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RE: Request for Information (RFI): Inviting Comments and Suggestions on NIAID's Strategic Plan (Notice Number: NOT-AI-24-032)

The Society for Healthcare Epidemiology of America (SHEA) appreciates the opportunity to submit comments on the Request for Information (RFI): Inviting Comments and Suggestions on NIAID's Strategic Plan. SHEA represents more than 2,000 physicians and other healthcare professionals globally with expertise in healthcare epidemiology, infection prevention, and antibiotic stewardship. SHEA is dedicated to advancing the science and practice of healthcare epidemiology and preventing and controlling morbidity, mortality, and the cost of care linked to healthcare-associated infections (HAIs) and antibiotic resistance (AMR).

The state of AMR in healthcare settings

HAIs, especially those caused by multidrug resistant organisms (MDROs), are a significant threat to patient safety and public health. Optimizing prevention of these infections will require increasing our understanding of which strategies or combination of strategies are most effective and how these strategies should be implemented to achieve the greatest impact. Factors such as an aging population, an increase in vulnerable populations, and the growing emergence of MDROs amplify the critical need to prioritize funding of this research.

Deaths from HAIs are among the top preventable conditions. According to the Centers for Disease Control and Prevention (CDC) 2022 National and State HAI Progress Report, approximately one in 31 U.S. patients and one in 43 nursing home residents contracts at least one infection in association with their healthcare, underscoring the need for improvements in patient care practices in U.S. healthcare facilities[1]. CDC also reports that more than 3 million Americans acquire an antimicrobial-resistant infection or *Clostridioides difficile* infection each year and nearly 50,000 people die from these threats[1]. HAIs prolong hospital stays and increase mortality, with the estimated cost to the US healthcare system of the most common HAIs ranging from $8-12 billion annually[2]. The prevention and reduction of the prevalence of HAIs and the and reduction of the prevalence

[1] 2022 National and State Healthcare-Associated Infections Progress Report." Antimicrobial Resistance & Patient Safety Portal, Centers for Disease Control and Prevention, Nov. 2023, arpsp.cdc.gov/profile/national-progress-2022/united-states. Accessed April 9, 2024.
[2] Antibiotic Resistance Threats in the United States, 2019." CDC Antimicrobial Resistance, Dec. 2019, www.cdc.gov/drugresistance/pdf/threats-report/2019-ar-threats-report-508.pdf. Accessed April 9, 2024.

of HAIs and the spread of MDROs is a top priority for the U.S. Department of Health and Human Services (HHS), NIAID, and the global healthcare community[3].

In October 2020, the US Government released the National Action Plan for Combating Antibiotic-Resistant Bacteria (CARB), 2020-2025[4] which outlined "coordinated, strategic actions that the US Government will take in the next five years to improve the health and wellbeing of all Americans by changing the course of antibiotic resistance." One of the five goals of the National Action Plan was to "Accelerate Basic and Applied Research and Development for New Antibiotics, Other Therapeutics, and Vaccines." The Action Plan stated that support for basic and applied research was required to "improve our understanding of the many factors that contribute to the emergence, spread, and persistence of antibiotic resistance and can support new strategies for preventing and mitigating infections." SHEA believes an opportunity exists for NIH to further support this goal by extending its research funding to infection prevention and health services research.

Infection prevention and antibiotic stewardship are the most effective strategies for slowing the spread of MDROs

Comprehensive infection prevention programs and antibiotic stewardship initiatives play a vital role in ensuring patient safety and halting the spread of MDROs, which pose a significant threat to the delivery of routine and complex healthcare services. Over the years, the healthcare epidemiology and antimicrobial stewardship research communities have demonstrated their ability to develop and implement effective strategies through rigorous studies, thereby reshaping clinical practices to combat HAIs and the proliferation of MDROs. SHEA members are at the forefront of medical research, renowned for crafting implementation strategies for HAI prevention through the development of sustainable clinical resources, comprehensive training and education content, and evidence-based clinical guidelines. These resources, derived from within our professional community and in partnership with federal agencies, serve as essential tools for healthcare facilities striving to meet or exceed quality of care standards established by regulatory and accrediting bodies.

An effective research strategy must be comprehensive and collaborative

Years of dedicated research in healthcare epidemiology and antimicrobial stewardship have shown the preventability of many HAIs and highlighted the existence of effective interventions to mitigate patient risks. However, despite significant strides, the landscape continues to evolve, presenting ongoing challenges and persisting knowledge gaps. NIAID's Antibiotic Resistance Research Framework lays out the agency's strategic approaches for AMR research across several portfolios including, but not limited to, basic, translational research, and preventative research.[5] These portfolios currently do not include a robust representation of research that adequately addresses the mechanisms of transmission of HAIs and MDROs in healthcare settings. To be successful in tackling our most critical global health threats, NIAID must undergo a paradigm shift in its approach to addressing knowledge gaps that are critical to fighting the growing threat of AMR.

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[3] "National Action Plan to Prevent Health Care-Associated Infections: Roadmap to Elimination." HAI National Action Plan, US Department of Health and Human Services, 2009, www.hhs.gov/oidp/topics/health-care-associated-infections/hai-action-plan/index.html. Accessed April 9, 2024.

