CONFIDENTIAL

ONE TEAM ONE HEALTH
RESEARCH TASKFORCE REPORT
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One Health Research Task Force Recommendations

At MSU, we have the potential to become the international leader in One Health research by fully embracing the interconnectedness of scientific disciplines represented within the University and the multifaceted nature of health. With deliberate focus and collective commitment, we can advance a truly multidisciplinary research mission, one that seamlessly integrates human, plant, animal, and environmental health. This document summarizes the recommendations of the One Health Research Task Force on achieving this ambitious vision and should be read in conjunction with the appendices, which include our working definition of the One Health paradigm. One Health has historically centered on infectious diseases and antimicrobial resistance - areas where MSU has notable strengths - which is urgently needed for pandemic preparedness given the substantial likelihood of another deadly pandemic within the next 10 years. We are also exceptionally well-positioned to lead an expanded vision that operates along a continuum of collaboration, progressively integrating disciplines to address chronic disease prevention, nutrition and food security, mental health, sustainable agriculture, environmental exposures, and climate-driven health inequities. We summarize this expanded scope and the continuum approach to current research approaches in Appendix A.

We recommend establishing a **One Health Research Network** — an inclusive community of researchers, students, staff, and partners committed to interdisciplinary, collaborative research that bridges human, plant, animal, and environmental health. To operationalize this vision and ensure sustained progress, the Network will be supported by a dedicated leadership team that provides strategic direction, facilitates connections, and coordinates activities across the university. As one of the few universities in the United States with colleges of medicine, veterinary medicine, agriculture, a strong state-wide Extension network, and more, MSU is distinctively positioned to leverage its interdisciplinary research strengths to lead the advancement of One Health, expand its scope beyond traditional boundaries, and fully embed this approach within our institutional mission. The goals of the One Health Research Network align with our land-grant mission and global focus, striving to translate interdisciplinary One Health research to make a tangible impact on human health in Michigan and beyond. The institutional strengths that position MSU to drive the future of One Health toward its maximal impact are summarized in Appendix B.

The One Health Research Network will serve multiple strategic goals. Internally, it creates pathways for MSU researchers to discover collaborators across disciplines, fostering new partnerships that might not otherwise form. Externally, it provides a clear "front door" for government, industry, and philanthropic organizations seeking to partner with MSU on One Health initiatives - connecting them efficiently to the right expertise and resources. The Network enables strategic, cross-college fundraising and resource management, moving beyond siloed approaches to create larger-scale impact. It also serves as a platform for external visibility and thought leadership, positioning MSU as the go-to institution for innovative, integrated approaches to health challenges that span human, plant, animal, and environmental systems.

Engaging students and trainees at all levels is the connective tissue that will sustain and amplify the Network's impact. Trainees - from undergraduates through postdoctoral and medical fellows and residents, including those in human health, animal health, and public health professional programs - bring fresh perspectives, forge lasting cross-disciplinary relationships, and carry this integrated approach forward into their careers. Trainees must be supported to engage in research experiences, thesis-directed projects, and educational pathways that may include new courses, certificate programs, Education Abroad opportunities, and summer research programs. The Network will work to identify student training needs and priorities, building on successful interdisciplinary models like the BioMolecular Science (BMS) program and the Environmental and Integrative Toxicological Sciences (EITS) program, while providing central coordination to ensure training opportunities are accessible and do not fall disproportionately on a single college.

The following sections outline our recommendations for establishing and launching this Network.

The One Health Research Network

All investigators and trainees with an interest in One Health research and its application are encouraged to participate in the One Health Research Network. This is an inclusive group committed to interdisciplinary, collaborative research that bridges human, animal, plant and environmental health. Active participation and engagement, along with scholarly research activity, are the primary requirements for membership.

The Network is designed to complement and connect existing structures, not duplicate them. Rather than creating new administrative layers, the Network serves as a coordination mechanism that helps existing colleges, centers, and programs work together more effectively. It will operate within the Office of Research & Innovation (OR&I), leveraging existing research infrastructure while providing a unified identity and entry point for One Health activities across campus. The Network will work closely with University Advancement through a dedicated advancement officer who will coordinate cross-college fundraising strategies and will coordinate with, rather than replace, the many strong One Health-related programs, centers, and initiatives already underway at MSU. Its value lies in making connections visible, reducing barriers to collaboration, and providing consistent and sustained strategic direction for collective effort.

The Network will be supported by a leadership team that provides strategic direction, facilitates connections, and coordinates activities. Leadership will be selected through a collaborative process involving both the Network membership and the Office of Research & Innovation (OR&I), ensuring that leadership reflects the diverse expertise and perspectives of the One Health community while maintaining alignment with university priorities. The leadership structure should include representation from MSU Extension and our statewide network of healthcare providers to ensure strong connections with Michigan communities and effective translation of research into practice. Additional details about leadership composition and selection processes are provided in Appendix C. However, emphasis will be placed on faculty innovation with leadership support.

The Network's design reflects extensive campus engagement and begins to address the constructive feedback raised by faculty, staff, and students across MSU (Appendix F).

Participants in these discussions consistently emphasized that success requires this to be faculty-driven with transparent governance, not administrative mandate; that it must provide tangible support and benefits rather than creating additional work; and that it must enable rather than control, avoiding the fate of past initiatives that failed to fulfill their aspirations. Transparent leadership selection with diverse representation and ongoing mechanisms for community input will be essential. The Network must prove its value through what it enables and facilitates, not through what it requires or directs.

Activity Year 1: Building the Foundation

In Year 1, we recommend the One Health Research Network focus on establishing the infrastructure and connections necessary to achieve its core goals: creating internal pathways for researchers to find collaborators, providing an external "front door" for partners, enabling strategic fundraising and resource management, and building a platform for thought leadership. These foundational activities could be organized into three strategic priorities:

Activity 1: Strategic Engagement — Building the Network and Defining Our Focus

Objective: Engage the MSU community, build enthusiasm for One Health research, and collaboratively determine where to focus collective efforts.

This activity emphasizes the critical need to engage with and educate the MSU community about One Health research opportunities, assess where energy and interest lie across the university, and collaboratively determine priority research themes. Through this inclusive process, we suggest the network identify key thematic areas where MSU should focus its collective One Health research efforts.

Suggested Activities:

- Define and publicize the research vision of One Health at MSU, with extensive MSU community feedback (Appendices A and D). Identify exemplar projects already being pursued by MSU researchers (Appendix E).
- Implement a comprehensive communication strategy to generate excitement and ensure broad participation across colleges and disciplines.
- Engage, educate, and determine priority One Health research areas through community-engaged programming. Identify 3-5 key thematic focus areas based on MSU strengths, community needs, and areas of energy and interest across the university.
- Build the internal network: Create forums, events, and platforms for MSU researchers to discover potential collaborators across disciplines and colleges. This could include “convenings” on specific topics, or a speaker series featuring nationally and internationally recognized One Health research leaders.
- Begin a process to assess student training needs and identify opportunities for One Health education across all levels (undergraduate research experiences, graduate cross-program curricula and certificates, and professional school integration). Prioritize which student pathways to pursue based on feasibility, demand, and alignment with identified thematic areas.
- Identify faculty and program leaders interested in developing One Health curricula and training opportunities, connecting existing programs and exploring new pathways where gaps exist.

- Define success metrics for each thematic area and establish clear criteria for when to pivot or sunset initiatives based on impact, funding sustainability, and community needs.

Timeline: Months 1-12, with networking events commencing by Month 3 and thematic areas identified by Month 12.

Activity 2: Strategic Visioning — Positioning MSU for Thought Leadership

Objective: Establish MSU's national and international leadership position in One Health research and create a platform for external visibility.

Suggested Activities:

- Complete a comprehensive analysis of the current One Health research landscape, identifying gaps, opportunities, and MSU's distinctive contributions (Appendix A).
- Create a categorization framework showing One Health research relevance across different academic spheres and how MSU's approach expands beyond traditional boundaries.
- Learn from and enhance our efforts in zoonotic infectious disease and antibiotic resistance while broadening the One Health paradigm to capture the full impact of integrated health research.
- Develop and begin implementing a national communications strategy, including academic and executive op-eds that showcase MSU's expanded vision for One Health.
- Explore alignment with broader national health initiatives (e.g., Make America Healthy Again) and identify opportunities for MSU leadership.
- Plan and host a One Health Symposium at MSU to enhance external visibility, showcase our strengths, and drive engagement among potential partners.
- Use research analytics to quantify and visualize existing collaborations, scholarly works, and external funding, establishing a baseline for measuring Network growth.

Timeline: Months 1-8, with communications strategy drafted by Month 5 and symposium held by the end of Year 1.

Activity 3: Strategic Alliances — Creating the External "Front Door"

Objective: Establish the Network as the primary entry point for external partners and initiate the development of strategic partnerships that support One Health research.

Suggested Activities:

- Design and implement the "front door" mechanism: Create clear pathways and processes for new external partners (government, industry, philanthropy) to connect with MSU One Health expertise and identify collaboration opportunities (Appendix D).
- Engage with existing partners and identify new potential partners for collaborative research opportunities.
- Create a framework for coordinating and managing research partnerships that ensures appropriate expertise, resources, and support.
- Work with University Advancement to specifically support the identified One Health research themes as cross-college initiatives.
- Begin building relationships with key foundations and funding agencies (e.g., Gates Foundation, Chan-Zuckerberg Foundation, Wellcome Trust, NIH, USDA, NSF and others) and position MSU for major One Health funding opportunities.
- Working with the MSU Innovation Center, identify and recruit corporate partners to sponsor and participate in One Health research themes.
- Nurture new and strengthen existing connections with government and policy organizations to increase MSU's influence on One Health priorities and funding.
- Examine state and national data on pressing health problems to identify priority targets that align with our thematic areas and partnership opportunities.

Timeline: Months 3-12, with "front door" processes established by Month 4 and initial strategic partnerships formed by Month 8.

Resource Requirements

Immediate Needs to Launch the Network:

The following resources are essential to establish and operationalize the One Health Research Network in Year 1:

- Dedicated leadership position for One Health Research, housed in the Office of Research & Innovation
- Operating budget for outreach and One Health community engagement activities (e.g., speaker series, symposium, networking events, community engagement)
- Administrative support for events and coordination across colleges
- Communication and marketing resources (website development, promotional materials, social media management, national communications strategy implementation)

Critical to the Network's success is securing new funding sources to support these initiatives without redirecting existing resources or creating additional burdens on already-stretched budgets. A diversified funding approach that includes clinical partner collaborations,

philanthropic partnerships, industry connections, non-federal grants, and training grants will be essential for building a sustainable foundation.

Future and Aspirational Needs:

As the Network matures and demonstrates impact, the following resources would significantly expand its capacity and influence:

- Pilot Grant Program to seed interdisciplinary, collaborative One Health research projects and catalyze new partnerships. In the short term, leverage existing programs such as Strategic Partnership Grants (SPG) and follow up with new investments.
- Faculty cluster hires or joint appointments to strengthen strategic thematic areas identified in Year 1
- Student fellowships and traineeships to support One Health research experiences across undergraduate, graduate, and postdoctoral levels
- Endowed One Health professorships or chairs to attract and retain top talent
- Community partnership support fund to enable sustained engagement with Michigan communities, support community-driven research priorities, and provide resources for community partners to participate meaningfully in research projects
- Data infrastructure and analytics support to track collaborations, measure impact, and identify emerging research opportunities
- Dedicated development officer focused on One Health fundraising to support cross-college advancement efforts
- Annual impact report or dashboard that combines quantitative metrics with narrative storytelling to highlight success stories, unexpected collaborations, community transformations, and lessons learned

Success Metrics

The following metrics are suggested as starting points for evaluating the Network's progress and impact. The leadership team, in collaboration with Network members, should refine these metrics during Year 1 to ensure they align with identified thematic areas, capture meaningful outcomes, and reflect both short-term progress and long-term goals. Importantly, metrics should emphasize sustained partnerships and community benefit, not just traditional academic outputs. These metrics will also serve as decision points: if the Network is not demonstrating meaningful impact or achieving defined goals within agreed-upon timeframes, leadership should be prepared to pivot strategy or sunset the initiative rather than sustain efforts that are not delivering value.

