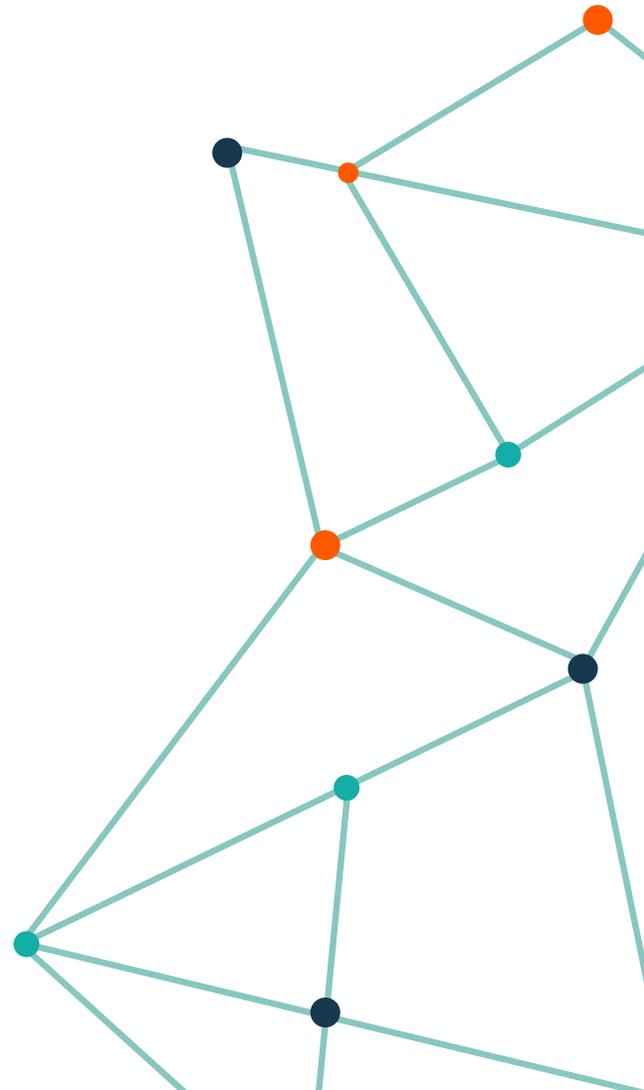




The Mercury Project Research Framework

November 2022



[The Mercury Project](#) is a consortium of social and behavioral scientists and practitioners committed to identifying cost-effective and scalable interventions to build vaccination demand. While considerable attention has been addressed to mitigating problems of vaccine supply, much less effort has been devoted to solving problems of vaccination demand ([WHO 2022](#)). Teams in the Mercury Project consortium are evaluating a portfolio of interventions that vary in settings, target populations, and risk/reward ratios, with the goal of identifying those interventions that most cost-effectively increase vaccination demand at scale ([Kremer et al. 2021](#)).

Vaccination is an action with clear health benefits. But individuals may face a variety of barriers to realizing those benefits, including the direct and opportunity costs required to search for accurate vaccine information (“search costs”), to assess the accuracy of multiple forms of vaccine information (“decision costs”), and to acquire an actual vaccination (“logistical costs”). These costs are higher for those with fewer resources. Interventions that reduce these costs may increase vaccination demand, particularly among those with fewer resources. Interventions that leverage other potential benefits from vaccination, including the social benefits conferred through vaccine-acceptant social networks, may also increase vaccination demand.

REDUCING THE SEARCH COSTS OF ACQUIRING ACCURATE VACCINE INFORMATION

Vaccination has well-documented health benefits. But individuals’ information environments may not regularly expose them to freely available accurate information about vaccines. Instead, individuals’ information environments may regularly expose them to inaccurate information about vaccines and vaccine-preventable diseases. As a result, individuals in these lower-quality epistemic environments may underestimate the health benefits of vaccination, overestimate the (very limited) risks of vaccination, and/or underestimate the risks of vaccine-preventable diseases ([Carlin et al. 2022](#); [Sadique et al 2013](#)). Searching for and acquiring accurate vaccine information imposes both direct and opportunity costs on individuals (“search costs;” cf. [Diamond 1971](#); [Stigler 1961](#)). These search costs, which are proportionately higher for those with fewer resources, may require the expenditure of time, cognitive effort, and/or financial resources. Information search costs may be reduced by directly providing individuals with accurate vaccine information (cf. [Jacobson et al. 2022](#); [Jensen, Ayers, and Koskan 2022](#); [Milkman et al. 2021](#); [Powell-Jackson et al. 2018](#)), and/or by changing individuals’ information environments to increase the freely available presence of accurate information ([Chen and Yang 2019](#); [Levy 2021](#)).

