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RESEARCH

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Future directions for Indigenous One Health: Presenting a conceptual Indigenous One Health model

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Abstract

Background: This article presents a conceptual Indigenous One Health model to assess health risks that sit at the One Health interface (across animal, human and environmental health) and implement holistic health approaches within Indigenous community settings. *Methods*: The model is informed by foundational research undertaken at international, national and community-levels that utilised Indigenist approaches, and involved conceptualising animal, human and environmental health considerations together in relation to Aboriginal and Torres Strait Islander health and wellbeing in Australia. *Results*: The conceptual Indigenous One Health model centres Indigenous cultures, values and knowledge associated with One Health in Indigenous communities and highlights structural needs and principles for implementation. *Conclusion*: This article discusses key considerations for the future directions of Indigenous One Health, which are required to move the Indigenous One Health research field forward and support health equity in Indigenous communities.

One Health impact statement

The concept of One Health is aligned with Indigenous views of health and wellbeing that consider holistic approaches to health and integrate cultural and community values. One Health has been highlighted as an effective approach to addressing current and emerging health risks, particularly in low-resourced settings. However, One Health methodologies have not been well integrated with Indigenous health fields, and despite the close alignment with Indigenous worldviews, enacting this approach across health fields to date has been limited. This article used foundational research that undertook research within Indigenous One Health, combining Indigenous research methodologies and One Health approaches, to assess multifaceted health risks within Aboriginal and Torres Strait Islander populations and inform preventative health. It presents a conceptual Indigenous One Health model and discusses key considerations for the future direction of Indigenous One Health research.

Keywords: One Health, Aboriginal and Torres Strait Islander, Indigenous, community, transdisciplinary, health and wellbeing

Introduction

One Health is promoted internationally to improve health and wellbeing outcomes, and is particularly relevant for low-resourced communities (One Health High-Level Expert Panel, 2022). The One Health concept aims to effectively and sustainably manage emerging health risks at the animal–human–environmental health interface, and by adopting transdisciplinary methods, it can support equitable, inclusive and sustainable health approaches (Zinsstag *et al*., 2023). Support for this concept continues to grow in response to emerging health risks such as zoonotic outbreaks, changing human behaviours and interactions with animals, and the predicted impacts of climate change. Although low-resourced communities have contributed the least to these global health concerns, they will likely be the most affected by the

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ensuing outcomes, with disproportionate health risks expected for Indigenous peoples (Standen *et al*., 2022). Therefore, enacting interdisciplinary approaches that work across animal, human and environmental health fields in Indigenous community settings to address health inequities is pertinent. Yet, to date, there has been limited engagement of Indigenous voices within the global One Health movement and a lack of One Health models that incorporate Indigenous perspectives (Blume, 2024).

In recent years, there has been growing evidence investigating the One Health concept with Indigenous populations internationally; however, there are still many gaps in understanding the implications and incorporating Indigenous knowledges with One Health approaches (Hillier *et al*., 2021). While it can be argued that the One Health concept aligns with Indigenous worldviews that have supported holistic approaches to health and wellbeing for generations, recognition of their continuing cultures is needed through the centring of Indigenous knowledges within One Health models (Bingham *et al*., 2025). Therefore, further investigation is required to ensure that One Health approaches within community settings are aligned with Indigenous priorities and values for effective implementation and partnerships (Pollowitz *et al*., 2024).

We undertook research, bringing together Indigenist research methodologies with One Health approaches, to develop a conceptual model for implementing One Health in Aboriginal and Torres Strait Islander communities in Australia, with implications for First Nations communities internationally.

Methods

To develop the conceptual Indigenous One Health model, we undertook foundational research that explored Indigenous One Health at international, national and local levels, and used Indigenist One Health research approaches (Riley *et al*., 2021, 2022, 2023a, 2023b). We then gathered the findings and recommendations from this research to inform the development of the Indigenous One Health model and associated measures. This research included a critical review, a scoping review, a data analysis, and a pilot epidemiological study as summarised below.

FOUNDATIONAL INDIGENOUS ONE HEALTH RESEARCH

To understand the extent of existing literature on this topic, we compiled an understanding founded on the evidence base regarding One Health's applicability to Indigenous populations worldwide through a critical review of One Health literature. This international critical review (Riley *et al*., 2021) discussed how One Health is appropriate and applicable in Indigenous communities because it adopts a holistic approach and aligns with Indigenous cultural beliefs about health. However, One Health studies that have focused on Indigenous communities worldwide are limited, and there are many research gaps. This review noted the need for research to be conducted in the context of Indigenous communities worldwide to further understand how One Health approaches can be applied in this setting. The involvement and leadership of Indigenous peoples in the research were also considered vital for ensuring the effectiveness and sustainability of outcomes, and the inclusion of the environmental health sector in future research requires additional consideration. Further, increased collaboration and communication between health disciplines that are facilitated by integrated frameworks is needed to truly enact and realise the benefits of One Health. This review recommended that an effective One Health model be developed for Indigenous communities that is Indigenous-led and transdisciplinary, so it can address community health priorities.