Suggested Metrics for Year 1 and Beyond:

- **Level of community engagement and participation in Network activities**
    - *Potential measures:* Attendance at events and forums; diversity of participants across colleges, disciplines, and career stages; number of new cross-disciplinary research teams formed; repeat participation rates; feedback surveys indicating value and relevance
- **Quality and sustainability of external partnerships**

    - *Potential measures:* Number of multi-year partnership agreements; co-funded research initiatives; joint publications or grant applications with external partners; partner satisfaction assessments; evidence of mutually beneficial outcomes; transition from one-time projects to sustained collaborations
- **Growth in One Health-themed research activity**
    - *Potential measures:* Increase in cross-college collaborative grant proposals and awards; number and citation impact of interdisciplinary publications; shared use of research infrastructure across colleges; new research projects aligned with identified thematic areas; proportion of research explicitly framed within One Health paradigm
- **External funding secured for One Health initiatives**
    - *Potential measures:* Total dollars in new One Health-related grants; number of large-scale, multi-investigator awards; diversity of funding sources (federal, foundation, industry, philanthropy); growth trajectory year-over-year; funding that could not have been secured without the Network
- **National and international recognition and thought leadership**
    - *Potential measures:* Invited keynote presentations at major conferences; media mentions and coverage (traditional and social media); policy citations or influence on One Health frameworks; collaborative partnerships with leading national/international institutions; awards and honors recognizing One Health contributions; altmetric scores for One Health publications
- **Community-identified priorities addressed**
    - *Potential measures:* Number of research projects co-developed with community partners; documented community benefit from research activities; alignment of research portfolio with community-expressed needs; community partner testimonials; sustained engagement with same communities over time; translation of research into community-facing resources or interventions
- **Student engagement and training pathway development**
    - *Potential measures:* Number of students engaged in One Health research across all levels; completion of needs assessment; number of priority training pathways identified; partnerships established with program leaders; student career outcomes in One Health fields; student satisfaction with interdisciplinary training opportunities
- **Strategic alignment and institutional integration**
    - *Potential measures:* Number of faculty recruitment efforts incorporating One Health priorities; representation of One Health in strategic planning documents; cross-college resource sharing agreements; administrative efficiency improvements in managing collaborative projects; budget commitments from multiple colleges
- **Population health impact**
    - *Potential measures:* Changes in community health indicators linked to Network research; number of evidence-based interventions implemented; reach and adoption of One Health solutions; longitudinal tracking of intervention

effectiveness; policy changes informed by Network research; progress toward health equity including reductions in health disparities, improved outcomes in underserved and marginalized populations, and equitable distribution of health benefits across diverse communities

Next Steps

The following steps are suggested as immediate priorities to launch the One Health Research Network. The actual sequencing and approach should be determined collaboratively by early Network participants and university leadership to ensure broad buy-in and alignment with institutional priorities.

- **Establish the Network membership and select leadership team** through a collaborative process involving interested faculty, staff, and students along with the Office of Research & Innovation, ensuring diverse representation across disciplines and inclusion of MSU Extension
- **Secure initial resources and staffing** to support Year 1 activities, beginning with the essential needs identified (leadership position, operating budget, administrative support, and communication resources)
- **Convene an initial Network gathering** to build momentum, introduce the vision, gather input on priorities and thematic areas, and begin forming connections across colleges and disciplines
- **Develop a detailed Year 1 work plan** that translates the three strategic activities into specific timelines, responsibilities, and milestones, with flexibility to adapt based on community input
- **Launch early visibility initiatives** such as the website, communication channels, and initial speaker series events to generate excitement and signal the Network's formation
- **Establish reporting and accountability mechanisms,** including regular updates to university leadership, progress tracking against metrics, and feedback loops to Network membership
- **Initiate partnership outreach** to key internal stakeholders (deans, department chairs, center directors) and external partners to introduce the Network and explore early collaboration opportunities

Conclusion

The One Health Research Network is more than a strategic opportunity — it has the potential to position MSU at the forefront of One Health innovation, tackling the most pressing and complex health challenges of our time in ways that no single discipline or college could achieve alone.

This is our moment to demonstrate what makes MSU truly distinctive: our ability to bridge human, animal, and environmental health; our deep connections to Michigan communities; our land-grant commitment to translating knowledge into action; and our culture of collaboration that brings together world-class researchers, passionate students, and dedicated partners.

The Network is the community that sees possibilities where others see barriers — where a veterinarian and an engineer discover they're working on the same problem from different

angles, where a graduate student gains the tools to tackle challenges that span species and ecosystems, and where Michigan communities find partners who listen to their needs and co-create solutions.

This initiative will invigorate interdisciplinary, collaborative research across the university, expand our collective capacity to address challenges once considered beyond our reach, and firmly establish Michigan State University as the national leader in an expanded vision of One Health — one that recognizes that the health of people, animals, and our planet are inseparable.

The opportunity is before us. The expertise is here. The need is urgent. The time is now for coming together as One Team for One Health.

Citation

The *Lancet* One Health Commission: harnessing our interconnectedness for equitable, sustainable, and healthy socioecological systems. Winkler, Andrea S et al. The Lancet, Volume 406, Issue 10502, 501 – 570.

APPENDIX A. UNDERSTANDING ONE HEALTH IN A BROADER RESEARCH CONTEXT

One Health as a Continuum and Tool for Integrative Science

One Health is a unifying framework, formally endorsed by the World Health Assembly in 2025, that seeks to sustainably balance and optimize the health of people, animals, and ecosystems by applying discoveries and insights gained in one domain to advance well-being in others. While historically centered on infectious diseases and antimicrobial resistance—areas where MSU has notable strengths—the One Team One Health Research Taskforce advances an expanded vision that integrates chronic disease prevention, nutrition and food security, mental health and community well-being, sustainable agriculture, environmental exposures, and climate-driven health inequities.

Critically, One Health research operates along a continuum of disciplinary collaboration. Investigators and their teams can start where they are and progressively integrate complementary disciplines to optimize their capacity for addressing complex, interdependent challenges. In this light, One Health becomes a tool for intellectual integration—a mechanism through which ideas, methods, and perspectives are exchanged across disciplinary boundaries to craft holistic solutions. Agricultural engineers, biologists, ecologists, veterinarians, public health scientists, mental health professionals, and others each bring essential perspectives that, when interwoven, yield solutions no single discipline could achieve in isolation.

Applied to research in the biomedical, natural, agricultural and social sciences, the One Health concept takes an integrated, unifying approach to developing, designing and conducting scientific investigations that recognize that the health of humans, domestic and wild animals, plants and the wider environment (including ecosystems) do not operate independently of each other. The One Health approach to science mobilizes multiple disciplines and communities to ask questions about how best to foster human, animal and planetary health and well-being, recognizing the need to integrate understanding of human, animal and environmental health in relation to one another, and in relation to the needs of all for a healthy environment with clean air and water and safe and nutritious food.

This approach aligns with the One Health High-Level Expert Panel [OBJ] and the One Health Quadripartite [ii][OBJ] – an alliance of four international bodies - the World Health Organization (WHO), the World Organization for Animal Health (WOAH), the United National Food and Agriculture Organization (FAO), and the United Nations Environment Program. There is an emerging consensus, built by the Quadripartite and OHHLEP, that One Health is essential for addressing numerous threats to health, utilizing new approaches for disease surveillance and delivering care, developing more equitable partnerships and collaborations and exploring socioecological connections.

Historically, the control of infectious diseases was the primary focus of One Health research, with special attention given to emerging, re-emerging and endemic zoonotic epidemics and pandemics, as well as neglected tropical and vector-borne diseases. A high priority has also been assigned to better understanding of food safety and antimicrobial resistance. But the Quadripartite Secretariat underlines the need to integrate the environment into One Health and the importance of strengthening health systems.

In the United States too, One Health efforts have focused on infectious diseases. Just this year, a National Framework to address Zoonotic Disease and Advance Public Health Preparedness (NOHF-Zoonoses)[iii] was announced as a cooperative effort of the CDC, USDA and DOI to protect people, animals and our shared environment from zoonotic disease, while also

advancing public health preparedness to optimize health, food safety and security, and sustainability and promoting biodiversity and conservation outcomes.
It is not surprising that One Health has concentrated much of its efforts, both nationally and internationally, on infectious diseases. Zoonotic diseases exemplify most clearly the link between animal and human health. Human food safety is almost entirely dependent on appropriate farming practices and the ecologically safe raising of plants and animals for human consumption. Agricultural practices have long been a concern in relation to the development of antibiotic-resistant strains of bacteria. And most recent pandemics have involved cross-species transmission of microbial agents.
And yet, critically important as these concerns are, One Health has a broader agenda, with research applications in many additional areas of human, animal and environmental disease. Human health includes non-communicable chronic diseases (obesity, diabetes, hypertension), cancer, and mental health - all of which benefit from being examined through the One Health lens. Health is preserved and sustained centrally by nutrition and physical activity, and recent initiatives have begun to speak of food as medicine and exercise as medicine. Examining the effectiveness of these initiatives is a component of One Health research.

In animal health, One Health research addresses farm animal welfare, the status of wild animal populations, and the role of companion animals in health. Environmental health research includes examination of both plant and soil health and the built environment[iv] - buildings, parks, transportation systems, food deserts – important determinants of One Health on One Planet. Examples of non-infectious components of One Health, include the importance of companion animals for the mental health of their owners,[v] and cancer in companion animals may signal environmental carcinogenesis. [vi] In light of the importance of exercise to heart health, dog-walking has been seen as an important promotor of physical activity.[vii] Furthermore, animal abuse can be a signal for subsequent human abuse. [viii]

We now have examples of animals trained in the detection of human cancers, [ix] [x] while heart disease research is advanced by recognizing the several parallels between heart disease in humans and animals. [xi] Hazardous environmental toxins may first be detected in exposures in animals, [xii] [xiii] both wild and companion. At the same time, determinants of obesity and diabetes in animals and humans are similar. [xiv] [xv]

Agriculture is a central feature of One Health, in part because of the need to create more nutritious crops.[xvi] A practice very consistent with the One Health model is "*regenerative agriculture*", a practice that avoids synthetic inputs and emphasizes crop rotation and the integration of livestock.[xvii] The impact on human and animal health of these important initiatives requires transcending the boundaries that have traditionally separated agriculture, veterinary medicine and human medicine.
The scope of One Health, when expanded, provides an enormous opportunity for multi- and trans-disciplinary research in arenas that have at times been overlooked. Nearly every aspect of research related to health can benefit from the One Health perspective both in choosing topics for study and in assembling multi-disciplinary research teams to undertake innovative research.

APPENDIX B: MSU'S ONE TEAM LEADERSHIP IN ONE HEALTH

Michigan State University (MSU) stands at the forefront of the One Health movement, embracing an integrative approach that connects human, animal, and environmental health. As an institution defined by interdisciplinary collaboration, MSU has earned recognition nationally and internationally for its innovative research, community-based interventions, and leadership across core pillars of One Health: human health, veterinary medicine, public health, agriculture and natural resources, and the social and basic sciences. With the emerging ***One Team, One Health*** initiative at MSU we aim to strengthen our commitment to working locally, nationally, and globally across multiple disciplines to attain optimal health for people, animals and our environment.