REDUCING THE DECISION COSTS OF ASSESSING THE ACCURACY OF VACCINE INFORMATION

Individuals who have acquired accurate vaccine information may also be exposed to inaccurate vaccine information. Assessing the accuracy of multiple sources of vaccine information also imposes both direct and opportunity costs on individuals (“decision costs;” cf. [Goldin et al. 2020](#)), which are again proportionately higher for those with fewer resources. Individuals may rely on decision heuristics in the presence of decision costs, including making standing decisions to accept the accuracy of information from specific sources or messengers (“trust;” cf. [Ho 2021](#)). Some trusted sources or messengers may not, however, convey accurate vaccine information. Interventions that reduce individuals’ decision costs by

increasing the credibility of sources providing accurate vaccine information, and/or by reducing the credibility of sources providing inaccurate vaccine information, may increase vaccination demand. These interventions may include delivering accurate vaccine information through already trusted messengers ([Alsan and Eichmeyer 2021](#); [Milkman et al. 2021](#); [Rabb et al. 2022](#)), building the capacities of new trusted messengers to deliver accurate vaccine information ([Mobarak et al. 2022](#)), providing individuals with skills to more easily distinguish between accurate and inaccurate vaccine information ([Bowles et al. 2022](#); [Brashier et al. 2021](#); [Cook, Lewandowsky, and Ecker 2017](#); [Guess et al. 2020](#); [Maertens et al. 2021](#); [Roozenbeek et al. 2022](#); [Vraga, Bode, and Tully 2022](#)), fact-checking and labeling inaccurate vaccine information ([Bowles et al. 2022](#); [Pennycook et al. 2021](#)), supporting guided vaccination conversations ([Andersson et al. 2009](#); [Broockman and Kalla 2016](#); [Lemaitre et al. 2019](#)), and building information literacy and information processing skills ([Badrinathan 2021](#); [Maertens et al. 2021](#)).

REDUCING THE LOGISTICAL COSTS OF ACQUIRING VACCINATIONS

Individuals who have cleared informational and decisional barriers to vaccination still face logistical barriers to vaccination. Vaccination is an action that requires time, cognitive effort, and potentially financial resources, again imposing direct and opportunity costs on individuals and households that are proportionately larger for those with fewer resources. Individuals seeking vaccinations must identify vaccination site locations, make vaccination appointments if necessary, remember vaccination appointment times, take time off from work, secure childcare if necessary, and secure transportation to vaccination sites. These logistical barriers to vaccination may be mitigated through interventions that reduce the direct and opportunity costs of identifying vaccination site locations ([Baskin 2018](#); [Dai et al. 2021](#)), making and remembering vaccination appointments ([Kagucia et al. 2021](#); [Kawakatsu et al. 2020](#); [Patel et al. 2022](#); [Regan et al. 2017](#); [Rogers et al. 2015](#); [Yokum et al. 2018](#)), taking time off from work, securing childcare, and/or securing transportation to vaccination sites ([IDinsight and Hanovia 2020](#); [Jacobson et al. 2022](#); [Kusuma et al. 2017](#); [Launay et al. 2014](#); [Mobarak et al. 2022](#); [Ofstead et al. 2013](#)). Logistical costs of vaccination may also be offset by framing vaccinations as valuable assets that can be lost ([Dai et al. 2021](#); [Glanz et al. 2020](#); [Keppeler, Sievert, and Gilke 2022](#); [Milkman et al. 2021](#)).

