



FINAL RESEARCH REPORT 2016

GETTING THE MOST OUT OF POLIO ERADICATION: THE POLITICAL DIMENSION

ILONA KICKBUSCH, STEPHEN MATLIN, EMILIA RICHARD, MICHAELA TOLD

Citation of this report: I Kickbusch, SA Matlin, E Richard, M Told (March 2017). Getting the Most Out of Polio Eradication: The political dimension. Geneva: Global Health Centre, the Graduate Institute of International and Development Studies.

CONTENTS

ACKNOWLEDGEMENTS.....	ii
EXECUTIVE SUMMARY.....	iii
THE CHALLENGES.....	iii
KEY MESSAGES.....	v
1. Effort is needed to sustain Europe's political will for polio eradication	v
2. European actors have made important contributions, but 'could try harder'	vi
3. Lessons must be learned from the history of polio eradication	vi
4. The issue of migrants and refugees presents both challenges and opportunities for European engagement.....	x
5. Ten actions for Europe	xi
1. INTRODUCTION.....	1
1.1 Polio eradication: everything is connected.....	1
1.2 The status of polio eradication at the end of October 2016	3
1.3 The legacy of polio eradication	9
1.4 The changing context.....	10
2. EUROPEAN ACTORS AND KEY POLITICAL NODES IN POLIO ERADICATION	15
2.1 Circles of influence.....	15
2.2 Nature and functioning of the GPEI	16
2.3 The intersection of finance, political support and commitment.....	22
2.4 Transitioning, legacy and beyond	37
2.5 Resilience, containment, political commitment and making the case.....	48
2.6 Choosing, sustaining and linking priorities for global health	57
2.7 Global health security and the International Health Regulations	60
2.8 The migrant challenge.....	63
2.9 Looking back, looking forward.....	66
3. CONCLUSIONS: THE EUROPEAN DIMENSION AT A CRITICAL JUNCTURE IN THE POLIO ERADICATION INITIATIVE.....	71
3.1 Nature and functioning of the GPEI	71
3.2 Europe's support to polio eradication: the intersection of finance, political support and commitment.....	72
3.3 The polio legacy: transitioning and translating.....	76
3.4 Resilience, containment and challenges for Europe.....	78
3.5 Choosing, sustaining and linking priorities for global health	80
3.6 Global health security and the International Health Regulations	82
3.7 The migrant challenge in Europe	82
3.8 Looking back, looking forward: European and global dimensions.....	83
4. REFERENCES	86

ACKNOWLEDGEMENTS

We thank Julianne Piper for assistance with editing, Rüdiger Puntke for layout, Kristina Petrova for administrative assistance and Marianne Haslegrave for undertaking a major literature review which served as a background to this report.

We are extremely grateful to the many individuals who agreed to be interviewed as part of this project:

Jon Andrus	Linda MacAvan
Katri Bertram	Chris Maher
Daniela Braun	Sigrun Møgedal
Ray Busuttil	Stefan Oswald
Philippe Calain	Jan Paehler
Jim Calverley	Carole Pandak
Lord Nigel Crisp	Stefan Rebmann,
Suraya Dalil	Oliver Rosenbauer
Anil Dutta	Paul Rutter
Dirk Gehl,	David Salisbury
David Heymann	Jan Hendrik Schmitz Guinot
Bjorn Iversen.	Faisal Schuab
John Lange	Marlis Sieburger
Carole Lanteri	Robert Thomason
d'Arcy Lunn	Emmanuel Vidor
Jason Lane	Michel Zaffran,

We are pleased to acknowledge the assistance of our partners in organizing dialogue events at different venues, in particular:

London: Lord Nigel Crisp (UK MP) and Johanna Riha (All Party Parliamentary Group on Global Health; David Heymann, Robert Ewers and David Salisbury (Chatham House)

Berlin: Stefan Rebmann (German MP); Hildegard Dressino (Rotary Germany); Johann Voss (APCO Worldwide) ; Tobias Gerber (World Health Summit); Ivar Roots (Berlin Medical Society); Heinz Zeichhardt (Berlin Medical Society).

Oslo: Ole-Peter Ottersen (Rector, University of Oslo); Andrea Winkler, Ingeborg Haavardsson (Center for Global Health, University of Oslo)

This project was completed with support from the Bill and Melinda Gates Foundation.

EXECUTIVE SUMMARY

THE CHALLENGES

The Global Polio Eradication Initiative (GPEI) was launched in 1988, with the target date of 2000 for the completion of its mission. Sixteen years after that first target was missed, global stakeholders and front-line workers continue to **work towards the elusive goal of eradication**. Success is within reach and will generate great rewards in terms of lives protected from a crippling disease, and a legacy that can benefit health systems and future global health programmes. At the same time, the costs of continued failure would be very high. Such costs would include the added disease burden, the financial implications of needing to continue worldwide vaccinations, surveillance and control, and the deterrent effect that such a setback might have on ambitions for other global health initiatives.

Ending polio and subsequently dismantling the GPEI provides **an enormous opportunity to ensure the legacy of the world's largest ever global public health initiative**. The end stages of the GPEI's work are increasingly focused on the legacy of polio eradication and the transitioning of the many polio assets to country ownership to assist in strengthening health systems. This trend has been bolstered by the global political commitment to achieving the third UN Sustainable Development Goal (SDG3) for 2030 – universal health coverage (UHC). Polio assets including surveillance, laboratories, tracking systems and trained vaccinators can serve as a **backbone for resilient public health systems**. These systems are critical both to responding to infectious disease outbreaks locally, and as key building blocks of a global system for health security. A second branch of the legacy aims to translate relevant knowledge and systems at the global level, with aim to contribute to the planning of future disease eradication campaigns or other global health initiatives, and strengthening global health governance more broadly. However, these transitioning processes are far from automatic. As an unprecedented partnership in global health, the GPEI and its partners will require unprecedented reflection, determination and political commitment to make the most of the polio legacy.

There are **dangers at the present time**. With the complete interruption of transmission of wild polio virus (WPV) yet to be achieved, there is a risk of failure of eradication itself. This potential failure is most commonly attributed to waning political and financial support for the initiative. There is also certain risk in progressing too quickly in transition processes, while capacities are still required for polio-related activities. Additionally, with the perceived and real successes of eradication activities thus far, complacency has increased in some areas with low levels of resilience. This could mean the re-emergence of the virus in regions previously certified polio-free, including Europe. Finally, following the successful eradication of polio, there is a potential risk of failing to adequately capture and the make the best possible use of the polio assets to strengthen health at all levels; and a risk of failing to learn the lessons from polio and other disease eradication and control efforts.

The **changing global context** poses significant challenges for the polio effort. The thirty year eradication Initiative has existed and evolved in changing global and European contexts – and changes continue even as the final phase of the GPEI is being pursued. Important global shifts have included the end of the Cold War and emergence of an increasingly multi-polar world; acceleration of globalization; the emergence of health as a significant foreign

policy issue; a financial crisis and global economic downturn from which recovery has been slow; a reframing of development and the reconceptualization of aid; a reframing of global health; and the rise of the global health security agenda. There have also been local wars, insurgencies and conflicts in the remaining polio-endemic countries that have had significant geopolitical implications, as well as direct impacts on polio eradication efforts.

Europeⁱ has been affected by the overall global context, as well as by regional dynamics. Important regional factors have included a particularly severe economic downturn and Greek financial crisis which weakened the Euro currency; a large influx of migrants and refugees from the Middle East, Asia and Africa; and the decision by the UK to exit from the European Union (EU). These have resulted in political shifts in the EU and a refocusing of attention towards European interests as a first priority. In some cases, there have been corresponding shifts of resources, including the reallocation of some official development assistance (ODA) towards addressing the needs of migrants and refugees.

The thread that connects all these issues, risks and challenges is a political one. It relates to the choices that different actors make about their priorities and their preferences for how to balance them. From the global donors and managers to the local communities, families and individuals, this political thread interweaves with and links circles of influence comprising the diverse actors involved in polio eradication.

In this context, the Global Health Centre (GHC) at the Graduate Institute, Geneva has undertaken a research project in 2015-2016 on the endgame and legacy of the polio eradication initiative, centring on the European dimension. The study examined the political factors in polio eradication and what can be learned from them about policy-making and governance, while elucidating what conclusions and lessons can be derived. The study held dialogues in Berlin, Geneva, London and Oslo; undertook in-depth individual interviews with key actors in Europe; and examined relevant literature.

This report of the findings presents a picture of a moving field, in which events on the ground and changing political realities intertwine. It opens new ground by going beyond literature and beyond official positions, incorporating the frank views and opinions of diverse actors from different sectors, organizations and perspectives across Europe. In doing so, it provides fresh insights into the diverse motivations and policies of European actors, their anxieties and aspirations for the ending of polio and what will follow – offering an important window into the politics and future direction of a much wider array of global health issues.

ⁱ In the context of this report, **‘Europe’ must be understood as a complex series of individual entities and groups that overlap and interconnect.** It includes countries that inside and outside the European Union (EU), the European Economic Area and the European Free Trade Association; countries that are members of the EURO region of WHO, which extends beyond the boundaries of the European continent to some Central Asian countries; as well as institutions of the EU such as the European Parliament and Commission (EC) and the European Centre for Disease Prevention and Control (ECDC); and non-governmental entities such as foundations and charities.

KEY MESSAGES

1. Effort is needed to sustain Europe's political will for polio eradication

There are strong political dimensions to addressing the risks and rewards of polio eradication. Following several missed targets for eradication, polio was declared a Public Health Emergency of International Concern (PHEIC) in May 2014. It is still a PHEIC at the end of 2016. More could be done to respond to this Emergency – this is a political choice that countries make.

It is also a political choice for countries to decide the extent to which they invest in the achievement of a global public good such as the eradication of a disease. European countries should not be seen as 'free riders' on the global public good of polio eradication. This is a fundamental issue in relation to investment in achieving the SDGs, a number of which also share the characteristics of global public goods. To a certain extent, achieving polio eradication could set an example for working towards the other global goals.

There are currently three important dimensions of global polio eradication efforts. First there are critical needs to be met in order to ensure that eradication is achieved and sustained; second, there is a pressing call to effectively capture and make the most of the wealth of polio assets, at both global and national levels; and third, beyond physical resources, the three-decade long Initiative represents immense knowledge, experiences and processes which need to be absorbed by the global health community. Europe has a role to play in all three of these aspects. Through their engagement, European actors need to make financial contributions to this global public good which are commensurate with their capacities; however, they also need to demonstrate political commitment in the face of real programmatic risks. It is ultimately the political dimension, and the strength of political linkages made that will determine the fate of global eradication efforts.

Though in practice 'political commitment' is very complex, it is clear that Europe has an opportunity to take leadership and ensure accountability with regard to its support for this important global project.

Study participants expressed significant concerns about the current level of political will in Europe and the prospects for maintaining it at a sufficient level to ensure adequate financing, engagement and future prioritization for polio eradication. These concerns applied to all levels of the activity, from GPEI partners to countries. In terms of factors which could be emphasized to strengthen European support for the Initiative, several areas were particularly stressed:

- A global public good will be achieved by the ending of polio.
- Association with success and the avoidance of failure are important to politicians.
- Cost effectiveness and value for money are strong political motivators.
- The legacy benefits of polio eradication and linkage to other priority concerns can help increase the attractiveness of what some may see as a narrowly focused objective.
- It is important to circumvent the tendency of donors now to regard vertical programmes like polio as 'bad practice', for example by linking the endgame of polio

eradication and transitioning of assets to the SDGs, strengthening routine immunization, health systems and the move towards UHC.

While some of these aspects have been highlighted by the GPEI's Investment case,¹ this study has drawn out differing perspectives and priorities among different donors. . A clear, evidence-based advocacy document summarizing key elements of the investment case could help partners to understand the importance of funding the programme through achieving certification, developing resilience, and ensuring the uptake of legacy benefits.

2. European actors have made important contributions, but 'could try harder'

If viewed as a single entity, Europe's overall financial contribution would be relatively high, having amounted to US\$ 2.7 billion (19.7% of the total) in the period 1988-2015. From 2006-2015, Europe's overall contribution fell to 16.5% of the total, but this proportional drop reflected the new engagement of the Bill and Melinda Gates Foundation (BMGF), which contributed nearly US\$ 2.9 billion, mostly during this recent period. Setting aside BMGF contributions, Europe's contribution to the remainder for the whole period was 24.3%, and for the years 2006-2015 was 22.2%. The EU currently accounts for about 24% of world GDP and more than half of world ODA. Europe's contribution to the GPEI was therefore proportionally roughly in line with its share of global GDP – though less than half as much of its significant share of global ODA.

Recognizing that Europe is not a monolithic actor but instead comprises individual countries, organisations and groups, it is important to note that Europe's total contribution to polio eradication is being made by a very small number of sources. Regionally, the UK, Germany and Norway have been the largest financial supporters in recent years. Many other countries and the EC have made modest contributions to the GPEI, or placed their assistance elsewhere.

Beyond financial contributions, individual European actors have made important political contributions to polio eradication. However, it was consistently noted throughout the study that these contributions are rarely coherent or coordinated across the region. This was seen as a significant weakness in the polio eradication story.

3. Lessons must be learned from the history of polio eradication

"Why didn't we learn from history?" was an important question asked in the Oslo dialogue. Since the 1980s, papers and meetings have discussed the questions of possible disease eradication targets and how to decide between the approaches of eradication or control, but seem to have been subsequently forgotten or ignored.

The GPEI process offers a rich source of insights

As the largest international health effort in history, the polio eradication initiative has many lessons to offer to global health. These include the establishment and sustaining of polio as a priority on the international agenda; the strengths and weaknesses of financial, organizational and governance mechanisms built for polio efforts; and the GPEI's

effectiveness in creating synergies between international action to achieve a global public good and national priorities and capacity building. A number of interviewees emphasized that the GPEI should have made more effort at the outset to identify and give stronger attention to the most challenging places (or “*tackle the worst first*”), while working towards swift gains in easier places to simultaneously demonstrate momentum and attract support. This would have helped to avoid the long ‘tail’ in which it seems that very large sums of money are being expended on the last few dozen or hundred cases, raising questions about cost-benefit and the difficulty of sustaining financial support and political will in the face of other urgent priorities.

New disease eradication targets must learn from previous experiences

As the GPEI approaches its conclusion, increased attention is being paid to which disease or set of diseases could be targeted next. This study underscored some of the common considerations in such deliberations, drawing on both the history of polio, as well as other eradication programmes:

- Criteria for establishing a threshold for the initiation of an eradication programme have been advanced. However, they cannot or do not typically account for changing circumstances and contexts over the course of an eradication initiative. These changes, as experienced by the GPEI, can be epidemiological but they are also often political, social and economic.
- There is sometimes a perceived linear progression from control to geographically specific eradication to eventual global eradication, with major emphasis placed on technical criteria that need to be met to finally achieve global eradication. Importantly, this study highlighted that political considerations are also critical factors in determining the outcome of such efforts. Scientific or technical decision-making is therefore only part of any success story in global health.
- Global disease eradication initiatives have often been impeded by bureaucratic challenges: decisions are taken slowly, innovation is resisted and risk aversion is prominent. In the present study, there were diverse opinions about the extent to which the GPEI has avoided these problems.

Current global health platforms and forums do not currently include a space dedicated to the systematic examination and extraction of learning from global initiatives such as polio eradication. Among other outcomes of this study, one recommendation is for the creation of a forum to serve this learning function through the establishment of a ‘safe space’ where lessons of both success and failure can be openly discussed, and prevailing approaches challenged without fear. This will enable more attention to be given in future to applying the lessons from history and to carefully designing and planning any future disease eradication or other global health initiative to try to anticipate and avoid past weaknesses.

Overcoming donor fatigue and disease schizophrenia

Among the lessons to be learned from the experience of polio eradication is one concerning the challenge of sustaining priorities over a long period of time and avoiding “disease schizophrenia”. It was observed in the study that “*there is no capacity in the international community to focus on several diseases at the same time*” and health issues only gain

political attention and resources when they become crises. This is problematic insofar as crises are often forgotten when they subside and other priorities emerge.

- When coupled with the change of approach during the last couple of decades from disease-oriented vertical to systems-oriented horizontal programmes, there has been a challenge for the GPEI to maintain financial and political support during the long drawn-out ‘tail’ of polio eradication. This challenge was overcome partly by the declaration of the polio PHEIC – but the longer the PHEIC persists, the less impact it may have in galvanizing attention.
- It is certain there will be new outbreaks of (in some cases as yet unknown) diseases but, as observed in the study, *“we do not behave as if this is the case”*. As commented in one dialogue, *“by striking contrast, the military always secures resources for a high state of preparedness”* and conducts war games to prepare for hypothetical events. To date *“there has not been a mind-set to make such investments to prepare for or avert disease outbreaks”*. One reason is that *“it is difficult to persuade Finance Ministers of the importance of the issue – a key message for the global health community”*.

The study concludes that this is an area requiring detailed work, to extract lessons from experience and build a portfolio of arguments and processes to attract and sustain support for health initiatives. Among elements that were identified as being relevant to such a portfolio are:

- Global public goods such as disease control and eradication justify investment because of the returns they bring in both health benefits and long-term cost effectiveness.
- The attractiveness of an individual health initiative can be strengthened by linking it with other high-priority areas. In the case of polio, the arguments for sustained support for the already inter-linked building areas of building resilience and transferring the legacy to countries include stressing the linkages to reinforcing routine immunization; the health SDG; and the global health security agenda and International Health Regulations (IHR). Each of these areas provide opportunities for a two-way benefit, attracting support for polio eradication and transitioning, and bringing valuable polio assets to the areas they link with. In each case, a diversity of views among European contributors to the study about the potential linkages indicated the need for nuanced approaches. For example, the global health security agenda has potential for providing additional linkages for polio eradication to garner European support. However, there are reservations in some quarters about the perceived ‘northern’ origins of concerns about health security and also worries about militarization of health. Making the case should therefore be approached carefully and might best be accompanied by efforts to set out explicitly (a) the growing global nature of support for the movement and (b) the diversity of issues and explanations of circumstances under which different security elements might be appropriately involved.

- There were also seen to be opportunities for additional linkages that could similarly offer a two-way benefit in resolving weaknesses in the complex relationship between development assistance, humanitarian assistance and disaster/emergency response. The need for better coordination and sharing of policies and processes has become increasingly apparent and much can be drawn from the lessons from polio eradication for improving ways to manage aid; while at the same time support for polio transitioning may benefit from being able to articulate the linkages. A German contributor in the study noted that the linkage of health initiatives to humanitarian action is an increasingly powerful driver of action: *“The turning point we are getting to now is from global health programmes driven by humanitarian considerations... There are vaccines and medicines out there which don’t reach the people... If you are able to communicate how many lives you have saved by your interventions, this attracts funding from actors... who are very results driven”*.

Polio eradication is also a foreign policy matter

The strong linkages that have developed between global health and foreign policy in recent years also have important implications for polio eradication. These are illustrated in a number of issues highlighted in this report. For example, European actors can encourage political will in countries with endemic polio or weak resilience post-eradication. It must be a corollary of this that European countries have, as a foreign policy objective, the commitment to promote this at the highest levels of government; and to provide the support to sustain it – as seen, for example, in Germany’s maintaining support for Pakistan’s polio eradication programme despite reservations about the country’s overall approach to the health sector.

Community and gender issues are inter-related and should be central

A clear lesson from polio and other disease control and eradication efforts is that community and gender issues should not be tackled as they arise, but should be central to in the initial planning and implementation of health initiatives.

Polio eradication efforts, among other health programmes, have reinforced the criticality of acknowledging and accounting for community-level factors. These factors include systems of hierarchy and governance, political, religious, cultural and social factors and attitudes and histories of mistrust of certain authorities and organizations. Taking these factors into account has been essential to programmatic polio functions including reaching missed children for vaccinations and increasing the acceptance of behaviour change to prevent disease transmission.

Gender issues stood out for a number of the study’s contributors as being of critical importance. Women have been prominently involved in polio eradication efforts as vaccination volunteers, especially in Pakistan and Afghanistan where they have risked their lives and have sometimes been murdered. It was the view of some interviewees, that by taking up these challenging roles they have not only contributed immensely to polio eradication efforts, but have also taken steps towards empowerment and greater autonomy.

Women and children – especially girls – are also more vulnerable, for example in situations of conflict or in societies where they have lower status and restricted autonomy and access to resources. UNICEF recommends that gender disaggregated data should be collected from AFP surveillance and polio National Immunization Day coverage surveys, with gender-

responsive communication strategies developed and implemented before each round. Neither gender analysis nor gender-disaggregated data have featured prominently in polio-related strategies and assessments. The gender dimensions of polio eradication efforts could thus be an important and interesting avenue for further research.

4. The issue of migrants and refugees presents both challenges and opportunities for European engagement

The large influx of migrants and refugees to Europe – including people displaced from areas of conflict in the Middle East and Africa and economic migrants from Asia and Africa – presents a major humanitarian crisis. In Europe, mounting public resistance in some areas has had significant political impact, resulting in the increasing popularity of political parties aligned with such sentiments and a straining of certain European relations. Fears surrounding these mass movements of people have included concerns that infectious diseases, including polio, will be carried into Europe. This is a largely erroneous perception, as the health status of many migrants and refugees is good (the youngest and fittest often being the ones to travel) and their health problems are mainly in areas other than infectious diseases, relating to acute traumas experienced during their arduous passages to Europe, as well as long-term non-communicable diseases and mental health issues.

There has also been impact in terms of funding, with an increasing proportion of ODA from some traditionally generous donors being allocated to help meet in-country costs of receiving and hosting migrants and refugees. In at least one case, this is said to have been a factor in restricting financial contributions to polio eradication.

As well as being a challenge, the issue of migrants and refugees needs to be viewed as an opportunity to encourage stronger European engagement in both the endgame and legacy of polio eradication. In the case of polio, European health security is best served by (1) ensuring the global eradication of the disease as soon as possible; (2) helping to build resilience in the countries and regions from which many of the migrants and refugees come; and (3) strengthening resilience and containment of the poliovirus within Europe itself, including through addressing the children missed through low vaccination coverage and the problem of parental refusal of vaccinations.

Strengthening Europe's polio resilience and containment capacities is an area where European cooperation is vital and must involve collective, coordinated action between WHO-EURO, the ECDC, the EC and individual countries.

5. Ten actions for Europe

Europe should not take a backseat or act as a passenger. As a traditionally strong player in development assistance and a significant contributor to polio eradication, Europe has much to contribute to the current and future phases of the polio endgame and legacy.

The evidence collected in this study suggests that Europe should do the following ten things:

1. Europe can **sustain and increase its financial support** to polio eradication, mitigating the impact of funding gaps which have arisen due to delays in achieving global interruption of WPV transmission. European countries should not be ‘free riders’, benefitting without appropriately contributing to the global public good of polio eradication.
2. European actors can provide **political support and strengthen political will** in the countries still affected by polio or at risk. As development assistance partners, they can act to ensure continuing capacity for resilience following certification, and that the most is made of potential long-term benefits of polio assets to national health systems and UHC.
3. Europe must first recognize and then **promote the linkages that exist or can be developed between polio eradication and other important health initiatives**, such as SDG3, strengthening health systems, achieving UHC and strengthening global health security.
4. Europe needs to question “*why can’t we afford polio eradication to fail?*” and **show leadership in multi-stakeholder collaborations** to discuss and take action towards ensuring the success of the GPEI and its partners.
5. Europe needs to take action to **ensure its own containment and resilience**, in order to prevent the reappearance of polio. The prevalence of ‘missed children’ has posed major problems for the last polio-endemic countries; however, any missed children are also significant for Europe. Actions to support polio resilience and containment capacities within Europe should be coordinated between WHO-EURO, the ECDC, the EC and individual countries.
6. **Europe cannot act alone – but it must act together.** European actors must foster dialogue and maximise collaboration and coherence among their own constituents. Europe should play a leading role in ensuring that global, regional and national actors invested in polio eradication work together.
7. Europe needs to **ensure that polio transitioning processes not only benefit national health systems but also result in the effective capture of valuable polio assets for European and multilateral institutions.** Europe can play a leading role in creating and participating in forums to systematically examine and extract the lessons from the history of polio eradication; it can work collectively to apply the learning to all relevant areas of global health.

8. **Europe can be pro-active in bringing together the key actors dealing with transitioning** (including the GPEI, Global Fund, Gavi and other initiatives with potential linkages such as the Global Health Security Agenda and Healthy Systems, Healthy Lives) to facilitate better coordination and complementarity.
9. Europe should **support and reinforce the role of the Polio Transition IMB**, with particular attention to: (1) the translation of the polio legacy into global learning as alongside national transitioning; (2) encouraging broader ownership of and accountability in the legacy process; and (3) leveraging greater responsiveness to the IMB.
10. **Europe can support a joint approach** to looking at the GPEI, WHO, Gavi, the Global Fund and other global health initiatives to increase complementarity in the system, while minimizing duplication.

In summary, Europe can engage multilaterally and bilaterally with polio stakeholders, as a partner and honest broker, to be an influential source of financing, innovation and political leadership. Actors in the region can be pro-active to serve collectively as an ideal partner for overcoming the challenges of the last mile in eradication, transition, and resilience. Ultimately, European financial and political support is critical to ensuring that the many potential global health benefits of global polio eradication are not lost.

1. INTRODUCTION

Eventually everything connects – people, ideas, objects... the quality of the connections is the key to quality per se.

Charles Eames²

1.1 Polio eradication: everything is connected

Going... but not yet gone

The disease of polio is on the verge of being eradicated from the world, but completion of this goal is beset with difficulties. These have caused repeated delays,³ led to the declaration of continuing international transmission of polio to be a Public Health Emergency of International Concern (PHEIC) and required billions of dollars of extra financing. There have been calls for increased efforts to achieve peak performance to avoid failure.⁴

Many countries do not seem to be aware that this is an emergency and they should be acting urgently – and the fact that the PHEIC is repeatedly renewed may be lessening the sense of urgency. European voices should be demanding action commensurate with the emergency.

Interviewee

Eradication is a global public good ... with major impacts for global health generally

The arguments for persisting have been clear – polio eradication will be a very beneficial global public good; it will be far more cost-effective long-term than the alternative of maintaining global disease control permanently; and the assets that have been built up since the Global Polio Eradication Initiative (GPEI) was established following a resolution⁵ of the World Health Assembly (WHA) in 1988 can provide a lasting legacy – strengthening health systems and future global health initiatives and contributing to achieving the UN Sustainable Development Goal (SDG) for health. But harvesting this legacy will not happen automatically. Will the political commitment be provided to ensure and sustain the thoughtful and determined effort, planning, financial resources and local and global diplomacy required to make the legacy concrete?

European actors have played multiple roles in relation to polio eradication – as providers of finances and political support, as well as serving as technical resources and as participants in a region undertaking its own efforts to eradicate polio and ensure resilience to prevent its return. How will these actors respond to the new challenges that are arising as the GPEI now passes through a critical phase in its endgame? What are the positions of the European players, how can their support be bolstered and where can they make a difference?

Can we learn the lessons?

The difficulties encountered on the way, as well as the changing context in which the world now operates, have resulted in penetrating questions being raised. Was polio's selection in

the 1980s as a target for eradication appropriate? Was the evolution of the GPEI as an essentially free-standing, vertical programme, housed in the World Health Organization (WHO) but operationally managed and financed by a partnership of its major public and private donors, the most effective way to carry through the mission set by the WHA? Will donors, politicians, programme managers and vaccination workers on the ground sustain the effort necessary to see the mission completed; and ensure adequate political commitment, effort and resources for building and sustaining resilience to prevent the return of polio? Will the polio assets be effectively transitioned for the benefit of national and global health? Will the lessons from the polio eradication initiative be more effectively understood and applied than was the case with previous disease control and eradication efforts?

Why didn't we learn the lessons from earlier disease eradication efforts?

Dialogue contributor

The connecting thread is political

These questions appear very diverse in character, covering historical processes, structural and managerial approaches, effectiveness of operations and motivations for making decisions. There are numerous overlaps and connections between them, including technical and financial components.

Above all, however, there is one clear thread that interconnects all the questions – the political dimension.⁶ From the origins of the diverse drivers that moved polio up the political agenda and led to Ministers of Health at the WHA establishing the goal of polio eradication, through the processes of configuring the GPEI, raising resources, establishing national cohorts of vaccinators with support from the highest levels of governments, negotiating with groups resistant to the vaccination campaigns, setting goals and plans for the transitioning of polio assets to country ownership and contemplating the future of disease control post-polio, possible new disease eradication targets and implications for health security – political considerations and processes have run through the entire history of polio eradication and will continue to affect the outcomes and follow-on.

It is this political strand that is the major focus of the present report, which is based on a research project undertaken in 2015-16 to examine the political factors and what can be learned from them about policy making and governance and to try to elucidate what conclusions and lessons can be derived.

The European Dimension

A particular focus within the project has been on the European dimension within the overall global context. For the purposes of this research, 'Europe' is understood to include countries both inside and outside the EU the European Economic Area and the European Free Trade Association; countries that are members of the EURO region of WHO (WHO-EURO), which extends beyond the boundaries of the European continent to some Central Asian countries; as well as EU institutions such as the European Parliament and Commission (EC) and the European Centre for Disease Prevention and Control (ECDC); and non-governmental entities such as foundations and charitable bodies.

Some European actors have contributed significant financial and/or political support to the polio eradication initiative, while others have not. What role can European donors, policy makers and institutions play in sustaining the polio endgame and transitioning and supporting the legacy of polio eradication; and how can they best be persuaded to attach high(er) importance to playing this role, in the face of shifting contexts and competing priorities?

Even during the period of this project in 2015-2016, there have been changes in the polio world and in the context in which it operates. These have included persistence of polio in Afghanistan and Pakistan and its resurfacing in Nigeria; a shortage of injectable vaccine needed for a global switchover from the oral form; and migrant and refugee issues in Europe having major financial and political impacts in and beyond the European Union (EU).

The study has drawn on three main strands of evidence: dialogues with groups of parliamentarians, government and agency officials, experts, academics and senior executives of pharmaceutical companies in several European locations; personal interviews with representatives of key organizations, especially in Europe; and a detailed literature review.^{7,8} Contextualized in dynamic regional and global contexts, the study elaborates on how polio eradication activities are connected to changing political realities. Focusing on the insights and individual perspectives of diverse polio stakeholders across Europe, the research and dialogues extend beyond existing literature and official standpoints. In doing so, it provides fresh insight into the diverse motivations and policies of European actors, their anxieties and aspirations for the ending of polio and what will follow – offering an important window onto the politics and direction of travel of a much wider field of global health issues than just polio itself.

1.2 The status of polio eradication at the end of October 2016

Poliomyelitis (polio)

Polio is an infection caused by any of three strains (types 1-3) of wild polio virus (WPV). It is most often recognised by the onset of acute flaccid paralysis (AFP), occurring in less than 1% of infections and primarily affecting children under the age of five. There is no cure and prevention is the only approach available, with oral polio vaccine (OPV), which contains live attenuated virus, or injectable inactivated polio vaccine (IPV).⁹ On rare occasions the use of OPV can itself lead to vaccine-associated paralytic polio (VAPP) or, by combining with another virus, to cases of polio infection due to circulating vaccine-derived polio virus (cVDPV).¹⁰

Global Polio Eradication Initiative

The GPEI is a public-private partnership, comprising initially WHO and UNICEF from within the UN system and Rotary International and the US Centers for Disease Control (CDC) from outside. The Bill and Melinda Gates Foundation (BMGF), UN Foundation (UNF) and other governmental and non-governmental actors joined subsequently. As a partnership initiated by a WHA resolution, housed in the WHO and with Secretariat staff appointed through WHO processes, the GPEI reports annually through the WHO Director-General (DG) to the WHO Executive Board (EB) and WHA. The DG is able to make use of a variety of WHO organs and mechanisms, including the Strategic Advisory Group of Experts on Immunization

(SAGE) and the International Health Regulations (IHR), including the convening of the IHR Emergency Committee.

In 2013 the Polio Oversight Board (POB), comprising senior executives of the leading partner agencies involved (WHO, UNICEF, Rotary International, CDC, BMGF), took up responsibility for operational oversight and has met frequently since then.^{11,12} The aim of the POB has been to provide strong governance for the GPEI, including increasing transparency, provide a forum for robust mutual accountability across the GPEI partnership and ensure proactive actions to address risk.

The Polio Partners Group (PPG) has held meetings since late 2012 and serves as the stakeholder voice for the GPEI. Its membership includes the Polio Emergency Steering Committee agencies (WHO, UNICEF, Rotary International, CDC and BMGF), donors/prospective donors, polio-affected countries and key NGOs/foundations working in polio eradication. It meets at least twice a year at ambassadorial/senior-officials level, with additional conference calls or meetings, with results of its deliberations reported to the POB.¹³

In 2009 the GPEI commissioned an independent external evaluation¹⁴ to help it make course corrections and determine strategic approaches for its next phase of action. Comments that are especially pertinent to the present discussion included: *“The GPEI has a very complicated administrative structure both globally and within countries. There is little authority or control over poorly performing local implementing entities”* and *“With the pressure of achieving eradication too little attention is being paid to post-eradication strategies that may ultimately determine the success of the GPEI”*.

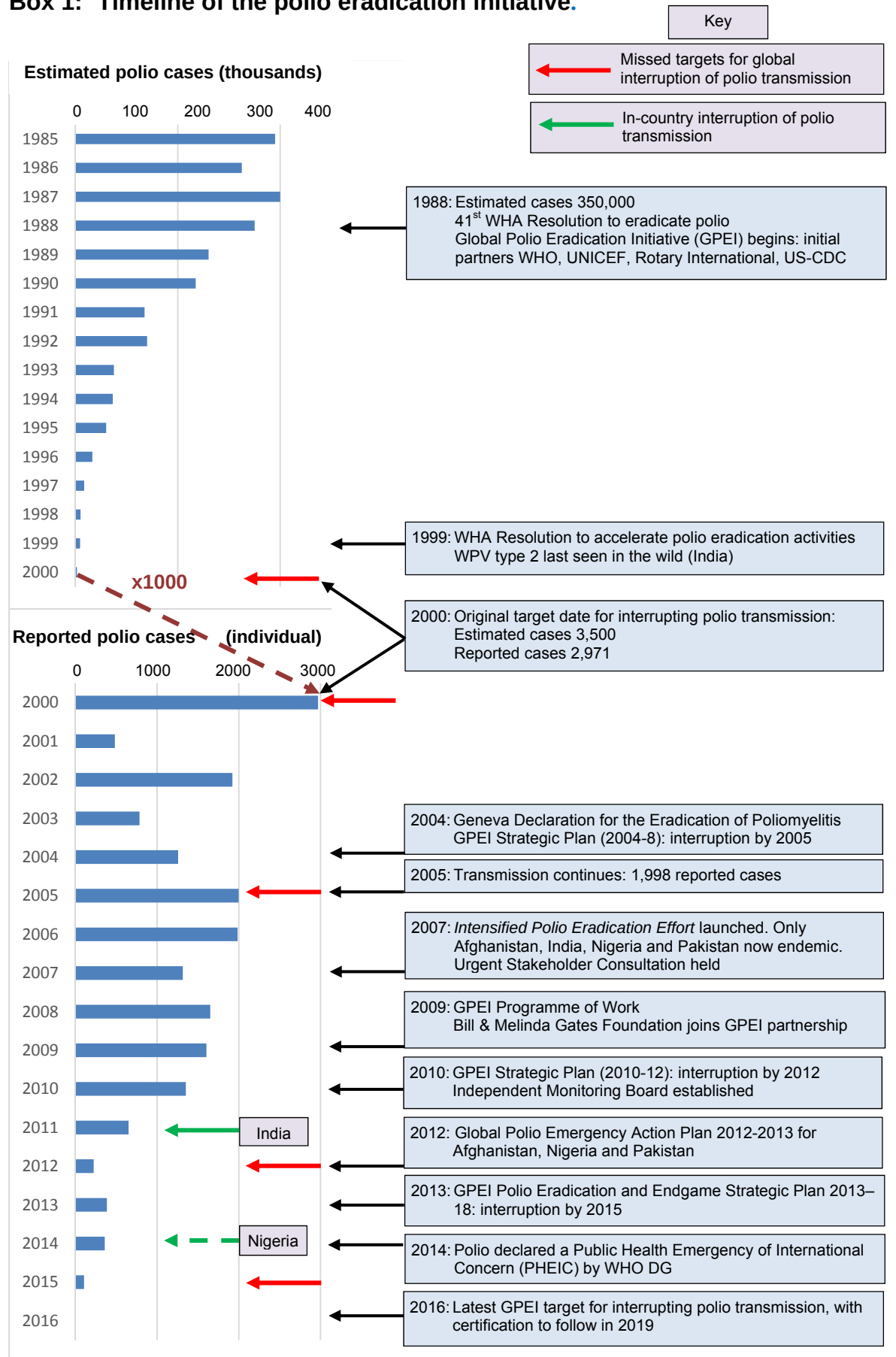
Since 2010, the GPEI has been subject to constant scrutiny, criticism and exhortations from the Independent Monitoring Board (IMB) which it set up for the purpose and which meets quarterly and publishes an independent annual report. With legacy an increasingly prominent focus of the GPEI’s work alongside the endgame, a new ‘Transition IMB’ was established in 2016 to bring to bear a critical, independent overview of the transitioning process.¹⁵

Progress towards eradication

Since it was initiated in 1988, the GPEI has grown to be the largest international health effort in history.¹⁶ It has advanced considerably towards the goal of polio eradication, but the original target of eradication by 2000 was missed and subsequent progress has been uneven. **Box 1** summarises both the decline in polio cases from 1988 and some of the landmark events along the way.