MSU intends to lead an expanded One Health paradigm to develop advances that will maintain and restore the health of individuals, the population and the environment. We would like to include, and transcend, the traditional One Health focus on zoonotic outbreaks, water-, food- and insect-born illnesses and take a truly holistic approach to how we, as One Team, direct University research toward improving the health of all species that inhabit this planet. Increasingly, the importance of additional interactions among many disciplines is becoming apparent as the impacts of the environment, nutrition, exercise, and social interactions on health emerge.

The ***One Team, One Health*** initiative builds on existing strengths in collaborative science at MSU with a vision toward a greater impact on One Health that is reinforced with a One Team approach—the existing strengths include:

I. COLLEGES ADVANCING THE ONE TEAM, ONE HEALTH MISSION

A. HUMAN HEALTH: Community-Based and Research-Driven

MSU's commitment to improving human health is rooted in both clinical practice and basic research. Its primary care and community health initiatives serve as national models for improving health access, outcomes, and equity. MSU's medical colleges (College of Human Medicine and College of Osteopathic Medicine) integrate population health and preventative care into education and practice. Through community-engaged research, faculty and students address chronic diseases, mental health, and healthcare disparities—critical aspects of the One Health framework. MSU's advocacy and basic research in biomedicine further enhance understanding of disease mechanisms and inform evidence-based interventions.

B. PUBLIC HEALTH: Proven Impact Through Intervention and Analysis

MSU has a proven track record of successfully designing and implementing public health strategies that achieve measurable improvements. Its scholars have contributed foundational work in epidemiology, environmental health, and policy analysis, producing interventions with long-term benefits. The university's public health experts collaborate across sectors to address emerging threats—such as infectious disease outbreaks, environmental contamination, and substance use—underscoring MSU's capacity to translate data into impactful, real-world solutions.

C. VETERINARY MEDICINE: Excellence in Care and Community Health

The **College of Veterinary Medicine** exemplifies One Health in action. With world-renowned academic and clinical programs, the college not only trains the next generation of veterinarians but also plays a public-facing role in surveillance, zoonotic disease prevention, and animal welfare. Its research and outreach inform practices that protect both animal and human populations, including antimicrobial resistance monitoring, food safety initiatives, and wildlife conservation. The Veterinary Diagnostic

Laboratory brings significant strength to the surveillance and testing with Biosafety Level-2 and Level-3 (BSL-2/BSL-3) facilities, essential for handling **high-consequence pathogens** and zoonoses.

D. AGRICULTURE AND NATURAL RESOURCES: Innovation that Serves Michigan and Beyond

MSU's College of Agriculture and Natural Resources (CANR) has pioneered programs that highlight the interconnectedness of ecosystems, food systems, and public health. One such project, which had significant positive outcomes for Michigan residents, demonstrates the effectiveness of One Health in real-world settings. These initiatives span sustainable farming practices, water quality monitoring, and soil health—all of which directly affect human and animal well-being. CANR's integration of science, community engagement, its Department of Food Science and Human Nutrition, and policy advocacy models a scalable approach to One Health challenges.

E. COMMUNICATION SCIENCES: Shaping Public Understanding

The College of Communication Arts and Sciences (ComArtSci) plays a key role in advancing One Health by crafting clear, effective messaging around complex health topics. Through innovative media, public campaigns, and community engagement strategies, ComArtSci amplifies the impact of MSU's research and outreach, helping to build informed, resilient communities.

F. BASIC AND SOCIAL SCIENCES: The Foundation of Interdisciplinary Success

MSU's basic science departments are shared across colleges and contribute cutting-edge research in genomics, microbiology, toxicology, epidemiology, kinesiology, biomedical and civil & environmental engineering, and many areas that are essential for advancing One Health and mitigating threats to health of the individual, the population and the environment. Equally vital, MSU's social scientists explore the human dimensions of health—behavior, communication, policy, and equity—ensuring that scientific solutions are socially viable and culturally responsive. At the core of the research efforts in One Health are the cross-cutting centers and institutes that serve to further connect colleges and departments across campus these include:

II. INSTITUTES AND CENTERS ADVANCING THE ONE TEAM, ONE HEALTH MISSION

A. Institute for Quantitative Health Science & Engineering (IQ)

The **Institute for Quantitative Health Science and Engineering (IQ)** at Michigan State University was founded with the mission to integrate engineering, basic science, and medicine to solve the most complex challenges in human health. This interdisciplinary approach is inherently aligned with the One Health paradigm, which recognizes the interconnectedness of human, animal, and environmental health. IQ brings together experts in biomedical imaging, synthetic biology, neuroengineering, and molecular diagnostics to develop tools and technologies that not only advance human medicine but also have applications in veterinary science, environmental monitoring, and population health. By fostering collaboration across colleges and disciplines, IQ serves as a central hub for innovation that supports MSU's broader One Health vision—creating solutions that are translatable across species and ecosystems, and that improve health outcomes on a systemic, global scale.

B. Center for Imaging and Image-Guided Therapy (CIIGT)

The **Center for Imaging and Image-Guided Therapy (CIIGT)** exemplifies the principles of One Health through its integrative research at the intersection of human and animal health. Based in the Department of Radiology, CIIGT is dedicated to advancing imaging technologies and image-guided interventions that improve diagnostic and therapeutic capabilities across species. In close collaboration with IQ and the

College of Veterinary Medicine, the center has been set up to conduct clinical trials in both companion animals and large animal models, using these translational platforms to mirror human biology and accelerate biomedical discoveries. CIIGT's aim to advance automation, surgical guidance, and targeted therapy not only enhances veterinary care but also informs innovations in human medicine—making it a vital engine for cross-species insights. By bridging clinical radiology, engineering, and veterinary science, CIIGT contributes powerfully to MSU's university-wide One Health initiative, demonstrating how shared technologies and models can drive health advancements for both people and animals.

C. The **Center for PFAS Research (CPR)** at Michigan State University exemplifies One Health by addressing the impacts of persistent "forever chemicals" across humans, animals, and the environment. PFAS contamination moves through soil, water, crops, livestock, fisheries and wildlife, and communities, requiring integrative approaches that cross disciplinary boundaries. CPR brings together expertise in environmental chemistry, toxicology, agriculture, veterinary sciences, engineering, social sciences, natural resources and public health to translate science into solutions that support Michigan communities and inform national and international policy. By developing tools to move from retrospective risk assessment toward prospective protection, CPR advances MSU's One Health vision of safeguarding health across interconnected systems.

D Axia Institute: Strengthening Value Chains Across Health, Food, and Environment

Established in 2013, the **Axia Institute** is MSU's premier center for value chain innovation across healthcare, agriculture, and advanced manufacturing. It addresses critical issues like pharmaceutical serialization, food safety, smart packaging, and sustainable supply chains—areas fundamental to One Health's intersection of human, animal, and environmental well-being. Through its interdisciplinary partnerships—spanning the Colleges of Agriculture & Natural Resources, Business, Engineering, Social Science, and Packaging—Axia exemplifies how research can translate into realworld -healthenhancing- solutions.

E. Center for Microbial Ecology (CME)

The ***Center for Microbial Ecology*** A global leader in research on microbial communities in soil, water, and the gut—critical for understanding dysbiosis, nutrient cycling, and antimicrobial resistance dynamics.

F. Food Security Group (FSG) & MSU AgBioResearch

The **FSG** works toward bringing about policies that effectively reduce poverty and hunger and enhance human health by addressing socio-economic issues such as nutrition, gender, youth employment, and climate change. MSU FSG led the Innovation Lab for Food Security Policy (FSP), funded by a grant from Feed the Future, the U.S. Government's Global Hunger & Food Security Initiative. However, this key expertise in faculty remains at MSU and will be vital for One Health initiative.

G. MSU AgBio Research

MSU **AgBioResearch** (ABR) has a university wide mission supporting over 300 faculty in seven colleges conducting research focused on elucidation of dynamic solutions for agrIculture and food systems and the environment. With a strong foundation in CANR, ABR faculty have a strong history of engagement in research relevant to one health. ABR supports an extensive network of outlying research centers across Michigan and on-campus research facilities that provide growers, natural resource managers and commodity groups with critical information they need to remain viable and competitive in the global economy. So many centers here are illustrative of our strong positioning afforded by our land-grant status, national and global reach.

H. MSU Drug Discovery

The Drug Discovery cores and MSU provide intellectual and technical support to faculty who aspire to develop a novel molecular entity to serve as a research tool or prototype therapeutic on the path to in

vivo intervention. Many projects supported by MSU Drug Discovery take advantage of MSU's unique access to animal diseases as models of human disease, for early stage proof of concept.

I. Institute for Integrative Toxicology

The Institute for Integrative Toxicology (IIT) is a multidisciplinary academic unit that supports and coordinates research and graduate education in toxicology across MSU. With over 70 affiliated faculty from twenty-two departments, IIT conducts diverse, interdisciplinary research spanning environmental, occupational, food-borne, and pharmaceutical agents. The Institute houses the NIEHS-funded Superfund Research Program (continuously funded since 1988) and offers the Environmental and Integrative Toxicological Sciences (EITS) graduate training program—a successful model of cross-program curricula that provides doctoral students with extensive research training across disciplines. IIT exemplifies One Health principles by integrating expertise from toxicology, immunology, microbiology, engineering, and other fields to address complex environmental contamination and health challenges.

J. Center for Research on Ingredient Safety

The Center for Research on Ingredient Safety (CRIS), housed within IIT, is an independent, academic, science-based center that serves as a reliable and unbiased source for information on the safe use of chemical ingredients in consumer packaged goods including foods, beverages, cosmetics, and household consumer products. CRIS conducts objective, evidence-based research on ingredient safety and toxicology, working collaboratively with academia, government, non-governmental organizations, and industry. The Center provides transparent, peer-reviewed research and science communication that addresses public concerns about ingredient safety, filling a critical role at the intersection of food systems, consumer products, environmental exposures, and human health—all core components of the expanded One Health vision.

III. MSU INTERNATIONAL STUDIES AND PROGRAMS LEADING THE ONE HEALTH INITIATIVE

Intentionally designed as a global facing initiative, a range of programs and centers bridge gaps and foster relationships and teams to develop innovative multidisciplinary solutions to pressing problems aligned with MSU's land-grant values. Current federal posture impacting USAID and PEPFAR notwithstanding, area and thematic centers as well as student and scholar programs within ISP domain are well established and have a track record of facilitating MSU student, and faculty research engagement in the global space. There are several area programs and centers. Below one example.

A. The MSU African Studies Center (ASC).

The **ASC** is literally the leading ASC in the US with global renown. Established in 1960, the ASC has a long history of deep engagement with the African continent, fostering a vibrant academic community dedicated to research, teaching, and outreach. The Center has been instrumental in advancing knowledge about Africa's diverse cultures, histories, languages, and contemporary issues, and has been a global pioneer in building equitable, strong and lasting partnerships with African universities, research, government and other community organizations and institutions. For example, MSU's efforts through ASC have also been crucial in health interventions, such as the successful eradication of river blindness and reducing cerebral malaria in children. A range of established programs including among others: the Alliance for African Partnership (AAP), the Partnerships for Sustainable Community Development, and the Institute of Ubuntu Thought and Practice, are uniquely positioned to extend MSU's global leadership role in innovative One Health Research Initiative in the African continent.