INCREASING THE SOCIAL BENEFITS FROM VACCINATION

Although the most obvious benefit of vaccination is health-related, it may be possible to leverage other kinds of benefits valued by individuals in support of vaccination demand. For example, individuals in a variety of contexts value social acceptance by their neighbors and peers ([Allcott 2011](#); [Bond et al. 2012](#); [Gaube et al. 2018](#); [Gerber, Green, and Larimer 2008](#); [Karing and Naguib 2021](#); [Marshall 2019](#)). These contexts include vaccination ([Bicchieri et al. 2021](#); [Hoy, Kanagavel, and Cameron 2022](#); [Karing 2019](#)). Interventions that increase the social benefits of vaccination from vaccine-accepting neighbors and peers, including by increasing the information available about others' vaccination status ([Alatas et al. 2019](#); [James et al. 2021](#); [Karing 2019](#); [Karing and Naguib 2021](#); [Moehring et al. 2021](#)), reminding individuals about familial and social impacts of vaccination ([Clayton et al. 2021](#); [Rabb et al. 2021](#); [Ruggeri et al. 2022](#); [Tironi et al. 2021](#)), and sharing accurate vaccine information within social networks ([Siddiqi et al. 2020](#)), may increase vaccination demand.

Table 1: Mercury Project Intervention Designs

Projects	Reducing information search costs	Reducing decision costs	Reducing logistical costs	Increasing social benefits
A tough call				
Afya Yako				
Boosting boosters at scale				
Building a better toolkit				
Community-designed messages				
Community education to build trust				
Doctors' talks				
Harnessing influencers				
Health ambassadors				
Sharing in social networks				
Targeting health misinformation networks				
Vishvaas mat karo!				

A TOUGH CALL: *Impacts of mobile technology on Covid-19 (mis)information and protective behavior decision-making*

Partnering with a local government in northern India, researchers will evaluate the impacts of mobile phone access on information-seeking and health-protective behaviors. This evaluation is set in the context of a response to the digital gender divide, whereby the government of Chhattisgarh provided free smartphones and improved access to the internet to two million women in rural areas across the state who live in areas with at least one village with more than 1,000 residents. With this improved internet access, women may have better access to information—including health information—but this information may be accurate or inaccurate.

This intervention design incorporates one lever to promote vaccine uptake:

- Reducing information search costs

This study team will measure multiple outcomes, including:

- Exposure to accurate vaccine information
- Knowledge about vaccines/vaccine-preventable diseases
- Vaccine information literacy skills
- Sharing accurate vaccine information
- Vaccination behavior

AFYA YAKO: *Countering public health misinformation through local media in Tanzania*

Partnering with local radio stations in Tanzania to produce weekly public health programs designed to combat misinformation, researchers will assess the effects of a four-month nationwide campaign, Afya Yako (“Your Health” in Swahili). The initiative will include a scripted radio drama and two-way dialogue encouraged through radio call-in, and will draw on citizen feedback; the program and dialogue will explain vaccine benefits as well as dramatize vaccine decision-making to build audience skills. A subset of villages within the campaign’s broadcast radius will also receive an in-person mobilization campaign. Researchers will work to equip interested parties at local radio stations with the knowledge and skills to recognize and dispel misinformation as it emerges.

This intervention design incorporates multiple levers to promote vaccine uptake:

- Reducing information search costs
- Reducing decision costs
- Reducing logistical costs

This study team will measure multiple outcomes, including:

- Knowledge about vaccines/vaccine-preventable diseases
- Confidence in vaccines
- Vaccine information literacy skills
- Sharing accurate vaccine information
- Vaccination behavior

BOOSTING BOOSTERS AT SCALE: *A megastudy to increase vaccination*

Partnering with large U.S. companies, researchers will simultaneously test different tactics designed to increase Covid-19 booster uptake. Interventions will include texts from trusted messengers as well as offers to subsidize transport costs to vaccination sites. This megastudy aims to identify which tactics effectively increase vaccinations overall and which tactics work best for whom (e.g., based on age, gender, race, etc.), which could help address disparities in vaccination rates across different demographic groups.

This intervention design incorporates multiple levers to promote vaccine uptake:

- Reducing information search costs
- Reducing decision costs
- Reducing logistical costs
- Increasing social benefits

This study team will measure one outcome:

- Vaccination behavior

BUILDING A BETTER TOOLKIT (FOR FIGHTING MISINFORMATION): *Large collaborative project to compare misinformation interventions*

Researchers will test ways to help people distinguish between true and false information and to reduce the spread of false information in online spaces. A series of online experiments and real-world tests in partnership with YouTube will allow the researchers to create a handbook for practitioners, detailing the relative strengths and weaknesses of each intervention and guiding their choices. The handbook will help practitioners build a toolkit of useful misinformation interventions and understand which interventions will be most effective for their particular problem.

