Commentary

The need for a multi-disciplinary perspective on vaccine hesitancy and acceptance

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The authors of this article were invited members of a workgroup sponsored by the American Academy of Arts and Sciences in the fall of 2013. They came away convinced that a more holistic perspective of childhood vaccination is necessary in order to understand and ultimately address the complex, multi-faceted issues surrounding vaccine hesitancy and vaccine acceptance in the United States. The authors suggest that such a holistic view can only be obtained by carefully considering the findings and perspectives of research from a variety of disciplines, including, but not limited to, public health.

The introduction of vaccines, and the proliferation of their use, has dramatically improved the health of our population [1–3]. Smallpox has been eradicated, polio eliminated from the Americas, and diseases that were once a universal part of childhood, such as diphtheria, measles, and rubella, are now uncommon. For these diseases to remain uncommon, however, continued, widespread acceptance of vaccination is necessary.

Currently though, widespread acceptance is becoming problematic. As new generations of parents make decisions about vaccination, an increasing number are opting not to vaccinate their children, either completely or in part [4–6]. And even among parents who accept vaccination, concerns about vaccines are becoming more common [7–9].

When widespread vaccine acceptance is not maintained, herd immunity, which offers some protection to unvaccinated individuals, is compromised and disease outbreaks result. The 2012 pertussis outbreak in Washington State, the 2013 measles outbreaks in New York and Texas, and the current pertussis outbreak in California, are all examples of this phenomenon. To prevent future situations like these from occurring, it is critical that researchers, public health officials, policy makers and even the public at large understand the underlying dynamics of vaccine uptake in the US, including, but not limited to, the factors that cause parents to make the vaccination choices they do.

The existing public health literature (including public-health oriented medicine) provides a strong starting place for this understanding. Recent research in this field has examined a variety of topics including how parents’ vaccination decisions are shaped by their knowledge, attitudes and beliefs about vaccination [10–13]; how parents’ vaccination choices are related to their trust in their children’s health care providers [14–17]; and the types of information parents consider when making vaccination decisions [18–20]. While the information provided by such studies is both useful and important, it is, at the same time, limited by the discipline-specific concerns of public health.

The primary focus of public health is preventing disease at the population level and improving the public’s health. As such, research in this discipline is overwhelmingly geared towards obtaining this practical end. Many public health research studies are characterized by an emphasis on data collection and quality as opposed to abstract theory, as well as a preference for quantitative rather than qualitative results. There is also a tendency within the discipline to focus on proximate determinants: factors thought to be closely linked to the health issue in question and through which any social factors influencing the health issue must operate [21]. Examples of proximate determinants in the public health-oriented vaccination literature include parents’ trust in biomedical health care providers; use of alternative medicine; levels of hesitancy; knowledge and perceptions of vaccines; exposure to media, particularly anti-vaccination media; and sources of information on vaccines.

The benefit of this approach, and particularly the focus on proximate determinants, is that, on the surface at least, it appears to
provide relatively straightforward and clear points of intervention, which are directly in line with the primary focus of public health. The reality of childhood vaccination uptake, however, is much more complex. Proximate determinants do not exist in vacuums. They can and do interact with each other and they can vary from person to person, from group to group and over time in complex, non-intuitive ways. Additionally, non-proximate determinants can also affect how vaccine uptake plays out for both individuals and groups. Psychological, ethical, social, cultural, political, economic, ecological and historical factors, not to mention interpersonal, institutional and state power structures can also influence whether or not children receive vaccines. And, like proximate determinants, they too can vary from person to person, from group to group and over time in complex, non-intuitive ways. In order to understand this non-straightforward and very messy reality—which we believe is essential to ultimately be able to effectively address vaccine hesitancy and uptake—other viewpoints are necessary.

Fortunately, alternative perspectives are available through research conducted in other disciplines including anthropology, communication, history, economics, medical ethics, political science, psychology and sociology. While each of these disciplines is characterized by their own unique discipline-specific concerns and limitations, they can all offer important, alternative viewpoints of vaccine hesitancy and uptake. To detail the contributions of each of these disciplines, including the discipline-related research published in public health and medical journals as well as discipline-specific journals, would require a series of separate articles. As a brief alternative, we offer perspectives from our two specific fields, as examples of the current non-public health oriented research that is being conducted.