Due to the emerging risks of zoonotic diseases (disease that pass between animals and people), we undertook a scoping review (Riley *et al*., 2022) of existing national zoonoses studies in Australia to assess how zoonoses have contributed to Aboriginal and Torres Strait Islander health outcomes. According to the review, limited research has focused on zoonoses in Aboriginal and Torres Strait Islander populations and the existing research contains many gaps and limitations. Consequently, the full effects of zoonoses on Aboriginal and Torres Strait Islander health and wellbeing have yet to be understood. This review also found that studies have increased in the last 10 years that focus on zoonoses in relation to Aboriginal and Torres Strait Islander populations. However, these studies predominantly focused on only one of the three sectors considered in One Health (animal, human and environmental health); no studies focused on all three, and limited studies focused on multidisciplinary collaborations. A lack of Indigenous engagement and leadership was also observed in the evidence base and the research highlighted the need for Indigenous research methodologies to be incorporated into One Health research practice. This review found that despite the strong conceptual foundations of One Health, evidence is lacking in relation to how this concept is applied to the Indigenous population of Australia in relation to zoonoses. More evidence pertaining to zoonoses through Indigenous-led research – inclusive of Indigenous knowledges – and transdisciplinary approaches is required to understand the impacts of zoonoses, improve awareness and preparedness, and identify priorities to inform effective disease management.

To build on the findings from the scoping review, we further explored the impact of zoonoses on Aboriginal and Torres Strait Islander populations through a national data analysis (Riley *et al*., 2023b). This analysis discussed the need for research, programs and policies that focus on zoonoses through a One Health approach, which prioritise Aboriginal and Torres Strait Islander leadership and incorporate multiple health sectors. The Quadripartite Alliance (including the WHO, OIE, FAO, and UNEP) has supported the notion of national, integrated One Health systems worldwide to benefit disease management and preparedness (Food and Agriculture Organization of the United Nations *et al*., 2022). However, Australian health systems do not currently support this approach and more structured integration between health sectors for effective zoonoses management is needed. With the recently established Australian Centre for Disease Control the current system may be challenged to further support One Health; however, it is yet to be seen how Indigenous approaches will be incorporated to further Indigenous health and wellbeing (Australian Government Department of Health and Aged Care, 2022). Aboriginal and Torres Strait Islander leadership and engagement should be fostered in research, policy and program areas to ensure that Australia's zoonotic disease management is effective and appropriate. This research has highlighted the areas of concern that include high percentages of zoonotic notifications in certain demographic groups and geographical regions. These factors should be considered in the prevention and control of zoonoses to further address the higher risk of disease in Aboriginal and Torres Strait Islander populations.

At a community level, we used an epidemiological study that developed and piloted a One Health data collection and analysis framework with Aboriginal and Torres Strait Islander communities to assess health risks that exist at the One Health interface and inform preventative health. The community One Health pilot study (Riley *et al*., 2023a) investigated One Health at a household level in three Aboriginal and Torres Strait Islander communities. Notably, this study was the first to design and implement a One Health data collection and analysis framework – including animal, human, and environmental health indicators – at community level. The findings revealed that while the interconnected relationships between animal, human and environmental health are well acknowledged, further work is needed to assess the appropriateness and understanding of the One Health concept. The households also identified the need for education programs regarding animal ownership, ongoing access to medicines and veterinary care, and improved environmental health management at a household level. Sustainable resourcing and trained workforces are required at a local level to address these concerns, in addition to policy support. Because of the multifaceted needs that were expressed in these communities, One Health approaches will likely be effective in this setting; however, community leadership and involvement throughout the process are required to adopt a transdisciplinary approach and allow the incorporation

of community-specific contexts and priorities. Although the pilot study helped improve understanding and was positively received, additional phases are required including further development and implementation of the One Health data collection and analysis framework.

Results

The key findings and recommendations from this research were analysed to develop a conceptual Indigenous One Health model that considers community, national and international priorities for Indigenous One Health. The model is framed by the Indigenous cultures, values and knowledge that influence health and wellbeing factors, and the community aspects focused on health risks related to companion animals within communities, mainly cats and dogs. The core model demonstrates the animal, human and environmental health factors highlighted through the study findings that affect health in communities, and the intersections between these sectors should be considered (see Fig. 1). Further, structural needs are highlighted to enact change and support One Health implementation to address the animal–human–environmental health factors, and the model's overarching principles strengthen this approach by highlighting key considerations through research, governance, policy and program delivery for working within Indigenous One Health. The short-term, medium-term and long-term outcomes are highlighted to observe the ongoing impacts to health outcomes, and iterative reviews should be considered to refine processes.

A One Health data collection and analysis framework was used to measure a range of animal, human and environmental health indicators in Aboriginal and Torres Strait Islander households (Riley *et al*., 2023a), and the key findings to inform operationalisation of Indigenous One Health are represented in the blue circles in Fig. 1.

The structural needs were informed by global and national studies on Indigenous One Health and disease management (Riley *et al*., 2021, 2022, 2023b), and include recommendations for research, policy, health systems and workforces at the local, national and international levels to support One Health approaches. The overarching principles include key considerations that were derived from enacting One Health approaches in this context – which include levels of leadership and collaborations, recognition of Indigenous approaches and knowledges, and acknowledgement of the continuing impacts of the changing environment.

