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Review

Applying an equity lens in the Decade of Vaccines

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ABSTRACT

Addressing inequities in immunisation must be the main priority for the Decade of Vaccines. Children who remain unreached are those who need vaccination – and other health services – most. Reaching these children and other underserved target groups will require a reorientation of current approaches and resource allocation. At the country level, evidence-based and context-specific strategies must be developed to promote equity in ways that strengthen the system that facilitates vaccination, are sustainable and extend benefits across the life cycle. At the global level, more attention must go on ensuring sustainable and affordable supply for low- and middle-income countries to vaccine products that are appropriate for the contexts where needs are greatest. Finally, data must be disaggregated and used at all levels to monitor and guide progress to reach the unreached.

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1. Introduction

The Global Vaccine Action Plan (GVAP) [1], developed as a framework to guide immunisation programmes in the "Decade of Vaccines" calls for more people having access to more vaccines to achieve several ambitious goals. A guiding principle of the GVAP[1] is that equitable access to immunisation is a core component to the right to health. Equitable access will also ensure that the benefits of immunisation extend to each individual and to society as a whole.

Despite impressive progress, the current trajectory remains insufficient to achieve the goal of all children enjoying the full benefits of immunisation. Inequalities in immunisation coverage between and within countries persist and in some cases are widening. Although 83% of children worldwide received three doses of a diphtheria-, tetanus- and pertussis-containing vaccine (DTP3)[2] in 2011, 22.4 million children are estimated to have been missed [2]. Household wealth, education, access to healthcare and location are all contributing factors to this inequity [3]. Further, those who are

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[1] The six guiding principles of the GVAP are: (1) Country ownership of immunization services, (2) Immunization is a shared individual, community and governmental responsibility that transcends borders and sectors, (3) equitable access to immunization, (4) strong immunization systems as part of broader health systems, (5) ensured sustainability of immunization programmes, and (6) continued innovation and quality improvement across all aspects of immunization.

[2] DTP3 is used as the main indicator of immunisation coverage as it captures the ability of the system to identify and routinely administer three doses of vaccine to the same children.

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un- or underimmunised[3] are those most in need and for whom vaccines could have the greatest impact. This is unacceptable.

To seize the opportunity of the GVAP, addressing inequalities in immunisation coverage must be a prime focus for the next decade, pursued in ways that are sustainable and have wider benefits across the continuum of care, so that children and their families have access to more health interventions they need. For this purpose, as governments, global actors, regional bodies, civil society and the private sector move into the GVAP's implementation phase, existing imbalances will need to be addressed. Reaching the unreached will require a reorientation of funding, programming approaches, and research and development, so that the needs of the most vulnerable and underserved are prioritised. This must involve greater emphasis on *vaccination*, moving beyond the current focus on the vaccines themselves, for any vaccine is only as effective as the health system that will deliver it. As such, we are in the "Decade of Vaccines *and Vaccination*".

In this article we make the case for focusing on equity in the coming decade. This is by no means a comprehensive or systematic analysis of how to reach the unreached, but it presents some key areas of the GVAP that warrant additional attention at country and/or global level in order that all children enjoy the full benefits of immunisation. While we focus here on supply-side constraints, efforts to reduce inequities in immunisation coverage should of course consider demand- and supply-side issues, as well as the enabling environment.

2. Setting the scene

Progress in immunisation coverage has been impressive. The Expanded Programme on Immunisation (EPI) was founded in 1974 [4] and in low-resource countries catalysed immunisation programming. This, combined with a very focused approached under "Universal Child Immunisation (UCI)", resulted in coverage rapidly increasing through the 1980s. This was followed in the 1990s by a phase of consolidation of gains in many countries, but by stagnation and even decline in many countries with weaker health systems. Accelerated access to new vaccines for low-income countries has become the focus over the past decade since the Global Alliance for Vaccines and Immunisation (GAVI Alliance) was established (Fig. 1). Against this background, intensified and mostly campaign driven efforts reduced poliomyelitis incidence by 99% [5], neonatal tetanus incidence by over 90% [6–8], and measles mortality by close to 90% over the past 20 years [9].