The GPEI’s Polio Eradication and Endgame Strategic Plan 2013–18¹⁷ aimed at a world certified to be polio-free by 2018, at a cost of US\$ 5.5 billion. However, due to delays in concluding the polio eradication effort in the last two endemic countries (Afghanistan and Pakistan), the plans had to be set back by one year, projecting that the last WPV cases will be seen in 2016 and certification of global eradication in 2019. This resulted in a requirement for an additional US\$ 1.5 billion in funding.¹⁸

Up to 3 November 2016, 28 WPV polio cases had been reported during the year including 9 WPV cases in Afghanistan (latest onset 28 September 2016) and 15 in Pakistan (latest onset 3 September 2016), compared with 51 cases to the same point in 2015.¹⁹ A setback occurred in Nigeria, which had seen its previous last case in July 2014, when two new cases of WPV occurred in Borno State in July 2016 and were notified to WHO in August, followed by two more cases, the latest with onset on 21 August. All four cases were found in areas newly liberated from Boko Haram extremists.²⁰ The new polio outbreak was declared a national public health emergency by the Government of Nigeria and a regional public health emergency by the Governments of the Lake Chad sub-region,²¹ sparking a massive new drive to vaccinate more than 41 million children around Lake Chad.^{22,23} In addition, 3 cVDPV cases occurred in Lao PDR in January 2016 but there have been none recorded anywhere since, while there were 32 cVDPV cases globally in 2015.

Box 1: Timeline of the polio eradication initiative.

Changing vaccines

While the effort to interrupt the transmission of WPV globally continues, major changes are underway to prevent further cases of polio caused by the vaccine itself (VAPP and cVDPV). In April 2016, a globally synchronized switch occurred in which all countries still using OPV changed from ‘trivalent’ OPV (containing attenuated WPV of all three strains) to ‘bivalent’ OPV (lacking the type 2 strain, since WPV-2 was eradicated in the wild in 1999). This was coupled with countries beginning to administer at least one dose of trivalent IPV, to ensure maintenance of a high level of immunity to WPV2 to prevent its reappearance. Eventually, all OPV will be replaced by IPV. Use of injectable IPV (which does not cause vaccine-derived polio) rather than oral vaccine is more expensive and requires more skilled health workers, but the further switchover to IPV is already under way in a number of countries. However, the pace is being limited by a global shortage in the supply of IPV vaccine due to production difficulties, which is likely to persist until 2017-18.^{24,25} This has led the WHO SAGE to recommend that countries use a fractional dose, via an intra-dermal rather than intra-muscular injection, allowing each dose to go twice as far.^{26,27}

Views from the Independent Monitoring Board

Since its creation in 2010, the IMB has played a very important role in the evolution of polio eradication and has been viewed by many as a game-changing new dynamic. It has offered deep and frank insights into the financial, political, social and cultural hurdles to be overcome and called for additional resources to ensure the full implementation of the Strategic Plan. The IMB lost no time in raising the temperature of the entire initiative, stating in its meetings that “*completing the eradication of polio is a global health emergency*” and highlighting the need for accountability at all levels of the programme.

As the finishing line draws tantalizingly nearer, the potential cost of any mistake is magnified. The programme must mobilise every ounce of skill, capacity, imagination and energy to meet the challenging goal that has been set...

Any misalignment or inefficient use of resources, any acceptance of substandard performance, any lapse of leadership attention or organizational concentration could set the programme back a year. Aside from the terrible cost of this in human terms, the price tag attached to it would be \$1 billion.

12th Report of the IMB: Now is the time for peak performance.

A 2014 article²⁸ from the IMB cited its earlier comment that “*Stopping transmission in over 100 countries is no small feat. We deeply respect this. But this is not the aim. The aim is to reach 100%, and on that count the programme has not been fit for purpose.*” From early 2011, the IMB was of the opinion that the GPEI needed to alter its approach fundamentally and that it would miss the next (end of 2012) target date for stopping polio transmission. It made wide-ranging recommendations to improve the Initiative’s performance and in its April 2011 report requested that the WHA “*considers a resolution to declare the persistence of polio a global health emergency*”. Following a meeting of the IHR Emergency Committee

convened by the DG, in 2014 she declared the international spread of WPV to be a Public Health Emergency of International Concern (PHEIC).²⁹

The IMB's Twelfth Report³⁰ acknowledged that progress had been made, but was highly critical of several aspects of the eradication initiative. It noted, among other things, that the GPEI had implemented changes to its structure and functioning following the management and governance review that reported in 2014 and decision-making, partnership working, overall leadership, financial transparency and the cohesiveness of the programme had steadily improved since then – but the level of coordination across partners necessary to assure high within-country performance remained problematic. The Report also highlighted the challenge of maintaining focus with increasing programme complexity and the vital need for staff to remain focused on the number one goal of the programme: clearing polio out of every corner of the world. The frustration of the continuing transmission of poliovirus was summed up in the comment: *“If every level of the programme, from global, to national, to regional, to local, to team, to individual vaccinator were relentless and unswerving and at their most creative in finding missed children, understanding why they were being missed and putting in place a solution matched to local circumstances, polio would be gone from the world”*.

The IMB's Thirteenth Report³¹ continued this note of frustration and recalled that the title of the Twelfth Report, *“Now is the time for peak performance”* had reflected the IMB's analysis that, despite a rising tide of improving performance, the Polio Programme still had many islands of mediocrity (within countries and systemically across the programme) where sub-optimal delivery meant that the goal of stopping polio transmission in the near future remained *“improbable”*. The Thirteenth Report acknowledged that there had been further, very substantial improvements since the previous Report, but the Polio Programme had not yet reached peak performance and this was disappointing six months before the target date of ending all WPV transmission by the end of 2016. A catalogue of weaknesses was identified and urgent remedies recommended at all levels from local to global. While many of the recommendations concerned intensification of technical approaches, the IMB also reiterated a call it had made in an earlier report for the establishment of a publicly prominent *‘Red List’* of vulnerable countries. This had been accepted and ran for a short time but then sank from view, thereby losing the power and transparency of the concept. The IMB believed the *Red List* should be re-established, clearly seeing this as a lever to engender greater political pressure and motivation to improve performance.

The IMB also noted that, in reports stretching back five years, it had repeatedly confronted the Polio Programme, sometimes painfully, with the things that it was not doing well and the things that it ought to be doing but was not. As a result, the Polio Programme looked very different to the one that the IMB faced when it started its work. There was much greater country ownership of the challenge of ridding themselves of polio; much more emphasis on management and the quality of leadership, with a greater intolerance of poor performance; a stronger emphasis not only on political engagement but also on accountability and alignment of political will from national, to regional, to local levels. The IMB's championship of the *‘people factors’* and the use of social data were bearing fruit, ranging from valuing and training vaccinators, to really understanding why parents were avoiding having their children immunized, to empowering women as health workers in their communities.

However, the Polio Programme *“is paying a heavy price for not listening properly to what the social data are telling it in some key areas”*. Among the IMB’s list of seventeen major concerns were several with a political focus, including inadequate levels of joint working between the governments of Pakistan and Afghanistan; the low degree of political engagement in Northern Sindh, Pakistan; patchy performance and poor accountability of NGOs that deliver basic health services through a contract with the Afghanistan Government; waning commitment in Nigeria leading to a lack of full resilience against the re-emergence of polio; failure to take advantage of the benefits that could flow from maintaining a publicly prominent *Red List*; and a lack of planning for the continuation of polio vaccinations after eradication has been certified and the GPEI itself has been disbanded. The twelve recommendations that followed included several aspects of political action at global and country levels.

1.3 The legacy of polio eradication

As well as ending of polio transmission, the GPEI’s Strategic Plan 2013–18 also addresses securing the legacy of polio, one of its four objectives being to develop a plan to ensure polio investments contribute to future health goals, through documentation and transition of lessons learnt, processes and assets of the GPEI.³²

There was consensus that the *“assets, lessons and resources of the polio Initiative should eventually be transitioned, primarily through national governments, to benefit other existing health priorities”* and national governments should be responsible for the future administration of the human resources infrastructure. An independent study of the financial risks associated with the human resources component of the GPEI was conducted on the 22,000 people who were deployed by the GPEI, including the more than 7,000 contracted by WHO,³³ as well as consulting senior representatives of donor agencies, other health initiatives and some national governments to obtain their perspectives on long-term options for the polio-funded workforce. The surveillance (86 percent), laboratory (50 percent) and social mobilization (46 percent) functions performed by this workforce were most frequently cited as of potential value for transition to other health initiatives.

The target date set for development of a comprehensive legacy plan was the end of 2015.³⁴ The Secretariat reported to the 2016 WHA³⁵ that acceleration of polio legacy planning had continued in 2015, but that it needed to occur primarily at country levels and was still under way. Guidelines for preparing country plans for transition of the assets and legacy of polio had been issued, with five guiding principles:³⁶

- Polio transition planning will benefit all countries and the global community, not only countries where polio resources are currently concentrated.
- Enabling long-term transitions to full country ownership of basic public health functions, wherever possible, is a priority.
- Under the leadership of the national government (and subnational counterparts, where applicable), a broad range of stakeholders should be involved in the legacy planning process at the country level, including donors and civil society.
- Beginning the process of polio transition planning early represents the GPEI’s desire to plan carefully and responsibly for the future.

- Legacy planning should not distract from the current focus on interruption of poliovirus transmission and other objectives of the 2013-2018 Strategic Plan.

In some respects, the legacy of polio eradication has already been flowing to countries for some time. A survey indicated that up to half of the time of workers engaged in the GPEI in countries is devoted to other tasks, such as routine immunization, disease surveillance, hygiene, health systems strengthening and maternal and child care in different settings, including house-to-house visits, health clinics and health camps. Many countries integrate other health interventions with polio vaccination campaigns.³⁷ Examples have included administration of OPV alongside vaccinations for measles, provision of Vitamin A and deworming drugs and other public health interventions. The surveillance, contact tracing and response systems developed for polio were considered by WHO³⁸ to be a critical asset in Nigeria's effective response to the West Africa Ebola outbreak that began in 2014.

The assets of that are of benefit to national health systems form an important part of the wider legacy of polio eradication, which also includes assets that can be of global benefit³⁹ and can inform and strengthen global health architectures and governance and future global disease eradication efforts.

1.4 The changing context

The world has undergone enormous changes in recent years. The global landscape has become multipolar; new balances of economic and political power have emerged, while existing global challenges have increased in depth and complexity, requiring global solutions together with new forms of international cooperation. The concept of Global Public Goods has gained increasing prominence, providing both challenges and opportunities for coherent, global thinking and decision-making. Through the thematic programme on Global Public Goods and Challenges, the European Union aims to contribute to the solution of global problems through global development outcomes that will be inclusive and sustainable within planetary boundaries.

European Union, 2014⁴⁰

Several profound changes – each with an important political dimension – have taken place in the global context since the movement for polio eradication was launched in the 1980s. This introductory section briefly summarises the major changes of relevance to the European setting and polio, while subsequent chapters of the report discuss how they are perceived and the kinds of impact that interlocutors considered were occurring or might occur.

End of the Cold War has led to an increasingly multi-polar world: The collapse of the Soviet Union in 1991, just a couple of years after the GPEI began its work, had political significance for polio eradication. Despite the Cold War, the USA and USSR had collaborated strongly on the effort for the global eradication of smallpox,⁴¹ which was successfully concluded in 1980. The Russian Federation which followed the dissolution of

the Soviet Union had diminished influence and polio was not given a high priority. Outbreaks of polio in Russia and several Central Asian republics continued through into the 21st century and eventually an agreement to work together on polio eradication was signed in January 2011 by US and Russian health officials.⁴² Collaboration on polio eradication featured in President Obama's 'reset' of US-Russian relations in 2011 and was highlighted at the G8 meeting that year, but with a focus on US provision of technical assistance to improving immunization and monitoring coverage in Tajikistan and Kyrgyzstan (both of which are located within the WHO-EURO regional grouping).⁴³ However, the reset stalled with Russia's annexation of Crimea in 2014 and the subsequent destabilization of Ukraine – which contributed to the weakening of the public health system in that country that created the conditions for a cVDPV-related polio outbreak in 2015.⁴⁴

New configurations and priorities have emerged in the period since the Soviet Union dissolved. Several large countries that were previously among the poorest have graduated to middle-income status and emerged to become leading world economies and global political forces, with their own priorities and approaches. In this more complex environment, new alliances and partnerships have needed to be established and health diplomacy has emerged as a critical skill for global health.

Russia was suspended from the G8 in 2014 following its annexation of Crimea. It has been rebuilding its profile in international development for a number of years, both as a contributor of Official Development Assistance (ODA) in its own right, including in health,^{45,46,47} and as a member of the BRICS (Brazil, Russia, India, China, South Africa)^{48,49} group of emerging economies.

The G7 has repeatedly affirmed its continued commitment to reaching polio eradication targets, most recently in the G7 summit hosted by Japan in 2016. Notably, in the Final Communiqué⁵⁰ and in the subsequent Communiqué of G7 Health Ministers meeting in Kobe,⁵¹ the polio commitment was framed in the section dealing with UHC and health systems strengthening. While the G7 represents some 10% of the world's population, the newer G20, which includes the BRICS, represents about two thirds of the world's population, as well as 85% of the gross world product and 80% of world trade. The G20 may become increasingly significant in relation to global health issues as power shifts and new drivers of the global health agenda emerge. Accountability and transparency have been strongly emphasized in G7 initiatives, but much less information is available about the G20's motives and actions in the development field – e.g. in China's new US\$ 10 billion dollar development programme for Africa in which public health features as one of the ten action areas.⁵²

These movements of the centre of gravity of political power and influence will undoubtedly affect the selection of priorities, the mechanisms of funding (with replenishments of large global 'pots' perhaps become increasingly challenging) and the issue of who joins the 'coalitions of the willing' around future global health initiatives.

Globalization has become a prominent and pervasive factor, locally and globally: Among the many manifestations of the increasing globalization seen in all areas, issues of global objectives, governance and accountability are ubiquitous. Health has an important position within this context, both as an essential object of globalization and as a leading and sometimes ground-breaking example of uncovering and finding solutions to the challenges.

As one Ambassador remarked in this study, *“globalisation is not conceivable in the long term without looking at health problems”*. However, a growing reaction against globalization has also been seen in the last few years and in the case of Europe there is evidence in many countries of unease about a perceived loss of power or autonomy, reflected in anti-establishment votes and sentiments against foreign encroachments into national interests and settings and national engagements in international and global enterprises. As a consequence, European countries may be less willing to act globally, as highlighted in the Oslo dialogue.

Health has emerged as a significant issue within foreign policy: Health issues that were traditionally only dealt with in health forums such as the WHA have increasingly been addressed in high-level political arenas such as meetings of the UN, G20, G7/8 and regional political groupings such as the EU. As well as placing health squarely within global political agendas, this evolution has reinforced the need for the development of health diplomacy skills by a wide range of non-health diplomats. The last strongholds of polio in insecure areas of Afghanistan, Nigeria and Pakistan, the appearance of outbreaks in Syria and Ukraine and concerns about the health implications of large numbers of migrants and refugees from these conflict areas who are coming into Europe illustrate the critical need for attention to the intersection of health, foreign policy and security.

Rise of the global health security agenda: Over the last two decades, health security has emerged as an important factor driving global health. Growing concerns about bioterrorism, coupled with examples of international outbreaks of infectious diseases such as SAARS, Avian Flu, Ebola and Zika have led to increasing interest in managing such disease threats. One manifestation of this was the revision of the International Health Regulations (IHR) in 2005 and the institution of new mechanisms such as the declaration of PHEICs by the WHO DG. A second has been the emergence of the Global Health Security Agenda (GHSA), launched in February 2014. European perspectives on the relationship of polio to the GHSA are discussed in section 2.7.

Reframing of global health in the SDG context: A major paradigm shift in global health is in progress.⁵³ Its characteristics have not yet become clear,^{54,55,56} but it is evidently being driven by the end of the previously stable development model, diverse crises as priority determining factors, and a host of other determinants in the shifting global landscape. This reframing is strongly related to the transformative action needed for SDG implementation and the adoption of shared responsibility for national and global health status, health security and global public goods including disease eradication.

Global economic downturn: The banking and financial crises in 2008 caused reverberations in many parts of the world and have impacted on the interest and willingness of some countries to support global public goods. This effect appears to be selective and based on a variety of factors, including combination of economic circumstances, preferences for bi- or multi-lateral approaches, willingness to consider new pooled funds and political responsiveness to high-profile pledging events. For example, periodic replenishments of the coffers of existing global health initiatives like the Gavi, the Vaccine Alliance (Gavi) and the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund) have fared relatively well, while other health organizations and areas have seen declines in funding. International support to address HIV in low- and middle-income countries fell after the 2008 crisis, with

several European supporters being among those whose disbursements reduced (Denmark, France, Ireland, Sweden and the European Commission) or flattened (Germany), while a few increased ((Italy, Netherlands, Norway and UK).⁵⁷ Following the 2012 report⁵⁸ of the Consultative Expert Working Group on Research and Development: Financing and Coordination, there has so far been little international appetite for creating a new pooled fund to ensure the development of affordable drugs for neglected diseases.⁵⁹

The EU has experienced severe economic and political challenges: The global economic downturn in 2008 was followed by a European sovereign debt crisis from 2009 affecting the Eurozone.⁶⁰ Politically, the EU has also been affected by the large influx of migrants and refugees and the decision by the UK to exit from the Union, which have created pressure towards an inward focus. After rising for a number of years, net ODA from the EU institutions (Directorate-General for Development Cooperation and European Development Fund) levelled off in 2009-10,. It then peaked in 2011-2012 before falling back in 2013-2015 to around US\$ 16 billion/year,⁶¹ with an increasing share of ODA being directed to dealing with in-donor costs of the increasing inward migration.

Reframing of development and reconceptualization of aid: The Sustainable Development Goals (SDGs) for 2030, which succeeded the Millennium Development Goals (MDGs) in 2015, represented a profound shift in in the world's approach to development in the last 15 years, with major donor countries rethinking both their quantitative and qualitative approaches to aid. While the MDGs focused on specific problems of the world's poor, shaping the aid policies of the world's richest countries,⁶² the new SDGs embrace a global vision of development for all based on the core principle of sustainability and responsibility shared by all countries.⁶³ The specific disease or health issue MDG focus has shifted to a broad health SDG aiming at universal health coverage (UHC). The SDGs emphasize the importance of national ownership of priorities and programmes rather than externally-driven projects that distort country prioritisation and budgeting. Major changes in approach to aid have resulted, with 'vertical' global programmes being viewed less favourably than 'horizontal' national ones.

Furthermore, the growth in economies of several large countries, including Brazil, China and India, has lifted hundreds of millions of people out of poverty and has led to previously poor countries graduating to middle-income status; but within-country disparities have become very large, so that these countries are still home to the largest number of the world's poor. This has challenged the approach of many traditional 'donor' countries which were increasingly focusing on the poorest countries and withdrawing support from middle-income ones.

Moreover, the entry of new countries into the development assistance arena – most notably China which, for example, has become extremely active in Africa – has accompanied a shift in how aid is handled politically by donor countries. A long-standing trend among many – especially European – donors towards 'untying' aid from foreign policy and establishing separate, free-standing aid ministries has begun to be reversed, with aid returning to being seen – and managed politically – as a key element of a nations' foreign policy.

The continuing agenda of WHO reform: The roles of WHO as a GPEI partner, host and reporting channel to the WHA give it a prominent place within the eradication initiative. WHO itself has been engaged in a long-standing process of negotiating reform, which dates back at least as far as the late 1990s.⁶⁴ The continuing failure to complete the reform reflects the complexities of WHO's multi-layered structure, governance and financing as well as an unresolved debate about what the purpose of the organization should be in the 21st century. There now appears to be mounting political pressure to resolve the problem – at least in part generated by concerns about WHO's past performance in handling disease outbreaks and PHEICs.⁶⁵ It is unclear as yet how WHO will approach the polio transition and the loss of resources implicit in this process – see section 2.9.1.

2. EUROPEAN ACTORS AND KEY POLITICAL NODES IN POLIO ERADICATION

If we fail in polio eradication, it will be due to political reasons, not technical ones.

The biggest mistake we can make is to assume that it is all done. It is not all done and you require not only funding but you also need European governments to continue to advocate to other donors and to also country governments that we are still not out of the woods.

Interviewees

2.1 Circles of influence

Europe has played multiple roles in polio eradication – as a provider of financial and political support and technical resource and as a region undertaking its own efforts to eradicate polio and ensure resilience to prevent its return.

However, ‘Europe’ is a complex set of individual entities and groups that overlap and interconnect. These centres and circles of influence are not well coordinated with respect to polio eradication – their funding trends, political support and degrees of engagement vary substantially.

Individual European actors are also involved in circles of influence that extend beyond the continent and again their degree of engagement in polio eradication is varied. Four countries (France, Germany, Italy, UK) and the EU participate in meetings of the G7, where they have repeatedly reaffirmed commitment to polio eradication.⁶⁶ Two countries have extensive, continuing ties with former colonies, both bilaterally and through formal multilateral associations – the UK through its Commonwealth, which currently comprises 53 countries and spans Africa, Asia, the Americas, Europe and the Pacific; and France through the *Francophonie* which currently comprises 54 countries and provinces as well as having associated states and has a similar geographic span. The UK has provided strong support for polio eradication through the GPEI (US\$ 1.4 billion to 2015), bilaterally (including to Nigeria and Pakistan) and through high-level Commonwealth meetings. While home to a major polio vaccine producer (Sanofi Pasteur), France has made only limited donations to the GPEI (2003-6 and 2009, totalling US\$ 39 million) or provision of assistance through its bilateral and *Francophonie* channels. However, France was the instigator of UNITAID, an innovative financing mechanism that has contributed the global effort to defeat HIV/AIDS, tuberculosis and malaria;⁶⁷ and is a major contributor to Gavi, both directly and through the International Finance Facility for Immunisation.⁶⁸

Polio eradication does not appear to have featured in areas of Nordic cooperation or collective action, but Norway in particular has used its ODA to support eradication efforts in Africa and Asia, while Germany has channelled funding through KfW for this purpose, as noted in section 2.3.1.

At the multilateral level, the EC has not been very active in bringing countries together on polio eradication. The most prominent player in this regard has been the European region of WHO, but its focus, supported by the ECDC, has been overwhelmingly inward, to maintain WHO-EURO's polio-free status.^{69,70}

As suggested by some interlocutors in this study, the lack of effort to develop a stronger coherence and synergy among European actors may have been one of the failings in the polio eradication story. This is discussed in Section 2.3.3.

All of the issues in polio eradication tend to fall naturally into groups or nodes that are especially closely coupled through the dimensions of politics and governance. In this chapter we highlight a number of these political/governance nodes, summarising key issues, comments and views that emerged in the course of the study's dialogues, interviews and scrutiny of related literature, which (a) cast light on the ways that diverse European actors are approaching the endgame and legacy of polio eradication; (b) indicate specific ways that European actors could do more to provide political support; and (c) suggest what kind of arguments for encouraging this may be persuasive with different actors.

2.2 Nature and functioning of the GPEI

It is a very good example of partnership... and has worked well in sustaining the effort. Getting the UN agencies (WHO/UNICEF) to work together was positive; the demonstration of an effective, common surveillance system set a new global standard; the IMB has been an important innovation; and global support had been able to strengthen national groups working in health.

Interviewee

From its start in 1988, very rapid overall progress was achieved by the GPEI, which succeeded in reducing polio cases globally by more than 99% by the year 2000. Many sources in the study acknowledged this achievement, which was attributed to a strong unitary vision; strong support and pressure from civil society; strong support from global actors; an ability to learn from experience and adapt and transfer best practices and work in very challenging settings using humanitarian tools; and a great passion and dedication, including from front-line workers. Faced with setbacks, the GPEI programme reinvented itself several times. Children were missed, but this was overcome in many challenging places by the intense gathering of data, creation of high quality information systems and mapping and new, focused efforts to reach out to communities not previously accessed. Nevertheless, the GPEI has not always met expectations in terms of efficiency, effectiveness, transparency and, above all, deadlines. The spectrum of views of European actors is set out below.

2.2.1 Governance

As summarised in section 1.2, governance of the GPEI involves a complex, multi-component blend of actors and processes. The GPEI was established at a time when smallpox had been eradicated through a cooperative global initiative and when international mechanisms

for development cooperation operated as donor-driven programmes. It has evolved over time, adapting to challenges and new contexts. In the words of one interviewee, *“governance of the GPEI was as a vertical programme with a single goal: eradicating polio. All governments signed up to eradicating polio; there is the G7, which has also European members, which is an important way to maintain political support; we also get some support through the EU. There are also bilateral relationships, for example Germany and Afghanistan. It’s quite a complex web of political allegiance. It is impossible to put any single structure to it, but instead it’s many different relationships”*.

These twin characteristics – a vertical programme and a complex governance structure – were much commented upon by diverse participants in the dialogues and interviews. They have evidently shaped the history of the programme and European attitudes towards its current support, as well as the extent to which it may be viewed as a model for future global health initiatives.

Have the vertical structure and complex governance process been the best way to manage polio eradication? Interviewees in the study put forward a range of arguments and opinions in favour, including:

- The partnership structure has *“ensured resourcing that would have been beyond the means of an exclusively internal WHO programme”*. (UK interviewee)
- It has enabled strong participation by civil society: *“if you compare to the classical operational system of the UN system, it’s different – it’s more engaged, more focused, less politicized, more issue oriented”*. (German interviewee)
- *“The fact that polio was pulled out from general health and given a specific focus was a major governance step to improve the effectiveness of the eradication programme... [which] was absolutely concentrated on this disease, and building up its own structure, its own mechanisms for providing support and information to member states and receiving information from members states, that helped a lot in the progress achieved.”* (Geneva Ambassador)
- Several interviewees thought the structure encouraged close engagement by diverse critical actors with technical expertise and operational capabilities on the ground; allowed flexibility for governance changes to be made when necessary, including the creation of the POB, the Polio Partners Group and the IMB; and had given the programme some measure of independence from political influence.

Views that the partnership structure has had faults in detail and/or that it has not been the most effective way to proceed were also advanced. In the opinion of a UK interviewee, *“The core agencies have been represented at too high a level in the POB, which has not been conducive to understanding complex operational matters and taking swift and appropriate decisions on challenging issues”*. A German interviewee also felt that there was an issue with inclusiveness in the governance: *“Gavi and the Global Fund learned from the weaknesses of the GPEI by being more inclusive in their governing structures and including partner countries. In the GPEI, there is no country that is struggling with polio involved in the governing structure... [who’s focus seems to be that] OK, there is this disease and these agencies want to eradicate it”*.

One study contributor pointed out that the GPEI is an example of network governance – a form of multi-organizational governance whose potential advantages include specialization to tackle a specific problem, innovation, speed and flexibility and increased reach. Challenges in this mechanism include goal congruence, loss of oversight, communications, fragmented coordination and accountability. A UK interviewee said: *“Did we end up with the best way of managing polio eradication? No – it could have been done better. The structure has not been ‘game-changing’. The polio Partnership is involved in every major decision, but very senior representatives of partners are not necessarily the best suited to make detailed/technical decisions. A WHO Management Board could have supported GPEI in a more operational way and have had technical and managerial skills.”* Another interlocutor remarked that the GPEI structure: *“has presented opportunities for accountability to be weakened, important but difficult issues to fall in the cracks and delays to occur in taking urgent decisions”*.

A well-placed contributor illustrated the challenges of network governance for the polio partnership: *“My assessment is that the core polio partners are not necessarily asking questions of each other. They want to do their thing, and they want to do it well and they want to achieve it but they have had less of a focus on examining what they do and how they could do it better. And this has always been like a mantra, so everything is ‘we need to do what we do better’ but ‘we’re not changing what we’re doing’. When the IMB comes in, it has the possibility to ask questions that go across these agencies rather than one by one, and it’s easier to raise questions about working differently, and not just more of the same. Because more of the same has not delivered. So I think that’s why a lot of the IMB reports focus on how one can make the partners work more effectively”*.

Unlike organizations, networks may be governed without benefit of hierarchy or ownership and network participants typically have limited formal accountability to network-level goals, with conformity to rules and procedures being purely voluntary.⁷¹ However, the GPEI Secretariat at WHO is, in effect, a network administrative organization, such entities being formed to govern a network and its activities.⁷² A German interviewee commented: *“Another thing which can be learned for global health and SDGs is that global health programmes cannot be run with a governance structure like GPEI, because it is simply an inefficient and ineffective way of organizing globally coordinated health programmes. GPEI is not at the level of the Global Fund or Gavi, where substantial funding is channelled into national health systems. And the way the Global Fund or Gavi runs, you can do it that way. But GPEI and the way it is done in the context of this whole WHO system, it has setbacks for managing and monitoring and strategizing. And probably it has been underestimated what the negative effects of those deficits were.”*

A comparative case study of global health networks published in 2016^{73,74} concluded that formal institutions, like the GPEI, anchoring these networks deserve greater research attention. Among the principal findings of the study, reported in the concluding paper,⁷⁵ were that network are particularly important in shaping the way the problems and solutions are understood and that governments, international organizations and other global actors are convinced to address the issue; they are most likely to produce effects when their members construct a compelling framing of the issue and they build a political coalition that includes individuals and organizations beyond their traditional base in the health sector – a task that

demands engagement in the politics of the issue, not just its technical aspects; and the emergence and effectiveness of a network are shaped both by its members' decisions and by contextual factors, including historical influences, features of the policy environment and characteristics of the issue the network addresses. An overarching theme emerging from their studies was that of 'path dependence' – the strong influence of initial decisions on subsequent developments – as a result of which it was suggested that future research on networks would do well to examine how historical precedent and structural forces interact with individual and organizational agency to produce global health outcomes. The history of the GPEI has much to offer in this regard.

2.2.2 Ownership

The complex, interconnecting circles of oversight, influence, action and accountability have raised **questions about ownership of the polio eradication initiative, whose priorities are being followed and the responsiveness of the programme to country priorities and circumstances**. Comments by European interlocutors included:

- We have learned that it is very hard to finish the job, especially in inaccessible places, which brings important lessons:
 - Ownership and leadership are essential to sustain the effort and reach the unreached. *"The perceived slowing down in the final stages of polio eradication indicates that something in the initial global design of polio eradication may have been missing"* (c.f. the point about 'path dependence' at the end of the Governance section above). This could be the lack of a global mechanism to ensure that global decisions are systematically linked to and driven by priorities on a local level, which starts with getting local leadership and creating a sense of ownership. It is therefore important to recognise that the boards of Gavi, the Global Fund and other agencies now include strong representation of partner countries and of communities living with the diseases concerned. *"This is very important to create trust. Key lessons from Ebola and HIV/AIDS were that it takes time to build trust and that it can be quickly lost. The approach must be linked to local ownership, which creates a basis for national and local political leadership."*
 - Historically, the 1988 WHA resolution spoke of strong routine vaccination. *"One of the lessons learned has been that for a time we lost the bigger picture and pulled people away from routine immunization into polio vaccination and we need to reverse that."* In fact, GPEI Strategic Plan 2010-2012, viewed the initiative's work to strengthen immunization services as essential to optimizing the broader benefits of the GPEI investment. It included, as a major process indicators for 2010, that >80% of countries with GPEI international staff establish multiyear plan for all immunization services (including polio); and that >25% of polio field staff time be documented as contributing to immunization systems strengthening in the 'WPV importation belt'.⁷⁶

→ The issue of legacy has further highlighted the questions of the extent to which the polio eradication initiative has been supply-driven and donor-driven; and who determines the legacy.

- *“The experience of the polio eradication initiative has exemplified the power of the multi-stakeholder approach and the need for mechanisms to achieve this, raising the question of ownership and who has a voice when strategies are developed, especially at the global level.”* The key governance mechanism—the POB – which meets quarterly to provide operational oversight and ensure high-level accountability across the GPEI partnership⁷⁷ is *“entirely composed of donor agencies and has no representation from endemic or fragile countries”*.
- *“We have spoken about legacy for a few years but are turning it the wrong way round. Polio eradication is a common good: it belongs to the world and it is for the world to take advantage of the exceptional assets and learning. It is not for people to push its lessons in but for the world to ask what it can learn to reach children and communities that are unknown to the health system.”*
- *When it comes to transition, then I really think it's up to all those that have development cooperation in health, to think about how their current programmes can actually work with making use of positive assets from the polio eradication and help the transition into systems and countries that have the capacity to cope, not only with polio but with other diseases that require surveillance.*

2.2.3 Independent Monitoring Board

As summarised in section 1.2, the IMB played a very important role in the evolution of polio eradication since 2010, offering independent, frank and critical assessments of progress and problems and recommendations for action. A review of the work of the IMB by Bristol⁷⁸ in 2015 noted that, while there had originally been concern about the IMB's lack of specific polio eradication expertise, its broad range of global health knowledge has allowed it to address issues that were generally outside the GPEI's epidemiological approach. The IMB reports were seen as well informed, well written and relevant to the programme's challenges; and striking a constructive balance between stern and supportive. The review concluded positively that *“the IMB has been a solid contributor to many of these successes. **As global partnerships increasingly become the norm for large-scale health initiatives monitoring mechanisms modelled after the IMB could, under the right circumstances, improve the effectiveness and efficiency of global health management**”*.

Most European interlocutors concurred with the positive conclusion of the Bristol review about the importance of the IMB. One commented that *“The IMB is an excellent model that has been incredibly important and very influential. It is a really good model for providing accountability scrutiny, advise, incentive action and being honest. It is a very difficult line to take but they did very well”*. But there were sometimes reservations about the IMB's final impact, as in the commented that *“The creation of the IMB, at a late stage, was important – it showed the value of having a strong group (like a WHO Management Board) from the outset. The key transformative aspects of the IMB were in being able to call Ministers in and*

hold them to account; and in issuing very strong reports which were read and reported by journalists. The IMB's pressure for declaration of a PHEIC had succeeded – but in reality this had very little impact on the ground". This observation highlights a key issue in the implementation of the IHR (section 2.7) and demonstrates how polio eradication is serving as a probe of much broader political issues in global health. Ultimately, impact of the polio PHEIC depends on political engagement at the level of heads of government.