Assessing One Health factors across animal, human and environmental health in community settings required the development of One Health indicators to analyse and assess multiple health sectors within households (Stephen *et al*., 2023). The One Health data collection and analysis framework accomplished this by assessing a range of animal, human and environmental health indicators, and developing a One Health database and analytical methods. This also included the development of a composite One Health index to measure and assess household One Health and analyse relationships between all three sectors (see Supplementary Material) (Organisation for Economic Co-operation and Development and Joint Research Centre-European Commission, 2008). Multiple domain Indicators can be used to design a composite index founded on an underlying model. A composite index can also be used to measure a multidimensional concept, such as One Health, rather than measuring indicators for each sector separately (i.e., animal, human and environmental health) (Organisation for Economic Co-operation and Development and Joint Research Centre-European Commission, 2008).

While this data framework and indices were developed for the pilot study, they require further development and refinement with Indigenous knowledge holders through further workshopping and

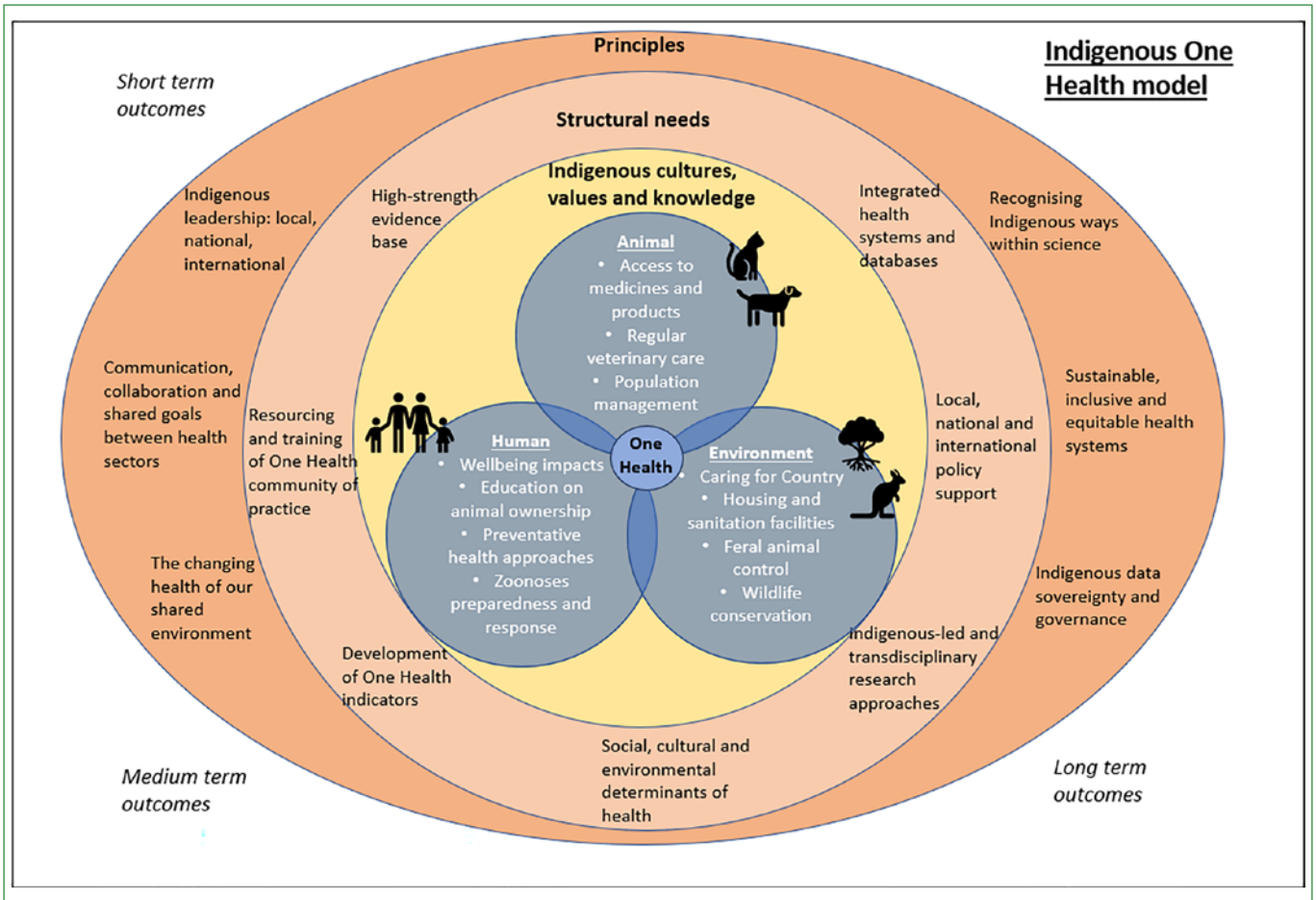

Fig. 1. Conceptual Indigenous One Health model.

implementation of the framework, increased contribution from the environmental health sector, and an improved understanding of the indicators that exist across health sectors. Additionally, implementation of the composite index is required as we were unable to implement the composite index in the pilot study due to limited data across the One Health indicators.