B. Institute for Global Health.

The **Institute for Global Health** supports interdisciplinary projects in nutrition, infectious disease, and One Health challenges with a focus on vulnerable populations. The Institute for Global Health at MSU

advances the international One Health initiative by fostering interdisciplinary research that links human, animal, and environmental health. It supports global health equity through partnerships in low- and middle-income countries, enhancing disease surveillance, public health infrastructure, and zoonotic disease control. By integrating veterinary, medical, agricultural, and environmental sciences, the Institute plays a key role in tackling transboundary health challenges like antimicrobial resistance and emerging infections. Educational programs and training initiatives at MSU prepare global professionals to lead One Health efforts in policy, research, and implementation. The Institute's collaborative projects help shape international health strategies that recognize the interconnectedness of ecosystems, people, and animals.

C. *Global Neuropsychiatric Research Center*.

The **Global Neuropsychiatric Research Center** at MSU plays a critical role in advancing global mental health within the One Health framework by addressing the complex interplay between neurological, psychiatric, and societal factors. Through international collaborations and community-based research, the center aims to reduce the global burden of mental illness, particularly in low-resource settings. Its interdisciplinary approach integrates neuroscience, psychiatry, public health, and social sciences to develop culturally relevant interventions and improve mental health outcomes. The center also focuses on capacity building by training local health professionals and researchers, ensuring sustainable impact in partner regions. By prioritizing mental health as an essential component of overall health, the center contributes meaningfully to global health equity and the holistic vision of the One Health initiative. The Center has a track record of epidemiologic, neuropsychiatric and tropical disease research including HIV, and has led interventions and outcomes assessment in low- and middle-income countries (LMICs) with established programs in multiple Central, East and West African countries as well as in South America.

IV. Conclusions

Michigan State University (MSU) has the potential to lead the One Health movement through launching and sustaining an integrative, interdisciplinary "**One Team, One Health**" initiative, which connects human, animal, and environmental health locally and globally. Built on the strengths of multiple colleges and centers—including medicine, veterinary science, public health, agriculture, communication, and the social and basic sciences—MSU drives research, education, and real-world interventions to address critical health challenges. Specialized centers such as the Institute for Quantitative Health Science & Engineering, the Center for Imaging and Image-Guided Therapy, the Veterinary Diagnostic Laboratory, and the Axia Institute enhance cross-sector innovation in diagnostics, therapies, and sustainable health systems. Additionally, global engagement is central to MSU's approach, with international studies, the African Studies Center, and the Institutes for Global Health and Neuropsychiatric Research fostering equitable partnerships and impactful research in low- and middle-income countries. Together, these integrated efforts reflect MSU's land-grant mission and global leadership in advancing One Health solutions that are scalable, inclusive, and transformative. MSU exemplifies what it means to lead "***One Team for One Health***." With its integrated approach and proven outcomes, MSU continues to set the standard for how institutions can respond to 21st-century health challenges through collaboration, science, and service.

APPENDIX C: LEADERSHIP OF MSU'S ONE TEAM ONE HEALTH RESEARCH NETWORK

One Health is an intersection of human, animal, and environmental factors. Individuals with discipline expertise on the intersection of these areas should be the group from which the leadership body is comprised. Employing community-engaged strategies, MSU constituencies should help choose the members of the leadership body. Therefore, we propose something like the following:

- 50% of the leadership body will be selected by the Health Sciences / One Health Council with guidance from administration
- 50% will be selected by the One Health Network through a general call across the university. This will be reinforced through communications from constituent colleges and departments with vested interests in One Health.

The group will be managed by an executive committee that consists of the chair, vice-chair, and one additional member of the leadership body. These individuals will be chosen by the leadership body itself rather than appointed by the president.

Individuals sought for the leadership body should have one or more of the following attributes:

- Discipline specific experts whose work touches on One Health with a track record of scholarly accomplishments (Environment, animal, human: 4; 2 chosen by Steering, 2 chosen by One Health Council)
- Individuals with experience in governance, and executing complex projects and initiatives (2: 1 chosen by Steering, 1 chosen by One Health Council)
- Experts in community-engaged research to ensure that constituents are engaged and informing the leadership body about their constituent priorities in One Health. This will help facilitate uptake, adoption, and championing of initiatives. (2: 1 chosen by Steering, 1 chosen by One Health Council)
- Students and/or trainees (graduate or professional students and/or postdoctoral fellows) with vested interests as aspiring One Health discipline experts, and/or community-engaged research. (2)
- Expert with a track record of leadership in health communications strategies, public intellectual engagement, etc. (discipline expert from ComArtSci or other units with an individual with such expertise) (1 chosen by One Health Council)
- Expert with a track record of development/advancement/fundraising chosen by University Advancement (1 chosen by One Health Council)

Attribute / Expertise	Number of Members	Selecting Constituency
Discipline-specific experts in One Health (Environment, Animal, Human)	4	2 selected by the Network; 2 selected by One Health Council with advice from administration
Experience in governance and executing complex projects/initiatives	2	1 selected by the Network; 1 selected by One Health Council
Experts in community-engaged research	2	1 selected by the Network; 1 selected by One Health Council
Students and/or trainees (graduate/professional students or postdocs)	2	Unspecified — likely through general call or nomination process involving both entities
Expert in health communications/public intellectual engagement (e.g., ComArtSci)	1	Selected by One Health Council
Expert in development/advancement/fundraising	1	Selected by University Advancement
Executive Committee (Chair, Vice-Chair, one additional member)	3	Elected by the Network

Qualities and Mindset for Effective Governance

While the governing body will include members with diverse disciplinary expertise, their primary role is not to represent their respective fields but rather to serve as architects and facilitators of the Network. Members should be selected for the following qualities:

Service orientation over self-interest: A genuine commitment to building infrastructure and enabling others' success, even when this work does not directly benefit their own research program. Members should be willing to invest time in the collective good and find satisfaction in the Network's broader impact.

Systems thinking and inclusive vision: The ability to see connections across disciplines and understand that One Health operates along a continuum. Members should be excited by the potential of fields outside their own and recognize that valuable contributions can come from unexpected places. They should ask "How does this advance integrated health?" rather than "Does this fit my definition of One Health?"

Network-building mindset: A focus on facilitating connections and removing barriers rather than controlling or directing. Members should view their role as creating pathways for collaboration, not gatekeeping access or determining whose work "counts." Success is measured by what the Network enables, not what it commands.

Consensus-building and collaboration skills: The capacity to bring diverse perspectives together constructively, navigate differences with respect, and build shared vision across constituencies. This includes the humility to recognize that no single discipline has all the answers and the interpersonal skills to build trust across boundaries.

Commitment to building something larger: An understanding that the Network's value lies in creating collective capacity that exceeds what any single lab, department, or college could achieve alone. Members should be motivated by the possibility of transformative impact at the intersection of disciplines, not by advancing their own field's prominence.

The governing body should function as connective tissue for the university—not as representatives of their respective domains, but as champions of integration, enablers of collaboration, and architects of something genuinely transformative.

APPENDIX D: INVENTORIES OF MSU STRENGTHS

INVENTORY OF TECHNOLOGICAL STRENGTHS AT MSU

1. **Imaging—From atoms to the stars**
    a. Elemental Health Institute (EHI) - metals in biology
    b. Quantitative Bio Element Analysis and Mapping (QBEAM) - atoms in tissues
    c. Structural Biology – Max T Rogers NMR facility, CryoEM, Molecular biophysics, and X-ray crystallography in lab and at the LS-CAT beam line at APS Argonne
    d. Center for Advanced Microscopy - subcellular to tissue with Confocal Laser Scanning Microscopy, Digital Microscopy, Laser Capture Microscopy, Scanning Electron Microscopy, & Transmission Electron Microscopy
    e. Center for Advanced Molecular Imaging and Center of Excellence for Imaging and Image-guided Therapy (CIIGT) - imaging of companion animals, large animals and humans
    f. Izzo Center for Clinical Imaging - first in human and clinical studies
    g. Southern Astrophysical Research (SOAR) telescope is a 4.1 meter reflecting telescope observing in the visible and infrared wavelengths from one of the world's premier astronomical sites, Cerro Pachon in Chile.
2. **FRIB and Radiochemistry**
    a. World-leading nuclear research
    b. Novel isotope production for potential use in a variety of fields
    c. Radiochemistry and radiopharmacy facility to prepare experimental samples for animal and human studies – from interventions to imaging.
3. **Omics**
    a. Proteomics
    b. Metabolomics
    c. Genomics
    d. All of Us—Henry Ford
    e. Multi-omics and computational science
4. **Animal Diseases as Models of Human Disease**
    a. College of Vet med
    b. CAR
5. **Computational Science**
    a. ICER
    b. BRIC
    c. Data Center
    d. CMSE
    e. CSE
    f. Biostats across campus
6. **Ag tech**
    a. KBS

INVENTORY OF COMPUTATIONAL SCIENCE STRENGTHS AT MSU

1. **Departments**
    a. CSE—AI

   b. CMSE—big data and AI
2. **Units and centers**
   a. IQ Systems Biology
   b. Doug Meijer Medical Innovation Building faculty
   c. Rare disease center
   d. MSU-Q Quantum Computing Science and Engineering
3. **Cores and resources**
   a. Data center
   b. ICER
   c. BRIC
4. **Clinical Partners**
   a. Henry Ford IT and AI in Healthcare
   b. Henry Ford "All of Us"
   c. McLaren IT

INVENTORY OF INNOVATION & ENTREPRENEURSHIP ASSETS

1. **MSU Innovation Center**

The MSU Innovation Center is Michigan State University's hub for creating partnerships that develop economic value from the research and creativity happening across our campus every day. We are dedicated to helping faculty and students translate their discoveries and knowledge into products and services that make life better.

Corporate Partnerships – secure funding and partnership with an existing corporation to advance MSU research in directions that are attractive to future applications in the private sector.

Technology Transfer – protect your intellectual property (patent, copyright) and leverage the marketing power and corporate network of MSU to find a licensee to commercialize that IP.

New company formation – when the tech is too early, or the market is not ready, we can create the licensee in the form of a new company that can attract capital to develop the market ready form of MSU innovations.

2. **MSU Research Foundation**

The MSU Research Foundation holds MSU's commercialization profits in trust, reinvesting that wealth in Research and Commercialization. With >$450M in assets, the foundation routinely awards >$10M annually in support of MSU research and commercialization programs. Much of this work is done in partnership with the MSU Innovation Center. **Investment capital** is a unique advantage that the foundation brings to MSU through the following programs:

Red Cedar Ventures
Michigan Rise
Michigan University Innovation Capital Fund

The Foundation also operates several **startup incubators** to house emerging business launched from MSU:

VanCamp Incubator (Meridian Township)
East Lansing Technology Innovation Center (Downtown East Lansing)
Alliance Building (Lansing, University Health Park)
The Bridge (Grand Rapids, Doug Meijer Innovation Building)

3. **MEDC Translational Research Funding Programs**

Michigan Translational Research and Commercialization (MTRAC)

This program has specialized hubs located at several Michigan universities, to review and award translational research grants. Those hubs are:

MSU: Agriculture & Biotechnology

UofM: Life Science & Healthcare
Advanced Automotive Technology
MTech: Advanced Materials
WSU: Advanced Computing

ADVANCE

An early-stage statewide derisking (early prototype development and testing) program for all high-value technology sectors. This program is managed by MSU.

4. **MSU Internal Grant Programs**

SPG - supports promising new initiatives in key areas of research, scholarship and multidisciplinary collaboration.