The present study has thrown light on the **question of the effectiveness of the IMB's engagement with the governance mechanism and the responsiveness of the GPEI partnership to the IMB's reports**. While the IMB has been careful to acknowledge and commend the GPEI's many areas of improvement over the course of the last five years, the sense of frustration it has felt at shortcomings and less than peak performance have been evident, as highlighted in Section 1.2. This raises the question as to why the performance of the GPEI partnership (which, as described in section 1.2, includes countries and diverse non-governmental actors as well as the Secretariat hosted by WHO and the principal donors in the Polio Oversight Board) has not met the exacting standards called for by the IMB and which it has felt were essential to the task of reaching the goal of eradication. Several possibilities can be considered, taking account of comments made in the study:

- **The intrinsic power of the IMB to compel change:** *"As an independent body that is free from political interference and has been willing to speak its mind openly, the IMB has established an unrivalled position in global health as a critic and an advocate for change."* But how effective are its pronouncements in compelling the actions it calls for? *"Its power resides in the public nature of its reports applying visible pressure to those it addresses and laying blame for failures at the doors of organizations and governments as it sees fit."* *"The IMB report is sent to the Polio Oversight Board... and they would then talk immediately to the people that run the polio programme. So it is actually a very specific accountability mechanism."* But apart from public criticism of continuing failure, it has no sanctions to apply to those who fall short. This perspective creates a dilemma: if the IMB had more power to create sanctions or enforce particular actions (and these would have to be limited to the GPEI secretariat and not the wider partners, including other agencies and countries), would this be effective in improving programme performance; and would it compromise the IMB's independence by drawing it into a more operational role?
- **The complexity of governance within the GPEI partnership:** Interlocutors in the study referred to the multiple accountability mechanisms that include the IMB, POB, WHO, EB and WHA and multiple levels of responsibility, ranging from the (formal) accountabilities of the global actors to their individual organizations and their joint boards to the accountabilities of national and local actors to their governments or governing bodies as well as (informally) to the international community. Does this complexity intrinsically inhibit full, rapid responsiveness to the criticisms and recommendations offered by the IMB? How do the core partners in the POB balance their roles between taking operational responsibility for the GPEI and taking a critical stance on how they and the rest of the GPEI are performing? How do the WHO DG and Secretariat balance their roles as the GPEI hosts, partner and reporting channel to EB and WHA in managing their accountability and responding to the IMB? Interlocutors felt there was a lack of clarity about these matters.

- **Structural and operational factors in the GPEI as an initiative hosted within WHO:** The GPEI works within the framework of WHO's operations, which may constrain its flexibility of action in a wide range of processes, from employment practices to protocols of engagement within and beyond the organization. How has this affected its capacity and willingness to respond to demands for radical improvements in performance?

The IMB's independence and its publication of its frank and critical conclusions have been considerable assets and worthy of replication in future global health initiatives. However, the effectiveness with which the pronouncements of such a body can be translated into compelling action *"merits further consideration but would undoubtedly be increased by streamlining and clarifying structures of governance and lines of responsibility and accountability in the programme subject to the body's scrutiny"* according to one contributor. Another stressed that it has become clear in the last phase of polio eradication that the final health success can only come through definitive political action to deal with the political determinants – and this political action plays out in areas other than the health arena and requires the GPEI and IMB to reach higher than ministers of health.

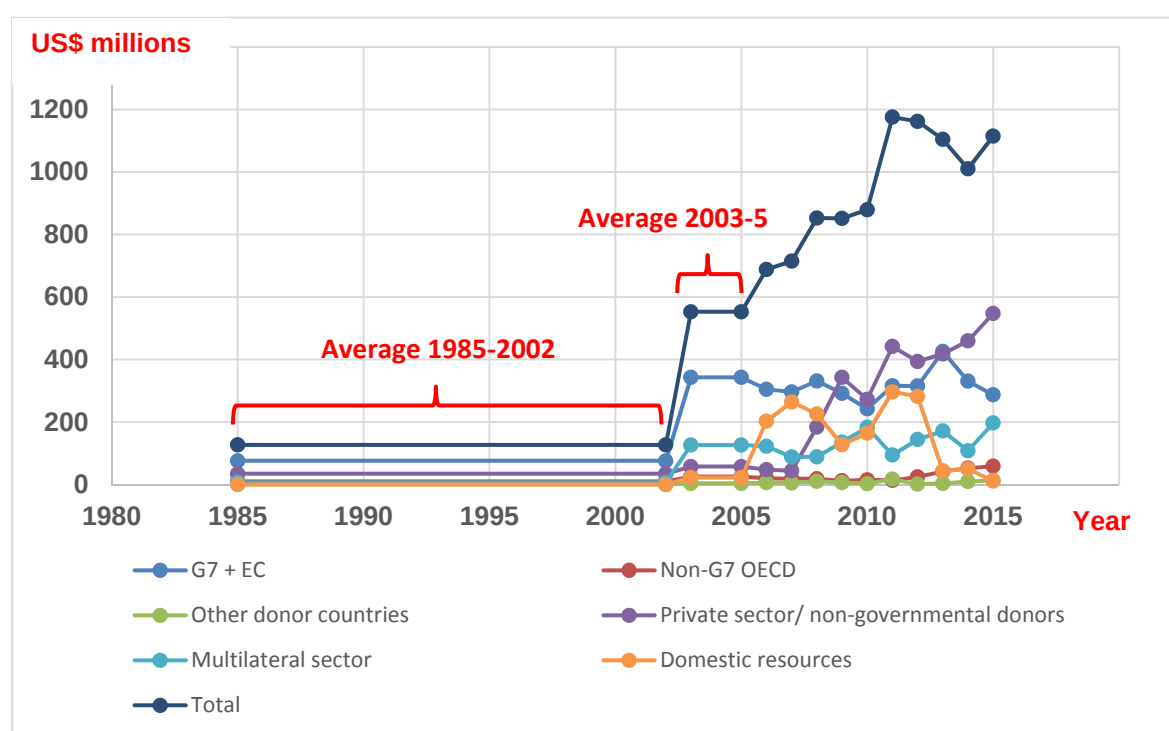
2.3 The intersection of finance, political support and commitment

Financial support to polio eradication – whether at the multilateral level to the GPEI or bilaterally to countries – is often combined with political support, which may be directed through a diversity of European and global channels and within countries. Both the financial and political support offered by European actors are inextricably linked with political commitment and policy positions. This section summarises the findings and conclusions on these inter-linked areas, with an emphasis on the last decade, on the ways that changing contexts have shaped the support and on attitudes of European actors to current conditions and future prospects.

2.3.1 Financial and political support for polio eradication

Financial overview

Overall funding for the GPEI⁷⁹ from the 1980s to 2015 is summarised in **Box 2**. The global total of all contributions and pledges amounted to US\$ 13.5 billion for the whole period 1985-2015. The annual totals rose to a peak of US\$ 1.18 billion in 2011 and subsequently fell back to a low of US\$ 1.01 billion in 2014, rising again to US\$ 1.11 billion in 2015. The most prominent single donors over the whole period included the BMGF, which contributed over US\$ 2.5 billion and Rotary International, which contributed almost US\$ 1.5 billion. The G7 and EC was a major donor group, raising its combined contributions to an average of c. US\$ 340 million/year in the 2003-5 period (but only a small proportion of this came from the EC – see below) and reaching a new peak of US\$ 426 million in 2013; their combined contributions up to 2015 totalled US\$ 5.53 billion with the USA (government funding channelled through CDC and USAID)⁸⁰ responsible for US\$ 2.61 billion of this.

Box 2: Contributions to the Global Polio Eradication Initiative, 1985-2015²**Europe's contributions**

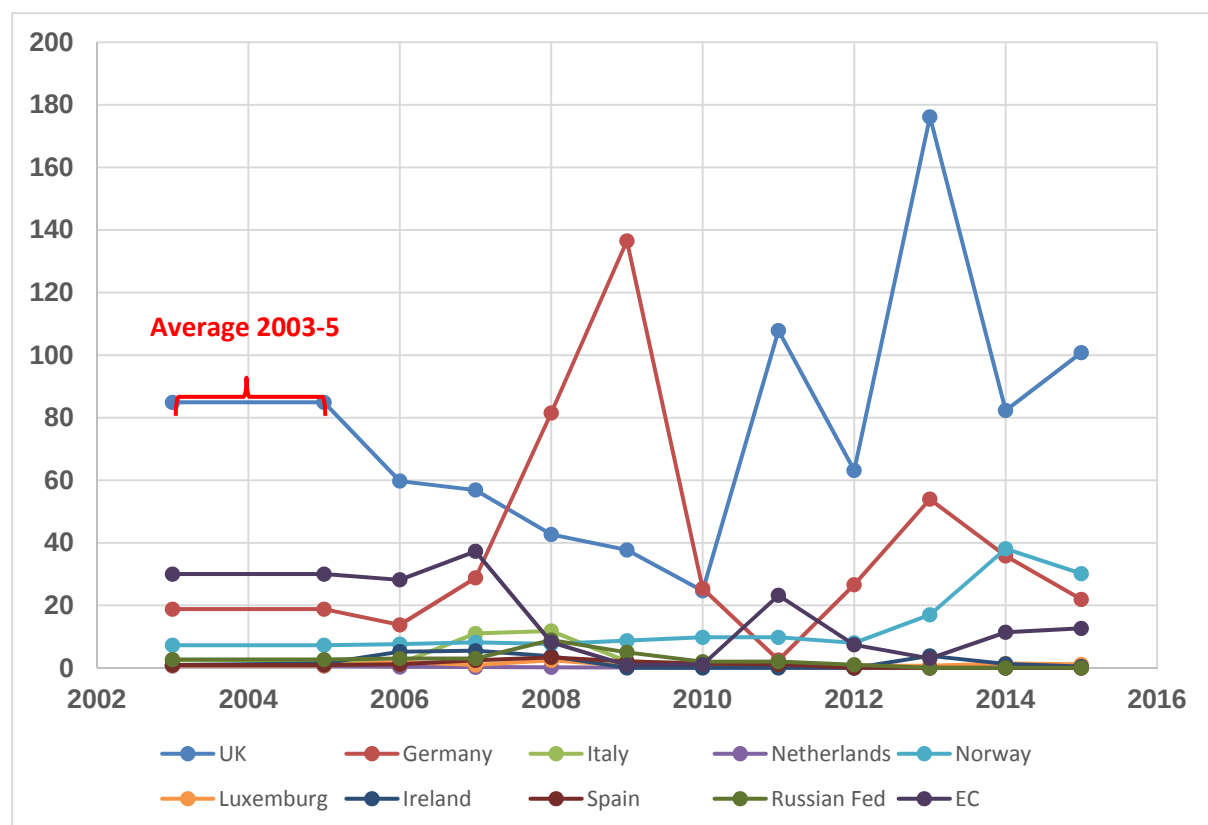
Europe's combined (EC plus individual European countries) financial contribution to the GPEI has amounted to US\$ 2.7 billion (19.7% of the total) in the period 1988-2015, while its overall contribution to the GPEI in the last 10 years, 2006-2015, was US\$ 1.6 billion (16.5% of the total for that period). The change in proportion partly reflects the entry of the BMGF, whose large annual contributions were mostly during this recent period. If the BMGF component is subtracted, Europe's contribution to the remainder of the global total was 24.3% for the whole period and 22.2% for the years 2006-2015. Thus, Europe's contribution was, in comparable terms, smaller in the most recent ten years than over the whole period since the GPEI began – despite the work done to raise support for the GPEI Endgame and Strategic Plan 2013-2016.

Notably, the region currently accounts for about a quarter of world GDP and more than half of world ODA. Thus, Europe's contribution has been commensurate with its share of global GDP – but a much smaller proportion of its very large share of global ODA. This raises the question: why has a region giving extremely generously to ODA in general made the political choice not to give more of its support to polio eradication? The response to this question must be framed in the context that, there is great diversity of approaches to polio among European centres of power and circles of influence, regarding both their financial contributions and the political reasons behind their extent and geographical focus of support, and the contribution and approach of each entity must be analysed individually.

² Graph data from: GPEI (2016a). Contributions and Pledges to the Global Polio Eradication Initiative, 1985-2019. http://bit.ly/GPEI_Pledges

Box 3 illustrates the contributions from the EC and the nine largest donors among European countries (the UK, Germany and Norway have been by far the largest donors, followed by Italy, Russian Federation, Ireland, Luxemburg, Spain and Netherlands) since 2003. In the ten year period 2006-2015, these leading European sources contributed US\$ 1.52 billion, while seventeen other European countries contributed a total of US\$ 0.05 billion giving a total of US\$ 1.57 billion, which corresponded to 16.4% of the total contributed from all global sources.

Box 3: GPEI funding by EC and main European country donors, 2003-2015³



³Graph data from: GPEI (2016a). Contributions and Pledges to the Global Polio Eradication Initiative, 1985-2019. http://bit.ly/GPEI_Pledges

As a result of the European crisis, among European donors there has been a shift of political attention away from long-term issues such as polio to new issues such as migration and the refugee crisis.

[For Europe, politically] there has been a clear shift away from a more traditional approach to development to putting funding into security policy. For polio that might not be only negative, when looking at who are the last endemic countries. Those countries overlap with security problems. So that's not only a challenge, it can also be an opportunity in this sense.

Interviewees

There was generally a sharp decrease in contributions in the aftermath of the 2008 financial crisis, but a number of countries, including UK, Germany and Norway, markedly increased their contributions again from 2010-11 and Luxemburg raised its from 2013. Ireland returned to making contributions in 2013 after 4 years of not funding the GPEI and the EC raised its contributions again from 2014, but Italy, Spain and Netherlands provided no funding for the Initiative in the period 2012-2015 and the Russian Federation none in the period 2013-2015.

Within the period of the current Strategic Plan 2013-18, full data on annual pledges and contributions is available for 2013-15. In this period, the EC and nine donors illustrated in Box 3 contributed a total of US\$ 592.04 million. Eight other European countries contributed a total of US\$ 3.74 million in this period, giving a total of US\$ 595.78 million. This corresponded to about 18.4% of the total of US\$ 3.23 billion contributed from all global sources.

The Budget for the Strategic Plan 2013-2018 was set at US\$ 5.5 billion and subsequently increased by a further US\$ 1.5 billion when the target date for interrupting all WPV transmission was moved from 2015 to 2016. Contributions from the European region will be critical in helping to meet these GPEI funding requirements.

However, in the context of pressures from factors such as the economic downturn (see section 1.4), some governments have been examining their ODA contributions to see where possible cuts might be made. This has been particularly the case in Europe, where countries have been faced with unprecedented numbers of migrants and refugees as a result of the conflicts in the Middle Eastern countries from which they flee. While a clear case can be made for the funding of the endgame and legacy, there have been worrying signs of reticence of some governments that have traditionally been strong supporters of GPEI to sustain their support.

To date, there has been little attention to financing subsequent to the certification of global eradication, which it is hoped will be in 2019. As an example, the UK government has been firmly committed politically and financially to polio eradication and to long-term support to countries so that they strengthen their own health systems and expertise on disease surveillance. Their current commitment goes to 2019, as does that of Norway. An IMB report

is expected on the ongoing commitment needed post eradication. Views expressed by European sources in this study included:

- ***“The main challenges in the polio endgame lie through and beyond certification.”*** *“Who will continue to fund polio vaccination and surveillance once the Global Certification Commission has certified three years with no polio? How can we keep the commitment going and also get others on board?” “This is a governance issue where we need sustainability. There is a great fear that after announcement of three years of a polio free world there will be donors fatigue and that they will invest their money somewhere else.” “What is needed at this stage is to have presidents and MPs to really commit themselves on polio eradication.” “When it comes to surveillance systems, countries financing them do it through strengthening health systems.”*
- ***“Creativity will be necessary to develop new financing sources as the GPEI comes to a close and responsibility shifts increasingly to country level.”*** *“As well as efforts to retain the interest and support of traditional donors, opportunities will have to be exploited to secure loans from, for example, the Islamic Development Bank, Asian Development Bank and Shanghai Development Bank.”*
- ***“Transparency and a convincing case for value are needed.”*** *“It is very difficult to track that money. We would like to see improved accountability throughout the programme and reporting of that to the donors. Because we are accountable to our parliament.” “Finance, Foreign and Development Ministers may need convincing that money assigned for polio should not be diverted to other areas such as coping with natural disasters, sudden health crises or UHC.” With the delay from 2018 to 2019 for certification, “the GPEI budget has had to be increased and we must ask what this means for different partners”. Arguments include:*
 - *“From the financial perspective, legacy planning sees polio staff and assets not only being used in the polio endgame. – showing that a vertical programme can have a major cross-cutting benefit.”*
 - *“Polio eradication assets can serve as a platform to ensure health security in the future, but the transition must not be so abrupt that it weakens eradication and resilience.”*

European Union/Commission

The GPEI's summary of financing since its beginning lists EC contributions over the period totalling US\$ 251 million. According to an EC source, this does not represent regular EC funding directly allocated to the GPEI *per se*, but funding provided to WHO as polio-related grants. The current criteria for EU funding of global initiatives were set out in the programming document Global Public Goods and Challenges, the outcome of the analysis being that only the Global Fund and Gavi would qualify among the many candidates in the health sector.⁸¹ This again illustrates the extent to which support for the GPEI is determined by political decision-making.

There are also direct EC bilateral contributions to country support which may include polio programmes, and which are agreed with countries that have prioritised the health sector in support agreements. As announced⁸² by EU President José Manuel Barroso at the Global

Vaccine Summit in April 2013, *“Regarding polio eradication as such, we intend to continue our substantive health sector support to 2 of the 3 countries where the wild-polio-virus unfortunately still circulates: I can announce today that the European Commission plans to set aside, for the 7 years to come, over 1.3 billion euro of aid for Nigeria and Afghanistan, and that in our dialogue with these partners countries we have proposed to make health one of the three key sectors of development cooperation”*.

The GPEI summary reports effective EC contributions averaging just under US\$ 30 million/year in the period up to 2006 and a rise to US\$ 37 million for 2007. The contributions then collapsed to c. US\$ 8 million in 2008 and US\$ 1 million in 2009 and 2010 and after a spike to US\$ 23.21 million in 2011 fell back to, respectively, US\$ 7.39 and 3.05 million for years 2012 and 2013. It then increased again to US\$ 11.38 and 12.63 million in 2014 and 2015 (**Box 3**).

These very variable sums appear to have been in response to a variety of internal and external forces, including the economic downturn from 2008. The upward trend in the last few years follows the Global Vaccine Summit held in Abu Dhabi in the United Arab Emirates (UAE) in April 2013. EU President Barroso’s speech to the Summit noted the EU’s pride in being part of the coalition to end polio in the context of its position as the largest donor of development aid in the world and as a supporter of a comprehensive approach to addressing health systems and social issues that impact on health. He gave examples of the EC’s contributions to supporting health and immunisation systems in Afghanistan and Nigeria, as well as to Gavi’s work. Barroso committed that, even in the admittedly financially difficult times, the EU would keep its leadership on development cooperation, including health, and announced very specific and immediate action in which they would join partners in giving further support to the GPEI, with €5 million already ‘implementable’ in 2013. The EC committed US\$ 6.5 million at the Global Vaccine Summit and by April 2016 had actually provided US\$27 million to the GPEI.

As was the case with the 2013 Global Vaccine Summit, high-level political conferences can be a powerful tool to stimulate increased contributions and often reflect the intersection of health and foreign policy issues. For example, the EC’s announcement of €3 million in humanitarian funding for a UNICEF/WHO-led nationwide polio vaccination campaign in Syria can be linked to the February 2016 London donor’s conference on the Syrian crisis⁸³ and the May 2016 Security Council debate on Healthcare in Armed Conflict.⁸⁴

Coordinated political lobbying can also be a very valuable tool in stimulating support. The UAE lent its voice to a call for more polio funding and a film entitled *‘Every Last Child’* about Pakistan’s fight against polio was produced by Image Nation Abu Dhabi. The UAE-European Parliament Friendship Group, in collaboration with the UAE mission to the EU, hosted a polio awareness event in Brussels in May 2015 at which the film was shown and special screenings of the film were held across Europe, aimed at key decision-makers and those holding the purse strings of foreign aid, in the hope encouraging increased European polio funding.^{85,86} The Rotary International representative at the UAE-European Parliament meeting said that they hoped the EU would deliver €200 million over the next 4 years.

In June 2015, the European Parliament announced the passage of a written declaration in support of the global effort to eradicate polio.^{87,88} The declaration cited the health and

financial benefits that would flow from completing eradication and the value of polio assets and infrastructure that had been built up and that had contributed to the response to the Ebola crisis. It called on the Commission to make a continued commitment to supporting polio eradication as a priority in its future development actions, and to allocate appropriate levels of funding to polio vaccination campaigns and surveillance over the next four years. More than 400 members of parliament signed the declaration. Subsequently three new amendments were passed by the European Parliament designed to increase funding in the EU for polio elimination.⁸⁹

The EC contributes through diverse funding channels, including humanitarian aid and civil protection, to aspects of polio eradication. For example, in December 2014, €35 million was committing to sustainable routine immunization and €20 million to polio eradication in Nigeria, where the EU project team leader noted the importance of focusing on governance issues.⁹⁰ Recent country support to polio immunization has included providing €1.2 million to support a third round of polio vaccinations in Ukraine following the start of an outbreak in August last year.⁹¹ The EU's 2014-2020 Multi-annual Indicative Programme of cooperation with Afghanistan, contributing an average of €200 million per year with 25% allocated to the health sector, does not mention polio but includes vaccination as one of the areas of focus.⁹²

The European Parliament has occasionally issued expressions of political support for countries at the front line of polio eradication, such as the passing of a resolution in 2013 supporting Pakistan's endeavours to eradicate polio and protect medical aid workers.⁹³

United Kingdom

We think polio investment is a good investment and the public understands this... and DFID know they have the backup of the Prime Minister and the ministers in doing that.

Interviewee

The UK has been the largest donor among countries in Europe (and second only to the USA in the world), having contributed almost US\$ 1.4 billion dollars to the GPEI up to the end of 2015. The Department for International Development (DFID) serves as the channel for funding. In its 2013 Business Case,⁹⁴ DFID justified why it should continue to support polio eradication in the 2013/14 to 2018/19 period with a package totalling GB£ 300 million (c. US\$ 430 million at the then prevailing exchange rate). It pointed to the leadership role that the UK could play within the G8 and GPEI, noting that it was *"instrumental in maintaining commitments from other G8 members (particularly Germany)"*. It operated a matching challenge fund mechanism in 2011 and 2012 also provided incentives for other donors, both public and private sector, to contribute to the global eradication effort.

In the current period, the UK's continuing strong commitment to supporting the polio eradication initiative has been attributed by interlocutors to a combination of recognition of the global public good and of the value for money it represents and confidence in the partnership which was operating under very difficult circumstances in the last endemic countries. Comments included: *"I think it has been one of the major successes of the polio programme doing incredibly well in an incredibly challenging environment. Vaccinators are putting their life at risk. Politically, the programme has been good in that area"* and *"It is a*

unique situation, a unique programme. The UK is constantly surprised and impressed by the action taken in this extremely difficult environment”.

The DFID Annual Review⁹⁵ in September 2015 noted that the UK was committed to providing support for global polio eradication over the six years of the Strategic Plan. The document recognized that the endgame had been delayed by one year and that further funding to support this should be considered. Recommendations and comments in the review provide insights into the extent to which **the UK has used its both its donations and political influence to strengthen diverse aspects of the polio eradication initiative**, including the following:

- The GPEI was seen to be “*doing a good job and achieving stretching milestones in extremely challenging circumstances*”.
- DFID Global Funds Department should review whether UK funding in addition to the £ 300m investment was needed, based on likelihood that GPEI would be one year behind schedule, with the last case of polio globally likely to be in 2016 rather than 2015. At the appropriate time and dependent on the response of other donors, the UK should consider whether to make an additional contribution to GPEI to ensure that global polio eradication is achieved.
- The UK should ensure it used its place on the Finance and Audit Committee to follow up on the recommendations of the Internal Audit Reporter 2014 and to analyse and discuss WHO’s system for assurance and for dealing with misuse of funds and whether separate assurance could be provided through GPEI without the agreed WHO procedures for reporting through the WHA.

Prime Minister David Cameron received the Rotary International Polio Champions Award in 2012.⁹⁶ As well as the UK’s own direct contributions to the polio eradication initiative, it has worked with other Commonwealth countries to strengthen the initiative financially and politically and to use the occasion of Commonwealth Heads of Government meetings to bolster political support.^{97,98} Many members of both Houses of Parliament have given their support to polio eradication specifically⁹⁹ and as part of broader support for global health.¹⁰⁰

The extent to which the UK’s decision to leave the European Union (‘Brexit’) will impact on its support for the end stages of polio eradication and the post-eradication follow-on will probably remain unclear for at least 1-2 years. It is likely to be influenced both by the terms of the exit that are negotiated with the EU and new political positioning in response to a range of domestic pressures. For the time being, at least, there appears to be continuing commitment by Prime Minister Theresa May to sustaining the contribution of 0.7% of GNI for ODA, which amounted to £11.4 billion in 2015, but the value of the pound has dropped markedly and the economy has slowed appreciably since the Brexit vote, which will reduce the size of this contribution in dollar terms. And even then, early comments by the new Secretary of State for International Development, Priti Patel, have suggested that there may be a strong shift in the use of ODA towards fostering trade, as well as an even greater emphasis on assessing ‘value for money’ in the UK’s support to multilateral organizations.^{101,102,103}

There will also be an impact on the amount of the EU's funding for ODA when the UK leaves, since about £800 million of the UK's ODA is currently channelled through the EU each year.¹⁰⁴

Germany

Germany's total contribution to the GPEI up to 2015 has amounted to US\$ 564 million. After rising steeply to US\$ 136 million in 2009, the contribution fell precipitously in 2010 and then rose again from 2012 to a peak of US\$ 54 million in 2013 and has subsequently been falling again. An interviewee commented that Germany's current funding for polio could not be expanded due to the magnitude of the refugee crisis.

Overall, key factors in Germany's approach to polio eradication appear to be high level political commitment and a deliberate selection of channels of funding. Germany balances support it gives to global health through multilateral channels, including GPEI, Gavi and the Global Fund, with bilateral support which is sometimes preferred for targeting and in order to couple financing with a strong German technical assistance component. According to comments in this study, in 2016 Germany was persuaded (by members of the POB) to pledge funds for polio eradication in Pakistan (as well as for Afghanistan and Nigeria) at a time when they were thinking of pulling out of the health sector in Pakistan as their general country strategy was to encourage Pakistan to be more responsible for its own health services. This highlights some of the key strategic political choices that are inherent in support for polio eradication by European actors; and the imperative of having to sustain support in achieving the final goal of a global public good (section 2.5.3).

Political support for polio eradication has come from Chancellor Angela Merkel (who received the Rotary International Polio Champions Award in 2008)¹⁰⁵ and the German Cabinet,¹⁰⁶ as well as other politicians. The Chancellor has promoted polio eradication within the G7 group and is expected to do so within the G20 when Germany hosts it in 2017. Writing in June 2016, German MP Stefan Rebmann¹⁰⁷ noted that the German government has been a strong and reliable partner to the GPEI since its beginning and was the first donor to pledge an additional €100 million to finance the GPEI Endgame Strategy. He also called for the EU to lead the way by encouraging its members to increase their commitment to polio eradication and create a blueprint for taking on tomorrow's threats to global public health.

In parallel with the support to the GPEI, Germany has made substantial direct inputs to polio eradication at the country level through the channelling of funds from German Federal Ministry of Economic Cooperation and Development (BMZ) through KfW (originally founded in 1948 as the Kreditanstalt für Wiederaufbau and now serving to promote sustainable economic, social and ecological developments in Germany and worldwide). For example, € 96.5 million was contributed for polio eradication in Nigeria from 2004 to 2015, with some funds earmarked for measures to make the health workers more secure in high-risk areas such as those affected by Boko Haram. KfW has also supported polio eradication in Afghanistan and Pakistan.^{108,109}

A German interviewee commented that *"For now the funding is secured until 2019 for Pakistan and for 2017 for Nigeria and Afghanistan. What we would also like to see is a joint approach, or assessment of GPEI with Gavi and with all these new global health security*

initiatives and actors, all these vertical programmes and WHO –because we think there is potential duplication and overlap in the system”.

Norway and the Nordics

The total Norwegian contribution to the GPEI in the period 2003-2015 was US\$ 166.7 million. The donations, which had been running at US\$ 7-10 million/year from 2003-2012, increased sharply to US\$ 17 million in 2013 and US\$ 38.1 million in 2014, sliding back to US\$ 30.15 million in 2015, evidently as a result of a currency depreciation. At the Global Vaccine Summit¹¹⁰ in Abu Dhabi in 2013, the Norwegian government announced that it intended to contribute NOK 240 million (then US\$40 million) for the Global Polio Eradication Initiative (GPEI) in 2014, a sharp increase from planned contributions of US\$8 million (NOK 50 million) in 2013, and to sustain this level through to 2019.¹¹¹ However, the Norwegian kroner declined in value against the dollar by about one third between 2013 and the end of 2015. Norway's pledge to the GPEI is currently¹¹² shown as US\$ 31.67 million per year for each of the years in the period 2016-2019.

Norway's approach has been framed by a number of participants, including leading global health figures from the country, in the context of its long-standing and well-recognised efforts to support sustainable development, poverty alleviation and peace building and to promote good governance, human rights and civil society as foundations for development.

Norway has been a long-standing supporter of Gavi, viewed as an instrument to help achieve broader access to vaccines generally, while polio was seen as a narrower concern. Norway proved c. US\$ 850 million, or nearly 10% of Gavi's total, in the period 2016-2020. It has chosen to use Gavi as an instrument to channel funding linked to polio. In 2014 Norway committed NOK 1.14 billion (USD 155 million) for the period 2014-2019 to support Gavi's effort to complement GPEI's work, strengthening routine immunisation and introducing IPV in Gavi-supported countries.¹¹³ The political background was highlighted by a Norwegian interviewee, *“Norwegian effort has been linked to making sure vaccines reach everybody, but not sort of a health systems thinking ... Polio was pretty isolated from other things Norway was doing.”* There was an absence of *“any discussion between the Ministry of Health and Ministry of Foreign Affairs on how high the focus should be on polio eradication.”* *“It's been accepted that we need to do this, but it's not been seen as a major push”.*

An analysis¹¹⁴ of Norway's approach to aid has been framed in the context of 'Nordic exceptionalism', a term characterising the idealism underlying the unique role of the Nordic countries in their political and financial efforts in peace, sustainable development and poverty alleviation, which has had a powerful effect globally. This was exemplified by high levels of development aid, with poverty alleviation as the overall objective. Nordic politicians also invested time and resources in peace negotiations, SDGs and gender equality. In the 1980-90s, as a group Sweden, Denmark, Finland and Norway pursued a common Nordic agenda. Sweden met the UN target of contributing 0.7 percent of GNP/GNI¹¹⁵ to ODA as early as 1974, with Norway following in 1976 and Denmark in 1978 and for the past 40 years ODA from the three countries was well above 0.7 percent target, closer to 1 percent. All of Norway's ODA was untied in 2014. Meanwhile, Finland struggled to match the other Nordics and, although they reached 0.8 percent in 1991, they were unable to maintain this. The Nordics have also been strong advocates for the 'social sectors' or 'soft policies', e.g. health, education and gender equality, while promoting good governance, human rights and civil

society as a foundation for development. The Nordics, particularly Sweden and Finland, allocated a substantial portion of their aid through the EU. Due to their EU membership, Denmark, Sweden and Finland have also prioritized influencing EU development policies and as a group they were influential in the IMF and World Bank. Other donors, such as Luxembourg, the Netherlands, the UK and Ireland, joined the Nordics in a larger 'like-minded' informal grouping, often referred to as "Nordic plus".

However, GPEI contributions from Denmark ceased in 2006, those from Finland in 2010 and those from Sweden were interrupted in 2006 and it then made only one further donation (US\$ 0.7 million in 2013). Particular concern was raised¹¹⁶ when, in October 2015, major amendments to Norway's national budget were presented by the Norwegian Government in their plan for financing the expected additional costs related to the massive increase in refugees coming to Norway, which had already begun to impact^{117,118} on the 2015 ODA budget. In the proposed revised aid budget, while an additional NOK 1.2 billion for ODA was added to the Government's original budget proposals, going beyond the 1 percent of GNI mark, it also increased the amount of ODA dedicated to covering Norway's reception of refugees from NOK 1.9 billion to NOK 7.3 billion, representing an increase from 5 percent to 21 percent of the aid budget going to refugee costs inside Norway. This would impact most on civil society organizations, while cutting other allocation as well, including NOK 697 million for the UN system.

This prompted a question as to whether 'Nordic exceptionalism' might be coming to an end¹¹⁹ and Norway's policies shifting from their focus on global public goods to a greater emphasis on national self-interest, with aid to be used more to respond to national security threats and to coping with the mounting refugee crisis in Europe.

A Norwegian source¹²⁰ commented in December 2015 that, after much debate and massive protests from civil society, the first suggested dramatic cuts to the 2016 ODA budget had, to a large extent, been recovered. The cuts had mainly been reduced by finding money outside the development aid budget, mainly through increased taxation ('green taxes') and added demands from state companies. Nevertheless, a much larger allocation than previous years has been given to handle the increased numbers of refugees also expected in 2016. The humanitarian aid budget has also seen a large increase, partly at the expense of long term development. Health and education continued to be the main priorities for the government. Global health had a budget of NOK 3.055 million, an increase of NOK 144 million from 2015. Gavi¹²¹ and the Global Fund¹²² continued to be prioritised, with the sustained funding levels. Norway supports the polio eradication initiative partly through Gavi (NOK 140 million) and partly through WHO (NOK 50 mill). The commitment is NOK 1.14 billion in the period 2014-19.

Norway has also made direct contributions to polio eradication in a number of countries, including support for programmes in Afghanistan, Nigeria and Pakistan¹²³ and, together with BMGF and UK, has assisted the introduction of IPV in 72 Gavi-supported countries including Afghanistan¹²⁴ and Pakistan.¹²⁵

Rotary International in Europe

Rotary International's involvement in polio eradication began modestly with support to the Philippines national immunization program in 1979-1980. Subsequently, at a global level,

Rotary International has had a major influence on polio eradication, beginning with its own initiatives to raise money and fund eradication in the 1980s, its efforts to bring about the initiative that became the GPEI, its constant partnership in the GPEI since then, its direct contribution of c. US\$ 1.5 billion, its influence in bringing in the BMGF as an even larger donor, and its political and practical work to heighten support and increase effort in both donor and polio-affected countries and at the level of global groupings such as the G7 and regional ones such as the European Parliament.¹²⁶

Branches of Rotary International in European countries have contributed in many of these areas of the organization's 'PolioPlus' campaign, including especially fund-raising and stimulating political commitment.¹²⁷ Among its innovative contributions, Rotary International has given high public recognition to leading politicians supporting the GPEI, including a number from European countries and the European Parliament. It has also applauded efforts by entire countries. At the end of 2015 it congratulated Ireland for its support of a polio-free world, citing the efforts of several Irish politicians in the national and European parliaments, the raising of US\$1 million by the more than 2000 members of 72 Rotary clubs in Ireland and the voluntary work of Irish Rotary members travelling abroad at their own expense to immunize children against polio in endemic and high-risk countries.¹²⁸ However, one European country representative of Rotary International noted that local members were sometimes unaware that polio is still an issue and showing impatience to move on, asking "what's next".

Others: political support

While attention tends to focus on major donors to the GPEI and the political influence they exert alongside their financial allocations, the contributions of a host of other players is also significant. A number of countries engage in lobbying, encouraging political will and governance activities. For example, the **Principality of Monaco** has been a long-standing supporter of polio eradication and currently its Ambassador in Geneva co-chairs the PPG. Encouraged by civil society groups, **Malta** has used its opportunities to influence Commonwealth leaders to support polio eradication.¹²⁹¹³⁰ There are smaller sums collected and donated by a range of charities and foundations (e.g. the **European Football for Development Network** has funded 1 million doses of vaccines for UNICEF, including for polio, measles and typhoid¹³¹), as well as the efforts of the **European Polio Union**¹³² and its members, which also help to raise public awareness.

2.3.2 Political support and influence directed to polio-affected countries

Transitioning needs to be done at country level. European donors should be involved at the country level.

Interviewee

Several study sources commented that European actors can help encourage political will in countries with endemic polio or weak resilience post-eradication. They can work with countries where the association of the polio eradication initiative with 'Western plots', fuelled by militant causes, extremist religious attitudes and the misuse of immunization programmes as a cover for anti-terrorist or ant-insurgent activities, has created violent antagonism to vaccinators and encourage refusals of vaccinations. In these difficult situations they can

collaborate with governments in communication, community outreach, efforts to build local trust and dialogue with religious and community leaders; and where NGOs have greater access on the ground they can work directly with them, too. In those places where the development agencies of European countries have representatives located, these can play important roles not only in supporting specific initiatives on a bilateral basis but also in forming coalitions of locally based development assistance partners to reinforce the political will and effort directed to polio eradication and resilience. This may challenge European development agencies to consider playing a role in a countries where they do not specifically have a health representative, to take a cross-sectoral approach to including polio eradication as an objective – the arguments in favour including the wider public good benefit of eradication and of the transition of polio assets to help attain health systems strengthening and UHC.

