (Paris, 1926), p. 24.

104 *Ibid.*

105 Dr. Martial, "De l'immigration...", *Le mouvement social* (1928), 432–443; *Traité de l'immigration et de la greffe inter-raciale* (Paris, 1931); *La race française* (Paris, 1934). See William Schneider, "Hérédité, sang et opposition à l'immigration dans la France des années trente", *Ethnologie française*, XXIV, 1 (1994), 107–111.

106 William Schneider, "L'eugénisme en France: le tournant des années trente", *Sciences sociales et santé*, 4, 3–4 (1986), 97.

ness but also vertically through hereditary transmission from generations to generations. In so doing, the hygienists were henceforth neck and neck with representatives of the pro-natalist movement who clamoured for the development of a population policy whose aim was to ensure demographic growth. They therefore supported immigration (admittedly as a last resort) and the naturalisation of migrants. Indeed, during the 1920s, because national birth-rates had not been maintained as high as hoped for after the war, the pro-natalist circles got interested in immigration as a source of correction for demographic evolution. Reporting on the health problem of immigration was simultaneous with the arrival of these activists in the field of immigration: by 1925, the *Congrès de la natalité* took an interest in the issue.¹⁰⁷ But it is difficult to determine which movement drove which. Hygienists did not challenge the corrective potential of immigration - quite the contrary - they stressed its perverse effects. It was an opportunity for them to emphasise a field of competency both in the health management of migrants at the borders by offering professional outlets to some of them and more generally in issues of public health and demography.

On the brink of World War II, the debate on immigration health control resulted in a health registration scheme of foreigners. Starting in June 29, 1938, migrants transiting through or looking to settle in France had to carry “a health booklet listing the diseases with which they were afflicted and the treatments to which said diseases gave rise. The health booklet also listed the diseases which the migrant might contract at a later stage as well as the processes consecutive to said diseases”. On the same day, another new law required nationals from French colonies and protectorates to undergo a medical visit and a health control upon completion of which “they were issued a health booklet equivalent to a health passport”. However, concerning the foreign population, control procedures and an anthropometric booklet were created in 1912 and while national identity cards for foreigners were created in 1917.¹⁰⁸ The health booklet of migrants resulted from strengthened health control of immigration that had been decided upon a few days earlier, June 17th¹⁰⁹. This was quite specific to aliens since at that date, compulsory health booklets for the whole population still did not exist despite claims made by the medical profession.¹¹⁰ It resulted from the mobilisation of hygienists concerned with developing their field of activity and investing in an area of expertise:

107 Virginie De Luca Barrusse, *Les familles nombreuses*, pp. 136–139.

108 Pierre Piazza, “Sociogenèse du carnet anthropométrique des nomades”, *Les cahiers de la sécurité intérieure*, 48, 2 (2002), 207–227; Pierre Piazza, *Histoire de la carte nationale d'identité* (Paris, 2004); Pierre Piazza, Xavier Crettiez, *L'encartement des individus, Histoire et sociologie d'une pratique d'Etat* (Paris, 2005).

109 On the health booklet see Benoît Larbiou, “Médecins hygiénistes et encartement des étrangers (1925–1940)”, in Xavier Crettiez, Pierre Piazza, eds, *Du papier à la biométrie. Identifier les individus* (Paris, 2005), pp. 73–96.

110 Catherine Rollet, *Les carnets de santé des enfants* (Paris, 2008)

immigration. As noted by Philippe Rygiel, migrants should be selected “according to their economic usefulness and their sanitary harmlessness”.¹¹¹