This intervention design incorporates multiple levers to promote vaccine uptake:

- Reducing information search costs
- Reducing decision costs

This study team will measure one outcome:

- Vaccine information literacy skills

COMBATTING HEALTH MISINFORMATION WITH COMMUNITY-CRAFTED MESSAGING: *Developing a scalable community-driven approach in Brazil, Mexico, and the United States*

Partnering with local NGOs in Brazil, Mexico, and the US, as well as Facebook and YouTube, researchers will evaluate the effectiveness of health-information messaging generated from members of a given community in improving vaccine attitudes and intentions. These messages will also be compared to messaging currently in use, created by technical experts who represent government and public health organizations.

This intervention design incorporates multiple levers to promote vaccine uptake:

- Reducing information search costs
- Reducing decision costs
- Increasing social benefits

This study team will measure multiple outcomes, including:

- Sharing accurate vaccine information
- Vaccination intentions

COMMUNITY EDUCATION TO BUILD TRUST: *Leveraging community health workers to combat health misinformation in Haiti, Malawi, and Rwanda*

Working in and with Partners in Health and its local affiliates—Abwenzi Pa Za Umoyo (Malawi), Zanmi Lasante (Haiti), and Inshuti Mu Buzima (Rwanda)—researchers will test a new system to support Community Health Workers (CHWs) as they in turn support their communities. This will include discussions of misinformation with CHWs and establishing an SMS and phone-hotline system to hear concerns from CHWs and provide tailored scripts to overcome misinformation to encourage vaccine demand and take-up.

This intervention design incorporates multiple levers to promote vaccine uptake:

- Reducing information search costs
- Reducing decision costs
- Reducing logistical costs

This study team will measure multiple outcomes, including:

- Knowledge about vaccines/vaccine-preventable-diseases
- Confidence in vaccines
- Vaccination intentions
- Vaccination behavior

DOCTORS' TALKS: *An in-clinic communications intervention to combat COVID-19 misinformation and improve vaccine attitudes and behavior in Ghana*

Partnering with the Ghana Health Service, researchers will assess the effects of improving government health workers' communication and persuasive skills in support of Covid-19 and other vaccination. To date, government health care workers—trusted health messengers in many communities—have not been systematically mobilized to promote vaccination and dispel misinformation. Researchers will work to equip clinical health workers with the knowledge and skills to have open, persuasive vaccination conversations with patients who present at a clinic for other reasons.

This intervention design incorporates multiple levers to promote vaccine uptake:

- Reducing information search costs
- Reducing decision costs
- Reducing logistical costs

This study team will measure multiple outcomes, including:

- Knowledge about vaccines/vaccine-preventable diseases
- Confidence in vaccines
- Vaccination behavior

HARNESSING INFLUENCERS TO COUNTER MISINFORMATION: *Scalable solutions in the Global South*

Partnering with the fact-checking NGOs AfricaCheck (in Kenya, Nigeria, and South Africa) and Chequea Bolivia, researchers will test approaches to counter misinformation and change users' engagement with reliable information. In one approach, positive social media influencers—high-profile journalists and social activists with relatively large local followings—will be provided with digital-literacy training resources and fact-checks, along with modest financial compensation. In another approach, researchers will provide the fact-checkers with data on viral posts by serial misinformation spreaders. In a final approach, researchers will support the fact-checkers in directly reaching out to misinformation spreaders and their followers to debunk the misinformation they have shared or have been subjected to and provide digital literacy training materials.

