For Better Pandemic Control Now and Into the Future

A position paper by the Irish Society of Specialists in Public Health Medicine

Although a global pandemic was long overdue, there is no doubt that we were unprepared for COVID-19. Ireland is not alone in this, with more than 90% of countries reporting disruptions to essential health services due to the pandemic[1]. The truth is that COVID-19 has exposed the weaknesses in health systems globally, directly attributable in many cases to the chronic lack of investment in essential public health functions, including emergency planning and response, underpinned by a systems strengthening approach[2]. Further truths reinforced by our experiences with COVID-19 are that health is a necessity, as well as a human right, and that "public health is the foundation of social, economic and political stability"[3]. Given the likelihood of future and more devastating pandemics, we must learn from these lessons.

Box 1. The Pillars of Emergency Preparedness & Response

1. Country-level coordination, planning and monitoring
2. Risk communication and community engagement
3. Surveillance, rapid response teams and case investigation
4. Points of entry, international travel and transport
5. National laboratories
6. Infection Prevention and Control
7. Case Management
8. Operational support and logistics
9. Maintaining essential health services and systems

The international experience has shown that critical and longstanding weaknesses in health systems, including information and surveillance systems, laboratory capacities, chronic under-investment and de-prioritisation of essential public health functions, including emergency preparedness and response, vaccine infrastructure and delivery systems and an under-development of local response mechanisms and structures, hindered the abilities of even well-resourced health systems to respond to this public health emergency (PHE)[4,5]. As a result, lives and livelihoods were lost[6].

Public Health Emergencies (PHEs) include natural disasters, economic shocks, even political unrest, as well as the emergence of previously unseen infectious diseases, like COVID-19. There are multiple approaches to the conceptualisation of emergency preparedness and response. Despite differences, all approaches share a recognition of critical functions that enable an effective response including essential public health functions (EPHFs), such as surveillance, risk communication, case management, equitable access to and rational use of essential medical supplies and technologies.

Essential public health functions are those essential services provided by the state that are required to support population health and wellbeing (Box 1 & 2[7]). Though many are recognised as central to emergency preparedness and response, they are often under-developed and under-resourced. There

[1] https://www.who.int/publications/i/item/WHO-2019-nCoV-EHS-continuity-survey-2021.1
[2] Health Systems Resilience Unit, WHO. Fostering resilience through integrated health system strengthening: a Joint WHO/USAID meeting technical report. Geneva, April 2021.
[3] UN News. Investments in public health, an investment in safer future, urges Tedros. Sept 8, 2020. https://news.un.org/en/story/2020/09/1071822
[4] **World Health Organization.** *Pulse survey on continuity of essential health services during the COVID-19 pandemic: interim report.* Geneva : WHO, 2020.
[5] **World Health Organization.** *A health systems review of joint external evaluations and national action plans for health security in 13 countries.* Joint WHO & USAID collaboration. Geneva : WHO, 2021
[6] **Woolf SH, Chapman DA, Sabo RT, Weinberger DM, Hill L, Taylor DDH.** *Excess deaths from COVID-19 and other causes, March-July 2020.* 15, 2020, Journal of the American Medical Association, Vol. 324, pp. 1562-1564
[7] **World Health Organization**. 21st-century health challenges-can the essential public health functions approach make a difference? Submitted for publication. Geneva, Nov 2021.

Box 2. Fundamental understanding of the Essential Public Health Functions

- ✓ EPHFs bring a holistic public health perspective to building health systems and improving society in order to tackle different types of health challenges in a coordinated manner
- ✓ The list of EPHFs is influenced by the societal and health context of countries
- ✓ EPHFs are interconnected and interdependent in a given context, and should not be viewed in isolation
- ✓ Strengthening EPHFs is the responsibility of the State, and requires strong national and subnational stewardship for public health and effective collaboration across sectors
- ✓ EPHFs require and build on long-term multisectoral commitment to public health efforts

is a growing recognition that investing in public health will be required to support recovery post COVID-19 in order to build resilience and ensure health security[8].

Current international consensus is that the best preparation to disruptive events involves the development of a resilient health system that reaches all members of the community, including the vulnerable and marginalised, and can maintain high quality essential health services while supporting a response that minimises harm to the population and therefore supports the economy. The key to this is the development of flexible health services that include the adequate development of EPHFs, including emergency preparedness and response. There has been recognition that countries have neglected public health capacities, which are the foundations required for responding to infectious diseases such as COVID-19. While we cannot know what the next PHE will be, preparedness involves the establishment of robust policy, structures and mechanisms to support adaptations of the system to allow it to respond quickly and efficiently to any threat.

