View metadata, citation and similar papers at core.ac.uk

brought to you by CORE

provided by LSHTM Research Online

Larson, HJ; Schulz, WS; Tucker, JD; Smith, DM (2015) Measuring vaccine confidence: introducing a global vaccine confidence index. PLoS currents, 7. ISSN 2157-3999 DOI: https://doi.org/10.1371/currents.outbreaks.ce0f6177bc

Downloaded from: http://researchonline.lshtm.ac.uk/2131857/

DOI: 10.1371/currents.outbreaks.ce0f6177bc97332602a8e3fe7d7f7cc4

Usage Guidelines

Please refer to usage guidelines at http://researchonline.lshtm.ac.uk/policies.html or alternatively contact researchonline@lshtm.ac.uk.

Available under license: http://creativecommons.org/licenses/by/2.5/

Vaccine Hesitancy Collection
PLOS Collections

PLOS Ecology Bridging Gaps in Ecology and Conservation
PLOS Collections

PLOS Ecology HealthMap
PLOS Collections

FIND A COLLECTION

Tweets

Dr. Jennifer Kennedy @drjenkennedy
Great Read
@PLOSOneNews @PLOSOne
Epidemiological characterization of the Ebola outbreak in Boke, Guinea, and implications for control
@CDCglobal @CDCEpiMonthly
pdf.sciencedirect.com/pdf/1-s2.0-S1201971215... View on Twitter

View more tweets

Follow @PLOSOneNews

@PLOSOneNews @PLOSOne
Epidemiological characterization of the Ebola outbreak in Boke, Guinea, and implications for control
@CDCglobal @CDCEpiMonthly
pdf.sciencedirect.com/pdf/1-s2.0-S1201971215... View on Twitter

Follow @PLOS

Follow @PLOS

Measuring Vaccine Confidence: Introducing a Global Vaccine Confidence Index

Heidi J. Larson, William S. Smith, Joseph D. Tucker, Daniel M. Bell

PLOS Ecology: Ecology and Conservation Biology
Published: August 25, 2015 | DOI: 10.1371/journal.pbio.1002197 | Cite this article | Share this article

Abstract

Background

Vaccine hesitancy is considered to be the nucleus of immunization programme worldwide. Understanding the dynamics of vaccine attitudes or behaviour is important for policymakers and public health practitioners to design and implement effective immunization programmes and to maintain public vaccine confidence. This article presents the findings of a multinational survey of attitudes to vaccines and immunization in 67 countries, and proposes a Global Vaccine Confidence Index (GVCI) to track vaccine confidence over time and across different groups, and to contribute to policy.

Methods and Findings

Data were collected from a sample of the general population and from those with certain under 5 years old children in 67 countries using a standard questionnaire. Descriptive analyses were conducted to assess vaccine attitudes and behaviours. The proportion of the population in each country who agreed with a set of statements about the importance, safety, and effectiveness of vaccines was used to create a composite measure of vaccine confidence. Bivariate and multivariate analyses, adjusted for country fixed effects, were used to assess associations between vaccine attitudes and demographic factors.

Results

Data from 65,535 respondents in 67 countries (sample sizes ranged from 500 to 3,000). Response rate was 61%. Overall, 87% (95% CI: 86%–88%) agreed that immunization is important, 10% (95% CI: 9%–11%) disagreed or were uncertain about the importance of immunization, and 2% (95% CI: 2%–2%) reported that immunization is not safe. Vaccine confidence was lowest in the Middle East and North Africa region and highest in the East Asia and Pacific region. Overall, the highest rate of vaccine refusal (8.1% nationally) was observed in the Middle East and North Africa region. Vaccine confidence was associated with age, education, and other factors. Vaccine confidence was lower among those who reported that immunization is not compatible with their religion, that it is not their decision to make, that it is not their child's turn, and that their child does not need it. Vaccine confidence was associated with the perceived importance of immunization for the health of others and not of oneself, and with the perceived importance of immunization for children in other countries but not for children in one's own country.

Conclusions and Policy Implications

Vaccine confidence is a complex construct that varies across countries and within countries. Vaccine confidence is a necessary foundation for an effective immunization programme, and should be measured and monitored. The Global Vaccine Confidence Index (GVCI) is a tool that can be used to track vaccine confidence over time and across different groups, and to contribute to policy. Vaccine confidence should be considered when introducing new vaccines, when implementing immunization programmes in new populations, and when assessing the impact of immunization programmes on other health outcomes.

Introduction

Vaccines are among the most cost-effective interventions for improving population health. The World Health Organization (WHO) estimates that immunization programmes prevent 2–3 million deaths each year, and that 1.5 million more deaths could be averted if vaccine coverage improved worldwide [1]. The benefits of immunization go beyond the individual vaccinated person, and include herd effects and community protection, which are important for maintaining the health of populations and communities. Immunization also provides economic benefits, including reduced healthcare costs and increased productivity [2].

Despite the proven and lasting benefits of vaccines, vaccine hesitancy—the delay in acceptance or refusal of vaccines despite availability of vaccine services—is a growing phenomenon in many countries. Vaccine hesitancy is a complex, context-specific, and vaccine-specific phenomenon that varies across time, place, and vaccines. It is influenced by many factors, including complacency, convenience, and confidence [3]. Vaccine hesitancy has been identified as a threat to immunization programmes in many countries, and has contributed to vaccine-preventable disease outbreaks in many countries [4–8].

Vaccine hesitancy is considered to be the nucleus of immunization programmes worldwide. Understanding the dynamics of vaccine attitudes or behaviour is important for policymakers and public health practitioners to design and implement effective immunization programmes and to maintain public vaccine confidence. Vaccine confidence is a necessary foundation for an effective immunization programme, and should be measured and monitored. The Global Vaccine Confidence Index (GVCI) is a tool that can be used to track vaccine confidence over time and across different groups, and to contribute to policy. Vaccine confidence should be considered when introducing new vaccines, when implementing immunization programmes in new populations, and when assessing the impact of immunization programmes on other health outcomes.

This article presents the findings of a multinational survey of attitudes to vaccines and immunization in 67 countries, and proposes a Global Vaccine Confidence Index (GVCI) to track vaccine confidence over time and across different groups, and to contribute to policy.

Methods

Defining Vaccine Confidence

Vaccine confidence is the result of contextualized of vaccine risks (Timing), the factors (Engage) influencing vaccine confidence, the level of perceived risk of vaccines (Complacency), and the factors influencing vaccine confidence (Confidence), and vaccine-specific issues (Vaccine), which are the decisive factors underlying vaccine acceptance, refusal, or hesitancy.

Frequently-cited contextual factors influencing vaccine hesitancy, the "5 Cs" model of vaccine hesitancy, and the "3 Cs" model of vaccine hesitancy, have been used to develop a conceptual framework for vaccine hesitancy. Vaccine hesitancy is influenced by complacency, convenience, and confidence. The "5 Cs" model of vaccine hesitancy includes the "3 Cs" plus calculation and collaboration. The "3 Cs" model of vaccine hesitancy includes calculation and collaboration, and also includes the decisive factors of complacency, convenience, and confidence. The "3 Cs" model of vaccine hesitancy has been used to develop a conceptual framework for vaccine hesitancy, and has been used to develop a conceptual framework for vaccine hesitancy, and has been used to develop a conceptual framework for vaccine hesitancy, and