The power of what can be achieved by engaging in the political process in the last polio-endemic countries was illustrated by examples cited by interviewees. Arranging ‘days of tranquillity’ was a turning point for countries in conflict settings. In Nigeria, the governor of a state in the north had been helped to get out of something he had started. In Afghanistan, securing agreement between the Taliban and international actors was critical. Examples were also given of where European actors can now contribute. While financing was considered to be by far the most important thing, it was also considered that there are very important political opportunities for European countries to engage in dialogues, e.g. increasing pressure on Pakistan and Afghanistan for eradication and maintaining pressure on Nigeria for resilience. A UK interviewee commented that *“the most important factor by far is the development of political commitment and will in the country – as demonstrated by India when it took decisive action and stopped transmission. The relationship between the global community and local communities is the real governance issue. It is important that nations remain in the lead on governance issues, with the support of international partners.”*

This political support can be reinforced and synergised by local technical assistance, including expertise in social mobilization strategies and the use of local social data (where GPEI has been criticised by IMB for its weakness) and assistance with advanced technologies such as portable labs and refrigerators and the use of geographic information systems and GPS for mapping and tracking polio, which was helpful in Nigeria.^{133,134,135}

Switzerland announced at the PPG in June 2016 that it was giving CHF 1 million for transition planning in Africa.¹³⁶ Switzerland considers it essential that health systems be strengthened and has learnt the lesson of mutual reinforcement: *“investing in polio eradication strengthens health systems – investing in health systems ensures polio eradication. So the Swiss position is to say, show us how you can integrate those people, their salary is being paid at the moment by this hugely expensive project, and how can you integrate them into your national health system. And that is why we are calling it a kind of modelling process.”*

One of the major challenges the overall partnership currently faces concerns the extent to which it is able to sustain support for the GPEI programme and momentum, not only for finishing the eradication mission but for an extended period beyond. As interlocutors in the study observed:

- *“Sustaining political commitment begins with leadership from heads of government and requires embedding responsibility and accountability in the system – for example by including indicators in the performance appraisals for governors.”* Political commitment must also be sustained across changes of government and beyond any immediate high-profile campaigns or emergencies. *“The change of government in Nigeria led to a worrying decrease in commitment, illustrating a lesson of history that when pressure disappears, commitment to health systems and public health also wanes.”*
- Is there an inherent risk in the transitioning and integration of polio assets that it will encourage a waning of commitment to polio eradication? There is already an impression in some quarters that ‘the job is done’ – that polio is no longer a major issue as the brink of eradication has been reached and attention (political leadership and oversight, pressure on programme managers, finances) can be safely moved to other priorities. This couples with a lack of understanding of the critical importance of building and sustaining resilience once WPV cases cease to appear. The requirement for large-scale and geographically wide-spread IPV vaccinations will remain for many years (if not indefinitely) in order to prevent re-emergence of the disease. One approach to trying to sustain the important assets and commitment is through emphasizing close inter-linkage with other, related priorities at national and global levels, so that polio is dealt with as part of a bigger package of issues.
- *“The process of transitioning will not be quick: it will require long-term transition planning and at least a 5-10 year time frame to build capacities and achieve the transition. This is not only an issue for polio but for global health generally and for institutions such as Gavi and the Global Fund – joint thinking is needed on how to make the assets of polio available, with full transparency, and support their uptake over the long term.”*
- *“Countries are part of the polio partnership”* and country ownership is strongly emphasized in the polio endgame and transitioning process. There are a number of issues for them: sustaining the achievement of polio eradication requires establishing systems to deal with outbreak response and stockpile management, ensuring that sufficient IPV vaccine is available for the transition; implementing the lessons learned, when it is hard to reach and gather the knowledge and knowhow from diverse populations. These need to be transitioned into strengthening health systems, while there will be an inevitable decrease of the resources

It is evident that, in moving forward, the three strands – eradication, transition and resilience – are inextricably linked and cannot be dealt with separately, either from a financing or a political perspective; and they need to be dealt with in a collective, coordinated and coherent way by the key global actors and development partners working with countries.

2.3.3 The need for stronger coordination of European effort

As noted in section 2.1, 'Europe' comprises a complex series of individual entities and groups that overlap and interconnect. In a number of dialogues and interviews, participants commented that these centres and circles of influence are not well coordinated with respect to polio eradication.

The lack of effort to develop stronger coordination, coherence and synergy among European actors may have been one of the failings in the polio eradication story

Interviewee

There were several ideas emerging from the interviews for **what more could be done within different circles of influence, aiming to bolster political will at home, in Europe and in polio-affected countries:**

- **Nationally**, there is not always coherence between different government departments with responsibilities for overseas aid, foreign policy, global health. Models of inter-departmental coordination in global health from Switzerland, Germany the UK and elsewhere could be a starting point for developing greater coherence within European countries on support for the polio endgame and legacy, in particular as they bring together health, foreign policy and development actors.
- **At the regional level in Europe**, a like-minded group could be formed to exchange information and views, coordinate action and draw others in. It could make efforts to act in concert through EC and other European channels such as the WHO EURO.
- **In countries receiving support**, European development assistance providers could ensure that their country representatives are on board and that they also meet/coordinate with partner agencies and with local actors.

2.4 Transitioning, legacy and beyond

2.4.1 Legacy and transitioning: national and global assets

The case for increased European contributions needs to be made in terms of the legacy benefit.

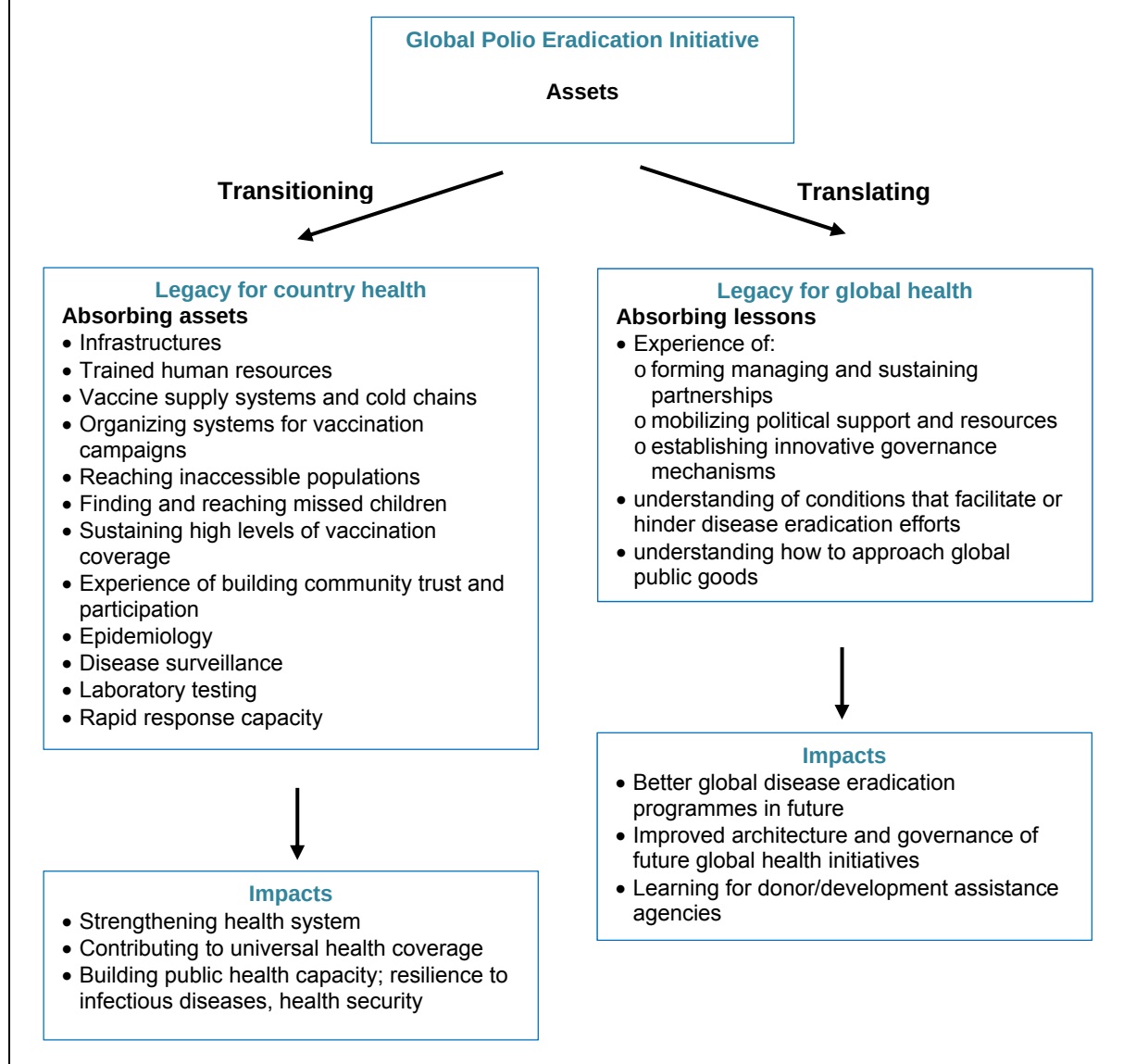
The entry point for the legacy programme is routine immunization.

We need to be integrated as much as we can. We want to create a sustainable infrastructure that is capable of producing a health system that can deliver at least the 11 recommended WHO vaccines. It is therefore very important that the polio programme thinks bigger than polio – it needs to be thinking routine immunization, thinking big and not simply vertically.”

Interviewees

In practice, the interpretation of ‘legacy’ has increasingly focused on ‘transitioning’, with the intention that assets that have been accumulated during the 3-4 decades of the global programme will be transferred to country ownership and absorbed into national health systems. The assets of national benefit include infrastructures, trained human resources, vaccine cold chains and systems for organizing vaccination campaigns, learning to reach inaccessible populations and sustain high levels of vaccination coverage, finding missed children, epidemiology, disease surveillance, laboratory testing and rapid response.

However, these assets of national benefit form an important part of the wider legacy¹³⁷ of polio eradication, which also includes assets that can be of global benefit. These include lessons that can be ‘translated’ into learning for global agencies and development assistance partners – such as about forming and managing partnerships, mobilizing political support and resources and establishing innovative new governance mechanisms; and knowledge of conditions that facilitate or hinder disease eradication efforts. The legacy therefore needs to flow into both (a) the strengthening of health systems as countries work towards the SDGs and the achievement of UHC; and (b) informing and strengthening global health architectures and governance and future global disease eradication efforts (Box 4) – as emphasized by many interlocutors in this study.

Box 4: Dimensions of the legacy of polio: transitioning and translating**2.4.2 Transitioning to the national level**

We really need to stop thinking about specific diseases and think about health interventions and people-centered approaches. That means connecting with issues related to the SDGs and financing. But it also means much broader impact – considering a different programming approach and how national levels should be structured.

I don't think we should oversimplify or be naïve that a kind of organisation with a public-private partnership model which has a clear goal, a clear disease, can be transferred into the SDG context.

German interviewees

The GPEI Endgame and Strategic Plan 2013-18 includes the transfer of 'polio assets' from the GPEI to countries, with the aim of preserving the assets and using them to strengthen national health systems and reinforce the movement towards UHC which form part of the health SDG.

During their deliberations on a legacy planning update¹³⁸ in June 2015 the PPG noted the steps that had been taken, including finalizing the transition guidelines and toolkit; the development of communications material and the adjusted planning timeline, with a deadline of the 3rd quarter of 2016 for legacy plans; and an updated structure for the Legacy Management Group (LMG), including increased regional representation; stakeholders beyond GPEI (e.g. Gavi, Task Force on Immunization in Africa) and formalized oversight (IMB). The PPG suggested ways in which donors could support transition planning, e.g. advocacy with national/state governors and key stakeholders to prioritize transition planning; contributing to global and country-level discussions; and providing funding and/or in-kind support for a rigorous transition planning process. The LMG, set up by the POB, reports to the Strategy Committee also established by the POB.¹³⁹ There is also a PPG Legacy Working Group, with broad objectives¹⁴⁰ to represent, communicate, advocate, share information and coordinate on legacy issues. It has up to seven members representing governments, donors and civil society groups with interests in both polio and non-polio health issues and works alongside and in partnership with the PPG.

From vertical to horizontal approaches

During the period since the polio eradication initiative began, European countries (especially the Nordic group and their 'like-minded' associates) have been in the forefront of a profound change in thinking about approaches to development – in particular, the shift from operating project-based, externally driven 'vertical' programmes to supporting systemic, country-owned 'horizontal' programmes. This shift found its global expression at the UN in the replacement of the issue-specific MDGs with the broader SDGs for 2030 and the new concept of globally shared responsibility that the SDGs embraced.

Discussants and interviewees in the study (and especially those from the major supporters, Germany, Norway and UK) were very supportive of this change in approach. For example, *"from the German side, the driving element is the development cooperation ministry which doesn't think so much in global health outcomes but in more in systems outcomes, in allowing countries to take ownership, responsibility and leadership for their own fate and for the fate of their populations... and this has also been reflected in the 'Healthy Systems - Healthy Lives' policy launched^{141,142} at a side-event of the SDG summit by the German Chancellor"*.

Nevertheless, there were areas of reservation. It was recognised that it will be more difficult in future to initiate disease eradication programmes in view of their inherently 'vertical' origin. It will be necessary to have a much more collective approach to selecting priority targets, to working out how to share costs and to adapting mechanisms that can ensure that the programmes are embedded in country health systems as far as possible, while able to sustain the visibility, momentum and political and financial support, down to the last case, that history shows is essential for any eradication programme to succeed.

Moreover, as one German participant commented, *“vertical programs are good for donors because they see results and they know where money goes. It makes it easier to communicate. In the end, the parliamentarians are dependent on their electorate and it's easier to explain, easy to tell stories that resonate... and saving children lives is a non-controversial issue and easy to measure”*.

As a concept, the transition of people, processes, structures, resources and objectives from a ‘vertical’, stand-alone polio eradication programme to absorption in the ‘horizontal’ structure of a country’s general health services (which in many countries still need to be developed and expanded), presents historical, technical, financial and motivational challenges, with threads of internal and external political factors running through and connecting all of these. The strong focus on country implementation also risks excluding global public goods, through a lack of attention of global solidarity and what the world should be doing together, as pointed out during the dialogue in Norway.

Comments offered during the study by participants in dialogues and interviews included:

- *On vertical programing: it is important that all of the organisations coordinate together and pull for each other. The polio programme should try to be slightly less vertical and try to zoom out from polio and look at the impact on other health interventions that they can have.*
- *The debate about vertical versus horizontal programmes has been ongoing for a long time. Polio is sometimes unfairly put on trial – the success of polio eradication in the Americas was as a vertical programme in a region achieving high overall immunization rates. The 1988 WHA resolution recommended working through routine immunization. The challenge has been ensuring political commitment, ownership and resources. The GPEI therefore had to resort to parallel systems to reach children. A historical context is therefore very important. On the other hand, the focus of attention and resources on polio has led to resentment by some in the routine immunization field, which may result in reluctance to absorb the legacy.*
- *GPEI has been a vertical program but with horizontal implications, as opposed to the Global Fund which did not help to build health systems.*
- *For the future, global health efforts need to be designed to strengthen support for the national health system. There is a systematic weakness in choosing an approach that relies on parallel systems. This was understandable when the GPEI was created with a 12-year goal, but looking back now it was a weakness which created opportunities for skilled health workers to engage in a vertical programme, but at the expense of routine immunization, general national health capacity and the effective prioritization of resources. As a result, health systems may have ended up weaker than they might have been. The overall goal of UHC requires strong health systems as a centre piece.*
- *Reaping the legacy of polio eradication requires ensuring that the skill sets developed, including in surveillance and laboratory work, are not lost. However, they must not be sustained as a parallel programme. There is now a move towards more*

integrated approaches in WHO and among global players, recognising that it is not viable to have parallel systems for providing health for the population and ensuring public health. While the current focus of the eradication programme is on ensuring vaccine coverage and rolling out IPV vaccine to replace OPV, there must come a point when polio vaccination is integrated into routine immunization to be sustainable. It will be difficult to maintain for many years the high quality and well-performing surveillance systems – needed both for continued polio resilience and as one of the tools that constitute the polio legacy to serve public health more broadly – in regions that did not see polio for many years. Accordingly, sustainability becomes an increasingly difficult task and there are enormous worries about surveillance sustainability.

- *Transfer of polio assets into national health systems can only work where there are already some basic capacities and human and financial resources in place. Gavi is now doing joint assessments with countries to see where there are weaknesses and where help is required, as part of the legacy dialogue.*
- *The UHC debate has not sufficiently highlighted public health challenges and concerns. This debate about health systems and public health systems also links with the issue of building public health security and the workings of the International Health Regulations. Historically, health systems were built upon a public health foundation. In the Ebola outbreak in West Africa, everyone's solution at one point was health systems strengthening. But this would not have controlled Ebola, while, as demonstrated in Nigeria, the polio assets (including laboratory and surveillance capacities and knowledge of how to reach communities – i.e. a public health capability) were critical to success.*

In summary, many European interlocutors held the view that parallel vertical programmes are no longer an acceptable approach and should be succeeded by programmes that are integrated into national health systems. However, a number felt that some of the acknowledged advantages of vertical systems should be preserved and that it is important to understand what has been the attraction and perceived value of vertical programmes. One UK interlocutor involved in polio eradication observed: *"Looking at new global initiatives, we need to be very cognizant that they are attractive as vertical programmes but need implementation as horizontal programmes. In the very early days, some senior figures at WHO wanted to deliver polio eradication within routine immunization: but the evidence from elsewhere showed that it needed campaigns and even countries with fully functioning routine services still stopped polio with campaigns. It cannot be done only through routine services. The lesson learned for other global health priorities is the need for a critical mass for intervention"*.

A German interviewee commented: *"On this whole debate about vertical versus horizontal programming, the answer is diagonal"*. Another interlocutor said: *"We know that in reality some countries have low levels of routine immunization, therefore we need to have campaigns. So some of the polio assets should be able to be used for these purposes. But most of these assets should be used to strengthen health systems. This is why it needs to be diagonal"*. According to a UK interviewee, *"UHC and health systems strengthening are about having robust systems and strong political will. Both vertical and horizontal*

approaches are necessary in different situations, according to the priorities. With vertical approaches, the crunch point is in regard to integration, while the danger with purely horizontal approaches is that nothing gets done. It is a matter of judgment how to use each to achieve different reactive or proactive priorities (as in dealing with cancer or with HIV/AIDS, for example).

In reality, the evolution of global health is seen to be taking complex forms. As a highly influential leader of global health in Norway observed, *“having previously seen the evolution of strategies for global health that were almost vertical but parallel in relation to their technical and financial aspects, we are currently in a period when we are seeing the emergence of political strategies for health, health security, universal health coverage, etc that are also not quite vertical but parallel”*. Another contributor remarked, *“one of the challenges for global health policy and governance will be to analyse and better understand the dynamics of these parallel streams and find ways to integrate them”*.

Notably, with respect to health systems strengthening, the Global Fund just adopted a new strategy, one of the pillars being ‘resilient systems for health’. Gavi has also just adopted a new approach to health systems strengthening which also emphasizes the role of the country system and strategies. A German interviewee commented that *“Germany wants to leverage its investment in these initiatives to ensure complementarity. Strengthening health systems is the driving idea behind our investment in global health, from the development perspective. These investments are there to support countries in taking ownership for their people and enabling them to deliver the services they are supposed to deliver. And that’s also for GPEI, where we are now pushing for this legacy discussion. Because, de facto, they have been providing a lot of other services outside polio eradication. It’s a positive effect... but what we think is important is that they now [move to] not providing services instead of governments, but push governments to provide these themselves”*.

A Swiss interviewee commented on how the transitioning from the polio eradication initiative to the framework of the SDGs needs to be understood in the context of the reconceptualization of development. *“How do you conceptualize development and sustainability? The only marker you have at the moment is ‘increased domestic financing’. We owe it to the heroes of national and global fights against particular diseases to give them their voice to show us how health systems should go forward, not as isolated mechanisms, but part of a developmental shift. That’s what underpins the notion of shared responsibility for development through the SDGs”*.

The transitioning of polio assets and capacities from the GPEI to country ownership and financing must be viewed alongside the transitioning being undertaken by Gavi in relation to its support for national immunization programmes. Over the 5-year period ending in 2018, 16 countries are scheduled to transition or ‘graduate’ from outside financial and technical support for a number of their essential vaccines, which over the past decade has been provided by Gavi. Thus, the national immunization systems into which polio assets are intended to transition are themselves being stressed at the present time by the staged graduation from Gavi. As highlighted in the literature^{143,144} and as commented upon by the WHO-AFRO Regional Director during the study’s session at the World Health Summit, some countries are finding this graduation a challenge, even without the added factor of absorbing polio-related costs.

While focusing on polio eradication, this study's literature review¹⁴⁵ placed it in the context of earlier and potential future disease eradication efforts. Prior to the eradication of smallpox, several early efforts to eradicate other diseases, including hookworm and malaria, had failed. One of the lessons of history was that a factor in such failures had been that attempts to transfer the responsibility and ownership of programmes from international initiatives to the national level had foundered because of lack of local commitment, infrastructure and resources. This is important to bear in mind when the emphasis is currently on securing the legacy of polio through the transfer of assets and responsibilities to national health systems.

The dialogues highlighted, on one hand, the difficulty of maintaining health systems and public health systems as separate entities but, on the other hand, sustaining resources and priorities for public health action under the pressure of demands for extending health systems and services. It was suggested in dialogues in Geneva and London that an answer may lie in a 'gradual absorption' of vertical into horizontal structures (consistent with the 'progressive universalism' approach highlighted by the Lancet Commission¹⁴⁶) but also in recognising *"the need for some granularity within the developing health system"*. Rather than a complete dispersal of assets from polio eradication into an amorphous health system, there could be a *"development of a clearly demarcated disease control element"*. This would be the natural home for polio assets, including surveillance, laboratory testing and skills in areas such as epidemiology, community outreach and micro-planning, allowing them to be preserved and shared among a broad array of communicable diseases and enabling them to define and make the case for the specific resources they require. This demarcated disease control element would also be the natural locus for health security, being the repository of skills and assets that would be in the front line of defence against disease outbreaks. Such an approach would be consistent with a 2008 study¹⁴⁷ for WHO which found that vertical programmes may be desirable as a temporary measure if the health system (and primary care) is weak; if a rapid response is needed; to gain economies of scale; to address the needs of target groups that are difficult to reach; to deliver certain very complex services when a highly skilled workforce is needed. The 2008 study noted that in practice, most health services do combine vertical and integrated elements, with varying degrees of balance between them.

Transitioning is a two-way street

An important point made during the dialogues was that transitioning and sharing of assets should not only be regarded as a one-way flow from the polio eradication initiative to other areas of health. There are opportunities for polio to draw on and benefit from non-polio assets in the health system. For example, as one development agency representative noted, *"in Niger the polio programme is sharing benefits with the reproductive health community, which offered to add the collection of monthly surveillance on polio as another indicator on their own agenda"*.

2.4.3 Polio and the Expanded Programme on Immunization (EPI)

The entry point for the legacy programme is routine immunization – which is part of universal health coverage.

Probably we would have done a better job right from the beginning, when the WHA resolution on polio eradication was passed, if we had the focused on routine immunization. If we had, then the legacy would have been taken care of.

Ambassador in Geneva

Routine immunization is one of the critical aspects of public health and a key building block of health systems. Indeed, immunization is the most universally applied intervention in health globally and should be seen as the basis of UHC. A ‘progressive universalism’ approach, as recommended by the Lancet Commission, should start with the most cost-effective interventions and add on more as resources become available. *“Putting in supply chains, cold chains, surveillance and data systems also builds capacity for many other areas of basic health including contraception.”*

The EPI was established in WHO in 1974 to support delivery of routine immunization at a time when basic health systems in most low-income and lower-middle income countries were weak to non-existent.¹⁴⁸ One of the historic aspects of the evolution of the GPEI was that, while the 1988 WHA resolution¹⁴⁹ *“emphasizes that eradication efforts should be pursued in ways which strengthen the development of the Expanded Programme on Immunization as a whole, fostering its contribution, in turn, to the development of the health infrastructure and of primary health care”*, in practice the GPEI evolved in parallel with the EPI. The result, in the view of many^{150,151} including some interviewees from the UK and elsewhere in our study, was that it *“marginalised and by-passed the EPI instead of sharing resources and strengthening it”*; and sometimes drew resources (especially health workers) away into better financed, more remunerative and higher profile polio campaigns. On the other hand, there is a view that *“had polio eradication been integrated with the EPI it probably would not have been successful, as it would not have attracted the resources required”*.

The situation has been ameliorated, in more recent times, by polio workers spending part of their time performing routine immunization and other broader health functions. Nevertheless, as remarked by one European source and echoed by others, *“this was a major flaw in the development of the GPEI and one that can finally be rectified by the transitioning of polio assets into EPI within national health programmes”*. The already strong linkages that have been established between polio and the SDG agenda were therefore widely welcomed and seen as a key basis for continuing dialogue with decision-makers and funders. However, there was a view that *“this needs to be more strongly promoted from the polio camp”* and it was noted that, for example, the Concept Note of the International Health Partnership Plus coalition on UHC 2030 speaks about being inclusive of health security but makes no reference to polio eradication or the GPEI assets.¹⁵²

The potential and the gaps at country level are illustrated by the case of Nigeria, where on one hand the strength and effectiveness of the polio eradication initiative proved invaluable in limiting the Ebola outbreak in 2015, with the knowledge and skills that had been built in reaching communities, mapping and contact tracing making very important contributions. However, routine immunization coverage remains very low in many Nigerian states and there has been a lack of organization of routine immunization sessions and of consistent commitment and ownership across levels of government^{153,154}. The recent Ministerial Conference on Immunization in Africa¹⁵⁵ had a clear message about the importance of sustaining immunization coverage. Some donors (e.g. Canada in Nigeria¹⁵⁶) are now linking their bilateral donations for polio, as well as advocacy towards the government, with strengthening routine immunization as part of a resilience, transitioning and legacy package.

Governance and finance issues were seen to be core challenges in the integration and sustaining of polio assets within routine immunization. A German interviewee said: *“the question becomes who’s responsible and who finances routine immunization? And obviously the answer is that it should be the ministries of health. Countries should own their national immunization programmes. And most of the countries should mobilize a significant portion of the total cost of their national immunization programmes. But we will have a lot of fragile states where the fiscal space for health and other social services is really very low and then there’s more donor dependency”*.

2.4.4 Translating the polio legacy to the global level

While discussions of the legacy of polio eradication have focused largely on its implications for national health systems, another very important aspect concerns its implications for global institutions, architectures and governance (Box 4), as stressed by contributors in both dialogues and interviews. In addition to polio, newer challenges such as the Ebola and Zika viruses demonstrate that mechanisms are needed at the global level that can respond to disease emergencies and that can mobilise support and promote and sustain long-term effort to control infectious diseases, galvanizing action in international arenas as well as at national levels.

From a global health governance perspective, this links closely to global health and health security agendas (section 2.7). Experience from polio eradication activities in terms of governance and health diplomacy is valuable, but the lessons need to be extracted and considered carefully. There are important questions for donors as to how future initiatives will draw on the polio experience to inform how success is measured and responsibility assigned. The answers to these questions are not readily available, calling for further reflection and meaningful action to be taken in order to fully benefit from the many experiences of polio stakeholders.

Beyond infectious diseases, the experience of polio eradication – and especially the current and future focus on aspects such as transitioning, legacy and resilience – also has implications for broader global health governance challenges such as the transformative agenda of the SDGs and UHC, financing of global health and global public goods. The study highlighted a paucity of data and dialogue on these linkages – for example, the need to

discuss polio eradication lessons, legacy and opportunities within the UHC alliance as well as within the polio camp. This aspect is discussed in the section below.

2.4.5 Governance of transitioning

As the transitioning of polio assets to country ownership is still at an early stage, there are opportunities for the GPEI to improve on the governance model that has evolved for the eradication process. Three aspects, in particular, were viewed as being to some degree problematic by some European contributors, as highlighted in other sections of this study (especially section 2.2):

- **Ownership:** The Polio Oversight Board, which has become a key GPEI governance mechanism, was seen by some commentators as a narrowly constituted donors' club. *"The POB is OK but we cannot consider it as a model. It is a compromise. You have the five founding members who take all the decisions. Member states cannot join."* *"Gavi and the Global Fund learned from the weaknesses of the GPEI by being more inclusive in their governing structures and including partner countries. In the GPEI, there is no country that is struggling with polio involved in the governing structure."*
- **Accountability:** *It could have been done better. The structure has not been 'game-changing'. The polio Partnership is involved in every major decision, but very senior representatives of partners are not necessarily the best suited to make detailed/technical decisions."* The GPEI structure: *"has presented opportunities for accountability to be weakened, important but difficult issues to fall in the cracks and delays to occur in taking urgent decisions". "My assessment is that the core polio partners are not necessarily asking questions of each other. They want to do their thing, and they want to do it well and they want to achieve it but they have had less of a focus on examining what they do and how they could do it better. And this has always been like a mantra, so everything is 'we need to do what we do better' but 'we're not changing what we're doing'."*
- **Responsiveness to the IMB:** While the IMB has been widely praised for its work and for the frank and forthright opinions it has delivered in public, the study drew out some concerns from European contributors about the extent to which the GPEI was able to respond. In different contexts, possible factors contributing to this might have been related to the intrinsic power of the IMB to compel change, the complexity of governance within the GPEI partnership, or structural and operational factors in the GPEI as an initiative hosted within WHO.

Overall, it appears that, as highlighted previously, the evolved GPEI network governance model shows characteristics of **'path dependency' – the strong influence of initial decisions on subsequent developments** (section 2.2.1). As one interviewee commented, *"The perceived slowing down in the final stages of polio eradication indicates that something in the initial global design of polio eradication may have been missing"*

The entry by the GPEI into the polio legacy transitioning phase that is now under way provides a unique opportunity to reform the governance model. Three key factors contribute to this opportunity: (1) countries are expected to be in the driving seat with respect to the absorption of polio assets, as recognised in the process that has included GPEI providing country guidelines to assist them to develop their individual transition plans; (2) many countries will require sustained support from and coordination with development assistance partners to make the transitioning effective and sustainable; and (3) a new Polio Transition Independent Monitoring Board (PTIMB) has been established to look critically at the process.

To ensure that ‘path dependency’ leads to the best outcome, it is vital that the opportunity is used to reform the governance model for transitioning, in particular addressing issues of ownership, accountability and responsiveness. This will require close engagement between the GPEI leadership, PTIMB, donors and countries in a focused effort to map out a revised governance pathway.

2.4.6 Beyond polio: transition planning for the GPEI partnership and its donors

Transition planning has been discussed in detail as an essential step for countries needing to domesticate, absorb and make best use of polio assets from the GPEI to strengthen their health systems, while sustaining surveillance and resilience to prevent possible return of polio. GPEI documents and briefings about the transition planning process have emphasized priority transition planning countries across Africa and Asia, and also the need for global transition planning to handle critical function such as containment policy and management, the Global Polio Lab Network, central surveillance functions, the GPEI governance structure and outbreak response capacity.¹⁵⁷ The GPEI’s transition guidelines¹⁵⁸ make frequent references to GPEI donors supporting this process and engaging at country and regional levels with governments, civil society and each other to support and coordinate activities and also try to link transitioning with other development goals.

Transition planning is not just for transitioning countries needing to internalize polio assets from the GPEI. It also needs to be applied by the GPEI partnership and, very importantly, by the donors to the GPEI to their own policies and strategies for medium to long-term engagement in global health.

This study notes, however, that discussion of this issue of transition planning for the donors themselves has received little attention in public and when raised in dialogues and interviews elicited limited responses. Certainly, concerns have been raised about the challenge of how to sustain funding and priority through the transitioning process and into the post-polio period, but **little attention seems to have been paid to wider questions of how to learn from the polio experience and apply the lessons across a range of global health-related domains.** One factor behind this gap may be the relatively short planning horizons of governments tied to their political cycles. Few countries invest in planning global health policies and strategies well beyond the next election. But long-term commitments like the SDG 2030 agenda and the creation of global public goods for health (section 2.8) require much longer perspectives.

This is evidently not just an issue in Europe and some similar points can be identified in relation to a new study on the position of the USA ‘beyond eradication’ in relation to transitioning, at a turning point in the USA’s own political cycle.¹⁵⁹ Arguments are made that the CDC and USAID must each define a polio transition plan which articulates the resources necessary through 2019 to sustain each agency’s public-health impact through and beyond polio eradication, with Congress support their polio transition plans. Stress is placed both on the importance of sustaining the gains and completing eradication and on the value of transitioning polio assets over a number of years, where benefits can be identified in relation to ‘complementary health outcomes’ including health workforces, emergency response capacities and surveillance and immunization improvement. It is noted that the CDC has established a Polio Legacy Transition Task Force that is forming a plan to maintain public health benefits achieved through polio efforts in transitioning countries; while *“USAID must develop a plan, in consultation and coordination with host governments, for sustaining the gains achieved through its polio programs”*. What is not mentioned is any broader scope of USA transition planning to absorb and build on the polio lessons and legacy in other areas of US global health policy and aid, such as the push to advance the Global Health Security Agenda.¹⁶⁰

In the course of the study, comments included that it is very important that support continues to be given to WHO and to polio eradication and that the polio team in WHO is not reduced to one person in a little office; there is a key issue of how/whether GPEI partners want to stay in the game after eradication and it is very important that BMGF sustains a role; and *“while other partners like UNICEF and Rotary may want to move on, CDC will have an important capacity and responsibility in relation to containment”*.

2.5 Resilience, containment, political commitment and making the case

2.5.1 Resilience and containment and challenges for Europe

With polio eradication, we have a clear focus in mind. With respect to resilience, if there are no crisis how do you know a system is resilient?

German interviewee

Resilience involves strengthening and sustaining polio surveillance, detection and response capacities long after the last case of polio has been seen, to ensure that any new outbreaks are rapidly and comprehensively detected and dealt with. It requires a proactive process – actively seeking and investigating all cases of AFP and conducting environmental monitoring for poliovirus in sewage. Containment is the other face of the same coin, demanding rigorous, pro-active measures to prevent any accidental release of live poliovirus and to have the capacity to limit the spread and impact of any release or reappearance. A global action plan for containment forms part of the overall GPEI strategy and has been in progress since 2000.¹⁶¹

The risks of re-introduction of poliovirus after the last case has been certified come from a number of sources, in particular:

- Failure of containment of WPV from poliovirus-essential facilities¹⁶² for vaccine production, research and repositories. The accidental release of WPV from a vaccine production facility in Belgium in 2014 demonstrates the importance of addressing this risk.¹⁶³
- Vaccine-derived viral infections: the switch in 2016 from tOPV to bOPV, with removal of OPV type 2, is one step towards ending this risk, while the switch from OPV to IPV will eliminate this source of threat from future vaccination activities. However, the persistence of live virus in individuals from the historic use of OPV and their potential for excreting the virus into their environment will persist for a long time to come. One example was reported in 2015 of an immune-compromised individual who has been excreting type 2 vaccine-derived poliovirus for twenty eight years.¹⁶⁴
- Escape of poliovirus from infected biological samples (knowingly or unknowingly) held in storage and improperly disposed of.
- The potential for bioterrorism: while many other infectious diseases are more deadly, the history of polio outbreaks before the availability of vaccines shows the potential for causing wide-scale panic.

Resilience and containment present complementary and overlapping challenges. For success they both depend on the political will to sustain systems that protect the public against a health threat that may be seen as improbable, remote or hypothetical once active cases of polio cease to occur and the disease is certified as eradicated. Heymann has commented, *“risk communication and gaining trust in polio vaccination in the absence of paralytic disease remain a major challenge”*.¹⁶⁵ Both resilience and containment were seen in the study dialogues as requiring partnerships across boundaries, with pertinent comments including:

- *“Resilience means partnership and multisectoral and multilevel collaboration is critical, including engaging with other sectors – water, sanitation, education – and coordination between global, national and community levels.” “But at the national and community levels, few know what is needed” and there is a “major challenge for the sustainable financing for resilience”. Building and maintaining resilience and ensuring containment of the virus “requires addressing political factors relating to strengthening communities”.*
- The fact that *“the most immediate, relatively probable and largest scale threat to public health will be the accidental release of WPV from production facilities”* means that containment is also a challenge for relationships at the public-private interface. *“For as long as we require industry to go on manufacturing polio vaccine, we need mechanisms to check and ensure that there are no leaks and that industry is doing all it can to prevent any leakage whatsoever.”*
- *“European actors have a key role in supporting countries with strengthening resilient health systems, ensuring high routine immunization levels, etc and maintaining commitment from national leadership. In Pakistan and Afghanistan you obviously*

need a resilient system, but it is really to get the political commitment to get the job done that is now necessary."