Pre-COVID-19, Ireland's health system was experiencing significant challenges, many relating to chronic critical weaknesses within the health system. This included a lack of capacity within our hospitals[9], with bed occupancy rates well in excess of target levels and ICU capacity among the lowest in Europe, as well as limited capacities to support healthcare workers with infection prevention and control (IPC) and Occupational Health services. There has been a long-standing over-reliance on hospital care in tandem with an under-development of Primary Healthcare (PHC) infrastructure and capacity, including the lack of strong vaccine infrastructure and information systems. This has been compounded by significant infrastructural deficits in IT, including the lack of an integrated Health Information System (HIS)[10], the lack of suitable surveillance infrastructure and the lack of a case and outbreak management system.

While there has been significant and welcome investment in public health functions since the pandemic, this has come on the back of decades of under-investment, both regionally and nationally, when compared to countries with similar populations. This has led to the need to prioritise response to health protection threats as they emerge, rather than focusing on prevention, and has hindered the optimal use of public health expertise within health system prioritisation and reform, as well as wider health improvement efforts and efforts to support vulnerable and marginalised groups. This has directly impaired the ability of our health system to respond to COVID-19 as well as contributing to crises and scandals, including the ongoing Trolley crisis and the CervicalCheck controversy. The proposed new model of service delivery envisions an integrated public health function nationally and regionally that delivers across all domains of public health practice.[11] For this to be a reality, it is vitally important that recruitment is sufficient to enable the shift in focus towards prevention, promotion and service improvement required for the delivery of Sláintecare.

[8] WHO position paper: Building health system resilience towards universal health coverage (UHC) and health security during COVID-19 and beyond. World Health Organization, Geneva. 2021

[9] Bed capacities of greater than 80% are not recommended by the OECD as they limit efficiency but also prevent systems from having any absorptive capacity to meet increased demand associated with a PHE

[10] A truly integrated health information system links health service, disease and surveillance data across the functional units of the health system including hospital services and primary care.

[11] Public Health Medicine includes 4 domains of practice: Health Protection, Health Improvement and Health Service Improvement all underpinned by Health Intelligence

We have been reactive rather than proactive much of the time, often having to invent and develop infrastructure and mechanisms at the same time as providing the actual response to the pandemic. The lack of pre-existing collaborative structures has contributed to the slow integration of available resources and expertise where they were needed, such as the development and rollout of the COVID-19 vaccination strategy or the development of the Contact Management Programme. This has been compounded by a failure to predict and prepare for subsequent waves and variants and has led to the creation of parallel structures with varying degrees of integration with other functions, rather than the strengthening of existing structures and functions which is at the heart of health system strengthening for resilience. For example, the creation of the national Contact Management Programme (CMP) as a parallel structure for contact tracing that was not initially integrated with our national surveillance system[12], nor regional Departments of Public Health, while enabling the rapid scale up of low complexity, high volume contact tracing, created a fragmentation of efforts that in some cases hindered regional response. Similarly, separate systems to support testing, laboratory diagnostics and the delivery of results has presented significant practical, as well as governance, challenges for local response. Inadequate hospital infrastructure, training and PPE, as well as historic expectations around working while unwell, have contributed to high rates of health care worker transmission. We have relied heavily on public compliance with public health guidance while under-emphasising key health protection measures such as source investigation and control. Nearly two years into the pandemic, the governance of Health Protection remains unclear with multiple leadership structures and parallel streams often resulting in duplication of work across the system.

Despite all of this, there is no doubt that Ireland has performed well in many areas of the pandemic response so far. Flexible and innovative testing services were developed and scaled up quickly using innovative approaches such as drive-in, and later, walk-in centres. A national contact tracing system was rapidly developed to deal with the huge volume of cases. The tireless efforts of the medical and non-medical staff of regional Departments of Public Health, to provide an uncontracted 7 day a week service since the first wave of the pandemic in tandem with the Contract Management Programme (CMP), have resulted in the vast majority of cases being contact traced with the prevention of countless further cases. The skilled management of outbreaks across multiple complex settings was remarkable given the lack of supporting IT systems. The delivery of and engagement with mass vaccination among the general public has been strong, with Ireland being among the most vaccinated populations in the world. In terms of risk communication, public information from the HSE was rapidly developed, accessible and available, communication from the office of the Chief Medical Officer was frequent, consistent and clear. Public health guidance for priority sectors was developed rapidly by the Health Protection Surveillance Centre. Community Health Organisation (CHO)-wide rapid response teams were crucial in supporting nursing homes during the second and third waves, while the leveraging of local partnerships by regional Departments of Public Health was key to developing an infrastructure to support vulnerable and marginalised groups, an infrastructure that will be worth maintaining when we move into the recovery phase of this pandemic.