HARP - supports the research that underpins creative and performance projects or the production of the final product of a creative or research project.

TechDev – supports the further development of innovations that are disclosed to MSU Technologies to bring those projects closer to a commercially viable prototype.

5. **Undergraduate Entrepreneurship & Innovation**

The Burgess Institute for Entrepreneurship & Innovation has achieved a meteoric rise to national recognition, most recently ranked number 11 in the Nation in the Princeton Review. Burgess was launched as a subset of the activities

6. **Community Engaged Research and Entrepreneurship & Innovation (SEIE) Taskforce**

A provost-support initiative to develop guidance and policy on the inclusion of these topics as valued activities in the Promotion & Tenure process. This is a key step forward in promoting a culture of innovation at MSU.

INVENTORY OF MSU CLINICAL PARTNERS AND RESEARCH STRENGTHS

1. **Henry Ford Health (Detroit)**

Cancer
Neurosurgery
Population Health Sciences
Orthopedics and sports medicine
Cardiometabolic
Cardiovascular

2. **Corewell Health (Grand Rapids)**

Neurology and neurosurgery
Helen DeVos Children's Hospital - Pediatrics
Pediatric Oncology
Pediatric Neurology
Pediatric Cardiology
Rare Diseases
Fred & Lena Meijer Heart Center
Cardiovascular Disease

3. **McLaren Health (East Lansing)**

Gastrointestinal (GI) cancers and GI surgery

4. **UM Sparrow Health (East Lansing)**

Neonatology and Pediatrics
Neurosurgery

5. **Compass Health (East Lansing)**
   Rehabilitation and neurology

6. **Trinity Health (Grand Rapids)**
   Hauenstein Neurosciences Center

THEMATIC FOCI

1. **Cancer Centers**
   Henry Ford Health Brigitte Harris Cancer Pavilion (Detroit)
   Corewell Health Lemon-Holten Cancer Pavilion (Grand Rapids)
   Helen DeVos Children's Hospital – Haworth Children's Cancer Ctr. (Grand Rapids)
   UM Health-Sparrow Herbert-Herman Cancer Center (Lansing)
   MSU Health Care – Hematology-Oncology (Lansing)

2. **Research-focused Biomedical Research Institutes**
   Van Andel Research Institute (Grand Rapids)
   Nick Gilbert Neurofibromatosis Research Institute (Detroit)
   Heart Vascular Institute (HVI) (Grand Rapids)

3. **Maternal Child Health**
   Helen DeVos Children's Center (Grand Rapids)
   Neonatology at UM Health-Sparrow (Lansing)
   Obstetric services across all systems—prematurity
   Resources: Maternal—newborn blood spots

4. **Rehabilitation Hospitals**
   Mary Free Bed Hospital (Grand Rapids)
   Shirley Ryan AbilityLab (Detroit)
   Compass Health (East Lansing)

5. **Mental Health**
   Pine Rest (Grand Rapids)

7. **State of Michigan**
   Public Health Department
   Maternal Child Health

8. **Biomedical Ethics**

APPENDIX E: EXAMPLES OF ONE HEALTH TOPICS MSU IS WELL POSITIONED TO TACKLE

The following are meant to be examples of One Health topics where MSU is well positioned to lead. This is not an exhaustive or prescriptive list, but instead is meant to spark the imagination of the types of projects MSU may choose to pursue:

1. Antimicrobial Resistance and Pathogen Spillover at the Human-Animal-Environment Interface
2. Climate (or Environmental)-Driven Health Disparities in Food, Water, and Vector-Borne Disease Systems
3. Resilient and Ethical Food Systems for Planetary and Population Health
4. Challenge of Maintaining Health and Vitality Along the Developmental/Life Course Continuum
5. Animal Disease as the Model for Developing Human Disease Therapeutics
6. Movement and Technology
7. The Business of Health

Title: Antimicrobial Resistance and Pathogen Spillover at the Human-Animal-Environment Interface

Description: The accelerating threat of antimicrobial resistance (AMR) and the rising frequency of zoonotic spillovers require a comprehensive One Health approach that links human, animal, and environmental health. These complex challenges are exacerbated by globalization, climate change, and intensive food production systems. For example, overuse of antibiotics in humans, animals, and agriculture contributes to the rise of drug-resistant infections. This is a major problem in maintaining health span along the One health continuum as resistant bacteria can spread between animals, humans, and the environment via food, water, and waste. E.G. Multi-drug resistant Salmonella and E. coli strains, multi-drug TB, etc.

A particular component of the threats now emerging in infectious disease is the potential for another devastating epidemic like COVID-19, which was the 6th of 7 worldwide pandemics of the 21st century, (SARS, HINI influenza, MERS, Ebola, Zika, COVID-19 and monkeypox). The One Health perspective is central to preparation for the next pandemic, as virtually all microbial agents that have caused recent pandemics have been transmitted across species. MSU can be in the vanguard of preparing for the next pandemic by leveraging not only the skills of our university in agricultural science, and in veterinary and human medicine, but incorporating insights from health communication, survey research, political science and other disciplines. MSU should consider providing a blueprint for the activities that should be undertaken *before, and not when*, a new pandemic emerges.

Why MSU: MSU offers a powerful convergence of expertise in veterinary medicine, infectious disease biology, and environmental health. The College of Veterinary Medicine (CVM) is a national leader in zoonotic disease research and diagnostics, with robust laboratory and field capacities. MSU's Department of Microbiology, Genetics, & Immunology, Institute for Quantitative Health Science and Engineering (IQ), and Ecology, Evolution, and Behavior Program strengthen our ability to model and mitigate microbial threats across ecological systems. **Others**: 1) **Center for Microbial Ecology (CME):** Established in 1989, CME is renowned for its work on environmental AMR. Under the leadership of University Distinguished Professor Jim Tiedje, the center emphasizes the One Health concept, recognizing the interconnectedness of antibiotic use in humans, animals, and the environment. 2) **Colleges of Human Medicine & College of Osteopathic Medicine:** These colleges collaborate on research and education initiatives addressing AMR, focusing on vulnerable populations, including individuals living with HIV. Their efforts are integral to translational research using One Team, One Health approach. **3) College of Agriculture and Natural Resources (CANR):** CANR researchers study the impact of agricultural practices on AMR, exploring how antibiotic use in farming contributes to resistance in human pathogens.

Important Partnerships:

- Internal: College of Human Medicine, MSU Veterinary Diagnostic Laboratory, CVM Research Centers, College of Natural Science, College of Social Science;
- External: UM-Sparrow Health System, Henry Ford Health + MSU Health Sciences, Michigan Department of Health and Human Services (MDHHS), CDC (collaborations via select faculty), USDA research labs;
- Global and Interdisciplinary Efforts, Research & Centers: African Studies Center, African Alliance Program, the Mekong One Health Innovation Program, Global Health Studies Program, Global Neuropsychological Research Center, The Malawi Projects are all deployable resources

in the global space for collaborative and translational human and animal studies in the AMR space.

Existing Community Engagement: Extension-led animal health outreach to rural and agricultural communities; Public education through MSU Museum and Science Festival (AMR and zoonoses themes); Youth STEM programs via 4-H addressing biosecurity and One Health; Ongoing stakeholder engagement with farmers, veterinarians, and tribal health leaders through the Extension network; **Street Medicine Initiatives (e.g., Detroit)**

Potential Gaps: Limited integration with clinical infectious disease programs in human health **(?AE: Perhaps limitation decreases some if we consider the application potential in context of reach afforded by Global and Interdisciplinary Research Efforts & Centers)**;

Gaps in social science capacity to understand behavior change in antibiotic stewardship **(Great idea!!)** Need for coordinated surveillance across human/animal/environment systems; Bioethics/ELSI (ethical, legal, and social implications); AI?

Additional Information Needed:

- Inventory of current AMR research and funding across MSU
- Mapping of interdisciplinary collaborations between health, ag, and environmental science units
- Assessment of state and federal investment interest in AMR mitigation
- Stakeholder perspectives on gaps and opportunities in AMR education, surveillance, and interventions

Title: Climate (or Environmental)-Driven Health Disparities in Food, Water, and Vector-Borne Disease Systems

Description: Climate change is reshaping the distribution of disease vectors, the availability and safety of food and water, and the burden of health disparities—particularly among rural, Indigenous, and low-income populations. A One Health lens can inform integrated adaptation and mitigation strategies.

Why MSU: MSU is uniquely equipped to lead this challenge, given its land-grant heritage, top-ranked College of Agriculture and Natural Resources (CANR), Institute of Water Research, and growing strength in public and environmental health. MSU is deeply embedded in rural and agricultural communities across the state, offering unparalleled place-based insight into climate-health dynamics.

Important Partnerships: CHM, CANR, COE (modeling, water technology, etc.), HFH + MSU, global partners on water and agricultural-climate systems; Great Lakes Integrated Sciences and Assessments (GLISA)

Existing Community Engagement: Extension climate adaptation initiatives for Michigan agriculture and natural resources; Flint water crisis research and justice partnerships; Environmental justice and health equity projects in CHM and other colleges; Tribal-University collaborations on environmental monitoring and climate planning

Potential Gaps: Need for sustained cross-college climate-health faculty clusters. Gaps in integrating behavioral health and Indigenous knowledge systems. Limited capacity for real-time climate-health data integration; Bioethics/ELSI (ethical, legal, and social implications)

Additional Information Needed:

- Detailed mapping of MSU's climate-health research portfolio
- Assessment of demand for predictive tools in public health and ag systems
- Inventory of partnerships with communities most vulnerable to climate impacts
- External scan of competitors and funders in climate-health equity

Title: Resilient and Ethical Food Systems for Planetary and Population Health

Description: Undernutrition, micronutrient deficiencies, and overnutrition (obesity/metabolic syndrome) are increasing globally, sometimes co-existing in the same communities or households ("double burden of malnutrition"). Both the source and solution to this complex and vexing problem lies in animal, soil and environmental health to assure access to safe and sustainably sourced nutrient rich animal and crop products that do not exacerbate health problems (e.g. via gut microbial dysbiosis or metabolic dysregulation) in humans. For example, Aflatoxin contamination in staple crops (e.g., maize) affects human and animal health.

With respect to food insecurity, environmental Factors- climate change, water scarcity- and zoonotic outbreaks/livestock diseases are strong contributors to global food insecurity underscoring the need for empirically informed, environmentally sustainable and resilient agricultural practices. The overuse of fertilizers, pesticides, and antibiotics in food production harms human health through chemical exposure, antibiotic resistance, and contaminated food broadly undermines confidence in food safety and exacerbates AMR.

Lastly, packaging can contribute to toxicity in food and the environment (which can impact the next generation of food leaching toxins from water and soil). Safe packaging solutions are needed. Supply chain also plays a role in ensuring foods reach places in need before spoilage, as well as tracking potential contaminations for recall (e.g. ecoli contamination in fresh produce).

