

Childhood vaccination communication outcomes unpacked and organized in a taxonomy to facilitate core outcome establishment

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Abstract

Objectives: We present a comprehensive taxonomy of outcomes for childhood vaccination communication interventions. Adding to our earlier map of trial outcomes, we aimed to (1) identify relevant outcomes not measured in trials, (2) identify outcomes from stakeholder focus groups, and (3) organize outcomes into a taxonomy.

Study Design and Setting: We identified additional outcomes from nonvaccination health communication literature and through parent and health care professional focus groups. We organized outcomes into the taxonomy through iterative discussion and informed by organizational principles established by leaders in core outcome research.

Results: The taxonomy includes three overarching core areas, divided into eight domains and then into outcomes. Core area one is psychosocial impact, including the domains “knowledge or understanding,” “attitudes or beliefs,” and “decision-making.” Core area two is health impact, covering “vaccination status and behaviors” and “health status and well-being.” Core area three is community, social, or health system impact, containing “intervention design and implementation,” “community participation,” and “resource use.”

Conclusion: To our knowledge, this taxonomy is the first attempt to conceptualize the range of potential outcomes for vaccination communication. It can be used by researchers selecting outcomes for complex communication interventions. We will also present the taxonomy to stakeholders to establish core outcome domains. © 2017 The Authors. Published by Elsevier Inc. This is an open access article under the CC BY-NC-ND license (<http://creativecommons.org/licenses/by-nc-nd/4.0/>).

Keywords: Outcomes; Core outcome set; Childhood vaccination; Communication; Taxonomy; Immunization

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What is new?**Key findings**

- Taxonomy of outcomes identifies and organises all potentially relevant outcomes for childhood vaccination communication.
- Outcomes reflect a range of different social perspectives.
- Categorized into three core areas: psychosocial impact, health impact, and community, social or health systems impact.

What this adds to what was known?

- First known effort to identify the range of outcomes associated with vaccination communication interventions.
- Outcomes derived not only from existing trials and stakeholder consultation, but also through identifying and translating outcomes from the broader health communication area.
- This is a new methodological approach for identifying potential outcomes for core outcomes research, particularly in complex intervention areas.
- This taxonomy is a tool for researchers and evaluators to help improve understanding and appropriate selection of vaccination communication outcomes.

What is the implication and what should change now?

- This taxonomy forms the basis for a forthcoming international Delphi process to identify core outcome domains for vaccination communication interventions.
- Taxonomy development methods could be adopted by researchers interested in progressing the understanding of outcomes for complex or communication-related interventions.

1. Introduction*1.1. Vaccination communication interventions*

Communication about childhood vaccination is implemented around the world to generate and maintain demand for routine vaccination and to promote large-scale vaccination campaigns [1–4]. Interest in communication has grown with its emergence as a potentially effective strategy to address vaccine hesitancy [5–9]. The term “vaccination communication” includes many interventions with a number of aims or purposes: to inform or educate, remind or recall, enhance community ownership, teach skills,

provide support, facilitate decision-making, and enable communication [1,2]. Vaccination communication is dynamic, involves multiple actors, operates at an individual as well as a broad public health level, and is often delivered in complex packages with multiple components [10].

Evidence from high-quality studies and systematic reviews is necessary to inform implementation [11,12], but determining how to evaluate the effects of these diverse and often complex interventions is a significant challenge. Given the variety of vaccination communication strategies, it follows that there should be a similarly wide range of potential outcomes, from socially oriented outcomes related to communication and engagement to health status and health service outcomes, such as vaccination status or timely delivery [13]. But many of these relevant outcomes are not being adequately assessed. In an earlier study, we identified outcomes currently measured in trials of vaccination communication interventions, finding that too few concepts are measured in too many ways [14].

Most trials measure only vaccination-related end point outcomes like vaccination status or coverage, making it difficult to unpack how communication interventions work or why they fail. Much has been written about the importance of measuring intermediate or process outcomes to illuminate a complex intervention’s mechanism of action or the “black box” between implementation and end point impact [13,15–18]. Because current evidence for vaccination communication focuses on a few end points, without measuring process outcomes, it is often not clear why an intervention did or did not influence vaccination outcomes.

Our earlier assessment of trial outcomes also identified huge variability in the way the few common vaccination end point outcomes were defined and measured [14]. This makes it challenging or impossible to meaningfully compare individual study results or synthesize evidence in systematic reviews [19,20]. To better understand the impacts of vaccination communication interventions, we therefore need to measure similar outcomes consistently across studies, and these outcomes need to reflect the intervention’s theorized mechanism of action.

This requires a conceptual understanding and identification of the full range of potentially relevant effects that may be outcomes of vaccination communication. It is also important to consider that different outcomes may be important to different stakeholders [21,22].

One way to address these evaluation issues is through the development of a core outcome set (COS). This is a set of outcomes or outcome categories (“domains”) that stakeholders agree should be considered in all evaluations of a particular topic or intervention [23,24]. COSs facilitate direct comparisons between studies and also reduce selective outcome reporting [25,26]. COSs have been developed for hundreds of specific conditions in disease and injury categories including cancer, rheumatology, orthopedics, and trauma [27,28], but there is little research into COSs for communication interventions and none to

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