Arguments put forward by hygienists revealed the demographic issues underlying the question. Consequently, the history of the “migrant health problem” allows us to outline the interactions between population policy and public health population policy. It highlights prevailing rationales and the way that the respective representations of the migrant population, of global demography and of public health functions. It is probably here that the uniqueness of the French situation is most noticeable. The population debate, which is particularly fervent, leads to misinterpretations of – more than anywhere else probably – the effects of the introduction of foreign elements into the population.¹¹² Discourses developed by hygienists and the representations on which they rely and which they themselves carry, are established with reference to a reproduction pattern of the population. Debates indeed transmit social standards formed by representations of what is desirable and undesirable in terms of evolution and of features of the population. These hygienists endeavoured to promote a controlled reproduction pattern of the population at the moment when other hygienists defended other measures such as the health booklet, the pre-marriage certificate, the obligation of declaring contagious diseases...¹¹³ Overall, for the committed social hygienists who got involved in this debate, immigration was a field of competence and expertise offering professional outlets to some of them by multiplying checkpoints and control posts. For hygienists immigration was also a central element for creating a population pool likely to contribute to demographic growth. The control of this pool was the end goal of the debate on migrant health.

Virginie De Luca Barrusse is Professor of Demography, director of the Institute of Demography of the University Paris 1 Panthéon Sorbonne

111 Philippe Rygiel, “Indésirables et migrants désirés”, 23.

112 Op. cit., 21–36; Alison Bashford ed., *Medicine at the Border: Disease, Globalization and Security...* (New York, 2006); Roy Macleod, Lewis Milton, eds., *Disease, Medicine and Empire...* (London, 1988)

113 See Catherine Rollet, *Les carnets de santé*; Virginie De Luca Barrusse, *Population en danger !*, 2013; Anne Carol, *Histoire de l'eugénisme*, 312–328.

References

- Bashford Alison, Claire Hooker, *Contagion: Historical and Cultural Studies*. London, 2001.
- Basford Alison, *Imperial Hygiene. History of Colonialism, Nationalism and Public Health*. New York, 2003.
- Bashford Alison ed., *Medicine at the Border: Disease, Globalization and Security, 1850 to the Present*. New York, 2006.
- Blumer Herbert, "Social problems as Collective Behaviour," *Social Problems* 18 (1971), 298-306.
- Bruno Anne-Sophie, "Inaptitude et immigration en France au 20th siècle," pp. 125-145 in Catherine Omnès and Anne-Sophie Bruno, eds., *Les mains inutiles. La construction sociale de l'inaptitude au travail*. Paris, 2004.
- Bruno Anne-Sophie, "Les acteurs de la sélection de la main-d'œuvre immigrée en France au 20th siècle," pp. 399-409 in Jean-Pierre Le Crom, ed., *Les acteurs dans l'histoire du droit au travail*. Rennes, 2011.
- Bruno Anne-Sophie and Catherine Omnès, "Statut d'emploi, situation de travail et santé : histoires de femmes et d'étrangers," pp. 97-117 in Anne-Sophie Bruno, Eric Geerkens, Nicolas Hatzfeld and Catherine Omnès, eds., *La santé au travail entre savoirs et pouvoirs, XIXe-XXe siècles*. Rennes, 2011.
- Camiscioli Elisa, *Reproducing the French Race. Immigration, Intimacy and Embodiment in the Early Twentieth Century*. Durham, 2009.
- Camiscioli Elisa, "Producing Citizens. Reproducing the "French Race" Immigration, Demography and Pronatalism," *Gender and History*, 3 (2001), 593-621.
- Carol Anne, *Histoire de l'eugénisme en France*. Paris, 1995.
- Cefaï Daniel, "La construction des problèmes publics. Définitions de situations dans les arènes publiques," *Réseaux*, 75 (1996), 44-66.
- Cefaï Daniel, Dominique Trom, "Retour sur la sociologie des problèmes publics. Un entretien avec J. Gusfield," *Secret/Public*, 0(3) (2005), 209-222.
- De Luca Barrusse Virigine, *Les familles nombreuses. Une question démographique, un enjeu politique*. Rennes, 2008.
- De Luca Barrusse Virigine, *Démographie sociale de la France*. Paris, 2010.
- De Luca Barrusse, Virigine *Population en danger. La lutte contre les fléaux sociaux sous la Troisième République*. Genève, 2013.
- Dornel Laurent, "Les usages du racialisme. Le cas de la main d'oeuvre coloniale en France pendant la première guerre mondiale," *Genèses*, 20 (1996), 48-72.
- Dornel Laurent, *La France hostile. Socio-histoire de la xénophobie (1870-1914)*. Paris, 2004.