This intervention design incorporates multiple levers to promote vaccine uptake:

- Reducing information search costs
- Reducing decision costs
- Increasing social benefits

This study team will measure multiple outcomes, including:

- Confidence in vaccines
- Vaccine information literacy skills
- Sharing accurate vaccine information
- Vaccination behavior

HEALTH AMBASSADORS: *EGAP-PASGR-CERAP Sub-Saharan African partnership*

Partnering with Ministries of Health in Côte d' Ivoire, Senegal, Malawi, and Zimbabwe, researchers will help select and train 'health ambassadors' to have face-to-face, bilateral engagement to move the public past their mistrust and toward vaccine demand and uptake. Health ambassadors will offer a direct and private opportunity to discuss vaccination concerns. The health ambassadors will be social mobilizers recruited to work alongside public health authorities to address individuals' concerns and promote vaccine uptake. The health ambassadors will then proactively engage individuals around vaccine risks and benefits face-to-face in an effort to increase public fluency and confidence in reliable scientific information about Covid-19 and Covid-19 vaccine uptake to ultimately increase vaccination rates.

This intervention design incorporates multiple levers to promote vaccine uptake:

- Reducing information search costs
- Reducing decision costs
- Increasing social benefits

This study team will measure multiple outcomes, including:

- Knowledge about vaccines/vaccine-preventable diseases
- Confidence in vaccines
- Sharing accurate vaccine information
- Vaccination intentions
- Vaccination behavior

SHARING IN SOCIAL NETWORKS: *Evidence from a field study in Sierra Leone*

In partnership with Sierra Leone’s Ministry of Health and Sanitation (MoSH), UNICEF, and Development Media International (DMI), researchers will investigate how to leverage and enhance social learning in the context of vaccine take-up and misinformation response. In a first study, participants will be randomized to receive training on misinformation, vaccine literacy, both or neither. The impact of these interventions on trained individuals’ and their network’s vaccination take-up rates and ability to identify misinformation will be assessed. In a second, sequentially run study, researchers will delve into the barriers to social learning by evaluating how different interventions harnessing underlying motivations for information sharing impact social learning and, consequently, the health outcomes of participants’ networks.

This intervention design incorporates multiple levers to promote vaccine uptake:

- Reducing information search costs
- Reducing decision costs
- Increasing social benefits

This study team will measure multiple outcomes, including:

- Knowledge about vaccines/vaccine-preventable diseases
- Confidence in vaccines
- Knowledge of others’ vaccination choices
- Sharing accurate vaccine information
- Vaccination behavior

TARGETING HEALTH MISINFORMATION NETWORKS: *Network-transforming interventions for reducing the spread of health misinformation online*

Researchers will design, build, and evaluate network-transforming interventions: software-assisted systems to alter the underlying networks that spread health misinformation online. A health misinformation monitor Twitter account will continuously track emerging health misinformation on English-speaking Twitter and deliver counter-messaging to the recipients of that misinformation, with the aim of motivating users to unfollow the source.

This intervention design incorporates multiple levers to promote vaccine uptake:

- Reducing information search costs
- Reducing decision costs
- Increasing social benefits

This study team will measure multiple outcomes, including:

- Exposure to accurate vaccine information
- Sharing accurate vaccine information

VISHVAAS MAT KARO!—*A media literacy field experiment in north Indian secondary schools*

Partnering with local authorities, researchers will evaluate whether a six-month grassroots training program will effectively reduce reliance on health misinformation and positively change health behaviors among secondary school students in northern India. “Vishvaas Mat karo,” which means “don’t believe it” in Hindi, is a direct attempt to increase the salience of reliable information and provide tools to detect misinformation through classroom-based pedagogical modules. The program will include both health information as well as skill-building to improve media literacy.

This intervention design incorporates multiple levers to promote vaccine uptake:

- Reducing information search costs
- Reducing decision costs
- Increasing social benefits

This study team will measure multiple outcomes, including:

- Knowledge about vaccines/vaccine-preventable diseases
- Confidence in vaccines
- Vaccine information literacy skills
- Sharing accurate vaccine information
- Vaccination behavior