A significant distinction between the risks inherent in transition and resilience was highlighted. In transition there may not be huge damage done if an opportunity is missed to fully capture some potential benefit; whereas in resilience there may be things that cannot afford to be missed because they have a major implication for the return of polio – bringing with it the prospect of new outbreaks, public panic and massive costs to restore control.

For resilience... the political challenge is really at the top of the list because from that leads some degree of funding, but also some degree of pressure and motivation by the governments systems to make the programme function well on the ground."

German interviewee

To strengthen resilience, public health and surveillance systems need to be as strong as possible and fully integrated within health systems. External partners can help to build up health systems and assist the move towards UHC. This is not necessarily a question of financial resources: for example, for a country like Nigeria the issue is as more about the need for technical assistance and partnership than about resources.

UK interviewee

The issue of resilience needs to be institutionalised in WHO. Good lab practice in handling and recognizing the polio virus is essential. Linkage with IHR (surveillance, laboratory capacity) is the best way to proceed.

UK interviewee

Resilience is relevant not just to polio but to a whole host of current and future infectious disease threats. In this context it is useful to reflect more deeply on the meaning and significance of the term for organizations involved. Resilience is usually employed to describe a characteristic of an organization itself – *"the ability to cope with change in order to survive and prosper"* – but in the case of polio eradication it is being applied to countries and the world as a whole, as *"a function that is required to persist even after the GPEI has ended and its partner organizations have lost the influence they held during the initiative"*. Effort needs to be made to understand the dynamics of this phenomenon and its transitioning, *"in order that lessons from the polio case can be used to inform other global health initiatives"*. One element of ensuring that this learning is captured was the suggestion that *"the issue of resilience needs to be institutionalised in WHO and linked strongly with the IHR"*.

As is the case for transitioning, a number of European actors saw resilience as political challenge requiring buy-in from governments, with local and regional commitment,

ownership and responsibility being key, but supported and encouraged by global and bilateral partners. As German interviewees remarked, *“The building of resilience needs to be done at the regional level. It has to be made by the assisted countries”*; and *“For us this resilience piece is equivalent to health systems strengthening. We need strong systems so we can cope with the unforeseen events and outbreaks and respond. Then there is this global element of course, throughout strengthening WHO capacities to respond to outbreaks. There is also need for a stronger engagement with Gavi in terms of strengthening routine immunization, as a support for resilience; and for IHR core capacities. Resilience is not only concerned with outbreaks but also with climate change effects”*.

The continuing risk of re-emergence of polio from environmental sources, biomedical facilities and carriers leads to *“the necessity of ensuring an adequate global mechanism for containment long after the end of the GPEI”* – once again raising the issue of interfacing a global, vertical goal with horizontal country systems. The view from a GPEI interviewee was that *“containment is where the resilience discussion starts. We need the support of international donors to continue the activities in approximately 60 to 80 countries which are at risk of resurgence or re-importation of polio. Until eradication is completed, these countries are at risk”*. The importance was highlighted by another contributor of ensuring linkages between resilience for these vulnerable countries and other relevant health initiatives in which they may be engaged, such as the GHSA.

At the multilateral level, the EC has not been very active in bringing countries together on polio eradication. The most prominent player in this regard has been the European region of WHO, but its focus, supported by the European Centre for Disease Prevention and Control (ECDC), has been overwhelmingly inward, to maintain WHO-EURO's polio-free status and ensure that no polio case would remain undetected.^{166,167}

Challenges for Europe

All 53 countries in the WHO European Region were certified polio free in June 2002 and a continuing programme of immunization and disease surveillance since then has aimed to maintain WHO-EURO's polio-free status and ensure that no polio case would remain undetected. This effort is led by WHO-EURO working closely with the ECDC. The first importation of wild poliovirus into the Region since the 2002 certification was reported in Tajikistan in 2010. This outbreak spread rapidly and affected 35 of the country's 65 administrative territories, and also spread to three nearby countries. It caused more than 457 cases of polio in both children and adults, resulting in 29 deaths.¹⁶⁸ A vaccine-related polio outbreak in the Ukraine in 2015 threatened the Region's polio-free status and there was concern that significant gaps in immunization and surveillance put Ukraine at high risk for new outbreaks.¹⁶⁹ These cases have highlighted the need for continuing effort to reinforce resilience across the European region. The value of environmental surveillance in routine monitoring as an early warning system in polio-free countries, possibly more sensitive than surveillance for AFP, has been reported.¹⁷⁰

Responsibility for containment is a critical factor. There has been some discussion and disagreement about containment moving from the Polio Certification Commission to the group currently advising the WHO DG on Fakes, or to the group on IHRs – the latter being the more logical place. A UK contributor suggested that *“the Global Certification Commission*

should be transformed into a Global Containment Commission to provide a governance mechanism for oversight and leadership”.

Europe will have a particularly central role in containment, since some of the leading sites of manufacture are located in European countries and the impact of any failures in factory containment are likely to be first felt by European citizens. European governments, donors and institutions therefore share both a local and global responsibility to ensure adequate containment.

Following smallpox eradication, the question of possible final destruction of the last remaining samples of the live virus on earth, held in special high-security containment facilities, became the subject of a protracted and strongly contested debate. While the official position moved towards destruction¹⁷¹ it was overtaken by events. Advances in the field of synthetic biology mean that it is now quite feasible for smallpox virus to be re-created in the laboratory and pose a significant bioterrorist threat, as highlighted by a WHO Independent Advisory Group.¹⁷² As a result, the debate has shifted ground, one factor now being to a strategic assessment of whether the risks of accidental or deliberate release of the virus from existing stocks is outweighed by the fact that it might be quicker to respond to a bioterrorist attack using an existing stock of virus that to have to begin with synthetic biology to create a new vaccine. The WHO Independent Advisory Group observed that *“synthetic biology goes beyond smallpox and should be considered in relation to the elimination and eradication of other infectious diseases as well”*. This new reality of technological capacity and the fact WPV will have to be grown on an industrial scale for many years in order to supply IPV vaccine mean that the question of final destruction of the last remaining samples of live poliovirus is unlikely to be an issue for a long time, if ever. It was the opinion of interlocutors in this study that, as one expressed it, *“consolidation and destruction of poliovirus samples will be difficult politically as well as technically and probably few, if any, countries will stop vaccinating”*.

2.5.2 Political commitment and making the case

As observed by a number of the contributors in the study, **this is a critical period in the polio eradication initiative**, when interruption of WPV transmission is almost complete but delays have added greatly to the ongoing costs; transitioning is under way but needs to be balanced with the efforts to complete eradication and strengthen resilience; containment needs to be ensured and the GPEI legacy secured. Running through all of this is the crucial need to sustain political commitment, now and for the long term. (Box 5).

Interlocutors emphasized that the concept of ‘political commitment’ must be understood in a nuanced way. The generation and sustaining of commitment depends on more than the power of ideas and moral imperatives. It requires understanding of internal and external political alignments and of the ‘power map’ of each country. The practical application of the commitment must be seen in more than the chairing of regular meetings and making occasional speeches – it must be seen in demonstrating leadership through enforcing accountability at all levels.

Box 5: Making the case for political commitment

The concept of ‘political commitment’ must be understood in a nuanced way – and the practical application of the commitment must be seen in demonstrating leadership through enforcing accountability at all levels.

It is therefore especially important to focus on the question of **“*what is the investment case that will convince European decision makers to sustain their financial and political support?*”** Several areas were particularly highlighted:

- Ending polio will create a global public good
- The success of the Initiative will be as much political as technical, and important to politicians.
- Cost effectiveness and value for money are strong political motivators.
- Emphasis on the legacy benefits of polio eradication can help increase the attractiveness of what some may see as a narrowly focused objective.
- It is important to mitigate the tendency of donors to regard vertical programmes like polio as ‘bad practice’, for example by linking the endgame of polio eradication and transitioning of assets to the SDGs, strengthening routine immunization, health systems and the move towards UHC.

Notably, some, but not all of these areas are highlighted in the GPEI’s 2016 publication,¹⁷³ while it is apparent that different arguments are needed for different donors in Europe. It would be extremely useful to put together a very clear, evidence-based advocacy document setting out a menu of different elements of the investment case, which will help partners to understand the importance of funding the programme through certification and the neediest countries for some time afterwards to secure resilience and the uptake of legacy benefits.

Many study participants expressed doubts that current levels of political will, even if maintained, will be sufficient to ensure the continued prioritization of polio eradication. Comments included:

- *“There is a certain tiredness by the donors. It is increasingly difficult to convince some the capitals to give to polio. The main challenge is to explain that we are not there yet and still need to work hard, when only Pakistan and Afghanistan are remaining.”*
- *“There is also ‘country fatigue’: one of the main challenges is that priorities in countries are different than simply polio eradication at the global level as public good. There are many other pressing problems that countries have to face.”*
- *“A key political challenge is lack of engagement in countries where polio eradication is being undertaken; and lack of engagement by WHO regional directors.”*

- *“Some political alliances have been lacking or ineffective, reflecting at least in part a lack of will, e.g. efforts were made to set up an alliance with the Organization of Islamic States, but it had limited effects in practice.”*
- *One major issue [in Europe] is complacency. Coming from a country where we did not have polio for 40 years, the tendency for complacency is very great... from doctors and health workers and the general public.”*

In the light of these concerns, it is especially important to focus on the question of ***“what is the investment case that will convince European decision makers to sustain their financial and political support?”***. Several areas were particularly highlighted by interlocutors, although not always with a consensus view as to the relative importance of each:

- **A global public good will be achieved:** There were divergent views as to whether, in competition with other priorities, the ‘moral case’ for achieving a polio-free world would, on its own, convince many donors. Some felt that an important part of the investment case is the success of the completion of a global development and humanitarian project and this would serve as a powerful attractant to keep European governments engaged in supporting polio eradication. Others were sceptical that this is indeed a powerful political motivator.
- **Success and failure are important to politicians:** Some donors may be convinced by the argument of the credit they will accrue from being associated with achieving the global public good of polio eradication; others (including both those who have been long-standing supporters and those who have declined to participate) by the desire to avoid being associated with a massive public health failure if it is not achieved.
- **Cost effectiveness and value for money:** A key argument for the investment case is that it will be cheaper now than in the future. Polio eradication needs to be seen as a ‘better investment’ – *“the ‘area under the curve’ (investment/time) will be less if eradication is completed now than if polio is allowed to continue and requires perpetual control”*. The argument needs to incorporate recognition of the political reality that *“the interruption of transmission is a visible achievement and financing is very incentivized, while financing resilience is much less interesting, but poses a serious risk if the effort fails”*. Stress should also be placed on the cost-sharing and leverage element: e.g. a very high proportion of routine immunizations are funded by the polio programme, so there are benefits for other disease agendas. *“More could be done to emphasize linkages with other non-traditional areas where people might be polio partners, such as those interested in malaria and other issues.”*
- **Legacy benefit and linkage to other priority concerns:** Another key element of the case for increased European contributions needs to be made in terms of the benefit that the polio legacy will bring to many other areas once the job is completed, including important polio assets like laboratories, biosecurity systems, surveillance and planning capacity, as well as lessons for future global health initiatives and global health governance. As political fashions and pressures turn attention towards new priorities, such as the global health security agenda, the International Health

Regulations and SDGs, convincing arguments may be found for associating polio eradication with them and for sustaining critical functions such as surveillance and response capacities. On the other hand, there was a note of caution about not over-playing the value of assets or minimising the difficulties that are likely to be encountered in their capture. One interviewee who is very experienced in global health considered that *“not many benefits will be gained from polio eradication by the SDGs in general or UHC/health systems strengthening in particular, as it is not easy to transfer vertical into horizontal programmes”*.

- **Circumventing the tendency of donors now to regard vertical programmes like polio as ‘bad practice’:** There was a perception that some donor agencies were quite uneasy about polio eradication, concerned that the polio effort has been weakening health systems and that it may continue to disturb their development in the coming period. It needs to be emphasized that, while this may have been a story of the past, polio eradication and transitioning now provides new opportunities for system strengthening.

The notion of ‘value’ in health must be carefully approached. Since the 1993 report of the World Bank,¹⁷⁴ the importance of good health as a goal and its value for development have been recognized. But global public goods like disease eradication take a longer time than political cycles and may therefore be seen as irrelevant by some politicians. **Arguments for contributing must therefore balance the attractiveness of long-term benefits with thinking through the potential shorter-term strategic gains that might be incentives.**

2.5.3 Global public goods and the language of investment

The global eradication of an infectious disease is a classic example of a global public good for health (GPGH).¹⁷⁵ Once a disease is eradicated no one person’s receipt of this protection will diminish the protection everyone else enjoys, and every newborn entering the global community is also protected. A major problem that arises is the question of who pays: some may contribute because they have the means to do so and see the benefit to themselves and others; some may ‘free-ride’ by not contributing, especially if they have much less means and/or do not see it as their highest priority (or, indeed, a priority that they were appropriately engaged in choosing).

Aylward et al¹⁷⁶ have analysed features of polio eradication as a “well developed instance of a GPGH in practice”. They noted that the pursuit of polio eradication “illustrates well the basic issues that arise in the pursuit of any GPGH, ranging from the ‘prisoner’s dilemma’ (i.e. making a decision in the absence of information as to how others will behave) to ‘free-riders’ (i.e. those who will benefit from the GPGH without contributing to its production).

The problem of free-riders was observed in the present study and was seen as a feature of how the GPEI was structured as a voluntary partnership. A German interviewee considered that: *“It has allowed many countries to free-ride without contributing a fair share of the resources required to create the global public good of a polio-free world; through the complexity of the governance process”*.

Some participants in the study felt it important to emphasize that *“many countries have contributed to the eradication effort from their own resources (domestic or loans taken for the purpose) and especially Afghanistan and Pakistan, now at the front line, are doing so”*. This participation will increase as transitioning progresses and *“can serve as a model mechanism and a lever for the transformation from a paradigm of aid to one of shared responsibility, in the spirit of the SDGs”* as the polio legacy is used to strengthen health systems and reach UHC.

For those who have chosen not to ‘free-ride’, participation in the creation of a GPG becomes difficult to drop and in the case of disease eradication strategies it forces the need for key strategic political choices to be made. According to comments in this study, in 2016 Germany was persuaded (by members of the POB) to pledge funds for polio eradication in Pakistan (as well as for Afghanistan and Nigeria) at a time when they were thinking of pulling out of the health sector in Pakistan as their general country strategy was to encourage Pakistan to be more responsible for its own health services.

As concluded by Aylward et al, the GPG concept *“reaffirms the need for appropriate forums to negotiate and sustain societal and political engagement at all appropriate levels”*.

An interesting question was raised whether the successful achievement of polio eradication could be used to increase momentum for other global public goods. This is an area for further exploration. One possible avenue to examine could utilize the linkage that is now seen to exist between polio and Ebola, with assets of the former having played a significant role in controlling the outbreak of the latter in West Africa, especially Nigeria. A recent paper¹⁷⁷ on understanding the 2014 Ebola epidemic noted that, according to WHO, this outbreak demonstrated the severe lack of international capacity to respond to public health crises. It quoted Bill Gates as saying *“the problem was less that the current system did not work well enough, but more that a system barely existed at all”*. He also asserted that we must create a global warning and response system for outbreaks with a focus on building health systems within countries that can also be used for disease surveillance. There are undoubtedly opportunities for the polio eradication initiative to exploit this linkage and align with what is, in effect, the global public good of effective global capacity to respond to public health crises.

A particular point was made about the language used to discuss support for polio eradication and other global public goods. It was strongly felt by some that ‘donor’ is an inappropriate word, because those contributing are financing something in their own interest. ‘Donor-recipient’ terminology should be avoided and instead *“emphasis should be placed on partnering in which all are investors in a common cause”*. This global public goods framing is consistent with the SDG agenda, as well as the humanitarian agenda, in emphasizing shared responsibility and the objective of ‘leaving no one behind’.

In this regard it was further suggested that *“polio eradication can be viewed as an early test for reaching the SDGs”*. This may be an incentive factor that has particular resonance in some countries (e.g. Norway) where there is high-level engagement with the SDGs.

One contributor asked: *“Is it possible to define a core set of global public goods and who would do that?”* The view was expressed that it would be valuable, but probably not

something WHO should attempt. Rather, it might be better undertaken by the G20 and then possibly taken to the UN General Assembly (the group on global health and foreign policy could play an important role). This would ensure both cross-sectoral and political buy-in.

2.6 Choosing, sustaining and linking priorities for global health

Some of the lessons emerging from the study relate to the issue of how priorities are selected and the extent to which they receive sustained attention politically and financially. Two particular areas highlighted in the literature review, dialogues and interviews are discussed in this section.

2.6.1 Selecting future disease targets: eradication versus control

Why didn't we learn from history?

Oslo dialogue

Since the 1980s, papers and meetings have discussed the questions of possible disease eradication targets and how to decide between the approaches of eradication or control,^{178, 179, 180} but seem to have been subsequently ignored. With the end of polio now in sight, increased attention has been paid to what may be the next targets. This study highlighted important overarching dimensions of such deliberations, drawing both on the polio story and on experience with earlier eradication efforts:

- Rigorous criteria for setting a threshold for the initiation of eradication have been advanced. However, they often neglect the fact that circumstances can change radically during the course of an eradication programme, ranging from science issues (positive examples including innovative new technologies for immunization, diagnostics, disease treatment and vector control, while negative ones include the emergence of resistance in the organism or vector and the discovery of previously unknown vectors or disease reservoirs,) to political factors (such as the emergence of new conflicts and political shifts within countries).
- There is sometimes seen to be a continuum between control, geographically specific eradication and eventual global eradication and a major emphasis has often been on technical criteria that need to be met to progress to global eradication. Importantly, however, a number of discussions and comments have focused on the fact that political considerations (crossing the whole gamut from local to national to regional to global and within and between institutions) are also a critical factor in determining the outcome of such deliberations. 'Rational' or 'evidence-based' (or technical/scientific) decision-making is therefore only a part of the picture.
- Initiatives for global disease eradication have often suffered from problems that tend to be characteristic of bureaucracies: decisions are taken slowly, innovation is resisted and risk aversion is prominent. In the present study, there were diverse opinions about the extent to which the GPEI has avoided these problems. For example, some viewed the failure to make quicker progress as a reflection of poor management and leadership of the programme and the complexity of its governance

mechanism; and the lack of attention to the most difficult geographies (not ‘doing the worst first’) as evidence of risk aversion. Others praised the GPEI for its brilliant performance in some places, innovativeness in instituting EOCs and reaching out to communities and opposition groups and its boldness in creating the IMB as its own strongest critic. One important conclusion from this study is that **more attention should be given in future to learning the lessons from history and to carefully designing and planning any future disease eradication or other global health initiatives to try to anticipate and avoid these characteristic weaknesses in organizational architectures.**

One of the most striking dilemmas presented by this study and by polio eradication efforts in general is how to ensure that lessons are learned in meaningful ways from this global initiative. Many lessons were already clear¹⁸¹ by the time smallpox eradication was complete in 1980, including ones relevant to selecting, organizing, financing, conducting and finishing disease eradication initiatives and the tensions between vertical and horizontal approaches. Occasionally, conferences and publications have considered these matters¹⁸² but seem to have been subsequently ignored and **there do not seem to be forums or platforms now available for systematically examining and extracting the learning and connecting it with those who need to apply it. It is recommended, as an outcome of the study, that a forum can be created to serve this function and to create a ‘safe space’ where lessons of both success and failure can be openly discussed and prevailing approaches challenged without fear.**

Looking towards possible future disease eradication efforts, advocacy has been advanced for the merits of a number of diseases including measles, rubella and malaria. A flavour of the views expressed during the present study is exemplified by the case of measles.¹⁸³ Many people thought that measles should have been the next eradication target after smallpox and there are now attempts to move towards measles eradication. However, measles spreads extremely rapidly and very high routine coverage rates are required to interrupt transmission. *“More attention therefore needs to be given to the Decade of Vaccines¹⁸⁴ targets of at least 90% coverage overall and 80% coverage in each district.”* Part of the legacy of polio is *“the availability of data and microplanning tools that can help to achieve this”*.

2.6.2 Sustaining priorities and the challenge of ‘disease schizophrenia’

When we have a pandemic crisis, it channels the media and donors. There is a clear shift of focus on these, whereas polio is seen as something that has been there for so long. There is no capacity in the international community to focus on several diseases in the same time. This has funding impact.

Interviewee

It is an unfortunate truism that health issues only gain political attention – and the resources that flow from this – when they become crises; and crises are soon forgotten when they

subside and other priorities emerge. The declaration of polio as a PHEIC, following a call for this by the IMB, was an example of the deliberate use of ‘crisis’ pressure to try to stimulate a quantum jump in the attention given to ending polio. The Ebola outbreak in West Africa, initially given limited attention beyond the region, escalated to a global priority when it became seen as a global emergency and an immediate threat to health security worldwide.

Interlocutors in this study pointed to the fact that *“we need to derive lessons from polio eradication and disease emergencies generally and use the global learning to seek more prevention and avoid disease crises”*. *“Disease schizophrenia was seen in the Ebola outbreak”*: at the height of the crisis, governments said ‘money is not an issue’, but once the crisis has past there was reluctance to support costly programmes such as Ebola vaccine stockpiling. From an evolutionary perspective, it is certain there will be new outbreaks of (in some case as yet unknown) diseases *“but we do not behave as if this is the case”*. As commented in one dialogue, *“by striking contrast, the military always secures resources for a high state of preparedness”* (e.g. tens of billions of dollars are spent on maintaining fleets of nuclear submarines on active duty, even though this is a third line of defence) and conduct war games to prepare for hypothetical events. To date *“there has not been a mind-set to make such investments to prepare for or avert disease outbreaks”*, as highlighted in a recent conference on preparedness financing.¹⁸⁵ One reason is that *“it is difficult to persuade Finance Ministers of the importance of the issue – a key message for the global health community”*. *“There needs to be more emphasis on the health outcomes that result from money invested in health – a challenge when the resources are being used to build health systems, whose institutions and capacities do not necessarily emerge in a short time frame and whose progress tends to be expressed in quantities of ‘people served’ rather than ‘lives saved’.”*

One respondent observed that the temporary focus of attention on diseases only when there is a ‘crisis’ is illustrated by the World Economic Forum’s Global Risks Report,¹⁸⁶ which ranked ‘rapid and massive spread of infectious diseases’ as the second highest risk in terms of global impact in 2015, but this topic was not among the top five risks in 2016. Zika currently provides the latest example of a disease commanding immediate attention and attracting rapid and large public investments in the search for a vaccine.¹⁸⁷

The challenge of winning the case for more adequate resources is also seen in the current debate about WHO financing and the difficulty of securing an increase in the WHO core budget to enable it to respond more effectively to disease outbreaks.

2.6.3 Creating linkages

Many participants in the study expressed fears that polio will (or is already beginning to) fall off the agenda, at least in European circles, despite its continuing PHEIC status, as a result of a combination of factors including a perception that it is virtually finished, the difficulty of sustaining attention in competition with other priorities, a focus of attention on transitioning and a desire, to shift from vertical programmes to horizontal ones such as health systems strengthening.

To remedy this, many participants emphasized the value of linking polio with other issues that are emerging or already in the limelight – especially broader health goals – and that

might help to sustain the financial and political support for the endgame of polio eradication and/or ensure the preservation of valuable polio assets beyond certification. Areas suggested included the SDG of health systems strengthening and UHC (discussed under transitioning in section 2.4.2); routine immunization and the Expanded Programme on Immunization (discussed under transitioning in section 2.4.3) and global health security and the International Health Regulations (discussed in section 2.7). All these areas provide opportunities for a two-way benefit, attracting support for polio eradication and transitioning and bringing valuable polio assets to the areas they link with.

Another area where there were seen to be opportunities for additional linkages that could similarly offer a two-way benefit was in drawing on the lessons from polio eradication for improving ways to manage aid. One facet of the changing aid context in the last two decades has been in the complex relationship between development assistance, humanitarian assistance and disaster/emergency response, where the need for better coordination and sharing of policies and processes has become increasingly apparent. This has been particularly obvious when (as in the case of Ebola in West Africa and in the case of polio in several countries) the capacities for prevention, detection and response to a disease outbreak are impaired by a combination of conflict and weak health systems and the capacities for recovery need to be built through a combination of short-term relief and long-term systems support.

It was suggested (e.g. by a UK contributor), that polio eradication can develop linkages with the evolving debate on how to better manage this nexus of aid modalities. Another pertinent comment came from a German respondent, who noted that the linkage of health initiatives to humanitarian action is an increasingly powerful driver of action: *“The turning point we are getting to now is from global health programmes driven by humanitarian considerations, saving lives, as the key point for the Global Fund and Gavi. There are vaccines and medicines out there which don’t reach the people... If you are able to communicate how many lives you have saved by your interventions, this attracts funding, from actors... who are very results driven”*.

2.7 Global health security and the International Health Regulations

Over the last two decades health security has emerged as an important concern driving global health and its evolution has reflected a tension between those (including policymakers in high-income countries) who have emphasized protection of their populations especially against external threats, for example terrorism and pandemics; and those (including health workers and policymakers in poorer countries) who have interpreted the term in a broader public health context.¹⁸⁸ The long-needed reform of the International Health Regulations which was accomplished in 2005 was given decisive impetus by the 2003 Severe Acute Respiratory Syndrome (SARS) outbreak and the 2004 epidemic of avian influenza A (H5N1) and more recently the Ebola outbreak in West Africa has been described¹⁸⁹ as an example of a ‘cosmopolitan moment’ and has provided the stimulus for deep-seated reassessments of national and international capacities to respond to public health crises.^{190,191,192}

Study participants in the study noted that this is a significant area of European interest and European actors have played prominent roles in the evolving responses to threats to global health security. The EU and France, Germany, Italy and the United Kingdom, along with Canada, Japan, Mexico and the United States, were co-founders in 2001 of the Global Health Security Initiative (GHSI),¹⁹³ which meets regularly at Ministerial level¹⁹⁴ with WHO as an expert advisor. In March 2016 the EC organised a High Level Conference on Global Health Security, co-sponsored by WHO and The Netherlands Presidency of the Council of the EU.¹⁹⁵ During the meeting, outbreaks of polio, Ebola and MERS were cited as examples of health events that have shown shortcomings in the present health security arrangements.¹⁹⁶

Polio is a notifiable disease under the IHR¹⁹⁷ and, importantly, the declaration of polio's continuing international spread to be a PHEIC by WHO placed it squarely in the arena of global health security. There was some concern expressed by contributors in the study that engagement in the IHR is viewed too narrowly as a health issue. One UK contributor commented that *"migrants and refugees have caused the movement of polio to various places, demonstrating the need to be careful in general about the risks relating to infectious diseases. The IHR provide a framework for WHO – but others like the International Organization for Migration need to recognise the importance of the IHR"*. A German interviewee observed that *"WHO tends to struggle when it needs to bridge between different departments (health systems, peace) and now there is this a move, post Ebola, of thinking in terms of whether you need core IHR capacities separated from the classical health system. In the end, if you do not have the link between the community workers, the district health station and the central emergency mechanisms, which also can trigger the information or warning to WHO, it doesn't work. You would never have IHR capacity going to every village. WHO is rethinking its approach there, which is good, but again, polio people are not participating in the discussion"*.

Rising interest in global health security during this century has seen the emergence of the Global Health Security Agenda (GHSA), launched in February 2014. This is a growing partnership of over 50 nations, international organizations, and non-governmental stakeholders, aiming to help build country capacities to ensure a world that is safe and secure from infectious disease threats; and to elevate global health security as a national and global priority.¹⁹⁸ The governance aspects of the global health security domain are complex and there is a lack of well-functioning mechanisms of global governance to ensure that global health risks have appropriate approaches for prevention, preparedness and response; and it has been concluded that global health security was too important to be left to the health sector alone.¹⁹⁹ GHSA pursues a multilateral and multi-sectoral approach to strengthen both global and national capacities to prevent, detect and respond to human and animal infectious diseases threats whether naturally occurring or accidentally or deliberately spread. Both the GHSA and the IHR aim to elevate political attention and encourage participation, coordination, and collaboration by multiple stakeholders.²⁰⁰ Polio's status as a PHEIC places it squarely in the frame of the GHSA and the political issue of defining risk that the agenda represents.

European engagement in the GHSA has been substantial. A dozen European countries are members, including Germany, Norway and the UK. Finland is a member of the GHSA steering group and served as the lead country in 2015.²⁰¹ Given the extent to which country

implementation of the IHR has been found lacking^{202,203} and the IHR have come under intense scrutiny,²⁰⁴ important contributions of the GHSA have been the development of tools for external GHSA Country Assessments, now piloted in several countries including the UK^{205,206} and action packages including surveillance.²⁰⁷

This study identified a range of views about developing connections to the global security agenda. Some see the opportunity for polio eradication to gain political traction and support through association with the GHSA:

- For some, public health surveillance, regarded as being at the core of the GHSA,²⁰⁸ provides a key point of linkage between global health security and polio, in view of the extent to which the GPEI surveillance assets often lead the field in parts of the world where health systems are weak. For example, in the Oslo dialogue it was suggested that the GHSA can gain a lot from polio assets related to preparedness and response (surveillance, vaccination coverage, microbiology, etc.). A German interviewee noted that *“In the end, the health security response mechanisms which exist are the polio assets, at least for the African continent”*.
- For others it is an issue of gaining greater coherence between different initiatives and mandates. One German respondent remarked that *“What we would like to see is a joint approach, or assessment of GPEI with Gavi and with all these new global health security initiatives and actors, all these vertical programmes. Because we think there is potential duplication and overlap in the system. We want a joint assessment of all these vertical programs (Gavi, Global Fund, GPEI, global health, security) and their inter-relations with WHO which has the mandate for health systems strengthening.”*
- The UK’s Academy of Medical Sciences sees improving global security as a vital contribution to developing resilience to potential health crises at the international level, particularly those relate to infectious diseases and environmental change.²⁰⁹

Some have reservations about the linkage of polio eradication with the GHSA, with two separate anxieties being revealed in the study. One is a perception that the GHSA is as a ‘northern’ concern and reflects the anxiety of some high-income countries to protect themselves from biosecurity threats. Second, the ‘security’ terminology prompted some to express unease about what they perceived as a growing and, in some quarters not necessarily welcome, role of security services in health. When this occurred, this unease was sometimes, but not always, nuanced by a distinction between different branches of the security services (usually just identified as ‘the military’) or the different situations (conflict, disaster emergencies, disease outbreak crises, etc.) and local contexts in which they might play diverse, specific roles.

The remaining polio reservoirs are the high conflict areas.... where there are challenges in terms of administering vaccinations and surveillance. Vaccinations have been highly politicized and workers have been killed. The dilemma is, how to strategically ally yourself with security providers. In order to operate locally in an effective manner it is necessary to engage with local partners and get trust of local populations. In high-risk areas there is no alternative to providing security to people in the field. It is necessary to balance the need for protection with the need to be perceived as a neutral provider.

Oslo dialogue

An NGO interviewee commented that “health is a security issue... but it is also more. Health is a human right”. A Swiss interviewee said: “The obvious dangers are that you use the good name of health programmes or campaigns to achieve political and military goals and then it really messes it up for everybody. Switzerland has a point of view on this... we have to defend the notion that health should be a viable, a neutral, receptive and protected domain. The health security debate or the manipulation of health and security are not the same thing, but they are both linked to international humanitarian law and we are very distressed about how things could unravel. If you use health as a blanket to cover other political goals this is the open way to disaster. You see emerging Resolutions on SDGs. Look in the WHA this year, WHA 69, there are two resolutions that deal with SDGs. One is about public health and UHC and the other is more general about SDGs. If you could get hold of the previous draft of the second one, you will see how the health security discourse has been originally attempted to be included and then was negotiated out. Because – rightly so in my opinion – using the term of health and security in the context of SDGs causes a lot of distress to quite a few member states”.

The findings suggest that the global health security agenda has potential for providing additional linkages for polio eradication to garner European support. However, the linkage between polio eradication and global health security should be approached carefully and might best be accompanied by efforts to set out explicitly (a) the growing global nature of support for the movement and (b) the diversity of issues and explanations of circumstances under which different security elements might be appropriately involved under very controlled conditions.

2.8 The migrant challenge

As highlighted in the introduction (section 1.4) a significant facet of the background context in Europe in the last few years has been the large influx of migrants and refugees – including especially people displaced from areas of conflicts in the Middle East and Africa and economic migrants from Asia and Africa – which has presented a major humanitarian crisis. There has been substantial political impact, with mounting public resistance in some countries to migration, the rise of parties attuned to this view and a straining of political relations within Europe.

There have also been financial implications. The OECD's Development Assistance Committee reported that while ODA has been rising, an increasing amount and share is being directed to dealing with in-donor costs of refugees (e.g. expenditure doubling or more from 2014 to 2015 in Germany, Norway, Sweden, UK).²¹⁰ An interviewee noted that Germany's funding for polio could not be expanded due to the magnitude of the refugee crisis. In the UK, where there is cross-party support for the 0.7% ODA commitment and *"we think polio investment is a good investment and the public understands this"*, it was nevertheless the view of one UK interviewee that *"the political context is shaping the support to polio eradication. There is a diversion of funds due to the migration crisis. There are any numbers of competing interests for the Department for International Development – refugees being one of them – and there are arguments about what oversees development aid can be spent on"*. In the case of Germany, because of other migrant and refugee-related commitments, *"funds have not been diverted, but it's more difficult to divert additional money to polio. The pledge was to support polio eradication in the future, but additional funds cannot be added at this stage due to the refugee crisis."*

Concerns about the health implications of the arrival of large numbers of migrants and refugees have been voiced by the public and politicians, ranging from worries about the added burden on health services to fears about the spread of infectious diseases. Immunization rates are generally high among migrants and refugees from many places, although conflicts in the Middle East have interrupted services there. As noted by a contributor in Norway and as reported in the media,²¹¹ for the first time Médecins Sans Frontières is running an emergency vaccination programme in Europe to protect thousands of migrants stranded in Greece. The health needs of migrants and refugees are mainly in other areas, relating to acute traumas received during their often arduous passage to Europe and long-term non-communicable diseases and mental health issues – i.e. needs for reception and on-going health services.

These fears are significant to the extent that they raise the question of European resilience and capacities to respond to a disease outbreak such as the re-emergence of polio. As noted by a UK contributor, *"migrants and refugees have caused the movement of polio to various places, demonstrating the need to be careful in general about the risks relating to infectious diseases"*. Polio vaccination levels have not remained uniformly high in Europe since it was certified polio-free, particularly due to two phenomena. First, some parents do not allow their children to be vaccinated against a range of diseases due to erroneous fears about possible harmful side effects – a movement that has been seen in many areas of the world and has led to pockets of low-level vaccination coverage. A second has been the lack of comprehensive routine immunization and surveillance programmes in some places – a clear example being in the Ukraine, where plummeting immunization rates since 2009 left space for the 2015 outbreak. That the risk of this outbreak was long anticipated²¹² indicates the degree of failure of political will and capacity in the country to address the challenge.

Rather than concerning the health status of migrants and refugees, the more significant challenge is the 'missed children' in Europe who have not been vaccinated, resulting in both lack of personal immunity and lower than adequate levels of population-level immunity. In other words, the concern with 'missed children' that has been prominent in the discussion about eradication in Afghanistan and Pakistan and about resilience in Nigeria and fragile

states also needs to extend urgently to the European region. This is a political as well as a health challenge in many European countries, which have seen a growing distrust of vaccinations in recent years.²¹³

As a senior figure in GPEI commented, *“one of the challenges in Europe is the fact that polio is no longer visible. As such it is difficult to continue to fundraise; complicated to attract the attention of the leadership to ensure that there is sufficient attention to put in their own countries (surveillance, immunization coverage, etc)”*. This was echoed by a Norwegian contributor, who said *“Europe has a problem because we do not have a resilient system. If we did, migrants would not be a risk in terms of vaccine preventable disease outbreaks. Actually, the risk of transmission is not only for polio but also for other diseases”*. It was noted in the Oslo dialogue that Norway does not have environmental surveillance for poliovirus in sewage. A Malta interviewee considered that the PHEIC status of polio *“can only raise the commitment and the adherence from the member states”* in Europe.