- Ellis Jack, *The Physicians-Legislators of France. Medicine and Politics in the early Third Republic*. Cambridge, 1990.
- Fette Julie, *Exclusions: Practising Prejudice in French Laws and Medicine, 1920-1945*. Cornell, 2012.
- Fleegler Robert, *Ellis Island nation. Immigration Policy and American Identity in the Twentieth Century*. Philadelphie, 2013.
- Guillaume Pierre, "Du bon usage des immigrés en temps de crise et de guerre, 1932-1940," *Vingtième Siècle. Revue d'histoire*, 7 (1985), 117-125.
- Howard-Jones Norman, *The Scientific background of the international Sanitary Conference, 1851-1938*. Geneva, 1975.
- Hyslop Anthea, "Insidious Immigrant: Spanish Influenza and Border Quarantine in Australia, 1919," pp. 201-215 in L. Bryder and D. Dow, eds., *Migration to Mining: Medicine and Health in Australia History*, Darwin, 1997.
- Jorland Gérard, *Une société à soigner. Hygiène et salubrité publiques au XIXe siècle*. Paris, 2010.
- Jones Greta, *Social Hygiène in Twentieth Century Britain*. London, 1986.
- Larbiou Benoît, *Connaitre et traiter l'étranger. Les constructions sociales d'un savoir politique sur l'immigration, 1914-1945*, unpublished PhD. Montpellier, 2003.
- Larbiou Benoît, "René Martial, 1872-1955. De l'hygiénisme à la raciologie, une trajectoire possible," *Genèses*, 60 (2005), 98-120.
- Larbiou Benoît, "Médecins hygiénistes et encartement des étrangers (1925-1940)," pp. 73-96 in X. Crettiez and P. Piazza, eds, *Du papier à la biométrie. Identifier les individus*, Paris, 2005.
- Larbiou Benoit, "Le corps médical et la race en 1930. Les usages médicaux du racialisme", pp. 111-129 in C. Reynaud-Paligot, ed., *Tous les hommes sont-ils égaux ? Histoire comparée des pensées raciales (1860-1930)*, München, 2009.
- Léonard Jacques, *La France médicale. Médecins et malades au XIXe siècle*. Paris, 1978.
- Léonard Jacques, *La médecine entre les savoirs et les pouvoirs*. Paris, 1981.
- Levine Philippa, *Prostitution, Race and Politics: Policing Venereal Disease in the British Empire*. London, 2003.
- Lewis Mary, *Les frontières de la République: l'immigration et les limites de l'universalisme en France, 1918-1940*. Marseille, 2010.
- Lupton Deborah, *The Imperative of Health: Public Health and the Regulated Body*. London, 1995.
- Macleod Roy, Lewis Milton, eds., *Disease, Medicine and Empire: Perspectives on Western Medicine and the Experience of European Expansion*. London, 1988.
- Minna Stern Alexandra, "Buildings, Boundaries and Blood: Medicalization and Nation-Building on the US Mexico Border, 1910-1930," *Hispanic American Historical Review*, 79 (1999), 41-81.