To further improve coverage, the challenge that shapes the decade ahead is to reach the final fifth of children who are currently not being fully vaccinated. Inadequate data limits our ability to monitor progress and develop evidence-based strategies. However, we know that the unreached and undervaccinated are not randomly distributed: a child's poor immunisation status corresponds to inequalities that characterise his/her community and sub-community. This trend is true for most vaccines and in most countries. Average DTP3 coverage in low-income countries (LICs) falls 15 percentage points behind that of high-income countries (HICs) [10,11].[4] Further, the underimmunised are heavily concentrated with 80% of children without DTP3 living in Africa and south-east Asia [12]. Within countries, inequalities in immunisation coverage can be widespread and are associated with household wealth, education and geographic location [13]. For instance in Nigeria, children from the poorest households were nine times less likely to receive DTP3 than those from the richest in 2008 [14].[5] Where disaggregated data is available to track changes in DTP3 coverage over time, few countries have achieved substantial reductions in disparities [15]. In many contexts, evidence suggests that the "inverse equity hypothesis" – coined by Victora and others[6] – is correct, where progress in immunisation benefits the least vulnerable first [16].

3. The rationale for focusing on equity

The importance to achieve not only high coverage, but also to do so in equitable ways was reflected in the Global Immunisation Vision and Strategy (GIVS), which was established in 2005 and called for 90% coverage in every country and 80% coverage in every district [17]. Both targets are retained in the GVAP. The message is that countries should not strive towards high national coverage by addressing access and utilization in more easily accessed and more densely populated areas only. On the contrary: a recent analysis found that increasing coverage among the poorest households is a major driver of aggregate increases in coverage at the national level [18].

Access to the full benefits of immunisation, as a proven cost-effective intervention, is indeed part of the human right to health. As such, any inequity in immunisation coverage is to be seen as unfair and avoidable, creating an ethical prerogative to address such inequalities, and requiring both resources and political will and attention to do so.

There is also an economic case for reaching the unreached. Often the poorest who are underimmunised are likely to also be exposed to increased risks such as inadequate water, sanitation and nutritional intake, as well as to lackaccess to other essential preventive interventions, making them more susceptible to disease. When sick, poor children are less likely to have timely access to quality care, their chance of survival from preventable illness is reduced. Due to the disproportionate vulnerability and disease burden, vaccinating the unreached is most cost-effective [19,20] and has huge life-saving potential, arguably greater than any future technology [21]. This is also true for the new vaccines: maximizing their impact means prioritising the underserved. Equitable immunisation coverage at high levels of rotavirus infection would increase the impact of the vaccine by 35% overall, and by 60–400% for the most poor [19].

Improving equity in immunisation also opens the door to better coverage in other health interventions: despite existing inequities in coverage, immunisation is often the intervention with the widest reach, able to act as vehicle of delivery for other preventative measures. Improving that reach, while integrating other interventions with immunisation, can bring broader health benefits to those most in need [41].

4. What must be done?

As the structural determinants that characterise immunisation coverage – such as household wealth – are the same as those that deprive millions from access to other essential interventions, the root causes of such inequalities must be addressed. At the same time, the health system – and immunisation programmes specifically – can help to mitigate some of the drivers of health inequity [21].

Two comprehensive literature reviews [23,24] used four main categories to classify the reasons why children are not fully

[3] In other words, children who have not received all vaccines as prescribed in the national schedules.

[4] Authors' calculation as non-weighted average, estimated from WHO/UNICEF coverage estimates by country for DTP3 (1980–2011).

[5] Authors' calculation using the Nigerian Demographic and Health Survey 2008.

[6] The inverse care law was first stated by Julian Tudor Hard in the Lancet in 1971.