For some, the challenge of migrant and refugee health in Europe was linked closely with the broader question of access to health services, especially during the period when they are on the way towards their destination and not yet registered. One NGO interviewee remarked that *“In terms of health, we need to give full access to all services to people who are there, who are at the border. It is unacceptable to have people in camps who are living in appalling conditions or... have cases of scabies or children who are dying of hunger. That is not acceptable”*.

The Ukraine polio outbreak came within a year of the approval of the European Vaccine Action Plan 2015-2020, one of whose six goals is to sustain the Region's polio-free status.²¹⁴ That outbreak serves as a wake-up call to all in the region.²¹⁵ At the 2015 meeting of the Regional Committee, both the Regional Director of WHO-EURO and the European Commissioner, Health and Food Safety emphasized the need for partnerships within Europe to tackle this challenge. In particular, the Commissioner commented that *“the time had come to renew and strengthen the principles and modalities of cooperation between the European Commission and the Regional Office for Europe.... Globalization meant that vigilance must be increased to guard against the increased movement of communicable diseases: the reintroduction of poliomyelitis into Europe showed that international and intersectoral approaches were essential... The European Commission and WHO must therefore optimize their cooperation, in particular making use of the European Commission's cross-sectoral structure to emphasize the collective importance of people's health for the overall health of the economy”*.^{216,217}

2.9 Looking back, looking forward

The eradication of polio worldwide could reinvigorate public and governmental faith in other health and development initiatives.

UK interviewee

2.9.1 Learning and applying the lessons

Participants in the study dialogues and interviews drew attention to the importance of learning from polio and earlier disease eradication efforts before deciding about any future attempts at new disease eradication targets.

As the largest international health effort in history, the polio eradication initiative has many lessons to offer to global health, ranging from the history of how its elevation in the political agenda of the 1980s through powerful advocacy by Rotary International and others led to the creation of the GPEI, to the processes by which it is now trying to secure its own dissolution and enduring legacy; and from the strengths and weaknesses of its financial, organizational and governance models to its effectiveness in coupling worldwide action on a global public good with national prioritization and capacity building processes.

Getting on the agenda – and staying there

It took 2-3 decades from the introduction of OPV and IPV vaccines for the momentum to build to the point when the GPEI was established.²¹⁸ One key element was that vaccination campaigns – for example, in the USA, Mexico, Brazil and Cuba – in the 60s and 70s demonstrated the feasibility of eradicating polio from countries. Another was that well-organized and motivated champions like Albert Sabin and Rotary International could galvanize action globally²¹⁹ and even overcome resistance by large organizations like WHO, where senior figures initially opposed polio eradication.²²⁰

Avoiding the long tail – “tackling the worst first”

After substantial progress in the first dozen years of the polio eradication initiative, polio incidence ‘flat-lined’ for a decade, provoking harsh criticisms from the IMB when it was created in 2010 and demanding increasingly intensive and expensive efforts in the current Strategic Plan.

Commentators in this study suggested that one important lesson from the polio initiative is that attention should be given from the outset of an eradication initiative to tackling vigorously what are seen as the most challenging countries and this should be done in parallel with the overall eradication effort. The twin approach is seen as both politically and financially expedient – politically because generating and sustaining support depends on being able to demonstrate the major early gains provided by the ‘low-hanging fruit’, and both politically and financially because the sooner the more difficult places are tackled the sooner success there and for the whole initiative will be achieved. This approach should help to avoid the long ‘tail’ in which it seems that very large sums of money are being expended on the last few dozen or hundred cases and questions are raised about cost-benefit and the difficulty of sustaining financial support and political will in the face of other urgent priorities.

Effectively, the recommendation is to ‘tuck the tail under the body’ of the overall eradication programme and avoid an impression that the initiative is finally *“limping over the finishing line”*.

One contributor commented: *“As highlighted in the work of the political scientist Paul Kennedy on ‘pivotal states’,²²¹ we are now learning that if we want to be prepared, safe and secure we need to give attention to the weakest link, considering ‘where there is no doctor’ or ‘where there is no state’. Often we have not done this and there is also a need to pay attention to their evolving capacities to absorb and utilise the assets available.”*

Institutions

For WHO, whose proposed budget for 2016–2017 amounts to nearly US\$ 4.4 billion overall,²²² the winding up of such a large initiative as the GPEI, which currently brings hundreds of millions of dollars a year through the organization, will have substantial impact. This will be seen especially in the financing of staff associated with the vaccine-preventable disease area. It will further challenge the paradoxical positions of donors who call for WHO to reform and be better responsive to areas such as international health crises but persistently refuse the budgetary increases that would enable this to happen. There is a major opportunity for European actors who engage with WHO – and especially for the European Member States – to now try to resolve the paradox and clear the way for WHO to progress. Notably, Germany is currently playing a leading role with respect to revision of assessed contributions to WHO.

Significantly, this crucial juncture in the polio eradication initiative comes at a time when the next Director-General (DG) of WHO is about to be elected. The choice that member states make of the new Director General will signal the extent to which they wish to see fundamental change and are willing to put the collective good of a strong organization working for global health above narrow national interests.

A significant portion of the resources for polio eradication is channelled through Gavi, contributing to vaccine purchase and to the strengthening of immunization efforts. Gavi has been a strong advocate for polio eradication. A senior figure in the GPEI noted that they have been working together with Gavi to see whether the Gavi health system strengthening platform can take over some of the funding that polio has been providing to this. A substantial portion should be taken over by the 85 supported countries themselves – but some countries are not necessarily ready to manage this, *“so there is a risk that the end of polio results in poor quality of routine immunization, poor readiness and preparedness of the countries”*. European actors, including countries and the EC, should use their opportunities both through their contributions to Gavi and their engagement in recipient countries to help reinforce and strengthen system capacities and performance quality.

There are important implications of the ‘vertical/horizontal’ tension for potential future disease eradication efforts and other global health initiatives. While the GPEI has begun to focus on transitioning as part of its endgame, both Gavi and the Global Fund share an important characteristic – they are global programmes which work separately to strengthen horizontal health/public health systems in countries as a regular part of their activities and thus hybrids of ‘vertical’ and ‘horizontal’. As observed by an influential Norwegian global health leader, we are currently in a period when we are seeing the emergence of political

strategies for health, health security, UHC, etc. that are also *“not quite vertical but parallel”*. Attention needs to be given to understanding how these emerging models of governance can be effectively coordinated to achieve their complementary goals efficiently. Again, European actors, as contributions to the global initiatives and as players engaged on the ground, are especially well placed to play a leading role in finding effective solutions to these challenges.

It was also the opinion of a Global Fund representative that the GPEI and the Global fund can learn mutually, including in the area of the clear definition of good quality indicators of progress; and that the existing GPEI infrastructure could be adapted to use in many other areas, including nutrition.

Community and gender issues are inter-related and should be central, not an add-on

Experiences with polio, as well as with other health emergencies such as Ebola, demonstrate the vital importance of understanding and incorporating community-level factors, including systems of hierarchy and governance, political, religious, cultural and social factors and attitudes and histories of mistrust of authorities and organizations; as well as the value of co-opting local actors who have intimate knowledge of the community and can gain its trust and cooperation. These have proved to be decisive factors in matters such as reaching missed children for vaccinations and gaining acceptance of behaviour change to prevent disease transmission.

Within this complex matrix of factors, gender issues stood out for a number of the study's contributors as being of critical importance – including the positive roles that women can play in advocating for and seeking health for themselves and their families, the caring roles they provide, and their ability to enter households and connect with families in situations where men may be excluded. Women have been prominently involved as vaccination volunteers, especially in Pakistan and Afghanistan where they have risked their lives and sometimes been murdered. As noted by a participant in a UK dialogue, in taking up these challenging roles they have not only contributed immensely to the advancement of polio eradication but also taken major steps along the road to empowerment and greater autonomy – another kind of ‘transition’ related to the ending of polio.

Women and children – especially girls – are also more vulnerable, for example in situations of conflict or in societies where they have lower status and restricted autonomy and access to resources. One contributor noted that surveillance systems for polio²²³ are gender blind. A UNICEF guidance note²²⁴ on gender equality markers recommends that gender disaggregated data should be collected from AFP surveillance and polio National Immunization Day coverage surveys, and that gender responsive communication strategies be developed and implemented before each round.

A clear lesson from polio and other disease control and eradication efforts is that community and gender issues should not be regarded as problems to be tackled as they arise, but should be strategically located as central factors in the initial planning and instigation of health initiatives.

The pharmaceutical industry has a crucial role

Polio eradication has required close cooperation with industry, if only as the source of a reliable, adequate and affordable supply of high-quality vaccines. Failures in the history of polio vaccination – from unsafe OPV vaccines that caused polio in the early days of vaccination to insufficient supplies of IPV to meet the requirements for recent switchover programmes – demonstrate how sensitive control and eradication programmes can be to this factor. In this study, European vaccine manufacturers emphasized their need for *“greater predictability and real-time information exchange for efficient planning, as vaccine production requires dedicated facilities and takes more time to establish than typical drugs such as antibiotics”*. There are also regulatory and quality considerations. *“Any decision to stop a vaccine production facility is dangerous because it is difficult to restart afterward; and consequently any future decision on total cessation of polio vaccination would have to be taken very cautiously”*.

2.9.2 The biggest risks and challenges

We have to ensure that in our enthusiasm to strengthening health systems, in getting to UHC, we do not rush the dismantling of the eradication initiative due to a great lack of resources, to supplement these initiatives. That would be dangerous. It has to be done in time, ensuring that every step, every move will not ruin the eradication system and cause it to collapse. The infrastructure that has been built can serve as a nucleus that continues building health systems. Doing it slowly but steadily is the best approach.

Interviewee

With polio eradication now tantalisingly close, several dangers need to be addressed, which were highlighted by participants in the study. First, it is vital that the technical, financial and political effort continues – not just until the last case of polio has been seen and not only until global certification has taken place three years later, but for years to come. The danger is that interest will be lost, priorities shifted, vaccination levels allowed to fall and vigilance relaxed – which could result in a renewed outbreak that, if the world were ill-prepared, would spread like wildfire and undo all that has been achieved. The watchwords to focus attention on how to prevent this are political will, resilience and containment.

The political dimension needs to be active at many levels. It needs to be manifest at the global and regional forums, where leaders can use groupings like the UN, G7, G20 and G77 and the European and African Unions to keep polio eradication on the agenda and ensure that the high profile this affords translates into resources. It also needs to be strongly emphasized in national settings, where committed national leaders not only take overall responsibility for oversight and coordination but in addition demand accountable action from development assistance partners, national cabinets, regional governors and administrators and local officials and community groups.

The second danger is that the polio assets that can be of major benefit in strengthening health systems in general and building capacities for infectious disease surveillance and response in particular may not be well captured or effectively applied in the transitioning process. Strong political, organizational and financial commitments, supported both nationally and internationally, will be needed to overcome this challenge. Equally importantly, solutions will need to be found and given high priority to ensure that specialised assets like surveillance, detection, laboratory analysis and rapid response are not lost in the transition from 'vertical' global to 'horizontal' national programmes. They will remain a vital component of resilience – strengthening and sustaining polio surveillance, detection and response capacities long after the last case of polio has been seen, to ensure that any new outbreaks are rapidly and comprehensively detected and dealt with – as well as a resource for building national capacities for infectious disease control more broadly.

There is also a danger that there may be a failure to capture or effectively apply polio assets that can be of major benefit to shaping and informing any future disease eradication programmes and other future global health initiatives. The knowledge, organizational innovations, insights into effective policy, governance and diplomacy approaches and accumulated experience of how to promote and sustain effective global action form an invaluable set of lessons that must be studied, understood and inculcated in future generations of policymakers and practitioners.

3. CONCLUSIONS: THE EUROPEAN DIMENSION AT A CRITICAL JUNCTURE IN THE POLIO ERADICATION INITIATIVE

European actors have played multiple roles in relation to the global eradication of polio. They have been providers of finance and political support, as well as serving as technical resources, while the European region itself has been undertaking its own efforts to eradicate polio and ensure resilience to prevent its return. It is evident that **Europe's contributions will remain key to securing the polio endgame and legacy, but European actors need to be persuaded to sustain both financial and political contributions** through to and beyond certification of polio eradication.

In this context, **'Europe' is not a single entity but a patchwork** of individual countries, organizations and groups that overlap and interconnect, in and beyond the EU, other economic zones, the European Region of the World Health Organization, institutions of the EU and non-governmental entities such as foundations and charities. **There is great diversity of approaches to polio among these centres of power and circles of influence**, regarding their financial contributions and the political reasons behind their extent and geographical focus of support.

While all of the issues in polio eradication are connected to one another by the interweaving thread of politics, they tend to fall naturally into groups of issues or nodes that are especially closely coupled through the political dimension. This section highlights seven of these political nodes, summarising key issues that emerged in the course of the study's dialogues, interviews and scrutiny of related literature, which (a) cast light on the ways that diverse European actors are approaching the endgame and legacy of polio eradication; (b) indicate specific ways that European actors could do more to provide political support; and/or (c) suggest what kind of arguments for encouraging this may be persuasive with different actors.

3.1 Nature and functioning of the GPEI

As a partnership of multiple agencies working towards the overall goal of eradicating a single disease, **the GPEI is a vertical programme with a complex governance structure**. Both of these characteristics have shaped the evolution of the initiative and the way that European stakeholders and funders perceive its current capacities and future prospects to complete the endgame and legacy transfer work in which it is engaged. And both characteristics need to be seen in the context of a world that has changed radically from the 1980s when the GPEI was established.

The vertical programme character of the GPEI was not pre-determined, since the World Health Assembly resolution in 1988 which led to establishment of the initiative emphasized that *"eradication efforts should be pursued in ways which strengthen the development of the Expanded Programme on Immunization"*. However, in practice the GPEI evolved separately in parallel with the EPI. Through the lens of history, diverse European actors have mixed views about the vertical character. Many acknowledge the positive benefits that it brought,

including a clear, focused and well-articulated goal that attracted resources and high-level support. Since the initiation of the GPEI, the fashion in global health has changed and European donors, in general, now favour horizontal approaches and support the SDG health goal and the focus on country-owned programmes, health systems strengthening and universal health coverage. The polio programme is considered by many, at least in the early years, to have drawn resources away from the EPI into better financed, more remunerative and higher profile polio campaigns. The GPEI's legacy is now identified in the transitioning of assets into country ownership to revitalise routine immunization and support the SDG goal, as discussed in section 3.3.

There are mixed views among European actors about the GPEI's complex governance structure and about the ownership and accountability of the initiative. There is generally strong appreciation of the success in reducing the numbers of polio cases worldwide from more than a thousand a day to less than one per week. However, many share the IMB's frustration that deadlines continue to be missed and large further costs incurred. To varying extents, different European actors attribute this to a combination of the difficulty of front-line vaccination work in some of the most dangerous and inaccessible places in the world and inefficiencies inherent in the governance structure of the GPEI which may sometimes limit its capacity to respond and change in the face of challenges. However, the creation of the IMB by the GPEI is widely appreciated as an innovative and game-changing step and as a potential model for other initiatives in global health.

A further point emerging from the study was that more research is needed to better understand network governance structures such as the GPEI and to draw lessons that can benefit future global health initiatives

3.2 Europe's support to polio eradication: the intersection of finance, political support and commitment

European financial support to polio eradication is often combined with political support. Both kinds of support may flow through a variety of European and global channels, as well as directly within countries where there are bilateral programmes. Both the financial and political support offered are inextricably linked with political commitment and policy positions.

If 'Europe' was a single entity, its overall financial contribution would be 'quite good'

Europe's financial contribution to the GPEI since the programme was established has amounted to US\$ 2.7 billion (19.7% of the total) in the period 1988-2015, while the region currently accounts for about a quarter of world GDP and more than half of world Official Development Assistance (ODA). In the 10 years 2006-2015, Europe's overall contribution was 16.5% of the total, but this steep drop in proportion was a reflection of the entry of the Bill and Melinda Gates Foundation (BMGF), which has contributed nearly US\$ 2.9 billion, mostly during this recent period. If this BMGF component is subtracted, Europe's contribution to the remainder for the whole period was 24.3% for and for the years 2006-2015 was 22.2%.

The EU currently accounts for about 24% of world GDP and more than half of world ODA. Thus, Europe's contribution to the GPEI was, as a proportion, roughly in line with its share of global GDP – but proportionately less than half as much of its very large share of global

ODA. Why has a region giving extremely generously to ODA in general made the political choice not to give more of its support to polio eradication?

'Europe' is not a single entity.

Within the patchwork of individual countries, organizations and groups that constitute 'Europe', the largest financial contributions in recent years have come from the UK, Germany and Norway, but there are differences in approach within even this select group, as discussed below. A number of countries reduced or abandoned their donations to the GPEI following the severe financial crisis in 2008 and only some returned to increasing contributing more recently. Some large economies, including France and Italy, and some traditionally generous ODA providers, including Sweden and Denmark, do not currently contribute or, like Luxemburg, give comparatively little. While the EU as a region contributes the most globally to ODA²²⁵ and European institutions (Commission, Investment Bank, Development Fund) are collectively the fourth largest global ODA donor (after USA, UK, Germany), the EC has been a limited contributor to the polio eradication initiative up to 2015.

Overall, it is evident that Europe's 'quite good' total contribution to polio eradication is being made by a very small number of sources, while many other countries and the EC have decided to contribute very modestly to the GPEI or place their assistance elsewhere.

What motivates European actors to support or not support polio eradication?

An important motivating factor for some donors is sustaining long-standing support for the global public good of polio eradication. This is reportedly the case for major financial contributors like the UK and Norway, as well as underlying the strong political support afforded by Monaco. Support is also coupled with considerations of efficiency and effectiveness, or 'value for money', combined with a concern for how specific initiatives can be used to advance wider development goals. The emphasis on value for money is very significant as there were also indications of some frustration that the fate of funding has not always been transparent; and a view that the case for an additional US\$ 1.5 billion to fund the added costs of the Strategic Plan after the 2015 target was missed should be set out in a much more detailed and explicit way.

Norway's approach has been framed in the context of its long-standing and well-recognised efforts to support sustainable development, poverty alleviation and peace building and to promote good governance, human rights and civil society as foundations for development. In addition to funds it contributes directly to the GPEI, Norway also channels polio support through Gavi. Strikingly, Norway's near neighbours, who share its broad approach to development and have been the most generous group in the world in terms of ODA as a percentage of GDP, have not matched Norway's support for polio eradication. GPEI contributions from Denmark ceased in 2006, those from Finland in 2010 and those from Sweden were interrupted in 2006 and it then made only one further donation (US\$ 0.7 million in 2013). The fall in support was evidently in part a response to the economic downturn, but is also understood to reflect a preference for country health systems building over support for vertical programmes, leading to the conclusion that the future of the polio eradication initiative is best secured by closely linking it with these broader health goals.

The economic case for investing in polio eradication has also been important in sustaining support – especially as the long ‘tail’ of the initiative has extended with few cases remaining. Evaluation²²⁶ has shown that the overall costs of eradication will be much less than the long-term costs of perpetual control if polio is allowed to continue.

Reputation gain or risk is another motivating factor for decision-makers. There is a political reality that financing the interruption of transmission is a visible achievement and very incentivizing for its supporters, while financing resilience is much less interesting, but poses a serious risk if the effort fails.

Stress was also placed on the **cost-sharing and leverage element**: e.g. a significant portion of the investment in polio eradication has been spent on strengthening routine immunization and health systems, so there are benefits for other disease agendas. The polio surveillance network was cited as an example of a high-performance system which not only enables rapid detection of polio cases worldwide but has been expanded in some countries to include measles, neonatal tetanus, yellow fever, and other vaccine-preventable diseases.²²⁷ It was suggested that more could be done to emphasize linkages with other infectious diseases, such as malaria, where people might be polio partners.

A significant component of the investment case for European countries is related to the key element of how polio eradication can contribute to wider global health and health systems strengthening goals. For Germany, these factors and also decisions about channels of funding have been important. Germany balances support it gives to global health through multilateral channels, including GPEI, Gavi and the Global Fund, with bilateral support which is sometimes preferred for targeting and in order to couple financing with a strong German technical assistance component. In 2016 Germany was persuaded to pledge money for polio eradication in Pakistan at a time when they were thinking of pulling out of the health sector there, as their general country strategy was to encourage Pakistan to be more responsible for its own health services.

Under the current criteria for EU funding of global initiatives, only the Global Fund and Gavi qualify among the many candidates in the health sector, but the EC provides polio-related grants in its funding to WHO and the GPEI lists EC contributions totalling c. US\$ 250 million since the 1980s. Most EU assistance takes the form of bilateral contributions through country programmes and support for polio may be included in this. For example, in December 2014, €35 million was committing to sustainable routine immunization and €20 million to polio eradication in Nigeria.

The position of the EU's Parliament and Commission on contributing to polio eradication has been strengthened in the last few years, evidently in response to two sources of pressure. One was the effort of the GPEI partners to raise resources through the mechanism of the Global Vaccine Summit in 2013, which attracted the participation of the President of the EU²²⁸ and marked an upswing in the EC's contributions to the GPEI. The second was a lobbying by many actors across Europe for increased polio funding, which resulted in the European Parliament passing a written declaration in 2015 in support of polio eradication and subsequently three new amendments to increase EU funding for it.

European actors have made important contributions to the political dimension, but overall ‘could try harder’

Important political contributions to the polio eradication initiative include arguing the case at national, regional and global levels, persuading other supporters/potential supporters to contribute more and stiffening political commitment in polio-affected and resilience-weak countries. There were comments from a number of sources that significantly more could be done by European actors – in some cases, separately, but especially collectively.

Thus, while as noted ‘Europe’ must be understood as a complex series of individual entities and groups that overlap and interconnect, respondents commented that **these centres and circles of influence are not well coordinated with respect to polio eradication** and it is evident that funding trends, political support and degrees of engagement vary substantially among them. Individual European actors are also involved in circles of influence that extend beyond the continent and again their degree of engagement with respect to polio eradication is variable. As suggested by some interlocutors in this study, the lack of effort to build synergies and coordination on support for polio among European actors is seen as a key political weakness for eradication efforts.

With regard to bolstering a coherent political will among diverse European actors, several ideas emerged from interviews:

- At the national level, the lack of coherence between government departments overseeing aid, foreign policy and global health was highlighted as an important political gap. Inter-departmental coordination was seen as a potential starting point for increase the coherence of European support for polio activities
- Regionally, it was suggested that an exchange forum be established to share information and views, encourage wider participation and coordinate action.
- In national contexts where polio-related activities are on-going and receiving external support, European actors need to ensure that country representatives are well-informed and well-positioned to coordinate with local and international partners.

NGOs have played key roles in the polio eradication initiative – beginning with the initiation of the entire programme in the 1980s, major fundraising contributions and continuing advocacy efforts by Rotary International and its European branches. The advocacy conducted by a host of other civil society organizations in Europe has been extremely valuable, especially in encouraging financial and political support from major European donors. **Their continuing pressure is essential in the endgame and legacy stages – a fact that should be born in mind when members of various organizations, including Rotary International, have been reportedly evincing a desire to move on and asking “what’s next”.**

3.3 The polio legacy: transitioning and translating

Transitioning assets to country level

The Endgame and Strategic Plan 2013-18 includes the transfer of 'polio assets' from the GPEI to countries, with the aim of preserving the assets and using them to strengthen national health systems and reinforce the movement towards UHC which forms part of SDG3. The PPG has suggested ways in which donors could support transition planning, e.g. advocacy with national/state governors and key stakeholders to prioritize transition planning; contributing to global and country-level discussions; and providing funding and/or in-kind support for a rigorous transition planning process.

Transitioning must be understood both in the context of transfer of ownership from an external initiative to national governments, but also as a movement of assets from a vertical disease eradication structure into horizontal health systems. Many interlocutors in this study commented on these aspects and their implications for success. Among important perspectives emerging were:

- For the future, global health efforts need to be designed to strengthen support for the national health system. There is a systematic weakness in choosing an approach that relies on parallel systems.
- At the same time, it is important to understand what has been the attraction and perceived value of vertical programmes. As one UK interlocutor observed: *"Looking at new global initiatives, we need to be very cognizant that they are attractive as vertical programmes but need implementation as horizontal programmes. In the very early days, some senior figures at WHO wanted to deliver polio eradication within routine immunization: but the evidence from elsewhere showed that it needed campaigns and even countries with fully functioning routine services still stopped polio with campaigns. It cannot be done only through routine services. The lesson learned for other global health priorities is the need for a critical mass for intervention"*.
- UHC requires strong health systems as a centre piece. Transfer of polio assets into national health systems can assist this – but it can only work where there are already some basic capacities and human and financial resources in place.
- Ensuring a sustained and effective legacy of polio eradication requires ensuring that the knowledge and processes developed over the course of the Initiative are retained. This means ensuring that core skills and processes are not maintained as parallel capacities but integrated into national health systems capacities. This process is complex and difficult.
- The UHC debate has not sufficiently highlighted public health challenges and concerns. The debate about health systems and public health systems also links with the issue of building public health security and the workings of the International Health Regulations. Historically, health systems were built upon a public health foundation.
- A clear role was suggested for all those that undertake development cooperation in health, *"to think about how their current programmes can actually work with making*

use of assets from the polio eradication and help the transition into systems and countries that have the capacity to cope, not only with polio but with other diseases that require surveillance”.

The dialogues also underscored tensions between the need to maintain health systems and public health systems as separate entities and the need to sustain resources and priorities for public health action under the pressure of demands for extending health systems and services. A possible approach to this dilemma could be a ‘gradual absorption’ of vertical into horizontal structures, while recognising the need for some granularity within the developing health system. Rather than a complete dispersal of assets from polio eradication into an amorphous health system, there could be a development of a clearly demarcated disease control element. Several core polio assets and functions would be well suited to such an element; including surveillance, laboratory testing and skills in areas such as epidemiology, community outreach and micro-planning.

This demarcated disease control element would be a key asset in building resilience for polio (section 3.4) and also be the natural locus for health security more broadly (section 3.6), being the repository of skills and assets that would be in the front line of defence against disease outbreaks.

Polio and the Expanded Programme on Immunization

The GPEI evolved in parallel with the EPI and some in Europe view this as a major flaw that can now be rectified by transitioning polio assets into EPI within national health programmes – a process that has already begun to happen in some places by polio workers spending part of their time performing routine immunization and other broader health functions.

Major concerns among European actors were about the political will and technical and financial capacities in countries to strengthen their routine immunization and to effectively absorb and sustain related polio assets. It was felt that European actors could take a more proactive role at the bilateral level, both individually and in a collective effort, to encourage governments and ministries of health in this regard. It was also recognized that ongoing external financing would be needed in some cases to support this, especially in poor and fragile states.

Transitioning is a two-way street

Transitioning and sharing of assets does not flow in a single direction from the polio eradication initiative to other areas of health. There are opportunities for polio to draw on and benefit from non-polio assets in the health system, such as combining the collection of monthly surveillance data for polio with areas like reproductive health data.

Translating the polio legacy to the global level

As well as its assets of value for national health systems, the legacy of polio eradication has important implications for global institutions, architectures and governance. These include lessons that can be translated into learning for global agencies and development assistance partners – such as about forming and managing partnerships, mobilizing political support and resources and establishing innovative new governance mechanisms; and knowledge of conditions that facilitate or hinder disease eradication efforts. For example, as well as polio, newer challenges such as the Ebola and Zika viruses highlight a need at the global level for emergency response mechanisms and streamlined processes to mobilise support, as well as promote and sustain disease control activities in the longer term.

The global call for emergency response mechanisms in health provides opportunities, for example, to link the global health and health security agendas, as discussed in section 3.6. The experience gained in polio eradication for governance and the relationship to health diplomacy as an entry point for governments working together can be valuable, but the

lessons need to be extracted and thought through. Respondents considered important points for donors: if we are moving into a new phase, how do we measure success; how do we assign responsibility; and how do donors explain to their constituencies how they make a difference? However, **few answers could be found to these global transition questions: this is an area that clearly needs more study and urgent action, if the opportunity is not to be lost.**

The current and future focus on transitioning, legacy and resilience with regard to polio eradication evidently has implications for broader global health governance challenges. This identified a gap in data and dialogue on these linkages which could be an important avenue for future research.

In addition to countries needing to internalize polio assets from the GPEI, transition planning also needs to be applied by the GPEI partnership including WHO and the donors to the GPEI. This study noted that transition planning for the donors themselves has received little attention. European countries can take the lead in undertaking this activity – first, within their own institutions and second within regional bodies like the EC and WHO-EURO, as well as at the global level within the WHO.

3.4 Resilience, containment and challenges for Europe

Polio eradication is not yet a ‘done deal’

The attention of supporters of the GPEI is turning increasingly to what will follow polio eradication – including such issues as transitioning, the polio legacy, potential new disease targets – and it is tempting for some to assume that eradication is a ‘done deal’ and effectively complete. It is vitally important that this temptation be avoided and that the resolve of supporters remains strong to go on contributing both financially and with political commitment, to ensure that eradication does not fail. Everyone in global health - not just polio advocates - must continuously ask the question: *“what happens if we don’t succeed with eradication given that 60 to 80 countries are at risk?”* This question should galvanize action to prevent failure from occurring and to build resilience and strengthen containment. Europe has too much to lose to ignore this risk.

Resilience and containment are the key messages

Resilience requires strong polio surveillance, detection and response capacities long after the complete certification of polio eradication, to ensure that any new outbreaks are rapidly and comprehensively detected and dealt with. The sudden reappearance of four new cases in Nigeria in mid-2016 was a blow for the country, which previously not seen a WPV case since July 2014. It was a strong reminder to all countries of the need to establish and maintain a high level of resilience to prevent the return of polio. It was also a signal that current efforts to integrate polio functions within other services require a balancing against the risk that very specific polio-related activities (e.g. environmental sampling and a system that detects AFP) might be compromised.

The GPEI warns that vaccination coverage is not high enough in a number of countries; there are places where surveillance systems are insufficient, so there could be outbreaks that go unnoticed for a certain time; and more investment is needed.²²⁹ **The support of international donors is needed to continue the activities in countries which continue to be at risk of resurgence of polio**, where vaccination campaigns and immunization days are needed to complement routine immunization coverage and boost population immunity and where IHR compliance is poor. The weakness of immunization coverage, of IHR implementation and of response to the PHEIC status of polio form a nexus of intersecting problems that should sound an alarm to all concerned with global health security – including

the GPEI, WHO, member states and agencies like Gavi. European actors need to take note of this and respond strongly.

Containment is complementary to resilience, demanding rigorous, pro-active measures to prevent any accidental release of live poliovirus and to sustain the capacity to limit the spread and impact of any release or reappearance, as described in the global action plan.²³⁰

The risks of re-introduction of poliovirus after the last case has been certified come from a number of sources. One such risk is the failure of containment of WPV from poliovirus-essential facilities²³¹ for vaccine production, research and repositories; another is viral infections that are vaccine-derived, a risk that will continue until all OPV is replaced by IPV, which is, however, more expensive and requires more highly trained personnel to administer. Other possible risks include the escape of poliovirus from infected biological samples held in storage; and the potential for bioterrorism. Once the eradication of polio has been certified three years after the last case has been detected, and the GPEI wound down, there will still be a need to organize and fund containment activities including laboratories and surveillance.

Challenges for Europe

Resilience and containment are not just for others. While the WHO-EURO region was officially certified as polio-free²³² in 2002, it cannot afford to be complacent about the issues of resilience and containment among the current membership, now numbering 53 countries. Incidents in the last few years – including the importation of WPV from India into Tajikistan in 2010 and its subsequent expansion into Russia and other neighbouring countries,²³³ the appearance of OPV-related cases²³⁴ in the Ukraine in 2015 and the accidental release of 45 litres of a concentrated solution of WPV from a production facility in Belgium²³⁵ in 2014 – illustrate the vulnerability of Europe and the potential danger if resilience is not robust and containment is not effective within the region itself. This was acknowledged in the 2015 meeting of the WHO-EURO Regional Committee.²³⁶

WHO-EURO leads the overall European effort on polio, working closely with the ECDC. The Ukraine polio outbreak came within a year of the approval of the European Vaccine Action Plan 2015-2020, one of whose six goals is to sustain the Region's polio-free status.²³⁷ That outbreak serves as a wake-up call to all in the region.²³⁸ At the 2015 meeting of the Regional Committee, both the Regional Director of WHO-EURO and the European Commissioner, Health and Food Safety emphasized the need for partnerships within Europe to tackle this challenge. In particular, the Commissioner commented that *"the time had come to renew and strengthen the principles and modalities of cooperation between the European Commission and the Regional Office for Europe.... Globalization meant that vigilance must be increased to guard against the increased movement of communicable diseases: the reintroduction of poliomyelitis into Europe showed that international and intersectoral approaches were essential... The European Commission and WHO must therefore optimize their cooperation, in particular making use of the European Commission's cross-sectoral structure to emphasize the collective importance of people's health for the overall health of the economy"*.^{239,240}

There are important resilience issues among the many complex dimensions related to the large influx of migrants and refugees to Europe, as highlighted in section 3.7.

3.5 Choosing, sustaining and linking priorities for global health

Selecting future disease targets: eradication versus control

Sporadic discussions have taken place since the 1980s and the eradication of smallpox about the questions of possible disease eradication targets and how to decide between the approaches of eradication or control. With the end of polio now in sight, increased attention has been paid to what may be the next targets. In this study, sources highlighted important overarching dimensions of such deliberations, drawing both on the polio story and on experience with earlier eradication efforts. It was seen that past lessons were often ignored. Many lessons were already clear²⁴¹ by the 1980s, including ones relevant to selecting, organizing, financing, conducting and finishing disease eradication initiatives and the tensions between vertical and horizontal approaches.

Future disease eradication or other global health initiatives must be designed with careful consideration to try to anticipate and avoid the characteristic weaknesses in organizational architectures and the tendencies to repeat past mistakes. Occasionally, conferences and publications have considered these matters²⁴² but seem to have been subsequently ignored and there do not seem to be forums or platforms now available for systematically examining and extracting the learning and connecting it with those who need to apply it. The creation of such forums or platforms in Europe is one of this study's recommendations.

There at times appears to be a perceived continuum between control, geographically specific eradication and eventual global eradication. Within this context, major emphasis has often been on advancing rigorous technical criteria that need to be met to progress to global eradication. However, these criteria often neglect the fact that circumstances can change radically during the course of an eradication programme, ranging from scientific issues to political factors (such as the emergence of new conflicts and political shifts within countries). European participants were often of the view that these political considerations (whether local, national, regional or global and within and between institutions) were of the utmost significance in determining the outcome of such deliberations. 'Rational' or 'evidence-based' decision-making is therefore only a part of the picture.

Sustaining priorities and the challenge of 'disease schizophrenia'

The challenge of how to sustain the attention and support needed through a protracted disease eradication campaign is compounded by 'donor fatigue' and the tendency to want to move on the moment success seems to be at hand. Interlocutors in the study noted that health issues only gain political attention – and the resources that flow from this – when they become crises; but crises are soon forgotten when they subside and other priorities emerge. During crises, bold promises are often made (as in the Ebola outbreak, when governments said 'money is not an issue') but forgotten when the crisis is past – described by a UK interviewee as 'disease schizophrenia'.

Study contributors considered that the declaration of polio transmission to be a PHEIC had been an important step in raising its visibility and the attention received, but some thought the impact had not been sufficiently high and that it was lessening as time went on and the PHEIC status continued. They felt that European voices should be strong in demanding action commensurate with an emergency. European actors could take the lead in convening an international gathering, which might be entitled '*Polio – what can we learn? Eradication, transition and legacy for health systems*' to consider, among other questions, "*what if polio eradication fails?*"

Another important approach cited as a means to sustain strong political commitment is to use high-level regional and global meetings to reaffirm publicly the resolve of leading politicians. The UN has supported polio eradication in this way²⁴³ as have Commonwealth

Heads of Government Meetings.^{244,245} The G7 (which includes France, Germany, Italy and UK and whose meetings are attended by the EC, the European Central Bank and the President of the Eurogroup of finance ministers of Euro-using countries)²⁴⁶ has repeatedly affirmed its continued commitment to reaching polio eradication targets, most recently in the G7 summit hosted by Japan in 2016. Notably, in the Final Communiqué²⁴⁷ and in the subsequent Communiqué of G7 Health Ministers meeting in Kobe,²⁴⁸ the polio commitment was framed in the section dealing with UHC and health systems strengthening.