- Murard Lion, Patrick Zylberman, "De l'hygiène comme introduction à la politique expérimentale (1875-1925)," *Revue de synthèse*, 115 (1984), 313-341.
- Nayan Shah, *Contagious Divides: Epidemics and Race in San Francisco's Chinatown*. San Francisco, 2002.
- Noiriel Gérard, *Le creuset français. Histoire de l'immigration XIXe-XXe siècles*. Paris, 2006.
- Noiriel Gérard, *Immigration, antisémitisme et racisme en France (XIXe-XXe siècles)*. Paris, 2007.
- Otis Laura, *Membranes: Metaphors of Invasion in Nineteenth-Century Literature, Science and Politics*. Baltimore, 1998.
- Pelling Margaret, "The Meaning of Contagion: reproduction, medicine and metaphor", pp. 15-38 in A. Bashford and C. Hooker, eds, *Contagion: Historical and Cultural Studies*, London, 2001.
- Piazza Pierre, "Sociogénèse du carnet anthropométrique des nomades," *Les cahiers de la sécurité intérieure*, 48: 2 (2002), 207-227;
- Piazza Pierre, *Histoire de la carte nationale d'identité*. Paris, 2004.
- Piazza Pierre, Xavier Crettiez, *L'encartement des individus, Histoire et sociologie d'une pratique d'Etat*. Paris, 2005.
- Rasmussen Anne, "L'hygiène en congrès", pp. 213-239 in P. Bourdelais ed., *Les hygiénistes. Enjeux, modèles, pratiques*, Paris, 2001.
- Reynaud Paligot Carole, *La république raciale (1860-1930)*. Paris, 2006.
- Reynaud Paligot Carole, *Races, racisme et antiracisme dans les années 1930*. Paris, 2007.
- Reynaud-Paligot Carole, *De l'identité nationale. Science, race et politique en Europe et aux Etats-Unis XIXe-XXe siècle*. Paris, 2011.
- Rollet Catherine, *Les carnets de santé des enfants*. Paris, 2008.
- Rosental Paul-André, *L'intelligence démographique: sciences et politiques de population (1930-1960)*. Paris, 2003.
- Rosental Paul-André, "L'argument démographique. Population et histoire politique au Xxe siècle," *Vingtième Siècle. Revue d'Histoire*, 95(3) (2007) 3-14.
- Rosental Paul-André, "Géopolitique et Etat-Providance. Le BIT et la politique mondiale des migrations dans l'entre-deux-guerres," *Annales Histoire, Sciences Sociales*, 61(1) (2006), 99-134.
- Rosental Paul-André, "Migrations, souveraineté, droits sociaux. Protéger et expulser les étrangers en Europe du XIXe siècle à nos jours," *Annales Histoire et Sciences Sociales*, 66(2) (2011), 335-373.
- Rygiel Philippe, "Indésirables et migrants désirés. Notes sur les pratiques de sélection des migrants dans quelques grands pays d'immigration (1850-1939)," pp. 21-36 in P. Rygiel, ed., *Le bon grain et l'ivraie. La sélection des migrants en Occident 1880-1939*, Paris, 2008.

- Schneider William, "L'eugénisme en France: le tournant des années trente," *Sciences sociales et santé*, 4: 3-4 (1986), 81-114.
- Schneider William, *Quality and Quantity. The Quest for Biological Regeneration in the Twentieth-Century France*. Cambridge, 1990.
- Schneider William, "Hérédité, sang et opposition à l'immigration dans la France des années 1930," *Ethnologie française*, 1, (1994), 104-117.
- Schneider William, "Hérédité, sang et opposition à l'immigration dans la France des années trente," *Ethnologie française*, 24(1) (1994), 107-111.
- Schor Ralph, *L'opinion française et les étrangers*. Paris, 1985.
- Strange Caroly, Alison Bashford eds., *Isolation: Places and Practices of Exclusion*. London, 2003.
- Taguieff Pierre-André, "Face à l'immigration: Mixophobie, xénophobie ou sélection. Un débat français dans l'entre-deux-guerres," *Vingtième Siècle*, 4: juillet-septembre (1995), 103-131.
- Viet Vincent, *La France immigrée. Construction d'une politique 1914-1997*. Paris, 1998.
- Viet Vincent, "La politique de main-d'œuvre et les travailleurs étrangers et coloniaux entre 1914 et 1950," *Histoire et Mesure*, 17: septembre-octobre (2006), 35-40.
- Weil Patrick, "Racisme et discrimination dans la politique française de l'immigration, 1938-1945 et 1995," *Vingtième siècle*, juillet-septembre (1995), 74-99.
- Weindling Paul, *International Health Organisations and Movements, 1918-1939*. Oxford, 2000.
- Weindling Paul, *Epidemics and Genocide in Eastern Europe, 1890-1945*. Oxford, 2000.
- Zylberman Patrick, "Civilizing the State: Borders, Weak States and International Health in Modern Europe," pp. 21-40 in A. Basford, ed., *Medicine at the Border: Disease, Globalization and Security*, New York, 2006.