LITERATURE CITED

- Alatas, Vivi et al. 2019. "[When Celebrities Speak: A Nationwide Twitter Experiment Promoting Vaccination In Indonesia.](#)"
- Allcott, Hunt. 2011. "[Social Norms and Energy Conservation.](#)" *Journal of Public Economics* 95(9): 1082–95.
- Alsan, Marcella, and Sarah Eichmeyer. 2021. "[Experimental Evidence on the Effectiveness of Non-Experts for Improving Vaccine Demand.](#)"
- Andersson, Neil et al. 2009. "[Evidence-Based Discussion Increases Childhood Vaccination Uptake: A Randomised Cluster Controlled Trial of Knowledge Translation in Pakistan.](#)" *BMC International Health and Human Rights* 9(1): S8.
- Badrinathan, Sumitra. 2021. "[Educative Interventions to Combat Misinformation: Evidence from a Field Experiment in India.](#)" *American Political Science Review* 115(4): 1325–41.
- Baskin, Ernest. 2018. "[Increasing Influenza Vaccination Rates via Low Cost Messaging Interventions.](#)" *PLOS ONE* 13(2): e0192594.
- Bicchieri, Cristina et al. 2021. "[In Science We \(Should\) Trust: Expectations and Compliance across Nine Countries during the COVID-19 Pandemic.](#)" *PLOS ONE* 16(6): e0252892.
- Bond, Robert M. et al. 2012. "[A 61-Million-Person Experiment in Social Influence and Political Mobilization.](#)" *Nature* 489(7415): 295–98.
- Bowles, Jeremy et al. 2022. [Sustained Exposure to Fact-Checks Can Inoculate Citizens against Misinformation in the Global South.](#)
- Brashier, Nadia M., Gordon Pennycook, Adam J. Berinsky, and David G. Rand. 2021. "[Timing Matters When Correcting Fake News.](#)" *Proceedings of the National Academy of Sciences* 118(5): e2020043118.
- Broockman, David, and Joshua Kalla. 2016. "[Durably Reducing Transphobia: A Field Experiment on Door-to-Door Canvassing.](#)" *Science* 352(6282): 220–24.
- Carlin, Patrick et al. 2022. "[How Undervalued Is the Covid-19 Vaccine? Evidence from Discrete Choice Experiments and VSL Benchmarks.](#)"
- Chen, Yuyu, and David Y. Yang. 2019. "[The Impact of Media Censorship: 1984 or Brave New World?](#)" *American Economic Review* 109(6): 2294–2332.

- Clayton, Katherine et al. 2021. "[Evaluating the Effects of Vaccine Messaging on Immunization Intentions and Behavior: Evidence from Two Randomized Controlled Trials in Vermont.](#)" *Vaccine* 39(40): 5909–17.
- Cook, John, Stephan Lewandowsky, and Ullrich K. H. Ecker. 2017. "[Neutralizing Misinformation through Inoculation: Exposing Misleading Argumentation Techniques Reduces Their Influence.](#)" *PLOS ONE* 12(5): e0175799.
- Dai, Hengchen et al. 2021. "[Behavioural Nudges Increase COVID-19 Vaccinations.](#)" *Nature* 597(7876): 404–9.
- Diamond, Peter. 1971. "[A Model of Price Adjustment.](#)" *Journal of Economic Theory* 3: 156–68.
- Gaube, Susanne, Dimitrios Tsivrikos, Daniel Dollinger, and Eva Lermer. 2018. "[How a Smiley Protects Health: A Pilot Intervention to Improve Hand Hygiene in Hospitals by Activating Injunctive Norms through Emoticons.](#)" *PLOS ONE* 13(5): e0197465.
- Gerber, Alan S., Donald P. Green, and Christopher W. Larimer. 2008. "[Social Pressure and Voter Turnout: Evidence from a Large-Scale Field Experiment.](#)" *American Political Science Review* 102(1): 33–48.
- Glanz, Jason M. et al. 2020. "[Web-Based Tailored Messaging to Increase Vaccination: A Randomized Clinical Trial.](#)" *Pediatrics* 146(5): e20200669.
- Goldin, Jacob, Tatiana Homonoff, Richard Patterson, and William Skimmyhorn. 2020. "[How Much to Save? Decision Costs and Retirement Plan Participation.](#)" *Journal of Public Economics* 191: 104247.
- Guess, Andrew M. et al. 2020. "[A Digital Media Literacy Intervention Increases Discernment between Mainstream and False News in the United States and India.](#)" *Proceedings of the National Academy of Sciences* 117(27): 15536–45.
- Ho, Benjamin. 2021. [Why Trust Matters: An Economist's Guide to the Ties That Bind Us.](#) Columbia University Press.
- Hoy, Christopher, Rajee Kanagavel, and Corey Cameron. 2022. [Intra-Household Dynamics and Attitudes toward Vaccines: Experimental and Survey Evidence from Zambia.](#) Washington, DC: World Bank. Working Paper.
- IDinsight, and Hanovia. 2020. [Randomized Evaluation of a Conditional Cash Transfer Program for Routine Immunizations of Infants in Nigeria.](#) Endline report.
- Jacobson, Mireille et al. 2022. "[Can Financial Incentives and Other Nudges Increase COVID-19 Vaccinations among the Vaccine Hesitant? A Randomized Trial.](#)" *Vaccine*.