Discussion

ONE HEALTH RESEARCH

The Indigenous One Health model features the principles, structural needs and community priorities that were highlighted through the foundational research and contributes to discussions on the future direction of Indigenous One Health, with a focus on Aboriginal and Torres Strait Islander communities. International One Health literature contains many large research gaps; however, after the initial and acute phase of the COVID-19 pandemic (2020–2021), peer-reviewed literature focusing on One Health increased by over 130%, making this field a rapidly growing area of research (de Castañeda *et al*., 2023). Yet, environmental health – including healthy home and living factors and the health of ecosystems comprising the physical environment, plants, wildlife and invertebrates – is commonly underrepresented. Further, there is a need to incorporate the social sciences to include sociocultural factors and environmental determinants of health (including the effects of human behaviours on animal and environmental health outcomes). These factors could improve understanding of zoonoses risk and inform disease prevention and management within Indigenous communities (Saylors *et al*., 2021). Adapting One Health methodological approaches, and incorporating Indigenist approaches, is likely to be more effective in incorporating these factors and supporting holistic approaches to health. Community environmental health risks need further investigation, including the effects of domestic animals and human behaviour on wildlife populations, and consideration of livelihoods reliant on the environment, such as foraging and hunting practices (Kennedy *et al*., 2020). The model considers this through the inclusion of environmental health factors; however, this area requires further development.

In conducting One Health research, epidemiological approaches are recommended to understand and address multifaceted health risks. The checklist for One Health epidemiological reporting of evidence (COHERE) provides a framework through which One Health research can be assessed using epidemiological approaches. However, the relevance of this checklist to Indigenous populations has yet to be investigated and validated (Davis *et al*., 2017). This aligns with the findings from the foundational research that highlighted a lack of Indigenous engagement and leadership in the One Health research field and evidence base. This was also found in a review of One Health in Canadian Indigenous communities that concluded that no connection between the One Health concept and Indigenous knowledges has been established, and the implications of implementing One Health within Indigenous communities have not yet been addressed (Hillier *et al*., 2021). However, examples of these fields collaborating through research have been observed; for example in Canada where Indigenous-led research is helping to bring together Indigenous knowledge and academic research approaches to support wildlife populations and conservation (Kutz and Tomaselli, 2019). Although similar examples exist, significant progress has yet to be made in terms of acknowledging and addressing these gaps and combining One Health and Indigenous health fields.

As One Health is applicable to health challenges other than infectious diseases, it requires further consideration of how to incorporate the concept with Indigenous health research, particularly given the greater burden of chronic diseases in Aboriginal and Torres Strait Islander populations (de Castañeda *et al*., 2023). One Health research requires a shift away from an anthropocentric focus to equally consider animal and environmental health factors. This holistic approach should support a balanced collaboration between health sectors and align with Indigenous worldviews. For example, biodiversity and healthy wildlife are important for maintaining the health of the environment and communities that live closely with animals. A shift towards research that considers the equity and health of all species and their shared environment is an important consideration to improve understanding of declining biodiversity and endangered wildlife populations (Stephen *et al*., 2023).

ONE HEALTH COMMUNITY OF PRACTICE

To support Indigenous One Health, a One Health community of practice bringing together researchers, health professionals, community members and policy makers from multiple health sectors would be useful to create a network committed to working holistically and achieving health equity. However, a discussion regarding the equity of sectors and differing holistic approaches (such as Planetary Health and Ecohealth) may be needed to ensure shared goals and priorities. Additionally, transdisciplinary approaches that involve relevant stakeholders and bring together different knowledge systems and experiences to operationalise One Health are needed (One Health High-Level Expert Panel, 2022). In community settings, it is beneficial to consider community-specific priorities, as well as needs-based approaches, that transdisciplinary methods support prompting more effective and sustainable change (Allen-Scott *et al*., 2015). Indigenous leadership, knowledge, and research methodologies must also be equally recognised to effectively inform programs and support One Health approaches in Indigenous communities.

A gap is observed in terms of acknowledging the historical mismanagement of animal health care in communities, and similarly with the management of human health care and environmental management. Therefore, building One Health approaches that are supported, led and trusted by community leaders and animal owners is vital to culturally appropriate program delivery and sustainable outcomes (Fraser-Celin and Rock, 2022). To accomplish this, ongoing support is required to build relationships and support the local workforce (including Environmental and Animal Health workers) in helping with day-to-day animal and environmental health management. There are some examples of this occurring, for instance, through a community animal health and management program in remote North Australia, which was supported by the Indigenous Local Government Authority and Animal Management in Rural and Remote Indigenous Communities (AMRRIC) (Riley *et al*., 2020). This program was informed and led by the community and saw significant improvements to animal health and welfare, with positive responses from local animal owners.