Why MSU: College of Agriculture and Natural Resources (CANR): Home to globally recognized programs in soil health, crop science, sustainable agriculture, and food systems. Research includes aflatoxin mitigation in maize, nutrient-dense food production, and adaptation to climate-induced food insecurity. College of Veterinary Medicine (CVM): Strong emphasis on zoonotic disease prevention, livestock health, and foodborne pathogen surveillance. Integrates animal health with sustainable production practices critical to ensuring safe, nutritious animal-source foods. College of Human Medicine and College of Osteopathic Medicine. Faculty conduct cutting-edge research on malnutrition, gut microbiome, and metabolic disease in global and U.S. populations. There is also community-engaged interventions linking diet, chronic disease, and food access. Department of Food Science and Human Nutrition: Focus on food safety, nutrient bioavailability, and novel food formulations that promote metabolic and gut health. Collaborative work on gut microbial dysbiosis with both Health Colleges exist for mechanistic studies linking malnutrition to infectious and chronic diseases. Global Center for Food Systems Innovation (GCFSI). USAID-supported initiative addressing food security through technology, policy, and market innovations in LMICs. Center for Microbial Ecology (CME). A global leader in research on microbial communities in soil, water, and the gut—critical for understanding dysbiosis, nutrient cycling, and AMR dynamics. Institute for Global Health. Supports interdisciplinary projects in nutrition, infectious disease, and One Health challenges in vulnerable populations. MSU AgBioResearch. Encompasses over 300 scientists working on climate-resilient agriculture, toxin mitigation, and sustainable farming practices across Michigan and international partner sites.

Important Partnerships: All? Need to fill in current clinical partners in nutrition, and identify potential future partners. Tentative Ideas: I believe these exist but specific program/partner names need to be clarified: 1) The State of Michigan e.g. State Department of Public Health, WIC & Food Supplementation Programs, 2) Henry Ford Health and Other Clinical Providers/Partners within current Health Teams/Clinical Departments. 3) Global Partners - e.g. African Studies Center, Global Neuropsychiatric Research Center, Malawi Projects, where consequences of malnutrition, lack of food

safety, lack of agricultural resilience, and livestock disease can be measured . 4) Programs that address real-world implementation of One Health interventions through USAID Feed the Future, CGIAR collaborations, and NIH-funded global health studies. Extension can reach every county in MI.

Existing Community Engagement: African Studies Center, Global Neuropsychiatric Research Center, Malawi Projects, etc. A range of long-standing research partnerships in sub-Saharan Africa, Southeast Asia, and Latin America, with a focus on child nutrition, food safety, agricultural resilience, and livestock disease control. Programs that address real-world implementation of One Health interventions through USAID Feed the Future, CGIAR collaborations, and NIH-funded global health studies. Extension can reach every county in MI.

Potential Gaps: what about Rx Kids - Cash Program for Pregnant Moms and Babies. does that fit here? What about Food as Medicine - does that fit here?

Additional Information Needed: None. This is a clear place where MSU is well positioned.

Title: Challenge of Maintaining Health and Vitality Along the Developmental/Life Course Continuum

Description: The One Health framework provides a powerful lens to understand and address the multifactorial and pervasive challenge of effective strategies to maintain or implement disease modifying interventions for health (e.g. brain, metabolic, etc) across the developmental continuum. For example, brain development and function is highly sensitive to early-life exposures, with lifelong implications for cognition, mental health, behavior, and productivity. A related concept applies in maternal health, metabolic and other chronic disease endpoints where adversity windows extend to the fetal in-utero environment with strong contributions from enviromental/animal health determinants.

For example, with respect to the brain, risk factors for adverse cognitive development or function may arise from: Nutritional deficiencies (e.g., iron, iodine, choline, vitamin D, B12), Environmental neurotoxins (e.g., lead, mercury, pesticides), Infections and inflammation (e.g., congenital infections, maternal immune activation), Microbial dysbiosis (affecting the gut-brain axis), Aging & Associated Metabolic Morbidities. These risks are often disproportionately concentrated in low-resource settings and marginalized populations, where One Health vulnerabilities converge.

Promoting healthy brain development along the lifespan requires a holistic strategy featuring: Safe, nutrient-rich diets supported by sustainable agriculture and animal welfare, environmental regulation to reduce neurotoxic exposure, prevention of zoonotic infections that threaten maternal and child neurodevelopment, integrated surveillance systems for developmental risk factors in humans, animals, and the environment and capacity to implement disease modifying interventions for age-associated cognitive dysfunction.

Why MSU: MSU's strengths in neuroscience, nutrition, microbial ecology, global health, environmental toxicology, and sustainable agriculture create a powerful ecosystem for One Health-informed brain health research. Its capacity to conduct mechanistic, translational, and population-level studies, both domestically and globally, makes MSU a strategic leader in developing disease-modifying interventions that support cognitive resilience across the lifespan.

Important Partnerships: Betsy DeVos for childhood risk, HFH for central and Detroit area, Corewell for the Western part of the state.

Existing Community Engagement: Terrie Taylor's international work (global), Global neuro psychiatry center, Flint, 2 epidemiologists in Traverse City, Detroit Street Medicine, The FIRE Initiative, Irving Vega does outreach in GR for older adults, Michigan Alzheimer's Disease Center (3-University partnership between MSU, University of Michigan and Wayne State)

Potential Gaps: Translational nueroscience has mobile memory clinics (in FL) - need for it to take off here. The framework we need: give us the vision and the incentives

Additional Information Needed: Need to be flexible as we are constrained by knowledge in this group. Need to take temperature of health partners to see if they would be interested in a major initiative in this space.

Title: Animal Disease as the Model for Developing Human Disease Therapeutics

Description: As a University with both Human and Animal Health colleges, we are naturally positioned to focus on the opportunity to develop novel therapeutics first in animals, with a strategic intent to rapidly translate those agents to human clinical experiments. Decades of pharmaceutical research have repeatedly shown that animal models of human diseases are woeful predictors of therapeutic efficacy of new agents in a human clinical trial.

Why MSU: Of the 33 accredited veterinary schools in the USA, only 13 also share a campus with a college of medcine (human or osteopathic). None share a campus with two colleges of medicine, and none are as fully integrated across disciplines as is MSU.

Important Partnerships: Novel therapeutic agents from MSU and our collaboration with Henry Ford, or any other research-intensive university or hospital, could be trialed in animal disease trials. IITs - investigator initiated trials are key, not just industry trials/agents.

Existing Community Engagement:

Potential Gaps: Need to expand our capacity to both develop and trial novel agents. Investment is necessary in the emerging MSU drug discovery capabilities (started now with GII hires), as well as expansion of CVM animal clinical trials capacity. Breed Predisposition - certain dog breeds are predisposed to specific types of cancer. Factors like breed, age, and lifestyle can influence a dog's cancer risk. For example, larger breeds like Great Danes and Irish Setters are more prone to bone cancer, while Golden Retrievers have a higher risk of lymphoma and hemangiosarcoma, this goes on and on for many breeds.

Additional Information Needed:

Title: Movement and Technology

Description: Movement is key for health (physical inactivity is the 4th leading cause of mortality) and quality of life. Movement takes place in many forms, from incidental to high level athleticism. The way people move is indicative of their health and technology to monitor movment can provide insitghts into disease. From wearables and home-based sensors to laboratory and clinical based assessments, motion is used to assess health. MSU is well-positioned to examine movement from biomechanical, disability, and rehabilitation perspectives, as it relates to addressing acute and chronic health conditions.

Why MSU: MSU has strong expertise in motion analytics and existing collaborations in engineering and biomedical engineering, kinesiology, and clinical entities (medical schools and nursing). Neuroscience and cognition have strong graduate programs and relevant research. The IQ is an excellent resource with expertise in behavioral science and motion linking movement to neurological health. The sport analytics graduate certificate is also related to assessing motion. MSU Athletics has a strong existing partnership with kinesiology to examine movement in elite athletes and an opportunity to address their health and wellbeing.

Important Partnerships: Henry Ford has excellent musculoskeletal work, and we have MSU sports medicine and Athletics. Nike has been supportive of research with athlete populations. Radiology and Anatomy at MSU has had a program in human motion. Several years ago, MSU proposed a program in human performance that incorporated motion analytics into this program.

Existing Community Engagement: Institute for the Study of Youth Sports and Extension have ties in the community.

Potential Gaps: An interface between existing programs and the clinical enterprise is missing. There needs to be a greater interaction between athletics and biomechanics and space for research aimed at human movement.

Additional Information Needed: Need to understand if clinicians are interested in technological aspects of health and movement.

Title: The Business of Health

Description: Harness the power of MSU and its clinical partners to redefine the healthcare paradigm - shifting from an industry that focuses on diseases and procedures, to one that focuses on the promotion of health and the prevention of disease.

Why MSU: As large, self-insured organizations, with medical practice partners that also operate insurance businesses, we have the opportunity to experiment with, learn from, and improve the health of our own employee base(s) in models of heath promotion, risk evaluation, and disease prevention - and financial models that could lead to sustainable business models. The Broad College of Business could drive the research on the business models, while our Precision Health Program could be a driver of new tools and innovations to drive the interventional research. Engaging MSU's medical ethics center would assure this program did its work at the highest standard of stakeholder ethics. MSU Extension can help disseminate, and it is important to remember this area includes veterinary medicine/animal science.

Important Partnerships: Henry Ford & HAP, Corewell & Priority Health, McLaren & McLaren Health Plan, Blue Cross Blue Shield of Michigan, The network of CHM and COM teaching hospital partners

Existing Community Engagement: MSU Extension Food & Health could be a powerful aid in disseminating best practices. Between Extension and our statewide education network (human and animal), we have the possibility of addressing many underserved populations (rural and economically challenged).

Potential Gaps: It would be powerful if we could effectively integrate our statewide medical and veterinary science education footprint into a statewide clinical trials network. That could bring a statewide subject base into any research we did into the effectiveness of health/prevention protocols.

Additional Information Needed: We need to find out if the partners and their captive insurance providers have any interest in this area of inquiry. There are many hurdles, so we would need willing/eager partners who are in the business of insuring.

APPENDIX F: SYNTHESIS OF ROADSHOW FEEDBACK

Between September and November 2025, the One Health Research Task Force conducted presentations to multiple groups across MSU, engaging with faculty, staff, and students from diverse colleges and units. The feedback revealed several major themes that have informed revisions to the Task Force recommendations. This appendix begins by summarizing these themes, then provides more detailed notes taken during the session for each theme. This appendix is purposely, not making attributions to specific sessions.

THEME 1: STRATEGIC FOCUS WITH INCLUSIVITY

Feedback consistently emphasized that while One Health's broad scope is exciting, being "too broad" risks a lack of identity and unclear value propositions for funders. Participants recommended starting with 3-5 focused priority areas that leverage MSU's unique strengths (land-grant mission, agriculture, multiple medical colleges, Extension), then expanding as capacity grows. Areas suggested for focus included plants and environmental science, soil-human-animal health connections, food systems, environmental contaminants and chronic disease, and the business of health. The consensus was to allow themes to emerge organically from faculty engagement while maintaining the inclusive message that diverse disciplines can contribute to One Health.

THEME 2: STUDENTS AND TRAINEES AS CENTRAL

Strong, consistent feedback identified students and trainees as essential to the initiative's success, serving both as beneficiaries and as critical connectors in interdisciplinary research. Recommendations included establishing robust fellowship programs with co-advisors from different disciplines, and embedding One Health concepts across curricula through certificate programs and structured course sequences rather than only speaker series. Participants emphasized that trainees naturally bridge disciplines through their training experiences and bring fresh perspectives unencumbered by traditional boundaries. Dedicated funding for trainees working on One Health projects was identified as an essential incentive, potentially more valuable than some pilot funding mechanisms.

THEME 3: COMMUNITY-CENTERED METRICS AND GENUINE PARTNERSHIP

Strong feedback concerned fundamentally rethinking success metrics to include community impact alongside traditional academic measures. Participants noted that "securing research dollars isn't necessarily relevant to anyone outside the university" and emphasized the need to measure health outcomes achieved, lives improved, policy changes influenced, and community benefit at the ground level. Extension should be involved from network inception, not added at implementation, to ensure work is translatable and benefits communities through development WITH people, not analysis OF people. Sustained relationships requiring multi-year commitments, respect for local expertise, and health equity as a core value were identified as essential elements. The recommendation is to establish community impact metrics as primary success measures alongside, not secondary to, traditional academic metrics.