Sources

- Antheaume Drs. and Shiff., "Le problème de l'immigration aux Etats Unis," *L'Hygiène mentale*, mai (1925), 121-122.
- Bercovici Jean, *Le contrôle sanitaire des immigrants en France*. Paris, 1926.
- Bernard Léon, "Le problème sanitaire de l'immigration," *Revue d'hygiène et de médecine préventive*, 47 (1925), 769-787.
- Berthoumeau, "Note sur la proportion des malades étrangers hospitalisés dans les services parisiens," *Presse médicale*, 16 janvier: 5 (1924), 90-91;

- Bouquet, "Les malades étrangers en France, *Le Monde médical*, janvier (1926), pp. 35-39
- Cavaillon André, Louis Spillmann, "La prophylaxie antivénérienne chez les ouvriers étrangers. Organisation du contrôle sanitaire," *Revue d'hygiène*, 46, (1926), 1120-1121.
- Even, "Protection de la santé publique et contrôle sanitaire des transmigrants," *Le mouvement sanitaire* (1930), 208-233.
- Forestier, "Les tendances actuelles de la politique d'immigration aux Etats-Unis," *Le Mouvement Sanitaire*, 1924-1925, 552-562
- Forestier, "Les divergences de l'opinion sur la politique de l'immigration en France," *Le mouvement sanitaire* (1925), 859-874.
- Imbert, "Les malades étrangers dans les hôpitaux de Marseille," *Bulletin de l'Académie de médecine*, 20 juillet (1926), 72-76.
- Jeanselme, "Sur la prophylaxie de la lèpre en France", *Bulletin de l'Académie de médecine*, tome XCIV, 36, 10 novembre (1925), 658-667.
- Jeanselme, Burnier, "La syphilis est-elle en décroissance dans la population ouvrière?," *Bulletin de l'Académie de médecine*, tome XCV, 10: 9 mars (1926), 230-233.
- Lebelle Jean, "Le contrôle sanitaire des immigrants", *La revue de l'immigration*, 1: janvier (1928), 1-4.
- Marie, "A propos des indésirables," *Bulletin de la Société de médecine de Paris*, 3 (1926), 105-109.
- Martial René, "Epidémiologie d'un contingent de travailleurs algériens stationnés dans la XVI^e région. Etiologie, Réceptivité," *Montpellier médical*, 37: 15 décembre (1917), 1165-1170.
- Martial René, "Typhus exanthématique, organisation de l'épouillage, problème de la quarantaine," *Revue d'hygiène et de police sanitaire* (1919), 559-560.
- Martial René, "De l'immigration", *Le Concours médical*, 18 avril (1926), 1050-1053.
- Martial René, "De l'immigration", *Le mouvement social* (1928), 432-443;
- Martial René, *Traité de l'immigration et de la greffe inter-raciale*. Paris, 1931.
- Martial René, "L'immigration et la santé publique," *La science médicale pratique*, 1^{er} octobre (1933), 628-633.
- Martial René, *La race française*. Paris, 1934.
- Oualid William, "L'immigration ouvrière en France," *Le Musée social*, mai-juin (1927), 313-334.
- Paon Marcel, *L'immigration en France*. Paris, 1926.
- Payrault André, *L'immigration organisée et l'emploi de la main d'œuvre étrangère en France*. Paris, 1927.
- Pluyette Jean, *La doctrine des races et la sélection de l'immigration en France*. Paris, 1930.

Spillmann Louis, Jacques Parisot, “Du rôle joué par l’élément étranger au point de vue de l’assistance médicale en général, de la tuberculose et des maladies vénériennes,” *Revue d’hygiène*, juin (1926), 160-165.

Spillmann Louis, Jacques Parisot, “La main d’œuvre étrangère et ses conséquences au triple point de vue médical, social et financier,” *Revue d’Hygiène* (1926), 1111-1118.

Storoge Victor, *L’hygiène sociale et les étrangers en France*. Paris, 1926.