To train researchers and health practitioners in transdisciplinary approaches, institutions should focus on creating environments for One Health research programs, develop structures for interdisciplinary research, and present realistic examples that deconstruct silos and allow collaboration across disciplines (Allen-Scott *et al*., 2015). Enhancing skills and resources to exchange knowledge in the One Health field is also needed to translate the concept into local terms and language, and improve communication of findings and recommendations between researchers, policy makers, health practitioners and community members. This includes improving collaborations by breaking down silos and addressing the challenges of different languages and concepts used across disciplines to ensure correct messaging and responses. However, sustainable resourcing is required to assist the workforce to support, develop and implement One Health approaches for the benefit of communities.

International One Health networks and opportunities are currently inequitably spread, with most leading networks founded in the global North (mainly Europe), and stakeholders in other countries disconnected from these networks and commonly lacking diversity (Mwatondo *et al*., 2023). Given the global north focus, the resourcing for collaborative One Health research has been centred there and is

associated with international governments, institutions and leading health organisations (Mwatondo *et al*., 2023). Considering the limited inclusion of the global south, under-resourced populations, and Indigenous voices, there is an opportunity to build One Health networks with Indigenous representatives in Australia and internationally, to support Indigenous leadership and perspectives in the global One Health movement and recognise the Traditional knowledges that align with this work (Mwatondo *et al*., 2023).

INTEGRATED HEALTH SYSTEMS

When considering integrated health systems, we focused on the management of zoonotic diseases as they are a multifaceted health risk. One Health approaches for managing disease in Australia require integrated health systems with improved coordination, collaboration, and communication between sectors, and shared responsibilities and data management (Steele *et al*., 2022). These improvements could foster early and timely responses to zoonotic outbreaks and reverse zoonosis, as well as support the cost-effective delivery of health services; however, enacting this approach requires overcoming challenges. For example, the terminology between sectors regarding zoonoses is inconsistent, highlighting the need for training and awareness of practitioners to understand and respond to zoonoses through a collaborative approach that is shared across health sectors (Shapiro *et al*., 2021; Steele *et al*., 2021, 2022).

Current limitations of Australia's health system when addressing multifaceted health risks include a lack of comparable data and integration across health sectors, hindering One Health analyses and subsequent responses (Johnson *et al*., 2018). To better address the health risks faced by Aboriginal and Torres Strait Islander communities, including the risk of zoonotic disease, it requires deconstructing current silos and improving collaboration between levels of leadership in and outside the government, including federal, state and local levels, as well as improved governance structures (Johnson *et al*., 2018).

Further, research has called for priorities that place human and animal health workforces 'on the same page' in terms of priority zoonoses, language and communication structures, and disease management (Steele *et al*., 2018). To meet this demand, future research should focus on understanding the impacts of zoonoses and the associated community priorities for Aboriginal and Torres Strait Islander populations. Using a holistic approach to inform zoonotic disease management is likely to be more effective than employing siloed approaches. Also, resourced programs that are informed by Indigenous organisations at local and national levels are needed to enhance the surveillance, control and prevention of zoonoses (Ghai *et al*., 2022). Australia's newly established Centre for Disease Control may contribute to addressing these gaps, given that it is employing a One Health approach and promoting integrated disease management (Australian Government Department of Health and Aged Care, 2022). However, as this centre is in its initial phases, it is yet to be seen how a One Health approach and Indigenous governance structures will be integrated (Steele *et al*., 2022).

INDIGENOUS-LED GOVERNANCE, POLICY AND PROGRAMS

The Indigenous Data Sovereignty principles (Walter and Suina, 2019) are a further consideration for Indigenous One Health. Future One Health research with Indigenous communities should actively consider how Indigenous Data Sovereignty is enacted and incorporated into a One Health framework. Discussions are still emergent about how Indigenous Data Sovereignty can be applied to environmental and animal health data; however, there are some examples such as the incorporation of Indigenous knowledge to inform responses to climate change and associated health risks (Williamson *et al*., 2022). Further, associated policies should be assessed to determine their relation to One Health as well as their applicability to Indigenous populations. For example, the Sustainable Development Goals (SDGs) are supported internationally and they strive to address inequitable health outcomes (including human health and environmental factors) with a focus on low-resourced communities (Yap and Watene, 2019; Schultz, 2020). Animal health and management has also been linked to the SDGs, with a call for the inclusion of dog population management indicators within the SDGs (Keeling *et al*., 2019).

Consistent policies, programs and resources that support environmental health management and animal health care are needed to reinforce preventive health approaches in communities that foster shared goals between sectors. Australia can learn from international examples of One Health policy and program implementation, which can improve health outcomes and responses to health risks. For example, the relevance of One Health to community health outcomes in Canada has been acknowledged through the incorporation of First Nations views and priorities in policy, research and programs (Dhillon *et al*., 2016; Kutz and Tomaselli, 2019; Mubareka *et al*., 2023). While there are some examples of community-led One Health research in Australia, there are limited examples of Indigenist approaches informing and driving policy, despite the benefits of combining Indigenous knowledge and research to achieve informed, timely and effective decision-making (Kutz and Tomaselli, 2019).

