How can Scientists Engage with the Public to Explain AMR and the Role of Vaccination in Addressing AMR

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Introduction

- Antimicrobial Resistance (AMR) is a critical global health threat projected to cause over 8 million deaths annually by 2050 [1]
- Public understanding remains limited, with disaster framing like 'apocalypse' or 'superbugs' often leading to disengagement rather than proactive individual action [2]
- Vaccination plays a vital role in tackling AMR by directly preventing drug-resistant infections, reducing viral misdiagnoses that lead to inappropriate antibiotic use, and reducing overall selective pressure [3]
- WHO estimates that vaccines avert 515,000 deaths, save $30 billion in hospital costs, and reduce antibiotic consumption by 2.5 billion doses [4]
- Social media platforms like YouTube allow multidirectional reach. Engaging clinician content creators can effectively bridge the gap between science and public action [5]

Objectives

- To evaluate key elements and digital strategies enabling scientists to effectively engage the public on AMR and vaccination.
- To provide a practical reference framework for content creators and health organizations.
- To analyze metrics that accurately capture engagement and public dialogue on video-sharing platforms.

Methodology & Eligibility

- A systematic search was conducted across PubMed and video platforms (YouTube Shorts & Long-form videos)

Inclusion Criteria: (1) AMR public health impact, (2) Engagement strategies in past 15 years, (3) Public perception of vaccines & AMR, (4) Key outreach elements.
Exclusion Criteria: Non-peer-reviewed theses, books, review articles >15 years old.

Results

Impact of coordinated "PULSE" campaigns

- Coordinating health creators to release AMR content during dedicated awareness events ("Pulse" dates) significantly increases community discussion and comment counts, despite minimal difference in baseline view counts

Engagement Metric	Hodges-Lehmann Median Diff (95% CI)	p-value
View count	-82.0 (-190.3 to 58.5)	0.26
Like count	0.50 (-6.3 to 10.5)	0.93
Comment count	15.5 (5.5 to 24.0)	<0.001

*Table showing the engagement comparison between "PULSE" and Baseline Videos (Chen et al. 2026b) [6]

Video features driving high engagement

- Analysis of video features reveals specific parameters strongly correlated with audience interaction

Category	Feature	Significance
Thumbnail	Specially designed thumbnail with text	Significantly higher likes & comments (p<0.02)
Humor	Inclusion of humorous elements	Highest median view count (115,547 vs 12,332, p=.001)
Animation	Animated content & visual aids	Increased total view counts (p=.016)
Topics	Mechanisms of AMR & Antibiotic action	Significantly higher likes & comments (p<0.001)
Presentor	Female narrator / Peer educator	Higher daily view rate (p=0.045)
Expert Guests	Multiple formal expert interviews	Adverse association with engagement (p=0.009)

*Table showing the impact of different key features in video production (Chen et al. 2026b) [6]

Scientists' role in addressing vaccine hesitancy

91% agree scientists have a duty to reduce vaccine hesitancy:
52%: Enter direct dialogue with the public to understand needs.
28%: Advocate for evidence-backed vaccine policies.
10%: Increase accessibility of research findings. [7]

Discussion & Conclusion

- Addressing Vaccine Hesitancy: Applying the WHO 3Cs model (Confidence, Complacency, Convenience) in digital messaging is vital to combat AMR through immunization. Community champion initiatives demonstrate up to 53% knowledge improvement through targeted dialogue.
- Conclusion: To effectively communicate AMR and the role of vaccines, scientists must partner with digital health content creators, adopt engaging multimedia elements (custom thumbnails, animations, humor), and prioritize empowering, actionable dialogue over authoritative lectures.

References used for this poster (research paper in QR code)

1. Naghavi, M., Vollset, S. E., Ikuta, K. S., Swetschinski, L. R., Gray, A. P., Wool, E. E., & GRAM Project collaborators. (2024). Global burden of bacterial antimicrobial resistance 1990–2021: A systematic analysis with forecasts to 2050. The Lancet, 404(10459), 1199–1226. https://doi.org/10.1016/S0140-6736(24)01867-1
2. Wojcik, G., Afseth, J., Fagan, R., Thomson, F., & Ring, N. (2024). Patient and public understanding of antimicrobial resistance: A systematic review and meta-ethnography. JAC-Antimicrobial Resistance, 6(4), Article dlae117. https://doi.org/10.1093/jacamr/dlae117
3. Holm, M., Zellweger, R. M., Poudyal, N., Smith, K. H. T., Joh, H. S., & Marks, F. (2022). Measuring the link between vaccines and antimicrobial resistance in low resource settings – limitations and opportunities in direct and indirect assessments and implications for impact studies. Frontiers in Tropical Diseases, 3, 1–9. https://doi.org/10.3389/fitd.2022.805833
4. Dougan, G., & Hugo-Webb, E. (2025). Impact of vaccines on antimicrobial resistance. Journal of Medical Microbiology, 74, Article 002050. https://doi.org/10.1099/jmm.0.002050
5. Powell, J., & Pring, T. (2024). The impact of social media influencers on health outcomes: Systematic review. Social Science & Medicine, 340, Article 116472. https://doi.org/10.1016/j.socscimed.2023.116472 Cited by: 218
6. Chen, F., Soni, L., Grailey, K., Dryden, S., Acharya, A., & Darzi, A. (2026b). Engaging the public with antimicrobial resistance through social media videos—a content analysis study. Frontiers in Public Health, 14, Article 1770727. https://doi.org/10.3389/fpubh.2026.1770727
7. Welch, E.W., Johnson, T.P., Chen, T., Ma, J., Islam, S., Michalegko, L. F., Caldarulo, M., & Frandell, A. (2023). How scientists view vaccine hesitancy. Vaccines, 11(7), Article 1208. https://doi.org/10.3390/vaccines11071208