- James, Erin K. et al. 2021. "[Persuasive Messaging to Increase COVID-19 Vaccine Uptake Intentions.](#)" *Vaccine* 39(49): 7158–65.
- Jensen, Ulrich T., Stephanie Ayers, and Alexis M. Koskan. 2022. "[Video-Based Messages to Reduce COVID-19 Vaccine Hesitancy and Nudge Vaccination Intentions.](#)" *PLOS ONE* 17(4): e0265736.
- Kagucia, E. Wangeci et al. 2021. "[Impact of Mobile Phone Delivered Reminders and Unconditional Incentives on Measles-Containing Vaccine Timeliness and Coverage: A Randomised Controlled Trial in Western Kenya.](#)" *BMJ Global Health* 6(1): e003357.
- Karing, Anne. 2019. "[Social Signaling and Health Behavior in Low-Income Countries.](#)" UC Berkeley.
- Karing, Anne, and Karim Naguib. 2021. [The Social Multiplier from Visibility: Experimental Evidence from Deworming in Kenya.](#) Working paper.
- Kawakatsu, Yoshito, Adefunke Oyeniyi Adesina, Nobuhiro Kadoi, and Hirotsugu Aiga. 2020. "[Cost-Effectiveness of SMS Appointment Reminders in Increasing Vaccination Uptake in Lagos, Nigeria: A Multi-Centered Randomized Controlled Trial.](#)" *Vaccine* 38(42): 6600–6608.
- Keppeler, Florian, Martin Sievert, and Sebastian Jilke. 2022. "[Increasing COVID-19 Vaccination Intentions: A Field Experiment on Psychological Ownership.](#)" *Behavioural Public Policy*: 1–20.
- Kremer, Michael, Sasha Gallant, Olga Rostapshova, and Milan Thomas. 2021. [Is Development Economics a Good Investment? Evidence on Scaling Rate and Social Returns from USAID's Innovation Fund.](#) Working paper.
- Kusuma, Dian et al. 2017. "[New Evidence on the Impact of Large-Scale Conditional Cash Transfers on Child Vaccination Rates: The Case of a Clustered-Randomized Trial in Indonesia.](#)" *World Development* 98: 497–505.
- Launay, O. et al. 2014. "[Impact of Free On-Site Vaccine and/or Healthcare Workers Training on Hepatitis B Vaccination Acceptability in High-Risk Subjects: A Pre-Post Cluster Randomized Study.](#)" *Clinical Microbiology and Infection* 20(10): 1033–39.
- Lemaitre, Thomas et al. 2019. "[Impact of a Vaccination Promotion Intervention Using Motivational Interview Techniques on Long-Term Vaccine Coverage: The PromoVac Strategy.](#)" *Human Vaccines & Immunotherapeutics* 15(3): 732–39.
- Levy, Ro'ee. 2021. "[Social Media, News Consumption, and Polarization: Evidence from a Field Experiment.](#)" *American Economic Review* 111(3): 831–70.
- Maertens, Rakoën, Jon Roozenbeek, Melisa Basol, and Sander van der Linden. 2021. "[Long-Term Effectiveness of Inoculation against Misinformation: Three Longitudinal Experiments.](#)" *Journal of Experimental Psychology: Applied* 27: 1–16.