Research has demonstrated the benefits of delivering animal health care programs to communities that face barriers in accessing animal health care, with significant improvements to animal health and welfare outcomes; however, additional One Health indicators are needed to assess how these programs impact on human and environmental health (Ma *et al*., 2020; Riley *et al*., 2020; Baker *et al*., 2021). Current examples may be adapted to address this, such as the International Companion Animal Management coalition's monitoring and evaluation guidelines that include indicators for assessing the public health impact of animal health programs (International Companion Animal Management Coalition, 2015). To address the barriers that hinder health care access for people and animals in communities, policies and programs that provide ongoing and sustainable funding and resourcing are needed. To address health inequities, healthcare should be accessible and inclusive, as stated in the United Nations Declaration on the Rights of Indigenous Peoples highlighting that community health approaches should be driven by Indigenous leadership and founded on community priorities to see effective and sustainable benefits (UN General Assembly, 2007).

EDUCATION AND EVALUATION

Awareness and education of health risks related to One Health should be supported in communities to inform preventative health and enable effective disease management and health responses. This may be accomplished by following Indigenist approaches that prioritise community priorities and incorporate Indigenous worldviews, through to improving knowledge exchange practices between researchers and community organisations. Translation between researchers and policy makers is also important to motivate policy makers to invest in and support community One Health approaches (Humboldt-Dachroeden, 2023). Establishing interdisciplinary networks at the local, national and international levels will assist in building relationships and finding common goals and approaches to improve the translation of research into policy (Humboldt-Dachroeden, 2023). As previously highlighted, these approaches should be adopted in research fields to subsequently support research-informed policy and programs.

Although limited published examples exist of One Health policies and programs being supported and implemented in Aboriginal and Torres Strait Islander communities, work in this field will continue developing and therefore, the monitoring and evaluation of One Health models should be considered. There are existing

guidelines to evaluate international One Health approaches, such as those created by the Network for Evaluation of One Health. However, the applicability of these guidelines to the Indigenous community context has not yet been investigated (Rüegg *et al*., 2018). The Indigenous One Health model presented in this article, including the data framework and composite index, was developed through an Indigenist approach and can be used as a monitoring and evaluation tool to analyse the effectiveness of One Health approaches and inform holistic frameworks, policies and programs.

CONCLUSION

This article presents a conceptual Indigenous One Health model that was developed using Indigenist One Health research exploring how One Health can be implemented with Indigenous communities. Given the changing environment and increasing number of emerging health risks at the animal–human–environment interface, the One Health concept is considered an effective method for addressing health risks, especially in low-resourced settings. The article further highlights that significant work is required to effectively bring together Indigenist research methodologies and One Health approaches, and inform the implementation of One Health in Indigenous communities. To successfully understand the implications, future research that takes Indigenous-led, transdisciplinary approaches that deconstruct the barriers between health sectors and support effective collaborations is needed. This includes supporting Indigenous One Health research and strengthening integrated health systems at local, national and international levels to integrate animal, environmental and Indigenous health sectors and enhance health and wellbeing outcomes.

CONFLICT OF INTEREST

Authors declare no conflict of interest.

ETHICS STATEMENT

Ethics for the mentioned research was provided by the Australian Institute of Aboriginal and Torres Strait Islander Studies (AIATSIS) Research Ethics Committee (EO243-20210406).

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AUTHORS' CONTRIBUTION

TR, AM, NA, BC, JT and RL contributed in conceptualisation; TR and RL contributed in data curation (not applicable), formal analysis (not applicable), funding acquisition, project administration, resources and writing – review & editing; TR, AM, NA, BC, JT and RL contributed in investigation (not applicable) and methodology; TR, BC and RL contributed in software; AM, NA, BC, JT and RL contributed in supervision; and TR contributed in validation (not applicable), visualization and writing – original draft.

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DATA AVAILABILITY

Data sharing not applicable – no new data generated.

SUPPLEMENTARY MATERIAL

The supplementary material is available in the online version of this article.

References

Allen-Scott, L.K., Buntain, B., Hatfield, J.M., Meisser, A. and Thomas, C.J. (2015) Academic institutions and One Health: Building capacity for transdisciplinary research approaches to address complex health issues at the animal–human–ecosystem interface. *Academic Medicine* 90(7), 866. DOI: 10.1097/ACM.0000000000000639.

Australian Government Department of Health and Aged Care (2022) Role and functions of an Australian Centre for Disease Control: Prevention-promotion-protection. In: *Consultation Paper – November 2022*. Department of Health and Aged Care, Canberra, ACT.

Baker, T., Rock, M., Bondo, K., van der Meer, F. and Kutz, S. (2021) 11 years of regular access to subsidized veterinary services is associated with improved dog health and welfare in remote northern communities. *Preventive Veterinary Medicine* 196, 105471. DOI: 10.1016/j.prevetmed.2021.105471.

Bingham, B., Redvers, N., Hillier, S. and Riley, T. (2025) Indigenous knowledges, One Health, and planetary health: Building bridges for the response to climate change. In: *Planetary Health-Laws, Policies and Science on the 'One Health' Approach*. Springer, Cham, pp. 151–179.

Blume, A.W. (2024) One Health models are lacking an Indigenous perspective. *BMJ* 386. DOI: 10.1136/bmj.q2015.

