Countering anti-science attitudes and handling misinformed views will improve health outcomes globally.

This document provides **FOUR** evidence-based strategies that have been shown to help health professionals communicate with persons who accept anti-science views, believe conspiracy theories, or otherwise seem misinformed and/or mistrustful of science.

ONE.
Active Listening Approach: If you have the time and patience to engage in an earnest dialogue, then ask questions that will allow you to understand the individual's specific views and where they come from. (1) Your curiosity will help inform your response and determine respectful push-back strategies that do not flatly discredit the other's point of view. (2,3)

TWO.
Motivational Interviewing: Rather than forcing other people to change their views, help them find their own intrinsic motivation to change. (4) For example, conspiracy theorists perceive themselves as critical thinkers; this perception can be capitalized on by affirming the value of critical analysis rather than relying on intuition. (5,6)

THREE.
Avoid being a "logic bully": Experiments show that taking strong confrontational stances to oppositional views can ironically produce a "backfire" effect that causes people to double down in their beliefs. (7) If the goal is to correct misperceptions, then take a two-prong approach that (a) validates their curiosity and (b) refocuses it on relevant facts. (8,9,10), Acknowledge the psycho-emotional aspects of others' views. (11) Affirm the value of critical thinking, and then redirect them to resources of evidence-based health information that you use yourself. (12,13)

FOUR.
Prebunk/inoculate against misinformation: In addition to 'debunking' misinformation, 'prebunking', or preemptively warning people against the risk of being misled, is another proven tactic. (14,15) This process of "inoculation" adheres to a biological analogy: Just as injections containing a weakened strain of a virus trigger antibodies in the immune system to help confer resistance against future infection, the same can be achieved with information. (16,17) Such attitudinal inoculation arms people with counter-arguments to resist misinformation. (18)

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References

1. Naeem, Salman Bin, Rubina Bhatti, and Aqsa Khan. "An exploration of how fake news is taking over social media and putting public health at risk." *Health Information & Libraries Journal* (2020). https://onlinelibrary.wiley.com/doi/epdf/10.1111/hir.12320
2. Armaos, K., Tapper, K., Ecker, U., Juanchich, M., Bruns, H., Gavaruzzi, T., Sah, S., Al-Rawi, A., Lewandowsky, S. (2020). *Tips on countering conspiracy theories and disinformation.* http://sks.to/countertips
3. Jarrett, Caitlin, et al. "Strategies for addressing vaccine hesitancy–A systematic review." *Vaccine* 33.34 (2015): 4180-4190. https://www.sciencedirect.com/science/article/pii/S0264410X15005046
4. Hettema, Jennifer E., and Peter S. Hendricks. "Motivational interviewing for smoking cessation: a meta-analytic review." *Journal of consulting and clinical psychology* 78.6 (2010): 868. https://www.annualreviews.org/doi/abs/10.1146/annurev.clinpsy.1.102803.143833
5. Grant, Adam. "The Science of Reasoning with Unreasonable People." New York Times (2021). https://www.nytimes.com/2021/01/31/opinion/change-someones-mind.html?referringSource=articleShare
6. Gagneur, Arnaud, et al. "A postpartum vaccination promotion intervention using motivational interviewing techniques improves short-term vaccine coverage: PromoVac study." *BMC Public Health* 18.1 (2018): 1-8. https://pubmed.ncbi.nlm.nih.gov/29954370/
7. Cook, John, Ullrich Ecker, and Stephan Lewandowsky. "Misinformation and how to correct it." *Emerging trends in the social and behavioral sciences: An interdisciplinary, searchable, and linkable resource* (2015): 1-17. https://onlinelibrary.wiley.com/doi/full/10.1002/9781118900772.etrds0222
8. Vraga, Emily K., and Leticia Bode. "Addressing COVID-19 Misinformation on Social Media Preemptively and Responsively." *Emerging infectious diseases* 27.2 (2021): 396. https://wwwnc.cdc.gov/eid/article/27/2/20-3139_article?ACSTrackingID=USCDC_352-

DM47275&ACSTrackingLabel=Viruses%20Articles%20in%20the%20February%202021%20Emerging%20Infectious%20Diseases%20Journal&deliveryName=USCDC_352-DM47275#r30

9. Daley, Beth. “I’ve been talking to conspiracy theorists for 20 years – here are my six rules of engagement” The Conversation (2020). https://theconversation.com/ive-been-talking-to-conspiracy-theorists-for-20-years-here-are-my-six-rules-of-engagement-143132
10. Steffens, Maryke S., et al. "How organisations promoting vaccination respond to misinformation on social media: a qualitative investigation." *BMC public health* 19.1 (2019): 1-12. https://www.ncbi.nlm.nih.gov/pmc/articles/PMC6806569/
11. Campbell, Troy H., and Aaron C. Kay. "Solution aversion: On the relation between ideology and motivated disbelief." *Journal of personality and social psychology* 107.5 (2014): 809. https://psycnet.apa.org/doiLanding?doi=10.1037/a0037963
12. Sturgill, Amanda. "Health care providers can help combat harmful misinformation about the pandemic." *North Carolina Medical Journal* 82.1 (2021): 68-70. https://www.ncmedicaljournal.com/content/82/1/68.abstract
13. Looi, Jeffrey CL, et al. "Clinical update on managing media exposure and misinformation during COVID-19: recommendations for governments and healthcare professionals." *Australasian Psychiatry* (2020): 1039856220963947. https://journals.sagepub.com/doi/full/10.1177/1039856220963947
14. Banas, John A., and Gregory Miller. "Inducing resistance to conspiracy theory propaganda: Testing inoculation and metainoculation strategies." *Human Communication Research* 39.2 (2013): 184-207. https://www.deepdyve.com/lp/wiley/inducing-resistance-to-conspiracy-theory-propaganda-testing-jiz5jkrTf2
15. Lewandowsky, S., Cook, J., Schmid, P., Holford, D. L., Finn, A., Leask, J., Thomson, A., Lombardi, D., Al-Rawi, A. K., Amazeen, M. A., Anderson, E. C., Armaos, K. D., Betsch, C., Bruns, H. H. B., Ecker, U. K. H., Gavaruzzi, T., Hahn, U., Herzog, S., Juanchich, M., Kendeou, P., Newman, E. J., Pennycook, G., Rapp, D. N., Sah, S., Sinatra, G. M., Tapper, K., Vraga, E. K (2021). The COVID-19 Vaccine Communication Handbook. A practical guide for improving vaccine communication and fighting misinformation. https://hackmd.io/@scibehC19vax/home
16. Schmid, Philipp, and Cornelia Betsch. "Effective strategies for rebutting science denialism in public discussions." *Nature Human Behaviour* 3.9 (2019): 931-939. https://www.nature.com/articles/s41562-019-0632-4

17. Van Der Linden, Sander, et al. "Inoculating against misinformation." *Science* 358.6367 (2017): 1141-1142. https://science.sciencemag.org/content/358/6367/1141.2.full
18. Farrell, Justin, Kathryn McConnell, and Robert Brulle. "Evidence-based strategies to combat scientific misinformation." *Nature Climate Change* 9.3 (2019): 191-195. https://www.nature.com/articles/s41558-018-0368-6