[4] "National Action Plan for Combating Antibiotic-Resistant Bacteria, 2020-2025." Office of the Assistant Secretary for Planning and Evaluation (ASPE), 8 Oct. 2020, aspe.hhs.gov/reports/national-action-plan-combating-antibiotic-resistant-bacteria-2020-2025. Accessed May 20, 2024

[5] "NIAID's Antibiotic Resistance Research Framework." Antimicrobial (Drug) Resistance, 2019, www.niaid.nih.gov/sites/default/files/AR2019.pdf. Accessed May 20, 2024

Key recommendations for NIAID's Strategic Plan

The current AMR portfolio is not contiguous in addressing all critical areas of AMR research across basic, translational, and prevention. Significant research questions remain unanswered in these areas, and they should be taken up by the leading federal scientific agency committed to investing in the fight against AMR. The Centers for Disease Control and Prevention (CDC) and the Agency for Healthcare Research and Quality (AHRQ) have prioritized research in preventing HAIs and MDROs, but there are limitations in their scope and capabilities. NIAID is best positioned to support the type and scale of research needed to fill these gaps.

1. Support funding for multicenter, investigator-initiated research.

NIAID should expand the scope of the basic, translational, and preventative research portfolios in AMR to include funding that would support multicenter, investigator-initiated research to analyze and identify effective preventative strategies for HAI transmission. NIAID currently supports similar research in other National Institutes of Health (NIH) such as the National Cancer Institute and the National Heart, Lung and Blood Institute. SHEA recommends NIAID work more collaboratively with CDC, which currently funds multicenter research through the Prevention Epicenters (federal contract agreements), and AHRQ, which funds investigator-initiated research in HAI prevention and antimicrobial stewardship, to bridge knowledge gaps that cannot be supported by these agencies. CDC and AHRQ currently do not support the full scope of research needed to address knowledge gaps due to funding constraints and statutory limitations. Most clinicians practicing in healthcare epidemiology have the capability to lead or participate in research projects dedicated to the prevention of HAIs. NIAID is the only agency that can support large-scale multicenter, multijurisdictional research projects based on clinical trial data.

2. Incorporate more epidemiological research in the basic, translational, and prevention portfolios.

NIAID currently includes among its strategic priorities expanding the basic knowledge of mechanisms that drive the spread of infectious disease pathogens such as HIV (strategic priority 1) and interventions that prevent the spread of HIV (strategic priority 2). However, this strategy, as currently outlined in the RFI, does not include recommendations for similar research in mechanisms of spread and prevention interventions for HAIs and MDROs. More research is needed to understand the prevalence and impact of HAIs and MDROs on different types of patient populations such as non-HIV immunocompromised patient populations. While there have been significant investments in the study of patients living with HIV, these studies are not surrogates for non-HIV immunocompromised patient populations who are at increased risk of HAIs, MDROs, and poorer outcomes during hospital stays. A majority of patients living with HIV today receive treatment outside of acute care settings and therefore data analyzed for this population do not represent risks, prevalence, or effective infection prevention strategies for non-HIV immunocompromised patients.

3. Investing in infection prevention research is cost-effective and will increase the pace of developing new and transformative clinical practice.

NIAID funding is needed to support scalable epidemiological studies that assess interventions for effectiveness. Evidence generated by the healthcare epidemiology and antimicrobial stewardship research communities can be translated into effective evidence-based interventions at quicker pace compared to the time needed to translate clinical trial research for new treatments and vaccines. The development and execution of healthcare epidemiology research is a smart investment due to lower costs compared to research for new treatments and vaccines. In addition to finding new clinical practices,

research is needed to determine if some practices, in guidelines based on expert opinion but scant science, can be retired safely with resulting waste reduction. This has the potential to increase the pace of science toward improving the quality of care and patient outcomes when conducted on a larger scale and robust funding.

4. **Include HAI prevention as part of the innovative research efforts needed to prepare for and respond to nationally or internationally significant biological incidents affecting public health as outlined in Priority 5.**

HAIs particularly MDROs are a significant biological threat that requires our healthcare system to dedicate resources that support a state of readiness in order to respond to emerging threats and public health emergencies. Emerging respiratory pathogens of high consequence (e.g. H5N1, SARS-CoV-2) can have significant impacts on healthcare delivery and be transmitted within healthcare settings. During the acute phase of the COVID-19 pandemic, NIAID funded research for the development of treatments and vaccines but did not include dedicated funding for research on preventing transmission of SARS-CoV-2 in healthcare settings where risk of transmission is high. Priority 5 of NIAID's strategic plan includes support for innovative research to prepare for and respond to nationally or internationally significant biological incidents affecting public health. Although funding disbursed from CDC to state public health departments during public health emergencies is able to support implementation activities, it does not extend to support for state, local, and multijurisdictional research projects. This is a missed opportunity for real-time collection and analysis of data during public health emergencies that can inform current and future prevention activities. HAI and MDRO prevention research should be included in priority 5 and include occupational health and protection for healthcare personnel, effective personal protective equipment strategies, modes of transmission, healthcare system resiliency, and outbreak/pandemic preparedness assessment.

Conclusion

The existing NIAID AMR portfolio lacks continuity in tackling all essential aspects of AMR research, spanning basic, translational, and preventative domains. There are still significant unanswered research inquiries within these realms, which should be embraced by the primary federal scientific agency dedicated to combatting AMR. While CDC and AHRQ continue to prioritize and fund high-quality research investigating the prevention of HAIs and MDROs, their scope and capacities are constrained and cannot fully support all that is needed to advance the science of prevention. NIAID stands out as critically needed federal partner to bolster the requisite scale and variety of research necessary to bridge these knowledge gaps.

Thank you in advance for your consideration of our comments. Please do not hesitate to reach out with questions to Lynne Batshon, Director of Policy and Practice, at (703) 684-0761 or lbatshon@sheaonline.org.

Sincerely,

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