THEME 4: ECONOMIC HEALTH AS A FOURTH PILLAR

Detailed feedback advocated for expanding One Health from a "trilogy" (human, animal, environmental) to a "tetralogy" by elevating economic health to equal status with the other pillars. The rationale includes that economic health is inextricably dependent on health of people, animals, and environment, with evidence such as the EPA Clean Air Act showing benefits exceeding costs by a 30:1 factor. This framing would help legislators and society understand that protecting health and environment enhances rather than harms economic prosperity, addressing the false choice often

presented in policy debates. Implementation would require engaging the College of Business as a full partner, including business/economic expertise in leadership, and using economic framing in communications to policymakers and public.

THEME 5: FACULTY ENGAGEMENT MECHANISMS

Extensive feedback addressed the challenge of moving from interest to actual engagement, with participants noting that "while many are interested, actual engagement lags behind discussion." Multiple participants suggested innovative digital "matchmaking" platforms (described as "like a dating app" with faculty profiles, research interests, and short video pitches) to enable low-lift, efficient connections to collaborators, infrastructure, and funding. A multimodal engagement strategy is needed that accommodates different generations and schedules, combining synchronous events with asynchronous tools, supported by enthusiastic staff who proactively facilitate networking. Specific incentives recommended include seed funding, "multidisciplinary shark tank" competitions, access to shared infrastructure and datasets (EHR, claims data), pre-award support staff, and recognition in promotion and tenure processes.

THEME 6: GOVERNANCE AND LEADERSHIP

Consistent concerns emerged about avoiding "top-down" perception, with participants emphasizing this must be faculty-driven with transparent, community-informed governance. Some feedback was on specific disciplines that should be included: social scientists (medical sociologists, anthropologists, political scientists), bioethicists, and population health experts, not just physicians or basic scientists. Leadership selection processes should be transparent with community input, and leadership should serve as "glue" connecting disciplines rather than simply representing them, with consensus-building skills valued over disciplinary expertise alone. The network should coordinate and enable rather than direct or control, avoiding creation of "another silo" and ensuring publications can count for both departments and the network without competition for credit.

THEME 7: RESOURCES AND SUSTAINABILITY

Fundamental concerns about resources emphasized that the initiative requires NEW funding sources, not redirection of existing resources, to avoid creating more work without support. Participants noted that "discretionary resources will shrink in this time of uncertainty" and questioned financial sustainability amid layoffs and federal funding cuts. Multiple funding streams are needed including clinical partner seed grants, advancement and philanthropy partnerships, industry connections (especially agriculture), and non-federal grants, as NIH center funding appears elusive in the near term while training grants may be more feasible. Investment in shared infrastructure, pre-award and post-award support staff, and strategic faculty hiring is required, with built-in metrics for success and willingness to sunset programs that don't achieve goals ("fail fast or succeed wonderfully").

THEME 8: DEFINITION CLARITY AND MSU POSITIONING

Widespread confusion about One Health definition emerged, with questions about whether it's an MSU or national initiative and perception that some disciplines are included while others are excluded. A clear, concise campus-wide communication (including a one-pager) is needed that emphasizes both inclusivity and MSU's unique strengths while showing how diverse work contributes to One Health. MSU's distinctive positioning includes its land-grant mission and Extension reach, agriculture-to-health pipeline, multiple medical colleges plus veterinary medicine, engineering integration, plants and environmental science expertise, rural-urban connections, implementation research capacity, and Great Lakes Megalopolis location. The opportunity exists for MSU to be a national thought leader by

expanding One Health beyond its traditional focus on zoonotic infections to encompass chronic diseases, environmental health, food systems, economic impacts, and the full breadth of socioecological health.

CONCLUSION

The roadshow feedback revealed strong enthusiasm for the One Health Research Network initiative alongside clear requirements for success: genuine faculty and community ownership, adequate new resources, tangible benefits for participants, and strategic focus balanced with broad inclusivity. The Task Force recommendations have been revised to address many of the feedback themes. What follows is a more detailed listing of notes taken for each theme.

MAJOR THEME 1: NEED FOR STRATEGIC FOCUS WHILE MAINTAINING INCLUSIVITY

Feedback consistently emphasized the tension between One Health's broad potential and the practical need for strategic focus. Participants noted that being "too broad" could lead to a lack of identity, unclear value propositions for funders, and initiative failure.

Key Points:

- Start with 3-5 focused priority areas or "directions" to launch the initiative, then expand as capacity grows
- Use a "genius pig" approach to bring faculty/expertise together around specific topics
- Not all work needs to sit at the exact center of the One Health intersection; gradients and overlaps should be recognized
- Balance strategic focus with the inclusive message that "everyone can fit" in One Health
- Allow themes to emerge organically from faculty engagement rather than prescriptively from administration
- Identify areas where MSU has unique strengths to differentiate from other institutions

Specific suggestions for focused areas included:

- Plants and environmental science (often overlooked in One Health but where MSU can lead)
- Soil health and its relationship to human and animal health
- Food systems connecting agriculture, nutrition, and health ("food as medicine")
- Environmental contaminants and chronic disease
- Rural-urban health divide
- Business of health/health economics
- Implementation and policy translation

The recommendation is to identify 3-5 initial priority areas that leverage MSU's unique positioning (land-grant mission, agriculture, veterinary and multiple medical colleges, engineering, Extension) while maintaining openness to expansion and evolution.

MAJOR THEME 2: STUDENTS AND TRAINEES AS CENTRAL TO THE INITIATIVE

Strong and consistent feedback emerged about the critical role of students and trainees, both as beneficiaries and as essential connectors in interdisciplinary research. Key Points About Student/Trainee Involvement:

Representation in Leadership:

- Increase trainee representation in governance from current proposal of 2 to 3 positions
- Include diverse trainee types: graduate students, professional students (MD, DO, DVM), and postdoctoral fellows
- Trainees bring essential perspectives on emerging research directions and training needs

Educational Integration - Curricular Efforts:

- Embed One Health concepts across curricula in multiple colleges
- Develop certificate programs rather than only speaker series
- Create structured course sequences with building educational components
- Partner with College of Education to drive educator engagement
- Engage international students and partner institutions
- Co-create modified curricula to reflect One Team One Health framework
- Design education to address Michigan's labor challenges and create impact

Training and Fellowship Programs:

- Establish robust fellowship program with co-advisors from different programs/disciplines
- Support cross-disciplinary training for undergraduates, graduate students, and postdocs
- Include experiential learning opportunities in health sciences
- Create opportunities for trainees to conduct research across traditional boundaries (e.g., DO or DVM students doing research in engineering)
- Develop training grants that span multiple colleges
- Consider prestigious scholarships across programs
- Think broadly about partnerships with community colleges

Students as Interdisciplinary Glue:

- Trainees naturally bridge disciplines through their training experiences
- Graduate students and postdocs often work with multiple advisors and across units
- Students bring fresh perspectives unencumbered by traditional disciplinary boundaries
- Trainee mobility across labs and departments creates organic connections
- Students are essential for sustainability of collaborative research programs

Funding for Trainees:

- Dedicated funding for trainees working on One Health projects is essential incentive
- Trainee support seen as potentially more valuable than some pilot funding
- Fellowship programs can drive One Health engagement more effectively than other mechanisms

- Consider Burroughs Wellcome Fund and similar sources specifically for training

The integration of students throughout the initiative—in governance, education, research, and as connectors—was identified as essential for both immediate impact and long-term sustainability.

MAJOR THEME 3: COMMUNITY-CENTERED METRICS AND GENUINE PARTNERSHIP

Perhaps the strongest and most consistent feedback concerned the need to fundamentally rethink success metrics and ensure genuine community partnership, particularly through MSU Extension. Community-Centered Metrics:

The Current Academic Metrics Are Insufficient:

- "Securing additional research dollars isn't necessarily relevant to anyone outside of the university"
- Traditional academic metrics (publications, grants, IDC) don't capture community value
- Donors and government partners care about different outcomes
- Need to measure what matters to communities, not just academics

Recommended Community-Focused Metrics:

- Health outcomes achieved in communities
- Lives improved or reached through interventions
- Community benefit and impact at ground level
- Policy changes influenced
- Implementation success (not just discovery)
- Sustained community relationships established
- Money flowing into communities (not just analysis of communities)
- Translation of research into everyday use
- Health equity improvements
- Partnerships maintained over time

Extension Must Be Involved from the Beginning:

- "Need extension involved from the very beginning. Can be tacked on at the end."
- Bringing someone in from a college doesn't mean they understand Extension
- Extension must be equal partner to ensure work is translatable
- Extension reaches every county in Michigan—essential for implementation

What Communities Need to See:

- Community benefit beyond the research
- Development WITH people, not analysis OF people
- Money finding its way into communities
- Sustained relationships, not dropping in and out
- Multi-year commitments and incentives for community participants
- Respect for local expertise ("don't want to step on their toes with our MSU experts")

Challenges to Navigate:

- Territorial dynamics (clinics may see MSU as threat, not partner)
- Different systems don't talk to each other; no universal language across sectors
- Balance between one-time problems and standardized programs
- Balance between statewide issues and community-specific needs
- Some problems need long-term engagement (e.g., improving sleep) vs. one-time solutions

Health Equity as Core Value:

- Despite federal challenges, health equity must remain core value
- Lean into land-grant mission to promote diversity and inclusion
- Address underserved and marginalized populations
- Bridge community-based work to health systems and policy efforts

Examples of Community-Centered Approaches:

- Food as Medicine programs connecting community food systems to healthcare delivery and public health
- Street medicine initiatives
- Participatory-based research scholarship
- Water Alliance model of community engagement
- Extension's existing community ties and networks

The recommendation is to establish community impact metrics as primary success measures alongside (not secondary to) traditional academic metrics, and to integrate Extension as an equal partner from project inception through implementation.

MAJOR THEME 4: ECONOMIC HEALTH AS CRITICAL FOURTH PILLAR

Detailed and passionate feedback advocated for expanding One Health from a "trilogy" (human, animal, environmental) to a "tetralogy" by elevating economic health to equal status. Rationale for Economic Health Integration:

Connection Between Health Types:

- Economic health is inextricably dependent on health of people, animals, and environment
- Poor human/animal/environmental health leads to poor economic health
- Economic burdens of disease: healthcare costs, lost wages, lost jobs, missed school days
- Health interventions have measurable economic returns

Communication and Policy Impact:

- Would help society and legislators understand One Health importance
- Addresses false choice between economy and environmental/health protection
- "Our legislators routinely—and falsely—believe that we can't afford to protect the environment or our personal/public health"
- Would be innovative way to advance evidence-based policy
- Speaks to concerns across political spectrum ("as everyone on both CNN and Fox like to say, … It's the economy, stupid")

Evidence of Economic-Health Links:

- EPA Clean Air Act (1990-2020): benefits exceeded costs by 30:1 factor
- Clean air leads to better health and productivity
- Savings on medical expenses more than offset pollution control costs
- Current approach of just noting "this could save money" has not changed hearts and minds

Implementation:

- Engage College of Business as full partner in One Health
- Include business/economic expertise in leadership and governance
- Develop research agenda around economic impacts of health interventions
- Use economic framing in communications to policymakers and public
- Address "business of health" including healthcare delivery innovation and prevention economics

The recommendation is to formally adopt economic health as a fourth pillar of One Health at MSU, distinguishing our approach and strengthening societal impact.