As a discipline, anthropology varies from public health in a few ways including a holistic focus, an emphasis on concepts and theory over data, and a tendency towards a qualitative approach. As such, anthropologists are able to ask questions that would typically not be considered within a public health framework and provide answers that, in turn, can contribute new information on childhood vaccination. Recent research by Brunson [22], for example, has considered how parents make decisions about their children’s vaccinations. Instead of focusing on the type of vaccination decisions parents make, or the factors that lead parents to make particular choices, this study considered the general process parents go through when making their vaccination decisions. Among other findings, the research suggested that how parents learn about and assess vaccination varies in important ways. While some parents assess vaccination based on social norms (acceptors), others primarily rely on those around them for information, direction and advice (reliers), and yet others actively search for published information on their own (searchers). These findings have important implications for public health interventions. They suggest that interventions should be tailored not only in terms of content, but also to how parents will access the information provided by the intervention. Other anthropological studies have considered the role that sociopolitical, economic and institutional factors play in shaping parents’ and health care providers’ beliefs about vaccination and through this, vaccine uptake. In her study of parents living in California, for example, Kaufman [23] argues that parents’ perceptions of vaccine risk are intimately connected to concepts of responsible consumerism and personal responsibility, common but powerful cultural motifs in the US.

As a second example, psychology provides information on how psychological factors like fear can motivate parents to make particular vaccination choices. Recent research by Jolley and Douglas [24], for example, examined the effects of conspiracy theories on vaccination intentions. The research found that even exposure to anti-vaccine conspiracy theories can lead to a lowered intention to vaccinate. The research further indicated that vaccine conspiracies operate by increasing parents’ feelings of powerlessness in their abilities to change health outcomes, increasing their feelings of disillusionment with government officials, pharmaceutical companies and medical authorities, and, in turn, decreasing their levels of trust in these same organizations/individuals. These findings suggest that steps should be taken to help mitigate fear for those who are more susceptible to conspiracy theories. Other psychological studies have considered how this can be done. The Preferred Cognitive Styles and Health Decision Making Model [25], for example, suggests that individuals have preferred cognitive styles, such as the innumerate and denialist styles, that they employ while making decisions. It suggests that health professionals should attempt to understand the preferred cognitive decision-making style of their patients, and focus their resulting educational efforts towards that style, rather than relying on the default highly analytic style commonly used by physicians.

In conclusion, to develop a more comprehensive view of childhood vaccination by more fully considering research conducted by multiple disciplines as outlined above, we suggest the following:

1. A broader reading of the available literature, with a specific focus on finding, reading and disseminating relevant articles that are published in non-public health and medical journals.
2. Greater effort on the part of researchers from non-public health disciplines to make their work accessible to a public health audience by publishing in public health-oriented journals, presenting at public health conferences and disseminating their research to colleagues within public health and medicine.
3. Greater acceptance of alternative theoretical perspectives and methodologies within the disciplines of public health and medicine.
   a. Such acceptance is especially important among editors and reviewers of public health and medical journals that commonly publish articles on vaccine hesitancy and vaccine acceptance. When authors of studies are not able to publish in these journals, due to bias against their theoretical perspectives or methodologies, including restrictive word count limits for qualitative studies, the research is much more likely to end up being published in discipline-specific journals that then tend to be overlooked by public health and medical researchers as well as practitioners.
4. Developing conferences, or broadening agendas of existing conferences, to showcase research being conducted in different disciplines.
   a. Such conferences could also benefit from panel discussions of researchers from different disciplines who study the same topic, such as the impact of social media on vaccine uptake.
5. The implementation and funding of a national research agenda, like that proposed by the American Academy of Arts and Sciences [26], that encourages both cross-disciplinary research projects and vaccination-related research in disciplines other than public health and medicine.
6. Increased multi-disciplinary collaboration on future research projects and in the development of public health interventions.
7. The regular inclusion of researchers from multiple disciplines on NIH and other funding agency grant review panels. In addition to making it more likely that vaccination research from a variety of disciplines will be funded, this will also enable public health researchers the opportunity to receive feedback from reviewers in other disciplines, which could enhance their own research studies.
8. Increased representation of researchers from different disciplines on the staffs of public health agencies like the CDC.

We believe that as these and other steps are taken, a more holistic understanding of childhood vaccination will be developed, and
through this, more detailed and accurate interventions can be created.

If a broader perspective is not obtained, if traditional, evidence-based interventions continue to be used without any innovation, it is likely that current trends will continue. Vaccine hesitancy and acceptance are complex, multi-faceted issues. Our understanding of them must be complex and multifaceted as well. While some in public health and medicine may be uncomfortable with the messiness inherent to such an understanding, we believe that it is only by appreciating the totality of the mess that the paths out of it can be both seen and taken.

References