While the G7 represents some 10% of the world's population, the newer G20, which includes six European countries plus the EU, represents about two thirds of the world's population, as well as 85% of the gross world product and 80% of world trade. The G20 may become increasingly significant in relation to global health issues as power shifts and new drivers of the global health agenda emerge. This movement of the centre of gravity of political power and influence will undoubtedly affect the selection of priorities, the mechanisms of funding (with replenishments of large global 'pots' perhaps become increasingly unsustainable) and the issue of who joins the 'coalitions of the willing' around future global health initiatives. In the most recent G20 summit, hosted by China in September 2016, the only health topic was the growing global crisis of antimicrobial resistance.²⁴⁹ The G20 made no reference to polio; nor did the G77 group of 134 developing countries at its last meeting. The German Chancellor is expected to promote polio eradication within the G20 when Germany hosts its meeting in 2017.

Creating linkages

It was overwhelmingly the view of participants in this study that the future of the polio eradication initiative (in terms of sustaining political and financial commitment and optimising the impact of its legacy) will be best secured by closely linking it with broader health goals. The already strong linkages that have been established between polio and the SDG agenda were therefore widely welcomed and seen as a key basis for a continuing dialogue with decision-makers and funders.

At the same time, other emerging challenges and initiatives (in global health and beyond) were seen as opportunities for additional linkages that could, like the SDGs, provide a two-way benefit, attracting support for polio eradication and transitioning and bringing valuable assets to the areas they link with. In particular, the focus of global attention on the IHR and global health security was cited by some Europeans as a major opportunity for linkages to polio. This is discussed in section 3.6 below.

Beyond global health, one facet of the changing aid context in the last two decades has been in the complex relationship between development assistance, humanitarian assistance and disaster/emergency response, where the need for better coordination and sharing of policies and processes has become increasingly apparent. This has been particularly obvious when (as in the case of Ebola in West Africa and in the case of polio in several countries) the capacities for prevention, detection and response to a disease outbreak are impaired by a combination of conflict and weak health systems; and the capacities for recovery need to be built through a combination of short-term relief and long-term systems support. It was suggested that polio eradication can develop linkages with the evolving debate on how to better manage this nexus of aid modalities. Furthermore, the legacy element can be a channel for developing new capacities that offer opportunities to both sides.

3.6 Global health security and the International Health Regulations

Interest in global health security has increased markedly during this century, driven by twin concerns about pandemics and bioterrorism. This is a significant area of European interest and European actors have played prominent roles in the evolving responses to threats to global health security

The long-needed reform of the IHR which was accomplished in 2005 was given decisive impetus by the 2003 SAARS outbreak and the 2004 epidemic of avian influenza A (H5N1). Polio is a notifiable disease under the IHR²⁵⁰ and, importantly, the declaration of polio's continuing international spread to be a PHEIC by WHO placed it squarely in the arena of global health security.

There was some concern expressed in the study that engagement in the IHR is viewed too narrowly as a health issue. One comment was that *“migrants and refugees have caused the movement of polio to various places, demonstrating the need to be careful in general about the risks relating to infectious diseases. The IHR provide a framework for WHO – but others like the International Organization for Migration need to recognise the importance of the IHR”*.

European engagement in the GHSA has been substantial, with a dozen European countries being members (including Germany, Norway and the UK) and Finland is a member of the GHSA steering group and served as the lead country in 2015.²⁵¹

This study identified a range of views about developing connections between polio and the global health security agenda. Some see the opportunity for polio eradication to gain political traction and support through association with the GHSA. For some, public health surveillance, regarded as being at the core of the GHSA,²⁵² provides a key linkage between global health security and polio, to the extent that GPEI surveillance assets often lead the field in parts of the world where health systems are weak. For others it is an issue of gaining greater coherence between different initiatives and mandates.

Alternative perspectives cautioned against linking polio eradication too closely to the GHSA, for fear that the Agenda is not globally inclusive on one hand, and that it too warmly welcomes the increased role of security services in health on the other.

3.7 The migrant challenge in Europe

There are important health issues among the many complex dimensions to the large influx of migrants and refugees to Europe – especially involving people displaced from areas of conflicts in the Middle East and Africa and economic migrants from Asia and Africa – that has been experienced during the last few years. The arrival of large numbers of people on Europe's southern shores has not only presented a humanitarian crisis and economic stress, but has strained many aspects of European political relations, within and between countries. It has also raised fears about the potential spread of diseases. In one sense, these fears are not well founded – immunization rates are generally high among migrants and refugees. Their health needs are mainly in other areas, relating to acute traumas received during their often arduous passage to Europe and long-term non-communicable diseases and mental health issues – in other words, needs for reception and on-going health services.

But in another sense the fears are significant in that they bring into question the resilience of Europe to deal with an outbreak of an infectious disease like polio. Polio vaccination levels have not been uniformly maintained since the region was certified polio-free. This is primarily

for two reasons. One has been a deliberate decision by some parents not to allow their children to be vaccinated against a range of diseases due to erroneous fears about possible harmful side effects – a movement that has been seen in many affluent economies in Europe and elsewhere²⁵³ and has led to pockets of low-level vaccination coverage. A second has been the lack of well-conducted routine immunization and surveillance programmes in some places – a clear example being in the Ukraine, where plummeting immunization rates since 2009 paved the way for the 2015 outbreak.²⁵⁴

The core challenge *per se* is therefore not with the health status of migrants and refugees (and, at least as significantly, of the many millions of travellers who come to Europe every year from all parts of the world for business and tourism as well as in the hope of settling). Rather, the core challenge is with the ‘missed children’ in Europe who have not been vaccinated, resulting in both lack of personal immunity and lower than adequate levels of population-level immunity. A Norwegian contributor observed that *“Europe has a problem because we do not have a resilient system. If we did, migrants would not be a risk in terms of vaccine preventable disease outbreaks”*.

The extent of the migration challenge in Europe has evidently been a factor in restraining some donor contributions to polio eradication.

3.8 Looking back, looking forward: European and global dimensions

Turning lessons into learning

The end of polio has major implications for individual institutions at European and global levels that currently act as supporters and implementers of the GPEI. It also brings important lessons about the experiences, pros and cons of a disease eradication initiative – including lessons that relate to the architecture and governance of health levels and that need to be recognised and applied if the world is to benefit from this aspect of polio’s legacy. **European actors need to be much more pro-active in understanding, confronting, absorbing and adopting the lessons and emphasizing the need for others to do the same.**

One response to the question *“why didn’t we learn from history”* is that careful analysis of the lessons available from several disease eradication efforts in the 20th century was overtaken by a coalition of public health figures (especially some who had been closely engaged in smallpox eradication), champions of ‘good causes’ and political leaders who recognised an opportunity for popular action. The endgame of polio, which has proved to be much more protracted than that of smallpox, provides an opportunity for donors, development agencies and implementers of global health initiatives to take the time for reflection and internalization of the lessons of the polio story.

This is best accomplished through a combination of individual and collective action. Individually, those actors contemplating new disease eradication missions need to hold internal enquiries to identify the lessons and implications and incorporate them into forward policies. Collectively, they can hold meetings and dialogues on the lessons, share perspectives and reach a collective understanding that can shape coordinated policy approaches for the future. **Europe is especially well placed to undertake this collective approach, because of the high concentration of global health actors it contains and the tradition of dialogue and development of joint understanding on issues of common concern.**

What should Europe do?

Europe needs to confront the three critical risks that the polio eradication initiative now faces: the risks of failure of eradication itself; of failure to adequately capture and the make the best

possible use of the polio assets; and of failure to learn the lessons from polio and other disease eradication and control efforts. In doing so, European actors need to ensure that they are making a financial contribution that is commensurate with their capacities – but even more, that they are making a strong political contribution to addressing the risks. It is this political dimension and the quality of the political connections forged and how the linkages are exploited that will determine the success or failure of the initiative.

Europe should not take a backseat or act as a passenger. As a traditionally strong player in development assistance and a significant contributor to polio eradication, Europe evidently has much to contribute to the current and future phases of the polio endgame and legacy. But 'Europe' is a complex series of individual entities and groups that overlap and interconnect and these centres and circles of influence have not been well coordinated with respect to polio eradication.

The evidence collected in this study suggests that **Europe should do the following ten things:**

1. Europe can sustain and increase its **financial support** to polio eradication, at a time when substantial additional costs have been added as a result of the delay in achieving global interruption of WPV transmission. Expansion in the overall contribution, from existing and new partners, bilaterally and multilaterally, public and private, is vital and needs to continue for the next 10 years to support not only the ending of polio but also the transition of polio assets to countries and the building of resilience to prevent the return of polio outbreaks. **The eradication of polio is a global public good from which the entire world will benefit: European countries should not be 'free riders'. Many could try harder to contribute, financially and/or politically.**
2. European countries and institutions acting as development assistance partners can provide **political support** and strengthen political will in the countries still affected and at risk, **supplying support and technical resources** for the endgame and transitioning to **ensure continuing capacity for resilience** when the last case of polio is history and long-term **benefits to national health systems** and UHC. Particular attention needs to be paid to ensuring that capacities for surveillance and laboratory work are not lost, but built upon as the core not only of polio resilience but of a broad public health capacity, including routine immunization and health security.
3. In supporting the endgame and the effective transfer of the legacy of polio eradication to countries and to the global level, Europe must first recognize and then promote the linkages that exist and/or can be developed between polio eradication and a number of health initiatives that are of high priority. These include the SDG3 of strengthening health systems and achieving UHC, the strengthening of routine immunization as the bedrock of public health, and the reinforcing of health security through the GHSA and robust IHR.
4. **Europe should ask itself and the world the question “why can't we afford polio eradication to fail?” and take the lead in convening the actors to seek collective answers to ensuring success, within the context of an international gathering which might be entitled 'Polio – what can we learn? Eradication, transition and legacy for health systems'.**
5. The European region can **reinforce its own efforts** to ensure containment and resilience to prevent the reappearance of polio, led by WHO-EURO but with close cooperation and support from the EC, International Organization for Migration and other actors. Children 'missed' in vaccination efforts have been a major problem for the last polio-endemic countries; they are also significant for Europe, where resistance to

vaccination by some parents has lowered coverage levels and weakened population immunity. European cooperation to strengthening polio resilience and containment capacities is vital and must involve collective, coordinated action between WHO-EURO, the ECDC, European Commission and individual countries.

6. **Europe cannot act alone – but it must act together.** It must first try to foster dialogue and maximise collaboration and coherence among its own constituents; and then work alongside its partners in the global and regional constellations of actors, as well as in partnership with the countries where the polio endgame and legacy are under way. Europe should play a leading role in ensuring that global health actors work together.
7. European actors can seek mechanisms to ensure that the **transitioning not only benefits national health systems but also results in valuable polio assets being captured and effectively utilised by European and multilateral institutions, with a strong emphasis on joint learning.** Europe can play a leading role in creating and participating in forums to systematically examine and extract the lessons from the history of polio eradication. And it can work collectively to apply the learning to all relevant areas of global health – including how to make the selection of targets for disease control or eradication; how to overcome the challenge of sustaining priorities over a long period of time and avoid “disease schizophrenia”; and how to ensure that community and gender issues are strategically located as a central factor in the initial planning and instigation of health initiatives.
8. As a key donor and thought leader in international aid, Europe should be pro-active in bringing together the key actors dealing with transitioning (including the GPEI, Global Fund, Gavi and other initiatives with potential linkages such as the Global Health Security Agenda and Healthy Systems, Healthy Lives) to facilitate better coordination and complementarity.
9. Europe can play an important role in **supporting and reinforcing the role of the Polio Transition IMB**, especially in three areas: (1) encouraging it to tackle the translation of the polio legacy into global learning as well as the transitioning of assets to country levels; (2) encouraging the GPEI to ensure broader ownership of and accountability by all the partners in the legacy process; and (3) leveraging greater responsiveness to any criticisms and calls for action that the IMB makes.
10. **Europe can take the lead in fostering a joint approach** to looking at the GPEI, WHO, Gavi, Global Fund and other initiatives that work in global health, health systems strengthening and global health security, to minimise potential duplication and overlap and increase complementarity in the system.

Europe can use its multilateral and bilateral capacities to engage with many countries and institutions as a partner and honest broker. As an influential source of resources, ideas and leadership, Europe should **be pro-active to serve as an ideal partner for overcoming the challenges and addressing the composite nature of the last mile in eradication, transition, and systems issues now emerging, to ensure that the potential legacy for health globally is not lost.**

4. REFERENCES

- ¹ GPEI Investment Case. April 2016. Geneva: WHO, 2016.
<http://polioeradication.org/wp-content/uploads/2016/07/InvestmentCase.pdf>
- ² Attributed to the designer Charles Eames in: G. Bizios, *Architecture Reading Lists and Course Outlines*. Durham, N.C.: Eno River Press, 1991, 494.
- ³ M.J. Toole. So close: remaining challenges to eradicating polio. *BMC Med* 2016, 14, 43.
www.ncbi.nlm.nih.gov/pmc/articles/PMC4790056/
- ⁴ Independent Monitoring Board of the Global Polio Eradication Initiative. Now is the time for peak performance. Twelfth Report: October 2015. <http://polioeradication.org/wp-content/uploads/2016/07/01.pdf>
- ⁵ Global eradication of poliomyelitis by the year 2000. Resolution WHA41.28, Forty-First WHA, 13 May 1988
www.who.int/ihr/polioresolution4128en.pdf
- ⁶ See, for example:
 - a. E.P. Renne. *The Politics of Polio in Northern Nigeria*. 2010. Indiana University Press, 2010, 192pp.
www.iupress.indiana.edu/product_info.php?products_id=348665
 - b. B. J. Kennedy, D. Michailidou. *The Politics of Polio Eradication*. Project Syndicate 15 March 2016.
www.project-syndicate.org/commentary/immunization-campaigns-need-political-support-by-jonathan-kennedy-and-domna-michailidou-2016-03
 - c. S. Nishtar. Pakistan, politics and polio. *Bull. WHO* 2010, 88, 159-160.
<http://www.who.int/bulletin/volumes/88/2/09-066480/en/>
 - d. L.O. Gostin. Global Polio Eradication: Espionage, Disinformation, and the Politics of Vaccination. *Millbank Quarterly* 2014, 92, 413-417.
www.milbank.org/the-milbank-quarterly/search-archives/article/3978/global-polio-eradication-espionage-disinformation-and-the-politics-of-vaccination
 - e. J. Kennedy, M. McKee, L. King. Islamist insurgency and the war against polio: a cross-national analysis of the political determinants of polio. *Globalization and Health* 2015, DOI: 10.1186/s12992-015-0123-y.
<https://globalizationandhealth.biomedcentral.com/articles/10.1186/s12992-015-0123-y>
 - f. S. Taylor. In pursuit of zero: Polio, global health security and the politics of eradication in Peshawar, Pakistan. *Science Direct* 2016, doi.org/10.1016/j.geoforum.2016.01.004
www.sciencedirect.com/science/article/pii/S0016718515302578
 - g. D. Vargha. Between East and West: Polio Vaccination across the Iron Curtain in Cold War Hungary. *Bull. Hist. Med.*, 2014, 88 : 319–343. <http://eprints.bbk.ac.uk/13639/7/13639.pdf>
- ⁷ M. Haslegrave. *Polio eradication: history, lessons and legacy. A review and annotated bibliography*. Geneva: GHP, 2016, in the press.
- ⁸ S.A. Matlin. M. Haslegrave. *A review of literature on polio eradication*. Geneva: GHP, 2016, in the press.
- ⁹ D.L. Heymann, R.B. Aylward. *Poliomyelitis*. Orphanet, August 2014, 3pp.
www.orpha.net/data/patho/GB/uk-Poliomyelitis.pdf
- ¹⁰ O.M. Kew, R.W. Sutter, E.M. de Gourville, W.R. Dowdle, M.A. Pallansch. Vaccine-derived polioviruses and the endgame strategy for global polio eradication. *Annual. Reviews Microbiol.* 2005, 59, 587–635.
www.annualreviews.org/doi/abs/10.1146/annurev.micro.58.030603.123625
- ¹¹ Meeting Minutes. GPEI Polio Oversight Board Meeting, New York. 26 September, 2013
http://polioeradication.org/wp-content/uploads/2016/07/POB_Minutes_Mtg20131026.pdf
- ¹² GPEI oversight: Polio Oversight Board Meeting Minutes. Geneva: GPEI 2016.
<http://polioeradication.org/who-we-are/governance/polio-oversight-board/>
- ¹³ Global Polio Eradication Initiative: Global Polio Partners Group (PPG).
<http://polioeradication.org/who-we-are/governance/polio-partners-group/>
- ¹⁴ A.J. Mohamed, et al. Independent evaluation of major barriers to interrupting polio virus transmission. *Wild Poliovirus*, 16 Sep 2008 – 15 Sep 2009. Geneva: WHO 20 October 2009.
www.polioeradication.org/content/general/Polio_Evaluation_CON.pdf
- ¹⁵ **Call for nominations to serve on the Polio Transition Independent Monitoring Board (IMB).** Geneva: GPEI 2016.
<http://polioeradication.org/who-we-are/governance/transition-imb/>
- ¹⁶ R.B. Aylward, J. Linkins. Polio eradication: mobilizing and managing the human resources. *Bull. WHO* 2005, 83, 268-273.
www.who.int/bulletin/volumes/83/4/en/268.pdf
- ¹⁷ About the Polio Endgame Strategic Plan. Geneva: WHO 2016.
www.who.int/immunization/diseases/poliomyelitis/endgame_objective2/about/en/
- ¹⁸ Polio Oversight Board Statement: Polio Eradication in Reach, with Renewed Commitment. Geneva: GPEI, 25 September 2015. http://polioeradication.org/wp-content/uploads/2016/07/POB_Statement_MidTermReview_20150925.pdf
- ¹⁹ **Polio this week as of 2 November 2016.** Geneva: GPEI. <http://polioeradication.org/polio-today/polio-now/this-week/>
- ²⁰ Third case of polio crops up in Nigeria as insurgency hampers fight against the disease. Associated Press report, 5 September 2016.
www.statnews.com/2016/09/05/polio-nigeria-who/?utm_content=buffera0682&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer
- ²¹ **Polio this week as of 7 September 2016.** Geneva: GPEI.
<http://reliefweb.int/sites/reliefweb.int/files/resources/Poliothisweek-07Sep2016.pdf>
- ²² Health workers race to vaccinate 41 mln children against polio in Lake Chad – UN. Reuters Africa news report 11 October 2016.
http://af.reuters.com/article/topNews/idAFKCN12B258?utm_content=buffer693fb&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer&utm_sp=true
- ²³ M. McKenna. Terrorists Hamper Polio Eradication Efforts in Africa. *National Geographic* 24 October 2016.
<http://news.nationalgeographic.com/2016/10/world-polio-day-resurging-endemic-in-nigeria/>
- ²⁴ Replacing trivalent OPV with bivalent OPV: A critical step in polio eradication. Geneva: World Health Organization 2015.

- www.who.int/immunization/diseases/poliomyelitis/endgame_objective2/oral_polio_vaccine/en/
- 25 Summary of the April 2016 meeting of the Strategic Advisory Group of Experts on immunization (SAGE). Geneva: WHO April 2016, 2-3. www.who.int/immunization/sage/meetings/2016/april/SAGE_April_2016_Meeting_Web_summary.pdf
- 26 Weekly epidemiological record. Geneva: WHO, 2016, 91, 273. www.who.int/wer/2016/wer9121.pdf?ua=1
- 27 T. Miles. Polio vaccine makers failing to make enough doses: WHO experts. Reuters 21 October 2016. http://mobile.reuters.com/article/idUSKCN12L2J9?utm_campaign=trueAnthem:+Trending+Content&utm_content=580b1eda04d3016a87ac9cde&utm_medium=trueAnthem&utm_source=twitter
- 28 P.D. Rutter, L.J. Donaldson. Oversight Role of the Independent Monitoring Board of the Global Polio Eradication Initiative. *Journal of Infectious Diseases*, (2014) 210 (suppl 1): S16-S22. doi: 10.1093/infdis/jiu181. http://jid.oxfordjournals.org/content/210/suppl_1/S16.long
- 29 WHO statement on the meeting of the International Health Regulations Emergency Committee concerning the international spread of wild poliovirus. WHO statement 5 May 2014. www.who.int/mediacentre/news/statements/2014/polio-20140505/en/
- 30 Independent Monitoring Board of the Global Polio Eradication Initiative. Now is the time for peak performance. Twelfth Report: October 2015. <http://polioeradication.org/wp-content/uploads/2016/07/01.pdf>
- 31 Independent Monitoring Board of the Global Polio Eradication Initiative. Polio will not end everywhere until everywhere ends it'. Thirteenth Report: August 2016. http://polioeradication.org/wp-content/uploads/2016/09/14IMB_Report_EN.pdf
- 32 GPEI. Polio Eradication and Endgame Strategic Plan 2013–2018. Geneva: WHO 2013, 134pp. <http://polioeradication.org/who-we-are/strategy/>
- 33 Poliomyelitis: intensification of the global eradication initiative. Report by the Secretariat to January 2014 Executive Board. Geneva: WHO, Document EB134/35, 6pp. http://apps.who.int/gb/ebwha/pdf_files/EB134/B134_35-en.pdf
- 34 GPEI Polio Eradication and Endgame Strategic Plan 2013–2018. Objective 4: Legacy Planning. Geneva GPEI 2013, 4pp. http://polioeradication.org/wp-content/uploads/2016/07/PEESP_CH8_EN_US.pdf
- 35 Sixty-ninth World Health Assembly. Poliomyelitis. Report by the Secretariat. (A69/25). Geneva: WHO 8 April 2016, pp6. http://apps.who.int/gb/ebwha/pdf_files/WHA69/A69_25-en.pdf
- 36 Global Polio Eradication Initiative. Polio legacy planning. Guidelines for preparing a transition plan. Revised 1 June 2015. 2015, pp29. <http://polioeradication.org/wp-content/uploads/2016/07/TransitionGuidelinesForPolioLegacy.pdf>
- 37 Strengthening immunization systems. GPEI Strategic Plan 2010-2012, Section 7, 57. Geneva: GPEI 2010. http://apps.who.int/iris/bitstream/10665/70373/1/WHO_Polio_10.01_eng.pdf
- 38 Sixty-eighth World Health Assembly. Poliomyelitis. Report by the Secretariat. (A68/21). Geneva: WHO 1 May 2015, pp6. http://apps.who.int/gb/ebwha/pdf_files/WHA68/A68_21-en.pdf
- 39 S.L. Cochi, A. Freeman, S. Guirguis, H. Jafari, B. Aylward. Global Polio Eradication Initiative: Lessons Learned and Legacy. *The Journal of Infectious Diseases* 2014;210(S1):S540–6 http://jid.oxfordjournals.org/content/210/suppl_1/S540.long
- 40 Programming Thematic Programmes and Instruments. Programme On Global Public Goods And Challenges 2014-2020: Multi-Annual Indicative Programme 2014-2017. Brussels: European Commission 2014, 48-51 https://ec.europa.eu/europeaid/sites/devco/files/mip-gpgc-2014-2017-annex_en.pdf
- 41 D.A. Henderson. Smallpox eradication: a Cold War victory. *World Health Forum* 1998, 19, 113-119. [http://apps.who.int/iris/bitstream/10665/55594/1/WHF_1998_19\(2\)_p113-119.pdf](http://apps.who.int/iris/bitstream/10665/55594/1/WHF_1998_19(2)_p113-119.pdf)
- 42 U.S., Russia team in polio eradication effort. *Global Health Matters*. Washington DC: Fogarty International Center, January/February 2011, 10(1). www.fic.nih.gov/NEWS/GLOBALHEALTHMATTERS/FEB2011/Pages/russia-polio.aspx
- 43 U.S., Russia reaffirm commitment to eradicate polio at G8 Summit. Geneva: GPEI News release, 26 May 2011. <https://polioeradication.org/news-post/u-s-russia-reaffirm-commitment-to-eradicate-polio-at-g8-summit/>
- 44 Circulating vaccine-derived poliovirus – Ukraine. Disease outbreak news. Geneva: WHO 1 September 2015 www.who.int/csr/don/01-september-2015-polio/en/
- 45 The Russian Federation ODA. National Report. Moscow: Ministry of Finance, 2012. <http://minfin.ru/common/upload/library/2012/05/PresentationEng2012.pdf>
- 46 Russian Federation: Proceeds to Gavi from donor contributions & pledges (2016-2020) as of 30 June 2016. GAVI, The Vaccine Alliance 2016. www.gavi.org/funding/donor-profiles/russian-federation/
- 47 J. Twigg. Russia, the United States and Global Health. In: K.E. Bliss (ed), *The Changing Landscape of Global Health Diplomacy*. CSIS Global Health Policy Center, 2013, Ch 3. www.csis.org/analysis/changing-landscape-global-health-diplomacy
- 48 K.E. Bliss (ed). *Key Players in Global Health: How Brazil, Russia, India, China, and South Africa are influencing the game*. CSIS Global Health Policy Center, 2010. www.csis.org/analysis/key-players-global-health
- 49 The first polio-free BRICS: Finishing the job of polio eradication will require the political and financial support of the BRICS, which together represent a large proportion of the polio-free world. GPEI news 28 March 2012. <https://polioeradication.org/news-post/the-first-polio-free-brics/>
- 50 G7 Ise-Shima Leaders' Declaration. **G7 Ise-Shima Summit, 26-27 May 2016**. www.whitehouse.gov/the-press-office/2016/05/27/g7-ise-shima-leaders-declaration
- 51 Kobe Communiqué, G7 Health Ministers' Meeting 11-12 September 2016. www.mhlw.go.jp/seisakunitsuite/bunya/hokabunya/kokusai/g7kobe/en/KobeCommunique_en.pdf
- 52 Xi announces 10 major China-Africa cooperation plans in coming 3 years. *Xinhuanet*, 4 December 2015. http://europe.chinadaily.com.cn/2015-12/04/content_22631503.htm
- 53 K. Buse, S. Hawkes. Health in the sustainable development goals: ready for a paradigm shift? *Globalization and Health* 2015, 11:13, DOI: 10.1186/s12992-015-0098-8. <https://globalizationandhealth.biomedcentral.com/articles/10.1186/s12992-015-0098-8>
- 54 S. Alcázar. The Copernican Shift in Global Health. *Global Health Programme Working Paper 3*. Geneva: Graduate Institute 2008, 15pp. http://graduateinstitute.ch/files/live/sites/iheid/files/sites/globalhealth/shared/1894/Working%20Papers_003_WEB%20new%20version%2015062009.pdf
- 55 S. Gautier, L. Gautier, IHP article, 2015. Health in the post-MDG era: what “paradigm shift” are we talking about exactly? www.internationalhealthpolicies.org/health-in-the-post-mdg-era-what-paradigm-shift-are-we-talking-about-exactly/
- 56 A. Harmer, K. Buse. The BRICS – a paradigm shift in global health? *Contemporary Politiccs* 2014, 20, 127-145. www.tandfonline.com/doi/abs/10.1080/13569775.2014.907988

- 57 J. Kates, A. Wexler, E. Lief. Financing the Response to HIV in Low- and Middle-Income Countries: International Assistance from Donor Governments in 2014. Kaiser Family Foundation/UNAIDS, July 2015, 18pp.
<http://files.kff.org/attachment/report-financing-the-response-to-aids-in-low-and-middle-income-countries-international-assistance-from-donor-governments-in-2014>
- 58 Research and Development to Meet Health Needs in Developing Countries: Strengthening Global Financing and Coordination. Report of the Consultative Expert Working Group on Research and Development: Financing and Coordination. Geneva: WHO 2012. www.who.int/phi/CEWG_Report_5_April_2012.pdf?ua=1
- 59 New approach proposed for funding and managing health product R&D. TDR news item. Geneva: WHO 17 March 2016. www.who.int/tdr/news/2016/funding_managing_health_product_R_D/en/
- 60 European Sovereign Debt Crisis. Investopedia 2016. www.investopedia.com/terms/e/european-sovereign-debt-crisis.asp
- 61 Development Co-operation Report 2016: The Sustainable Development Goals as Business Opportunities. Ch. 15: European Union Institutions. Paris: OECD 2016. www.oecd-ilibrary.org/development/development-co-operation-report-2016_dcr-2016-en
- 62 The Millennium Development Goals Report 2015. New York: UN 2015, 75pp.
www.un.org/millenniumgoals/2015_MDG_Report/pdf/MDG%202015%20rev%20%28July%201%29.pdf
- 63 Transforming our world: The 2030 agenda for sustainable development. New York: UN 2015, 29pp.
<https://sustainabledevelopment.un.org/post2015/transformingourworld>
- 64 M. Kökény. Negotiating the WHO Reform Process. In: I. Kickbusch, S.A. Matlin (eds). Pathways to Global Health: Case Studies in Global Health Diplomacy. Singapore: World Scientific Publishing, 2016, in the press.
- 65 K. Kelland. The World Health Organization's critical challenge: healing itself. Reuters news story 8 February 2016.
www.reuters.com/investigates/special-report/health-who-future/
- 66 World leaders recommit to eradication. GPEI News 21 September 2016.
<http://polioeradication.org/news-post/world-leaders-recommit-to-eradication/>
- 67 UNITAID. www.unitaid.eu/en/who/about-unitaid
- 68 Gavi donor profile: France. www.gavi.org/funding/donor-profiles/france/
- 69 Polyomyelitis. WHO-EURO, 2016. www.euro.who.int/en/health-topics/communicable-diseases/poliomyelitis
- 70 Polyomyelitis. ECDC, 2016. <http://ecdc.europa.eu/en/healthtopics/polio/pages/index.aspx>
- 71 K.G. Provan, P. Kenis. J Public Administration Research 2007, 18, 229–252.
<http://faculty.cbpp.uaa.alaska.edu/afgjp/PADM601%20Fall%202011/Modes%20of%20Network%20Governance.%202008.pdf>
- 72 V. Wilikilagi What is Network Governance and its Implications for Public Policy Formulation? (October 23, 2009). Available at SSRN: <https://ssrn.com/abstract=1494757>
- 73 J. Shiffman. Networks and global health governance: Introductory editorial for Health Policy and Planning supplement on the Emergence and Effectiveness of Global Health Networks. Health Policy and Planning 2016, 31, (suppl 1): i1–i2.
http://m.heapol.oxfordjournals.org/content/31/suppl_1/i1.full.pdf
- 74 J. Shiffman et al. A framework on the emergence and effectiveness of global health networks. Health Policy and Planning 2016, 31, (suppl 1): i3–i16. http://heapol.oxfordjournals.org/content/31/suppl_1/i3.short
- 75 J. Shiffman, Schmitz, Berlan et al., 2016. The emergence and effectiveness of global health networks: findings and future research. Health Policy and Planning 2016, 31, (suppl 1): i110–i123.
http://heapol.oxfordjournals.org/content/31/suppl_1/i110.full
- 76 Strengthening immunization systems. GPEI Strategic Plan 2010–2012, Section 7, 55. Geneva: GPEI 2010. GPEI
http://apps.who.int/iris/bitstream/10665/70373/1/WHO_Polio_10.01_eng.pdf
- 77 Oversight. Polio Oversight Board. Geneva: GPEI 2016. <http://polioeradication.org/who-we-are/governance/polio-oversight-board/>
- 78 N. Bristol, C. Millard The Power of Straight Talk. The Independent Monitoring Board of the Global Polio Eradication Initiative. CSIS Global Health Policy Center Report, September 2015. <http://csis.org/publication/power-straight-talk>
- 79 Contributions and Pledges to the Global Polio Eradication Initiative, 1985–2019. Geneva: GPEI 1 April 2016.
http://polioeradication.org/wp-content/uploads/2016/07/Historical-Contributions_31March2016_FINAL.pdf
- 80 The U.S. Government and Global Polio Efforts. Kaiser Family Foundation 10 June 2016.
<http://kff.org/global-health-policy/fact-sheet/the-u-s-government-and-global-polio-efforts/>
- 81 Programming Thematic Programmes and Instruments. Programme On Global Public Goods And Challenges 2014–2020: Multi-Annual Indicative Programme 2014–2017. Brussels: European Commission 2014, 48–51.
http://ec.europa.eu/europeaid/sites/devco/files/mip-gpgc-2014-2017-annex_en.pdf
- 82 José Manuel Barroso. Speech to the Global Vaccine Summit , Abu Dhabi 25 April 2013.
http://europa.eu/rapid/press-release_SPEECH-13-367_en.htm
- 83 Supporting Syria and the region 2016. www.supportingsyria2016.com/
- 84 EU supports UNICEF and WHO with €3 million in humanitarian aid for polio vaccinations in Syria. European Commission Press release 3 May 2016. http://europa.eu/rapid/press-release_IP-16-1650_en.htm
- 85 UAE-European Parliament Friendship Group hosts event to raise awareness on the threat of poliomyelitis. WAM Emirates News Agency 13 May 2015. www.wam.ae/en/news/emirates/1395280520855.html
- 86 N. Webster. UAE film helping to encourage European polio funding. The National, UAE 14 May 2015.
www.thenational.ae/uae/health/uae-film-helping-to-encourage-european-polio-funding
- 87 European Parliament passes written declaration on polio. Rortay International 11 June 2015.
www.rotary.org/myrotary/en/european-parliament-passes-written-declaration-polio
- 88 Written declaration, under Rule 136 of Parliament's Rules of Procedure, on continued European Union support for polio eradication. European Parliament 9 March 2015.
www.europarl.europa.eu/sides/getDoc.do?type=WDECL&reference=P8-DCL-2015-0008&format=PDF&language=EN
- 89 Vaccine News daily. European Parliament increases funding for polio fight. 30 October 2015.
<http://vaccinenewsdaily.com/stories/510645893-european-parliament-increases-funding-for-polio-fight>
- 90 V. Okekek. Nigeria: EU Doles Out €55 Million for Polio Eradication, Immunisation in Nigeria AllAfrica 8 Decemver 2014.
<http://allafrica.com/stories/201412090410.html>
- 91 EU supports vaccination campaign to combat polio in Ukraine. European Commission: Humanitarian Aid and Civil Protection. 22 January 2016. http://ec.europa.eu/echo/news/eu-supports-vaccination-campaign-combat-polio-ukraine_en