MAJOR THEME 5: FACULTY ENGAGEMENT MECHANISMS AND INCENTIVES

Extensive feedback addressed the challenge of moving from interest to actual engagement, and the need for effective faculty connection mechanisms.

Current State:

- "While many are interested, actual engagement and action lag behind discussion"
- "Some faculty feel disconnected from initiatives"
- "People collaborate without an official structure—are you forcing connections based on where resources are?"
- Past initiatives (Office of Health Sciences, NeuroDevelopment) did not fulfill aspirations

What Makes Faculty Excited to Participate:

- "Initiatives where things happen, where there's visibility and forward progress, where I feel involved and engaged"
- Tangible benefits and support for their scholarship
- Genuine partnerships, not token involvement
- Clear value proposition for their time investment
- Low-lift, efficient ways to connect

Digital Connection Tools - The "Matchmaking" Need: Multiple participants suggested innovative digital platforms:

- "Make it like a dating app... GenZ and onward—we're always checking our phones"
- Searchable, online, regularly updated tool connecting faculty to administrators, infrastructure, collaborators, and funding
- Faculty profiles with research interests, possibly including short video pitches (3-minute style)
- Similar to Foundation Relations Airtable model but more interactive
- Low-lift, engaging interface ("swipe right or left for partnerships")

- Enable discovery of collaborators, shared equipment, funding opportunities
- "I would totally play with an app like that every night after my kid goes to sleep"

Multimodal Engagement Strategy:

- Cannot rely solely on speaker series or single-format events
- Need to accommodate different generations and scheduling conflicts
- Combine synchronous (seminars, workshops) and asynchronous (online tools, videos)
- Use social media and special interest groups around fundable problems
- Multiple entry points for participation

Support Infrastructure:

- Enthusiastic, skilled staff who help make connections ("effective connectors")
- Staff who understand the mission and proactively facilitate networking
- Virtual office to help faculty who "aren't in the know" or are "bad at networking"
- Pre-award staff to identify grant opportunities
- Project management support for data use agreements, material transfer agreements
- Access to large datasets (EHR, claims data) at low or no cost to faculty

Specific Incentive Mechanisms:

- Seed funding to bring faculty into the network
- "Multidisciplinary shark tank" competitions
- Recognition in promotion and tenure processes
- Access to shared infrastructure and core facilities
- Matchmaking events and networking opportunities
- Credit in multiple venues (department AND network) without competition

Core Facilities and Shared Resources:

- Investment in cores with models like "core coupons" to encourage usage and sustainability
- Better quantification and communication of existing infrastructure capacity
- Shared resource model linking CSTAT, ICER, and other infrastructure
- Team science experts and services to support collaborative research

The recommendation is to develop a comprehensive, multimodal engagement strategy that includes both high-tech connection tools and high-touch personal support, with clear incentives and tangible benefits for participation.

MAJOR THEME 6: GOVERNANCE, LEADERSHIP, AND AVOIDING "TOP-DOWN" PERCEPTION

Consistent concerns emerged about governance structure, leadership selection, and the perception of administrative versus faculty-driven initiative.

"Top-Down" Concerns:

- "This feels so top down, as opposed to the people (faculty, staff, etc.) co-developing a vision for change"

- "Are you forcing connections based on where the resources are?"
- Worry about hand-selected participants versus open participation
- Past initiatives perceived as administrative priorities rather than faculty-driven
- Concern about creating "another initiative" or "another administrative burden"

Leadership Composition:

- Need explicit inclusion of social scientists (medical sociologists, medical anthropologists, political scientists)
- Must include bioethicists in leadership group
- Avoid defining human health strictly through physician-led activity; include population health experts, interventionists, clinical epidemiologists
- Leadership should serve as "glue" connecting disciplines, not just representing them
- Consensus-building and network leadership skills more important than disciplinary expertise alone
- Community engagement expertise essential in leadership

Faculty-Driven Emphasis:

- "Resources for what the faculty want to do, not necessarily what administrators want them to do"
- Let community drive priorities rather than prescriptive top-down themes
- Allow initiatives to "organically arise from the activity of the faculty and student stakeholders"
- Self-definition encouraged: "We didn't want to define the One Health priorities so how can we define the One Health projects? We want people to self-define"

Selection Process Transparency:

- Clear explanation of how governing body members will be selected
- Community input in selection process
- Balance between appointed and elected positions
- Representation across different career stages, disciplines, and types of expertise

Coordination Not Control:

- Network should enable and facilitate, not direct or constrain
- "Be vigilant with respect to coordinating rather than creating another silo"
- Interface with existing structures and support systems without duplicating
- No competition for metrics or credit; publications can count for department AND network
- If faculty don't need to contact network, that's fine—it's there when useful

Support for Faculty Work:

- Committee members beyond leaders need support: "A lot of cmte folks would do a lot of work and only the leader would get 'paid' how will you support those people"
- Adequate staff and resources for those doing the work
- Recognition that this creates additional work—must provide commensurate support

The recommendation is to emphasize faculty-driven governance with transparent selection, diverse representation including social scientists and bioethicists, and clear mechanisms for community input throughout the initiative's evolution.

MAJOR THEME 7: RESOURCE CONCERNS AND SUSTAINABILITY

Fundamental questions about resources, sustainability, and financial realism permeated the feedback.

Resource Allocation Concerns:

- "If there are no resources for this, it will just produce more work for people away from their scholarship"
- "Uncertainty about whether new resources will be available or if existing resources will be redirected"
- "Discretionary resources WILL shrink in this time of uncertainty"
- "At a certain level that overhead is not going to flow to our college"
- Concerns about financial sustainability amid layoffs and federal funding cuts

Need for NEW Resources:

- "Not a question of redirecting existing resources..need new ones"
- Must be "exciting enough" to attract new funding
- Cannot be perceived as taking resources from existing programs
- Risk of creating competition rather than collaboration if resources are redirected

Funding Strategy Questions:

- Federal funding appears elusive (NIH center funding unlikely in near term)
- Training grants may be more feasible than center grants
- Need to pursue non-federal and smaller grants
- Importance of philanthropy and advancement partnerships
- Industry connections and partnerships (especially agriculture)
- Clinical partner seed grants (HFH, Corewell, Helen DeVos Children's Hospital)

Infrastructure Investment Needs:

- Resourcing large programs sustainably has been a challenge at MSU
- Institutes require supportive structure
- Investment in shared cores and facilities
- Expansion of capacity through strategic faculty hiring
- Balance between senior hires and cluster junior hires in theme areas

Work That "Falls Between" Traditional Programs:

- One Health work often doesn't fit neatly into traditional program areas
- "It's not a label that is attractive to funders"
- Overlap with existing programs (water, PFAS) creates unclear value proposition
- Need to communicate importance of cross-cutting work
- Work that isn't easily categorized needs dedicated support

Sustainability Mechanisms:

- "Build in metrics for success and use this for sunsetting programs—fail fast or succeed wonderfully"
- Regular evaluation of what's working
- Willingness to end programs that don't achieve goals
- Long-term sustainability needs require careful planning
- Avoid fate of past initiatives that "petered out"

Budget Redesign Context:

- University budget redesign underway—timing for consideration
- Need to understand how One Health fits into larger institutional financial planning
- Coordination with university advancement essential

Support Infrastructure Costs:

- Dedicated leadership position(s)
- Administrative and communication support
- Event and convening resources
- Pre-award and post-award research support staff
- Technology platform for connections and collaboration

The recommendation is to be transparent about resource needs, emphasize that new funding streams are required (not redirection), develop multiple revenue sources including advancement and industry partnerships, and build in evaluation mechanisms to ensure sustainability and demonstrate value.

MAJOR THEME 8: DEFINITION CLARITY AND MSU'S UNIQUE POSITIONING

Widespread confusion about One Health definition and MSU's distinctive approach emerged across sessions.

Definition Confusion:

- "What IS One Health? Is there an agreed definition driving the conversations?"
- "Is one health a MSU initiative or a national?"
- "There is confusion about what One Health means at MSU versus nationally"
- "There seems to be confusion on whether one health is an msu space"
- Perception that some disciplines are "in" (environmental toxicology) while others are "out" (translational science)

Need for Clear Communication:

- "Suggestion to create a one pager around campus to assure everyone is on the same page"
- Need examples across disciplines showing how diverse work fits
- Campus-wide communication campaign needed
- "Some level of definition required, but we want that definition to evolve"
- Balance between being inclusive ("everyone can fit") and having clear focus

Breadth of One Health:

- Beyond infectious diseases and zoonoses to include:
    - Noncommunicable chronic diseases (obesity, diabetes, hypertension)
    - Environmental contaminants and toxins
    - Mental health and neuropsychiatric conditions
    - Food systems and nutrition
    - Built environment
    - Climate change and health
    - Plant health and ecosystems
    - Soil health
    - Economic impacts and healthcare systems

MSU's Unique Strengths for Differentiation:

- Land-grant mission and Extension reach
- Agriculture-to-health pipeline
- Multiple medical colleges (CHM, COM) plus veterinary medicine
- Engineering integration (systems engineering for healthcare)
- Plants and environmental science expertise
- Rural-urban connections
- Implementation research and policy translation capacity
- AgBioResearch and research stations
- Participatory-based research scholarship
- Industry translation, especially in agriculture
- "Animals, crops, and agroecosystems in the agricultural and food production settings set us apart from UM"

Examples of MSU Distinctiveness:

- Precision agriculture connecting technology and production to health
- Soil health relationships to human and animal health
- Food as medicine program potential
- Regenerative agriculture approaches
- Water resources and PFAS research
- Great Lakes Megalopolis positioning (60M people, major breadbasket)
- International partnerships through African Studies Center and global programs

National Leadership Opportunity:

- "We could be a national thought leader in this space"
- Traditional One Health focus on zoonotic infections is too narrow
- "We are uniquely positioned to pull this all together"
- Well-aligned with emerging national One Health movements
- Opportunity to "redefine" One Health nationally

The recommendation is to develop clear, concise definition materials (including one-pager) that emphasize both inclusivity and MSU's unique strengths, with multiple examples showing how diverse disciplines contribute to One Health while differentiating MSU's approach from other institutions.

CROSS-CUTTING CONSIDERATIONS

Existing Infrastructure and Programs:

- "Much of the proposed work is already underway at MSU"
- Need to build on existing strengths rather than duplicate
- Examples: Water Alliance, PFAS Center, existing clinical partnerships
- Leverage established research institutes and centers
- Learn from past initiatives (both successes and failures)

Implementation and Translation:

- Strong emphasis on moving from research to policy to impact
- MSU's implementation research strengths should be highlighted
- Connection to Extension for community implementation
- Policy implications (e.g., pollinators, environmental protection)
- Translation into everyday applications

Timing and Context:

- Federal funding disruptions create challenges and opportunities
- "Inopportune time" concerns due to research portfolio disruptions
- Counterargument: "There is a lot of change happening. But we need to move forward"
- May be opportunity during reorganization to establish new structures

Interdisciplinary Culture:

- MSU recognized for strong interdisciplinary collaboration
- Need to break down remaining silos
- "As we've become more connected globally we are less connected locally"
- Opportunity to strengthen local collaborations while maintaining global reach
- Importance of evaluating collaboration effectiveness

Communication and Visibility:

- Need better communication of opportunities
- National visibility and thought leadership goals
- Industry connections through advancement
- "Streamlined front door" for collaborations, especially for junior faculty
- Limited current online presence for One Health at MSU

The key cross-cutting recommendation is to build on MSU's existing strengths and successful models while addressing identified gaps in definition clarity, resource allocation, and community engagement mechanisms.

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