Davis, M.F., Rankin, S.C., Schurer, J.M., Cole, S., Conti, L. *et al.* (2017) Checklist for One Health epidemiological reporting of evidence (COHERE). *One Health* 4, 14–21. DOI: 10.1016/j.onehlt.2017.07.001.

de Castañeda, R.R., Villers, J., Guzmán, C.A.F., Eslanloo, T., de Paula, N. *et al.* (2023) One Health and planetary health research: Leveraging differences to grow together. *The Lancet Planetary Health* 7(2), e109–e111. DOI: 10.1016/S2542-5196(23)00002-5.

Dhillon, J., Favel, D., Delorme, D., Ratt, A. and Epp, T. (2016) Finding pathways for bite prevention and decreasing dog populations: The process of animal control for Indigenous communities in Canada. *Journal of Indigenous Wellbeing* 1(2), 82–92.

Food and Agriculture Organization of the United Nations, United Nations Environment Programme, World Health Organization and World Organisation for Animal Health (2022) *One Health Joint Plan of Action (2022–2026): Working Together for the Health of Humans, Animals, Plants and the Environment*. Food and Agriculture Organization of the United Nations, United Nations Environment Programme, World Health Organization, World Organisation for Animal Health, Rome, Italy.

Fraser-Celin, V.-L. and Rock, M.J. (2022) One Health and reconciliation: Media portrayals of dogs and Indigenous communities in Canada. *Health Promotion International* 37(2), daab110. DOI: 10.1093/heapro/daab110.

Ghai, R.R., Wallace, R.M., Kile, J.C., Shoemaker, T.R., Vieira, A.R. *et al.* (2022) A generalizable One Health framework for the control of zoonotic diseases. *Scientific Reports* 12(1), 1–11. DOI: 10.1038/s41598-022-12619-1.

Hillier, S.A., Taleb, A., Chaccour, E. and Aenishaenslin, C. (2021) Examining the concept of One Health for Indigenous communities: A systematic review. *One Health* 12, 100248. DOI: 10.1016/j.onehlt.2021.100248.

Humboldt-Dachroeden, S. (2023) Translating One Health knowledge across different institutional and political contexts in Europe. *One Health Outlook* 5(1), 11. DOI: 10.1186/s42522-022-00074-x.

International Companion Animal Management Coalition (2015) *Are We Making a Difference? A Guide to Monitoring and Evaluating Dog Population Management Interventions 2015*. International Companion Animal Management Coalition, UK.

Johnson, I., Hansen, A. and Bi, P. (2018) The challenges of implementing an integrated One Health surveillance system in Australia. *Zoonoses and Public Health* 65(1), 229–236. DOI: 10.1111/zph.12433.

Keeling, L., Tunón, H., Olmos Antillón, G., Berg, C., Jones, M. *et al.* (2019) Animal welfare and the United Nations sustainable development goals. *Frontiers in Veterinary Science* 6, 336. DOI: 10.3389/fvets.2019.00336.

Kennedy, B., Cumming, B. and Brown, W.Y. (2020) Global strategies for population management of domestic cats (Felis catus): A systematic review to inform best practice management for remote Indigenous communities in Australia. *Animals* 10(4), 663. DOI: 10.3390/ani10040663.

Kutz, S. and Tomaselli, M. (2019) "Two-eyed seeing" supports wildlife health. *Science* 364(6446), 1135–1137. DOI: 10.1126/science.aau6170.

Ma, G.C., Withers, A.-M., Spencer, J., Norris, J.M. and Ward, M.P. (2020) Evaluation of a dog population management intervention: Measuring indicators of impact. *Animals* 10(6), 1061–1078. DOI: 10.3390/ani10061061.

Mubareka, S., Amuasi, J., Banerjee, A., Carabin, H., Copper Jack, J. *et al.* (2023) Strengthening a One Health approach to emerging zoonoses. *Facets* 8, 1–64. DOI: 10.1139/facets-2021-0190.

Mwatondo, A., Rahman-Shepherd, A., Hollmann, L., Chiossi, S., Maina, J. *et al.* (2023) A global analysis of One Health networks and the proliferation of One Health collaborations. *The Lancet* 401(10376), 605–616. DOI: 10.1016/S0140-6736(22)01596-3.

One Health High-Level Expert Panel (2022) One Health: A new definition for a sustainable and healthy future. *PLoS Pathogens* 18(6). DOI: 10.1371/journal.ppat.1010537.

Organisation for Economic Co-operation and Development and Joint Research Centre-European Commission (2008) *Handbook on Constructing Composite Indicators: Methodology and User Guide*. OECD Publishing, Paris.

Pollowitz, M., Allick, C., Campbell, K.B., Ellison, N.K., Perez-Aguilar, G. *et al.* (2024) One Health, many perspectives: Exploring Indigenous and western epistemologies. *CABI One Health* 3(1), 0015. DOI: 10.1079/cabionehealth.2024.0015.

Riley, T., Anderson, N.E., Lovett, R., Meredith, A., Cumming, B. *et al.* (2021) One Health in Indigenous communities: A critical review of the evidence. *International Journal of Environmental Research and Public Health* 18(21), 11303. DOI: 10.3390/ijerph182111303.