- ⁹² Multi-annual Indicative Programme 2014-2020: Government of The Islamic Republic of Afghanistan. EU Development Cooperation Instrument 2014. https://ec.europa.eu/europeaid/government-islamic-republic-afghanistan-eu-development-cooperation-instrument-multi-annual_en
- ⁹³ A. Carling. European Parliament supports Pakistan's polio eradication. New Europe 7 February 2013. www.neweurope.eu/article/european-parliament-supports-pakistans-polio-eradication/
- ⁹⁴ Business case: UK Support to Polio Eradication 2013 – 2019. UK Department for International Development, 2013. <https://devtracker.dfid.gov.uk/projects/GB-1-203826>
- ⁹⁵ UK DFID Annual review – Summary sheet. UK Department for International Development, September 2015. iafi.dfid.gov.uk/iafi_documents/5164907.odt
- ⁹⁶ UK Prime Minister Cameron honoured as Polio Champion by Rotary. GPEI news story 14 March 2012. <http://polioeradication.org/news-post/uk-prime-minister-cameron-honoured-as-polio-champion-by-rotary/>
- ⁹⁷ Press conference on polio eradication in Perth, Australia 29 October 2011. www.gov.uk/government/speeches/press-conference-on-eradicating-polio
- ⁹⁸ Commonwealth Leaders and Polio Survivors Unite for Polio-Free World. CHOGM Malta 2015. <https://chogm2015.mt/news/commonwealth-leaders-and-polio-survivors-unite-for-polio-free-world>
- ⁹⁹ Our polio champions. onelastpush.org 2016. <http://onelastpush.org/polio-champions/>
- ¹⁰⁰ The UK's Contribution to Health Globally: Benefiting the country and the world. UK All-Party Parliamentary Group on Global Health. London: APPG 29 June 2015. www.appg-globalhealth.org.uk/reports/4556656050
- ¹⁰¹ Less aid money, less influence: Brexit's likely hit to the UK's development role. The Guardian 7 July 2016. www.theguardian.com/global-development/2016/jul/07/brexit-uk-development-role-less-aid-money-less-influence
- ¹⁰² J. Landale. Priti Patel walks UK aid budget tightrope. BBC News 24 October 2016. www.bbc.co.uk/news/uk-politics-37758171
- ¹⁰³ J. Landale. Aid to be cut unless it is value for money, says Patel. BBC News 25 October 2016. www.bbc.co.uk/news/uk-politics-37758164
- ¹⁰⁴ Statistics on International Development 2015. UK Department for International Development 3 December 2015. www.gov.uk/government/uploads/system/uploads/attachment_data/file/482322/SID2015c.pdf
- ¹⁰⁵ Rotary International honours eradication champions. The Rotarian, December 2008, p57. <https://books.google.co.uk/books?id=JzMEAAAAMBAJ&pg=PA57&lpg=PA57&dq=Angela+Merkel+polio+eradication&source=bl&ots=oNDwRPSa8u&sig=VUYgvniOYF1GNeHdRbjwCoizq-Q&hl=en&sa=X&ved=0ahUKEwin9n-kITPAhUBKcAKHWWqA0kQ6AEIUJAJ#v=onepage&q=Angela%20Merkel%20polio%20eradication&f=false>
- ¹⁰⁶ German cabinet endorses new focus on global public health: Polio eradication integral part of new global health policy plan. GPEI 10 July 2013. <http://polioeradication.org/news-post/german-cabinet-endorses-new-focus-on-global-public-health/>
- ¹⁰⁷ S. Rebmann. EU should lead the final push to eradicate polio. Euractive.com 9 June 2016. www.euractiv.com/section/health-consumers/opinion/eu-should-lead-the-final-push-to-eradicate-polio/
- ¹⁰⁸ Nigeria wins the battle against polio: How Germany, through KfW, helps eradicate wild polio infections. Federal Ministry for Economic Cooperation and Development. Healthy DEvelopments 24 July 2015. http://health.bmz.de/events/News/Nigeria_wins_the_battle_against_polio/index.html
- ¹⁰⁹ Northern Nigeria: Terror hampers the fight against polio. Federal Ministry for Economic Cooperation and Development. Healthy DEvelopments 2014. http://health.bmz.de/what_we_do/Reproductive-maternal-and-child-health/studies_and_articles/Northern_Nigeria_Terror_hampers_the_fight_against_polio/index.html
- ¹¹⁰ Joint press release. Global Leaders Support New Six-Year Plan to Deliver a Polio-Free World by 2018. GPEI. www.unicef.org/media/media_68888.html
- ¹¹¹ Norway pledges US\$40 million for polio eradication in 2014. Donor Tracker 2013. <http://donortracker.org/tracker/entry/2975>
- ¹¹² Contributions and Pledges to the Global Polio Eradication Initiative, 1985-2019. Geneva: GPEI 1 April 2016. http://polioeradication.org/wp-content/uploads/2016/07/Historical-Contributions_31March2016_FINAL.pdf
- ¹¹³ Donor profile: Norway. Gavi 2016. www.gavi.org/funding/donor-profiles/norway/
- ¹¹⁴ M.E. Hansen, T. Gjefsen (report) and K. K. Lie (editor, anthology). The end of Nordic exceptionalism? Norwegian Church Aid, Finn Church Aid, DanChurchAid and Church of Sweden 2015, 52pp. www.kirkensnodhjelp.no/globalassets/utviklingskonf-2015/end-of-nordic-exceptionalism.pdf
- ¹¹⁵ The term Gross National Product (GNP) refers to Gross Domestic Product (GDP) plus net income received from overseas. GNP includes the value of all goods and services produced by nationals whether in the country or not. In recent years the term GNP has been replaced by the term Gross National Income (GNI).
- ¹¹⁶ M. Anders. Norway diverting aid to cover refugees: Robbing Peter to pay Paul? Devex 6 November 2015. www.devex.com/news/norway-diverting-aid-to-cover-refugees-robbing-peter-to-pay-paul-87252
- ¹¹⁷ DAC member profile: Norway. Paris: OECD 2016. www.oecd.org/dac/norway.htm
- ¹¹⁸ Norwegian development aid in 2015. NORAD 11 April 2016. www.norad.no/en/front/about-norad/news/2016/norwegian-development-aid-in-2015/
- ¹¹⁹ M.E. Hansen, T. Gjefsen (report) and K. K. Lie (editor, anthology). The end of Nordic exceptionalism? Norwegian Church Aid, Finn Church Aid, DanChurchAid and Church of Sweden 2015, 52pp. www.kirkensnodhjelp.no/globalassets/utviklingskonf-2015/end-of-nordic-exceptionalism.pdf
- ¹²⁰ MH personal interview, December 2015.
- ¹²¹ Gates Foundation, Norway Contribute \$1 Billion to Increase Child Immunization in Developing Countries. Seattle: Bill and Melinda Gates Foundation 2005. www.gatesfoundation.org/Media-Center/Press-Releases/2005/01/Supporting-the-Global-Alliance-for-Vaccines-and-Immunization
- ¹²² Norway Signs Multi-Year Contribution to Global Fund. Geneva: Global Fund to Fight AIDS, TB and Malaria 12 November 2014. www.theglobalfund.org/en/news/2014-11-12_Norway_Signs_Multi-Year_Contribution_to_Global_Fund/
- ¹²³ Australia, Norway increase aid for polio eradication. Dawn 5 June 2014. www.dawn.com/news/1110682

- 124 Afghanistan Introduces the Inactivated Polio Vaccine. GPEI 30 September 2015.
<http://polioeradication.org/news-post/afghanistan-introduces-the-inactivated-polio-vaccine/>
- 125 Pakistan Becomes the Second Polio-Endemic Country to Introduce IPV. GPEI 20 August 2015.
<http://reliefweb.int/report/pakistan/pakistan-becomes-second-polio-endemic-country-introduce-ipv-0>
- 126 J. Hewko. The EU can choose to defeat polio. EurActiv.com 5 May 2015.
www.euractiv.com/section/development-policy/opinion/the-eu-can-choose-to-defeat-polio/
- 127 European Parliament Declaration on Polio Eradication - Lobby your MEP. Rotary Club Malta 2015.
www.rotary.org.mt/Stories/euro-declaration-polio
- 128 Rotary will recognize Ireland for its support of a Polio-free world. Rotary News 1 January 2016.
www.rotarynews.ie/rotary-will-recognize-ireland-support-polio-free-world/
- 129 R. Ravindran. Polio-free world forever. Times of Malta 24 July 2015.
www.timesofmalta.com/articles/view/20150724/opinion/Polio-free-world-forever.577823
- 130 How Malta is working with Global Citizen to end Polio. Global Citizen 31 May 2016.
www.globalcitizen.org/en/content/health-impact-malta/
- 131 Foundation Funds 1 Million Vaccines For Unicef. European Football for Development Network, 2016.
www.efdn.org/news/foundation-funds-1-million-vaccines-for-unicef/
- 132 European Polio Union. www.europeanpolio.eu/
- 133 GIS Mapping & GPS Tracking for Polio in Nigeria. GatesNotes 5 November 2012.
www.gatesnotes.com/Health/GIS-Mapping-GPS-Tracking-for-Polio-in-Nigeria
- 134 V.M. Gammino et al. Using Geographic Information Systems to Track Polio Vaccination Team Performance: Pilot Project Report. J Infectious Diseases 2010, 210 (suppl 1), S98-S101. http://jid.oxfordjournals.org/content/210/suppl_1/S98.full
- 135 K. Touray. Tracking Vaccination Teams During Polio Campaigns in Northern Nigeria by Use of Geographic Information System Technology: 2013–2015. J Infectious Diseases 2016, 213 (suppl 3), S67-S72.
www.ncbi.nlm.nih.gov/pmc/articles/PMC4818548/
- 136 GPEI News, June 2016. http://polioeradication.org/wp-content/uploads/2016/07/PN201606_EN.pdf
- 137 S.L. Cochi, A. Freeman, S. Guirguis, H. Jafari, B. Aylward. Global Polio Eradication Initiative: Lessons Learned and Legacy. The Journal of Infectious Diseases 2014;210(S1):S540–6. http://jid.oxfordjournals.org/content/210/suppl_1/S540.long
- 138 Polio Legacy Planning Update. Global Polio Eradication Initiative: Polio Partners Group meeting 12 June 2015.
http://polioeradication.org/wp-content/uploads/2016/07/PPG_Mtg20150612_Presentation3.pdf
- 139 Polio Legacy Management Group Terms of Reference. http://polioeradication.org/wp-content/uploads/2016/07/LMG_TORs.pdf
- 140 P. Rutter. Polio legacy planning. Global Polio Eradication Initiative, Polio Partners Group meeting. 15 December 2015, pp25. http://polioeradication.org/wp-content/uploads/2016/07/PPG_Mtg20151215_Presentation4.pdf
- 141 Roadmap: Healthy Systems - Healthy Lives. A global initiative to strengthen Health Systems. Background document for UN Side-Event, "Securing a Healthy Future", hosted by Germany, Norway and Ghana, 26th September 2015.
http://health.bmz.de/what_we_do/hss/Publications/Healthy_Systems_Healthy_Lives/2015-09-25_Background_Roadmap_Healthy_Systems_Healthy_Lives.pdf
- 142 UN Summit 2015: Official kick-off of 'Healthy Systems – Healthy Lives'. Launch of the initiative at the UN Summit side event 'Securing a Healthy Future', 26 September 2015, New York.
http://health.bmz.de/what_we_do/hss/Publications/Official_kick-off_of_Health_Systems_Healthy_Lives/index.html
- 143 H. Saxenian, R. Hecht, M. Kaddar, S. Schmitt, T. Ryckman, S. Cornejo. Overcoming challenges to sustainable immunization financing: early experiences from Gavi graduating countries. Health Policy and Planning, first published online 8 February 2014, doi: 10.1093/heapol/czu003. <http://heapol.oxfordjournals.org/content/early/2014/02/08/heapol.czu003.full>
- 144 Health Affairs: Countries Face Mix of Challenges During Transition to Domestic Financing. Results For Development 8 February 2016.
www.r4d.org/about-us/press-room/health-affairs-countries-face-mix-challenges-during-transition-domestic
- 145 M. Haslegrave. Polio eradication: history, lessons and legacy. A review and annotated bibliography. Geneva: GHP, 2016, ver 2016-05a, p 65-9.
- 146 D.T. Jamison et al. Global health 2035: a world converging within a generation. The Lancet 2013, 382, 1898-1955.
www.thelancet.com/pdfs/journals/lancet/PIIS0140-6736%2813%2962105-4.pdf
- 147 R.A. Atun, S. Bennett, A. Duran. When do vertical (stand-alone) programmes have a place in health systems? Health Systems and Policy Analysis Policy Brief. Copenhagen: WHO-EURO 2008, 36pp.
www.who.int/management/district/services/WhenDoVerticalProgrammesPlaceHealthSystems.pdf
- 148 A.K. Shen, R. Fields, M. McQuestion. The future of routine immunization in the developing world: challenges and opportunities. Global Health: Science and Practice 2014 2(4), 381-394. www.ghspjournal.org/content/2/4/381.full
- 149 Global eradication of poliomyelitis by the year 2000. Resolution WHA41.28, Forty-First WHA, 13 May 1988, operative paragraph 2. <http://www.who.int/ihr/polioresolution4128en.pdf>
- 150 R. Steinglass. Routine immunization: an essential but wobbly platform. *Global Health Science and Practice* 2013, 1(3), 295-301. www.ghspjournal.org/content/1/3/295.full
- 151 R. Fortner. How the focus on polio eradication in Nigeria undermines itself. *Humanosphere* 26 November 2014.
www.humanosphere.org/global-health/2014/11/how-the-focus-on-polio-eradication-in-nigeria-undermines-itself/
- 152 UHC 2030: Building an Alliance to Strengthen Health Systems. IHP Plus, Draft Concept Note 17 June 2016.
www.internationalhealthpartnership.net/en/documents/
- 153 E.A. Ophori et al. Current Trends of Immunization in Nigeria: Prospect and Challenges. *Trp Med Health* 2014, 42, 67-75.
www.ncbi.nlm.nih.gov/pmc/articles/PMC4139536/
- 154 National Routine Immunization Strategic Plan 2013-2015: Intensifying Reaching Every Ward through Accountability. Federal Ministry of Health, Nigeria 2013. www.jhsph.edu/research/centers-and-institutes/ivac/resources/Nigeria-NRISP-Technical-Policy.pdf
- 155 Ministerial Conference on Immunization in Africa. Addis Ababa, Ethiopia, 24-25 February 2016.
<http://immunizationin africa2016.org/>
- 156 N. Chukwu. Canada donates \$19.9m to Nigeria for Immunization Programmes. *Health Reporters*, 17 May 2016.
<http://healthreporters.info/2016/05/17/canada-donates-19-9m-to-nigeria-for-immunization-programmes/>
- 157 Polio Partners Group Meeting. Transition Planning 24 June 2016. Geneva: GPEI 2016.
http://polioeradication.org/wp-content/uploads/2016/07/PPG_Mtg20160624_Presentation.pdf

- 158 Polio legacy planning: Guidelines for preparing a transition plan. GPEI, revised 1 June 2015. <http://polioeradication.org/wp-content/uploads/2016/07/TransitionGuidelinesForPolioLegacy.pdf>
- 159 E. Banin, E. Fry Sosne, H. Ignatius, K. Healy. Beyond eradication: The United States' role in sustaining public health gains achieved through polio programs. Seattle: PAT 2016, 16pp. www.path.org/publications/files/APP_polio_pol_recs.pdf
- 160 Moving the Global Health Security Agenda Forward. Washington DC: The White House 4 November 2016. www.whitehouse.gov/blog/2016/11/04/moving-global-health-security-agenda-forward
- 161 Objective 3: Containment and certification. GPEI Polio Eradication and Endgame Strategic Plan 2013–2018. http://polioeradication.org/wp-content/uploads/2016/07/PEESP_CH7_EN_US.pdf
- 162 Containment. Sixty-ninth World Health Assembly 2016. Report by the Secretariat, 8 April 2016. Poliomyelitis. Document A69/25, Para 17. http://apps.who.int/gb/ebwha/pdf_files/WHA69/A69_25-en.pdf
- 163 E. Duizer, S. Rutjes, A.M.dR. Husman, J. Schijven. Risk assessment, risk management and risk-based monitoring following a reported accidental release of poliovirus in Belgium, September to November 2014. *Eurosurveillance* 2016, 21, DOI: <http://dx.doi.org/10.2807/1560-7917.ES.2016.21.11.30169>. www.eurosurveillance.org/images/dynamic/EE/V21N11/art21414.pdf
- 164 G. Dunn, D. Klapa, T. Wilton et al. Twenty-Eight Years of Poliovirus Replication in an Immunodeficient Individual: Impact on the Global Polio Eradication Initiative. *PLOS Pathogens* 27 August 2015. doi:10.1371/journal.ppat.1005114 <http://journals.plos.org/plospathogens/article?id=10.1371/journal.ppat.1005114>
- 165 D. Heymann, Q. Ahmed. The polio eradication end game: what it means for Europe. *Euro Surveillance* 2014, 19(7), 2-4. www.eurosurveillance.org/images/dynamic/ET/V19N01/V19N01.pdf
- 166 Poliomyelitis. WHO-EURO, 2016. www.euro.who.int/en/health-topics/communicable-diseases/poliomyelitis
- 167 Poliomyelitis. ECDC, 2016. <http://ecdc.europa.eu/en/healthtopics/polio/pages/index.aspx>
- 168 2010 polio outbreak in Tajikistan: A reminder of the continued need for vigilance as the Region marks 10 years of polio-free status. Copenhagen: WHO-EURO 10 July 2012 www.euro.who.int/en/health-topics/communicable-diseases/poliomyelitis/news/news/2012/7/2010-polio-outbreak-in-tajikistan-a-reminder-of-the-continued-need-for-vigilance-as-the-region-marks-10-years-of-polio-free-status
- 169 Poliomyelitis (polio) transmission in Ukraine interrupted, but efforts must continue to protect children. Copenhagen: WHO-EURO 6 May 2016. www.euro.who.int/en/health-topics/communicable-diseases/poliomyelitis/news/news/2016/05/poliomyelitis-polio-transmission-in-ukraine-interrupted,-but-efforts-must-continue-to-protect-children
- 170 Y. Manor et al. Intensified environmental surveillance supporting the response to wild poliovirus type 1 silent circulation in Israel, 2013. *Euro Surveill.* 2014 19(7), pii=20708. www.eurosurveillance.org/images/dynamic/ET/V19N01/V19N01.pdf
- 171 Smallpox eradication: destruction of variola virus stocks. Report by the Secretariat. Sixty-Seventh World Health Assembly, Paper A67/37 14 March 2014. http://apps.who.int/gb/ebwha/pdf_files/WHA67/A67_37-en.pdf
- 172 The Independent Advisory Group on Public Health Implications of Synthetic Biology Technology Related to Smallpox. A report to the Director-General of WHO. Geneva, Switzerland 29-30 June 2015. http://apps.who.int/iris/bitstream/10665/198357/1/WHO_HSE_PED_2015.1_eng.pdf?ua=1
- 173 Investment Case. Geneva: GPEI, April 2016. <http://polioeradication.org/wp-content/uploads/2016/07/InvestmentCase.pdf>
- 174 World Bank. World Development Report 1993: Investing in Health.. New York: Oxford University Press 1993. <https://openknowledge.worldbank.org/handle/10986/5976>
- 175 D. Woodward, R.D. Smith. Global Public Goods and Health: concepts and issues. Prevention or containment of communicable disease. Geneva: WHO 2016. www.who.int/trade/distance_learning/gpgh/gpgh1/en/index7.html
- 176 B. Aylward, A. Acharya, S. England, M. Agocs, J. Linkins. Polio eradication. Geneva: WHO 2016. www.who.int/trade/distance_learning/gpgh/gpgh2/en/
- 177 J. Kaner, S. Schaack. Understanding Ebola: the 2014 epidemic. *Globalization and Health* 2016, 12, 53. DOI: 10.1186/s12992-016-0194-4. <http://globalizationandhealth.biomedcentral.com/articles/10.1186/s12992-016-0194-4>
- 178 Centers for Disease Control and Prevention. Global disease elimination and eradication as public health strategies. *MMWR* 1999;48(Suppl), 216pp. www.cdc.gov/mmwr/pdf/other/mm48su01.pdf
- 179 S. Knobler, J. Lederberg, L.A. Pray (eds). Considerations for Viral Disease Eradication: Lessons Learned and Future Strategies: Workshop Summary. Institute of Medicine Forum on Emerging Infections. Washington DC: National Academies Press 2002. www.ncbi.nlm.nih.gov/books/NBK98117/
- 180 D.A. Henderson, P. Klepac. Lessons from the eradication of smallpox: an interview with D. A. Henderson. *Phil. Trans. Royal Society B* 24 June 2013. DOI: 10.1098/rstb.2013.0113. rstb.royalsocietypublishing.org/content/368/1623/20130113
- 181 P. Yekutieli, "Lessons from the Big Eradication Campaigns," *World Health Forum* 2, 1981, 467–469. www.worldlibrary.org/wplbn0000005916-world-health-organization--world-health-forum-1981--volume-2-no-4-year-1981-table-of-contents-by-world-health-organization.aspx?
- 182 S. Knobler, J. Lederberg, L.A. Pray (eds). Considerations for Viral Disease Eradication: Lessons Learned and Future Strategies: Workshop Summary. Institute of Medicine Forum on Emerging Infections. Washington DC: National Academies Press 2002. www.ncbi.nlm.nih.gov/books/NBK98117/
- 183 R. Keegan, A. Dabbagh, P.M. Strebel, S.L. Cochi. Comparing Measles with Previous Eradication Programs: Enabling and Constraining Factors. *J. Infectious Diseases* 2011, 204 (suppl 1): S54-S61. http://jid.oxfordjournals.org/content/204/suppl_1/S54.full
- 184 Decade of Vaccines — Global Vaccine Action Plan 2011–2020. Geneva: WHO. www.who.int/immunization/global_vaccine_action_plan/DoV_GVAP_2012_2020/en/
- 185 Outcome document: Financing of R&D Preparedness and Response to Epidemic Emergencies. October 29-30, 2015, Oslo, Norway. Geneva, WHO 18 Nov 2015. www.who.int/medicines/ebola-treatment/Outcome.pdf
- 186 Global Risks Report 2016. Geneva: World Economic Forum 2016, 11th Edn, p11. www3.weforum.org/docs/Media/TheGlobalRisksReport2016.pdf
- 187 NIH begins testing investigational Zika vaccine in humans. US National Institutes of Health, 3 August 2016. www.nih.gov/news-events/news-releases/nih-begins-testing-investigational-zika-vaccine-humans
- 188 W. Aldis. Health security as a public health concept: a critical analysis. *Health Policy and Planning* 2008, 23:369–375. <http://heapol.oxfordjournals.org/content/23/6/369.full.pdf+html>
- 189 I. Kickbusch. Global health security: a cosmopolitan moment? *G7/G20 Analysis: Health*. 1 June 2015. www.g7g20.com/articles/ilona-kickbusch-global-health-security-a-cosmopolitan-moment
- 190 *One Year into the Ebola Epidemic: A Deadly, Tenacious and Unforgiving Virus*. Geneva: WHO 2015.

- www.who.int/csr/disease/ebola/one-year-report/introduction/en/
- 191 S. Moon et al. Will Ebola change the game? Ten essential reforms before the next pandemic. The report of the Harvard-LSHTM Independent Panel on the Global Response to Ebola. *The Lancet* 2015, 386, 2204–2221.
[www.thelancet.com/journals/lancet/article/PIIS0140-6736\(15\)00946-0/abstract](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(15)00946-0/abstract)
- 192 A panel of independent experts to assess WHO's response in the Ebola outbreak. *Geneva: WHO* 2015.
www.who.int/csr/disease/ebola/panel-to-assess-response/en/
- 193 Global Health Security Initiative. www.ghsi.ca/english/index.asp
- 194 Sixteenth Ministerial Meeting of the Global Health Security Initiative (GHSI) Washington, D.C. — February 26, 2016.
www.ghsi.ca/english/statementWashington2016.asp
- 195 European Commission High Level Conference on Global Health Security. Lyon, France 22-23 March 2016.
http://ec.europa.eu/health/preparedness_response/events/ev_20160322_en.htm
- 196 Flash Report. European Commission High Level Conference on Global Health Security. Lyon, France 22-23 March 2016.
http://ec.europa.eu/health/preparedness_response/docs/ev_20160322_flash_en.pdf
- 197 Global Health Security: International Health Regulations (IHR). CDC 2016.
www.cdc.gov/globalhealth/healthprotection/ghs/ihr/
- 198 Global Health Security Agenda. www.ghsagenda.org/
- 199 I. Kickbusch. Governing the global health security domain. Geneva: Global Health Programme, Graduate Institute of International and Development Studies 2016, Working Paper No. 12.
<http://graduateinstitute.ch/files/live/sites/iheid/files/sites/globalhealth/ghp-new/publications/wp/working%20paper%2012%20web%20version.pdf>
- 200 R. Katz, et al. Global health security agenda and the international health regulations: moving forward. *Bio Secur. Bioterror.* 2014, 12(5), 231-8. www.ncbi.nlm.nih.gov/pubmed/25254911
- 201 Global Health Security Agenda - GHSA: health is security. Ministry of Social Affairs and Health, Finland 2016.
<http://stm.fi/en/ghsagenda>
- 202 Sixty ninth World Health Assembly. Implementation of the International Health Regulations (2005). Report of the Review Committee on the Role of the International Health Regulations (2005) in the Ebola Outbreak and Response. Document A69/21, 13 May 2016. http://apps.who.int/gb/ebwha/pdf_files/WHA69/A69_21-en.pdf
- 203 F.M. Burkle. Global Health Security Demands a Strong International Health Regulations Treaty and Leadership From a Highly Resourced World Health Organization. *Disaster Medicine and Public Health Preparedness* 2015, 9, 568-580.
www.cambridge.org/core/journals/disaster-medicine-and-public-health-preparedness/article/global-health-security-demands-a-strong-international-health-regulations-treaty-and-leadership-from-a-highly-resourced-world-health-organization/B8711EFB0BF92325ED617EC5A779CA97
- 204 IHR: From the Global to the Local. George Washington University 2016. www.ihr2005.org/our-work/
- 205 Global Health Security Agenda and Joint External Evaluation 2016. www.ghsagenda.org/assessments.html
- 206 Global Health Security Agenda 2015.
<http://stm.fi/documents/1271139/1356256/GHSA+fact+sheet+03092015/4647c134-323d-47b2-82af-6c4a2443ad59>
- 207 Seoul Declaration. Global Health Security Agenda 2015. High-Level Meeting in Seoul.
http://stm.fi/documents/1271139/1356256/Soulin+julkilausuma_eng/5073fa46-959d-4308-9450-e833d3247e20
- 208 S.B. Wolicki. Public health surveillance: At the Core of the Global Health Security Agenda. *Health Security*, 2016, 14, 185-188. <http://online.liebertpub.com/doi/full/10.1089/hs.2016.0002>
- 209 Improving the health of the public by 2040. UK Academy of Medical Sciences, 2016.
www.acmedsci.ac.uk/policy/policy-projects/health-of-the-public-in-2040/
- 210 Development Assistance Committee. Development aid rises again in 2015, spending on refugees doubles. Paris: OECD 2016. www.oecd.org/dac/development-aid-rises-again-in-2015-spending-on-refugees-doubles.htm
- 211 MSF conducts emergency migrant vaccinations in Greece. BBC News 13 May 2016.
www.bbc.co.uk/news/world-middle-east-36290364
- 212 E. Holt. Ukraine at risk of polio outbreak. *The Lancet* 2013, 381, 2244.
[www.thelancet.com/journals/lancet/article/PIIS0140-6736\(13\)61469-5/fulltext?rss=yes](http://www.thelancet.com/journals/lancet/article/PIIS0140-6736(13)61469-5/fulltext?rss=yes)
- 213 M. Candau. Distrust of vaccinations on the rise across EU. Euractiv 27 March 2015.
www.euractiv.com/section/health-consumers/news/distrust-of-vaccinations-on-the-rise-across-eu/
- 214 European Vaccine Action Plan 2015–2020. WHO-EURO 2016, 108pp.
www.euro.who.int/_data/assets/pdf_file/0007/255679/WHO_EVAP_UK_v30_WEBx.pdf?ua=1
- 215 Report of the 65th session of the WHO Regional Committee for Europe. Vilnius, Lithuania, 14–17 September 2015. Copenhagen: WHO-EURO 2016, 126pp.
www.euro.who.int/_data/assets/pdf_file/0006/294756/65rp00e_ReportFull_Final_150736.pdf?ua=1
- 216 The work of WHO in the European Region in 2014–2015: Interim report of the Regional Director to the WHO Regional Committee for Europe, 65th Session. WHO-EURO 2016, p48.
www.euro.who.int/_data/assets/pdf_file/0019/284401/65wd05e_Rev1_RDsReport_150560_withCover.pdf?ua=1
- 217 European Commissioner, Health and Food Safety. Speech on Joint health action in Europe at the WHO 65th Europe Region Committee Meeting of WHO-EURO. 17 September 2015.
https://ec.europa.eu/commission/2014-2019/andriukaitis/announcements/who-65th-europe-region-committee-meeting-joint-health-action-europe_en
- 218 K. Gautam. A History of Global Polio Eradication. New York: UNICEF 2005.
www.unicef.org/immunization/files/the_history_of_polio.pdf
- 219 L. Hampton. Albert Sabin and the Coalition to Eliminate Polio From the Americas. *Am. J. Public Health*, 2009, 99, 34-44.
www.ncbi.nlm.nih.gov/pmc/articles/PMC2636601/
- 220 M. Miller, S. Barrett, D.A. Henderson. Control and Eradication. In D.T. Jamison, J.G. Breman, A.R. Measham et al. (eds). *Disease Control Priorities in Developing Countries*, 2nd edition. Washington DC: World Bank 2006, Chapter 62.
www.ncbi.nlm.nih.gov/books/NBK11763/
- 221 R. Chase, E. Hill, P.M. Kennedy. *The Pivotal States: A New Framework for U.S. Policy in the Developing World*. W.W. Norton, 1999.
- 222 Programme budget 2016-2017. Geneva: WHO 2015, 124pp.
www.who.int/about/finances-accountability/budget/PB201617_en.pdf

- 223 S.W. Roush, L.M. Baldy (eds). Manual for the Surveillance of Vaccine-Preventable Diseases. 5th Edition, Chapter 12: Poliomyelitis. Atlanta: US-CDC 2012. <https://www.cdc.gov/vaccines/pubs/surv-manual/front-portion.pdf>
- 224 Gender Equality Marker. Tracking of Resource Allocations and Expenditure for Gender Equality Results. Guidance Note. New York: UNICEF 16 September 2010. www.unicef.org/gender/files/Gender_Marker_Guidance_Note_03-11-2010.doc
- 225 European Commission. EU Official Development Assistance reaches highest-ever share of Gross National Income. Press release, Brussels 13 April 2016. http://europa.eu/rapid/press-release_IP-16-1362_en.htm
- 226 Global Polio Eradication Initiative. Economic case for eradicating polio (Summary). www.polioeradication.org/portals/0/document/resources/strategywork/economiccase.pdf
- 227 WHO, UNICEF, World Bank. *State of the world's vaccines and immunization*, 3rd ed. Geneva: World Health Organization, 2009, p 28. www.unicef.org/immunization/files/SOWVI_full_report_english_LR1.pdf
- 228 José Manuel Barroso. Speech to the Global Vaccine Summit, Abu Dhabi 25 April 2013. http://europa.eu/rapid/press-release_SPEECH-13-367_en.htm
- 229 Investment case. Global Polio Eradication Initiative, April 2016, 25pp. <http://polioeradication.org/wp-content/uploads/2016/07/InvestmentCase.pdf>
- 230 Objective 3: Containment and certification. GPEI Polio Eradication and Endgame Strategic Plan 2013–2018. http://polioeradication.org/wp-content/uploads/2016/07/PEESP_CH7_EN_US.pdf
- 231 Containment. Sixty-ninth World Health Assembly 2016. Report by the Secretariat, 8 April 2016. Poliomyelitis. Document A69/25, Para 17. http://apps.who.int/gb/ebwha/pdf_files/WHA69/A69_25-en.pdf
- 232 Certification of the Region's polio-free status in 2002. WHO-EURO 2002. www.euro.who.int/en/health-topics/communicable-diseases/poliomyelitis/activities/certification-and-maintenance-of-polio-free-status-in-the-european-region/european-regional-commission-for-the-certification-of-poliomyelitis-eradication/certification-of-the-regions-polio-free-status-in-2002
- 233 M.L. Yakovenko et al. The 2010 outbreak of poliomyelitis in Tajikistan: epidemiology and lessons learnt. *Eurosurveillance* 2014, 19(7), pii=20706. www.eurosurveillance.org/ViewArticle.aspx?ArticleId=20706
- 234 Poliomyelitis (polio) transmission in Ukraine interrupted, but efforts must continue to protect children. WHO-EURO 2016. www.euro.who.int/en/health-topics/communicable-diseases/poliomyelitis/news/news/2016/05/poliomyelitis-polio-transmission-in-ukraine-interrupted,-but-efforts-must-continue-to-protect-children
- 235 E. Duizer, S. Rutjes, A.M.dR. Husman, J. Schijven. Risk assessment, risk management and risk-based monitoring following a reported accidental release of poliovirus in Belgium, September to November 2014. *Eurosurveillance* 2016, 21(11), DOI: <http://dx.doi.org/10.2807/1560-7917.ES.2016.21.11.30169>
- 236 Report of the 65th session of the WHO Regional Committee for Europe. Vilnius, Lithuania, 14–17 September 2015. Copenhagen: WHO-EURO 2016, 126pp. www.euro.who.int/_data/assets/pdf_file/0006/294756/65rp00e_ReportFull_Final_150736.pdf?ua=1
- 237 European Vaccine Action Plan 2015–2020. WHO-EURO 2016, 108pp. www.euro.who.int/_data/assets/pdf_file/0007/255679/WHO_EVAP_UK_v30_WEBx.pdf?ua=1
- 238 Report of the 65th session of the WHO Regional Committee for Europe. Vilnius, Lithuania, 14–17 September 2015. Copenhagen: WHO-EURO 2016, 126pp. www.euro.who.int/_data/assets/pdf_file/0006/294756/65rp00e_ReportFull_Final_150736.pdf?ua=1
- 239 The work of WHO in the European Region in 2014–2015: Interim report of the Regional Director to the WHO Regional Committee for Europe, 65th Session. WHO-EURO 2016, p48. www.euro.who.int/_data/assets/pdf_file/0019/284401/65wd05e_Rev1_RDsReport_150560_withCover.pdf?ua=1
- 240 European Commissioner, Health and Food Safety. Speech on joint health action in Europe at the WHO 65th Europe Region Committee Meeting of WHO-EURO. 17 September 2015. https://ec.europa.eu/commission/2014-2019/andriukaitis/announcements/who-65th-europe-region-committee-meeting-joint-health-action-europe_en
- 241 P. Yekutieli, "Lessons from the Big Eradication Campaigns," *World Health Forum* 2, 1981, 467–469. www.worldlibrary.org/wplbn000005916-world-health-organization--world-health-forum-1981--volume-2-no-4-year-1981-table-of-contents-by-world-health-organization.aspx?
- 242 S. Knobler, J. Lederberg, L.A. Pray (eds). *Considerations for Viral Disease Eradication: Lessons Learned and Future Strategies: Workshop Summary*. Institute of Medicine Forum on Emerging Infections. Washington DC: National Academies Press 2002. www.ncbi.nlm.nih.gov/books/NBK98117/
- 243 C. Niles. United Nations Secretary-General hosts high-level polio meeting, 28 September 2012. New York: UNICEF news story. www.unicef.org/health/index_65979.html
- 244 Press conference on polio eradication in Perth, Australia 29 October 2011. www.gov.au/government/speeches/press-conference-on-eradicating-polio
- 245 Commonwealth Leaders and Polio Survivors Unite for Polio-Free World. CHOGM Malta 2015. <https://chogm2015.mt/news/commonwealth-leaders-and-polio-survivors-unite-for-polio-free-world>
- 246 G7/G8 and G20. European Commission: Economic and Financial Affairs. http://ec.europa.eu/economy_finance/international/forums/g7_g8_g20/index_en.htm
- 247 G7 Ise-Shima Leaders' Declaration. **G7 Ise-Shima Summit, 26-27 May 2016**. www.whitehouse.gov/the-press-office/2016/05/27/g7-ise-shima-leaders-declaration
- 248 Kobe Communiqué, G7 Health Ministers' Meeting 11-12 September 2016. www.mhlw.go.jp/seisakunitsuite/bunya/hokabunya/kokusai/g7kobe/en/KobeCommunique_en.pdf
- 249 G20 Leaders' Communiqué, Hangzhou Summit 4-5 September 2016. www.consilium.europa.eu/en/press/press-releases/2016/09/05-g20-leaders-communique/
- 250 Global Health Security: International Health Regulations (IHR). CDC 2016. www.cdc.gov/globalhealth/healthprotection/ghs/ihr/
- 251 Global Health Security Agenda - GHSA: health is security. Ministry of Social Affairs and Health, Finland 2016. <http://stm.fi/en/ghsagenda>
- 252 S.B. Wolicki. Public health surveillance: At the Core of the Global Health Security Agenda. *Health Security*, 2016, 14, 185–188. <http://online.liebertpub.com/doi/full/10.1089/hs.2016.0002>

-
- ²⁵³ K. Breene. These 3 maps show how widespread anti-vaccine attitudes are around the world. World Economic Forum 2 November 2016.
www.weforum.org/agenda/2016/11/these-maps-show-global-anti-vax-attitudes?utm_content=buffer84b5f&utm_medium=social&utm_source=twitter.com&utm_campaign=buffer
- ²⁵⁴ D. Popovic. Stopping a polio outbreak in war-torn Ukraine. UNICEF 3 February 2016.
<https://blogs.unicef.org/blog/stopping-a-polio-outbreak-in-war-torn-ukraine/>