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The big picture in addressing vaccine hesitancy

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Public acceptance of vaccination has never been a given. Today there is a set of societal circumstances that may contribute to a growing parental hesitancy about vaccination. These include: increasingly 'crowded' vaccination schedules; lower prevalence of vaccine-preventable diseases; greater access to, and more rapid dissemination of, vaccine-critical messages via digital networks; hyper-vigilance of parents in relation to children and risk; and an increasingly consumerist orientation to healthcare.

Williams summarizes the known influences of parental vaccine hesitancy and then reviews 15 interventional studies that sought to increase child vaccine acceptance. This is timely and adds to an expanding body of knowledge in this area.[1-4] Our commentary proposes five major tasks ahead for tackling vaccine hesitancy.[5]

Shoring up Government commitment

Vaccine programs are underpinned by a rigorous science determining their efficacy and safety in populations. There needs to be a similar level of commitment to identifying and testing the interventions designed to increase uptake of vaccines among vaccine-hesitant parents. Reviews by Williams and others have noted the limited evidence base available to date. Accordingly, governments and research agencies need a greater investment in the strategic direction, capacity building, research and evaluation to meaningfully address vaccine hesitancy. Recent efforts to chart the strategic direction of research are encouraging.[6,7]

Addressing vaccine hesitancy involves developing a deep understanding of the psychological and social dimensions of vaccine acceptance, building good measures that can identify and monitor patterns of vaccine hesitancy in populations and over time, and systematically testing interventions using valid and reliable outcome measures. Interventions should consider communication interventions operating at the individual, family, and community level.[8] They should be economically viable and shown to not cause harm prior to their implementation.

Monitoring Vaccine Acceptance

Only good monitoring of vaccine acceptance attitudes will determine true trends in the prevalence of vaccine hesitancy. This is a critically important task given the societal influences driving vaccine hesitancy. Many commentators consider increasing rates of disease, vaccine exemptions, and alternative vaccine schedules or reductions in coverage as an indication of declining vaccine acceptance. While these epidemiological and behavioral outcomes may be indicative, they are influenced by a range of possible factors. With respect to changes in coverage, parsing acceptance from access is essential. This most basic differentiation is hampered by the lack of national monitoring of both acceptance attitudes and perceptions of financial, physical, and social cultural barriers to access.

Few countries undertake active monitoring of actual vaccine acceptance over time using valid and reliable measures deployed in populations large enough to enable confident conclusions. Investment

is required but the returns to monitoring are manifold. These returns were most clearly demonstrated with the UK government's yearly monitoring of mothers' attitudes toward vaccination between 1991 and 2012 enabling program managers to anticipate shifts in public confidence following the MMR-autism scare. This in turn enabled rapid campaign responses.[9] Countries can complement monitoring of vaccine acceptance with monitoring for vaccine concern 'signals' enabled through online and social media analysis.[10]

Community Level Solutions

Two major influences on vaccine acceptance and rejection emerge from the literature to date: social norms and provider interactions. With regard to the former, rejection of vaccination tends to cluster in communities typically characterized by alternative or religious belief systems. To the extent that rejection and hesitancy toward vaccination is a community phenomenon, solutions need to be considered at the community level. Community-based interventions are already utilized in low- and middle-income countries, where they may be used to build trust and increase community participation in populations that are difficult to reach with mass media or standard health services.[8] Adversarial and/or top-down approaches can polarize communities and alienate parents less favorable toward vaccination. In contrast, communication that engages communities in dialog through local opinion leaders or peer groups has the potential to build community support and advocacy for the benefits of vaccination.[11,12,13]

Provider Level Solutions

A second major influence on whether a hesitant parent accepts or rejects a vaccine is the provider interaction.[14] A number of approaches have been advocated yet, as noted by Williams, the evidence base for effectiveness is wanting. Confident recommendation combined with respectful engagement, narrative and personalized approaches that address the needs of vaccine hesitant parents appears to be the most constructive way. However, further studies are needed.

Study quality is important. In order for effective interventions to be repeatable, future trials should clearly report key features such as the content of communication. Reviews should also appropriately assess the quality of included studies to ensure that the evidence base is not founded on low-quality studies.[15] The outcomes measured need attention. As Williams notes, outcome measurement across studies is inconsistent, making it difficult to build the evidence base through systematic reviews of effects.[16] Communication is often one part of a multifaceted strategy. We need a comprehensive understanding of both process outcomes (e.g., knowledge or intent to vaccinate) as well as endpoints (e.g., timely and complete vaccination) in order to determine how and at what stages specific communication interventions affect vaccination attitudes and behavior. Measuring process outcomes allows the identification of components of the package that are effective[17] and indicates whether the end effect is related to implementation issues or to the intervention itself.[18]

Along with vaccination timeliness and completion, it is prudent to measure outcomes of communication such as informed decision-making, satisfaction, and decisional conflict. These reflect good and ethical process and are essential if we are to ensure sustainable trust at an individual and population level.

Provider Education

A committed, confident and competent vaccination workforce is integral to ensuring high vaccine coverage. Health professionals' attitudes and actions will reflect their training and development. There should be sufficient time devoted to vaccination in university curriculum and continuing education. If health professionals have a nuanced understanding of vaccines *and* vaccine hesitancy, they will be better prepared for a guiding partnership in vaccine decisions with parents. Another emerging priority is better engagement of maternity care nurses and complementary and alternative medicine practitioners who have a voice at crucial times of vaccine decision making in key groups.

For over two hundred years, industrialized countries have sustained the political will, financial support, purchasing structures, cold chain, program management, workforce capacity, and communications to ensure that most children get most or all the vaccines recommended to them. Vaccine hesitancy presents particular challenges because the attitudes and beliefs underlying it may be self-sustaining and not be amenable to centralized and administrative efforts. Undoubtedly though, the global vaccination community has the capacity to address vaccine hesitancy. It will be able to do this if there is sufficient political will, professional commitment, and research investment to develop and evaluate new and innovative solutions that make a meaningful difference.

Disclosure of Potential Conflicts of Interest

No conflicts of interest were disclosed.

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