- Marshall, John. 2019. "[Signaling Sophistication: How Social Expectations Can Increase Political Information Acquisition.](#)" *The Journal of Politics* 81(1): 167–86.
- Milkman, Katherine L. et al. 2021. "[A Megastudy of Text-Based Nudges Encouraging Patients to Get Vaccinated at an Upcoming Doctor's Appointment.](#)" *Proceedings of the National Academy of Sciences* 118(20).
- Mobarak, Ahmed Mushfiq et al. 2022. [Solving Last-Mile Delivery Challenges Is Critical to Increase COVID-19 Vaccine Uptake: A Cluster Randomized Controlled Trial.](#) Pre-print.
- Moehring, Alex Vernon et al. 2021. "[Providing Normative Information Increases Intentions to Accept a COVID-19 Vaccine.](#)"
- Ofstead, Cori L. et al. 2013. "[Effectiveness of Worksite Interventions to Increase Influenza Vaccination Rates Among Employees and Families.](#)" *Journal of Occupational and Environmental Medicine* 55(2): 156–63.
- Patel, Mitesh S. et al. 2022. "[A Randomized Trial of Behavioral Nudges Delivered Through Text Messages to Increase Influenza Vaccination Among Patients With an Upcoming Primary Care Visit.](#)" *American Journal of Health Promotion*: 08901171221131021.
- Pennycook, Gordon et al. 2021. "[Shifting Attention to Accuracy Can Reduce Misinformation Online.](#)" *Nature* 592(7855): 590–95.
- Powell-Jackson, Timothy et al. 2018. "[Effect and Cost-Effectiveness of Educating Mothers about Childhood DPT Vaccination on Immunisation Uptake, Knowledge, and Perceptions in Uttar Pradesh, India: A Randomised Controlled Trial.](#)" *PLOS Medicine* 15(3): e1002519.
- Rabb, Nathaniel et al. 2021. "[No Evidence That Collective-Good Appeals Best Promote COVID-Related Health Behaviors.](#)" *Proceedings of the National Academy of Sciences* 118(14): e2100662118.
- . 2022. "[Evidence from a Statewide Vaccination RCT Shows the Limits of Nudges.](#)" *Nature* 604(7904): E1–7.
- Regan, Annette K., Lauren Bloomfield, Ian Peters, and Paul V. Effler. 2017. "[Randomized Controlled Trial of Text Message Reminders for Increasing Influenza Vaccination.](#)" *The Annals of Family Medicine* 15(6): 507–14.
- Rogers, Todd, Katherine L. Milkman, Leslie K. John, and Michael I. Norton. 2015. "[Beyond Good Intentions: Prompting People to Make Plans Improves Follow-through on Important Tasks.](#)" *Behavioral Science & Policy* 1(2): 33–41.
- Roozenbeek, Jon et al. 2022. "[Psychological Inoculation Improves Resilience against Misinformation on Social Media.](#)" *Science Advances* 8(34): eabo6254.

- Ruggeri, Kai et al. 2022. "[Evaluating Expectations from Social and Behavioral Science about COVID-19 and Lessons for the next Pandemic.](#)"
- Sadique, Md Z., Nancy Devlin, William J. Edmunds, and David Parkin. 2013. "[The Effect of Perceived Risks on the Demand for Vaccination: Results from a Discrete Choice Experiment.](#)" PLOS ONE 8(2): e54149.
- Siddiqi, Danya Arif et al. 2020. "[Effect of Vaccine Reminder and Tracker Bracelets on Routine Childhood Immunization Coverage and Timeliness in Urban Pakistan \(2017-18\): A Randomized Controlled Trial.](#)" BMC Public Health 20(1): 1086.
- Stigler, George J. 1961. "[The Economics of Information.](#)" Journal of Political Economy 69(3): 213–25.
- Tironi, Pablo Argote et al. 2021. "[Messages That Increase COVID-19 Vaccine Acceptance: Evidence from Online Experiments in Six Latin American Countries.](#)" PLOS ONE 16(10): e0259059.
- Vraga, Emily K., Leticia Bode, and Melissa Tully. 2022. "[Creating News Literacy Messages to Enhance Expert Corrections of Misinformation on Twitter.](#)" Communications Research 49(2).
- WHO. 2022. "[Understanding the Behavioural and Social Drivers of Vaccine Uptake.](#)" Weekly epidemiological record 20.
- Yokum, David, Julie C. Lauffenburger, Roya Ghazinouri, and Niteesh K. Choudhry. 2018. "[Letters Designed with Behavioural Science Increase Influenza Vaccination in Medicare Beneficiaries.](#)" Nature Human Behaviour 2(10): 743–49.