The specifics of what is needed for any pandemic cannot be predicted in advance but there are key enabling functions required to support any response that are key to preparedness as well as for the development of a resilient health system. They include:

- Governance structures, with clearly defined roles and responsibilities, that extend from national to local levels and support intersectoral collaboration. These structures should

[12] The Computerised Infectious Disease Reporting System (CIDR)

ideally involve the mobilisation of whole of government resources, supporting whole of society engagement that recognises the public as partners. They should integrate the private sector including PHC, NGOs, private hospitals and private laboratories into response planning and also integrate animal and environmental health sectors into emergency planning and response;

- Strong IT infrastructure including integrated Health Information Systems that incorporate health service and primary care data, include an integrated approach to surveillance[13] data that is readily accessible and available across all levels, and support case and outbreak management;
- Strong and adequately resourced local multi-disciplinary public health teams that can respond rapidly to outbreaks and clusters and integrate action on health service improvement and health improvement with health protection efforts to promote efficiency, equity and quality;
- Well-resourced and integrated national public health functions that are operational as well as normative[14] and support and coordinate integrated public health actions regionally.

While we seek to learn from our experiences with the pandemic and to prepare for the future, it is important to recognise that COVID-19 is still with us and there are still significant challenges to be overcome. In Ireland, these include on-going transmission within marginalised communities directly attributable to the social and economic determinants of health, such as poor housing and poverty, in parallel with sustained transmission due to increased social mixing as restrictions ease. Engaging and protecting vulnerable communities with targeted vaccination programmes delivered through recently developed local support infrastructures is required to protect them and therefore the wider community. The emergence of Variants of Concern (VOC) internationally and within Ireland, is concerning and has the potential to derail our efforts to return to normalcy even with high vaccination rates. The capacity to quickly identify and manage these will be key over the coming months and will require substantial investment in public health infrastructure. Investment will also be required to enable public health to support safe in-person education, from primary through to third level. There is also a need to return to the business of reforming our health system. Prior to COVID-19, Ireland faced huge waiting lists for hospital procedures, diagnostics and treatments, and these have only been exacerbated by the pandemic. Public health input, though key to these actions, remains under-resourced with departments continuing to struggle to meet the immediate demands relating to COVID-19, even with the additional resources recruited.

Covid-19 has reinforced the reality that no country can be safe unless we are all safe. With this, there is a need for national and global policy promoting effective advocacy, and the exchange of good practices by using relevant regional and multi-national institutions and forums. Within this context, Ireland has an opportunity to become a global leader in health systems recovery and resilience by making smarter, more intelligent use of the limited resources at our disposal, giving proportionate consideration to essential public health functions to secure health security and lay the foundations of economic and social development.

What is needed urgently to address these on-going challenges are also critical to supporting the safe return of increasing levels of normal activity in the context of an evolving pandemic, securing our health security both nationally and globally as well as supporting the ongoing reform of our health system. They will allow us to be prepared for the next public health emergency, whatever and

[13] An integrated approach to surveillance incorporates human, animal and environmental health data to support early risk identification and response

[14] Normative organisations provide direction in terms of how work should be done while operational organisations undertake the work

whenever it may be. If we are to apply the lessons learned from our collective experiences with COVID-19, we must:

1. Review the governance structures for public health, incorporating all health protection functions from surveillance, to case and outbreak management, source identification and contact tracing as well as health improvement, health service improvement and health intelligence. These structures must be compliant with Medical Officer of Health legislation, support the delivery of an integrated public health function nationally and regionally and be defined across all levels from national to local;
2. Address longstanding and critical IT infrastructure gaps, including the lack of a case and outbreak management system, an integrated surveillance system, an immunisation reporting system, as well as the need for the development of a fit for purpose health information system capable of linking information across all service delivery sites[15].
3. Further strengthen the capacities of regional Departments of Public Health beyond the current investment in health protection to enable the delivery of the integrated public health service required to support the full implantation of Slaintecare;
4. Promote Ireland as a global leader for health systems recovery and resilience through the promotion of national and global policy that supports proportionate investment in essential public health functions to promote health security and ensure economic and social prosperity.

This pandemic has exposed the weaknesses in our health systems and emergency preparedness globally. It has devastated countries and communities and its health and socio-economic impacts will be felt for a long time to come. We cannot continue to rely on the good will and dedication of our health care workers nor on the stoic resilience and incredible engagement and compliance shown by the public over the past two years. There can be no doubt that further Public Health Emergencies will arise in our time. Climate change, globalisation and changing land use means that even as we continue to respond to a pandemic that is still very much a threat, there is an ever-increasing array of threats we must be ready to respond to. We must invest now in a public health system that will support our recovery and lay the foundations for a resilient health system; a system that engages all of society, addresses social and economic determinants of health; a system that recognises that protecting and promoting the health and wellbeing of the entire population is the best way to ensure economic prosperity. This is very much a worthwhile investment, as the evidence has shown time and time again that resources invested in public health not only save lives, but also save money[16].

[15]The establishment of a unique health identifier is a key enabler for this process

[16] WHO Regional Office for Europe. The case for investing in public health: The strengthening public health services and capacity-a key pillar of the European regional health policy framework Health 2020. A Public Health summary report for EPHO 8. Geneva. 2014.