Riley, T., Anderson, N.E., Lovett, R., Meredith, A. and Cumming, B. (2022) Zoonoses and the Aboriginal and Torres Strait Islander population: A One Health scoping review. *PLoS Global Public Health* 2(10), e0000921. DOI: 10.1371/journal.pgph.0000921.

Riley, T., Cumming, B., Thandrayen, J., Meredith, A., Anderson, N.E. *et al.* (2023a) One Health and Australian Aboriginal and Torres Strait Islander communities: A One Health pilot study. *International Journal of Environmental Research and Public Health* 20(14), 6416. DOI: 10.3390/ijerph20146416.

Riley, T., Lovett, R., Cumming, B., Meredith, A., Anderson, N.E. *et al.* (2023b) Data analysis of zoonoses notifications in Aboriginal and Torres Strait Islander populations in Australia 1996–2021: Implications for One Health. *Frontiers in Public Health* 11, 1175835. DOI: 10.3389/fpubh.2023.1175835.

Riley, T., Lovett, R., Thandrayen, J., Cumming, B. and Thurber, K.A. (2020) Evaluating impacts of a One Health approach to companion animal health and management in a remote Aboriginal community in the Northern Territory, Australia. *Animals* 10(10), 1790. DOI: 10.3390/ani10101790.

Rüegg, S.R., Nielsen, L.R., Buttigieg, S.C., Santa, M., Aragrande, M. *et al.* (2018) A systems approach to evaluate One Health initiatives. *Frontiers in Veterinary Science* 5, 23. DOI: 10.3389/fvets.2018.00023.

Saylors, K., Wolking, D.J., Hagan, E., Martinez, S., Francisco, L. *et al.* (2021) Socializing One Health: An innovative strategy to investigate social and behavioral risks of emerging viral threats. *One Health Outlook* 3(1), 11. DOI: 10.1186/s42522-021-00036-9.

Schultz, R. (2020) Closing the gap and the sustainable development goals: Listening to Aboriginal and Torres Strait Islander people. *Australian and New Zealand Journal of Public Health* 44(1), 11–13. DOI: 10.1111/1753-6405.12958.

Shapiro, J.T., Víquez-R, L., Leopardi, S., Vicente-Santos, A., Mendenhall, I.H. *et al.* (2021) Setting the terms for zoonotic diseases: Effective communication for research, conservation, and public policy. *Viruses* 13(7), 1356. DOI: 10.3390/v13071356.

Standen, J.C., Spencer, J., Lee, G.W., Van Buskirk, J., Matthews, V. *et al.* (2022) Aboriginal population and climate change in Australia: Implications for health and adaptation planning. *International Journal of Environmental Research and Public Health* 19(12), 7502. DOI: 10.3390/ijerph19127502.

Steele, S.G., Booy, R., Manocha, R., Mor, S.M. and Toribio, J.A. (2021) Towards One Health clinical management of zoonoses: A parallel survey of Australian general medical practitioners and veterinarians. *Zoonoses and Public Health* 68(2), 88–102. DOI: 10.1111/zph.12799.

Steele, S.G., Booy, R. and Mor, S.M. (2018) Establishing research priorities to improve the One Health efficacy of Australian general practitioners and veterinarians with regard to zoonoses: A modified Delphi survey. *One Health* 6, 7–15. DOI: 10.1016/j.onehlt.2018.08.001.

Steele, S.G., Toribio, J.A.L. and Mor, S.M. (2022) A vision of a One Health system for Australia: On the need to rethink our health system. *The Medical Journal of Australia* 217(9), 459. DOI: 10.5694/mja2.51733.

Stephen, C., Wilcox, A., Sine, S. and Provencher, J. (2023) A reimagined One Health framework for wildlife conservation. *Research Directions: One Health* 1(e12), 1–6. DOI: 10.1017/one.2023.2.

United Nations Office of the High Commissioner for Human Rights (2007) United Nations declaration on the rights of Indigenous peoples. United Nations. Available at: https://www.ohchr.org/en/indigenous-peoples/un-declaration-rights-indigenous-peoples.

Walter, M. and Suina, M. (2019) Indigenous data, Indigenous methodologies and Indigenous data sovereignty. *International Journal of Social Research Methodology* 22(3), 233–243. DOI: 10.1080/13645579.2018.1531228.

Williamson, B., Provost, S. and Price, C. (2022) Operationalising Indigenous data sovereignty in environmental research and governance. *Environment and Planning F:Philosophy, Theory, Models, Methods and Practice* 2(1-2), 281–304. DOI: 10.1177/26349825221125496.

Yap, M.L.-M. and Watene, K. (2019) The sustainable development goals (SDGs) and Indigenous peoples: Another missed opportunity? *Journal of Human Development and Capabilities* 20(4), 451–467. DOI: 10.1080/19452829.2019.1574725.

Zinsstag, J., Kaiser-Grolimund, A., Heitz-Tokpa, K., Sreedharan, R., Lubroth, J. *et al.* (2023) Advancing one human–animal–environment health for global health security: What does the evidence say? *The Lancet* 401, 591–604. DOI: 10.1016/S0140-6736(22)01595-1.