

Submission by the Australian Nursing and Midwifery Federation

ANMF Submission to the Select Committee on Adopting Artificial Intelligence (AI)

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**Australian
Nursing &
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Australian Nursing and Midwifery Federation / ANMF Submission to the Select Committee on Adopting Artificial Intelligence

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Introduction

1. The Australian Nursing and Midwifery Federation (ANMF) is Australia's largest national union and professional nursing and midwifery organisation. In collaboration with the ANMF's eight state and territory branches, we represent the professional, industrial and political interests of more than 326,000 nurses, midwives and care-workers across the country.
2. Our members work in the public and private health, aged care and disability sectors across a wide variety of urban, rural and remote locations. We work with them to improve their ability to deliver safe and best practice care in each and every one of these settings, fulfil their professional goals and achieve a healthy work/life balance.
3. Our strong and growing membership and integrated role as both a trade union and professional organisation provides us with a complete understanding of all aspects of the nursing and midwifery professions and see us uniquely placed to defend and advance our professions.
4. Through our work with members, we aim to strengthen the contribution of nursing and midwifery to improving Australia's health and aged care systems, and the health of our national and global communities.
5. The ANMF thanks the Select Committee on Adopting Artificial Intelligence (AI) for the opportunity to provide feedback on the wider adoption of AI technologies.
6. The ANMF submission relates primarily to the use of AI in the healthcare sector and education of future healthcare staff, with a particular focus on the healthcare workforce.



Background

8. The ANMF acknowledges that AI is already widespread across industry, government, and science, and recognises the potential for benefit with the judicious expanded development and adoption of AI technologies. Artificial intelligence is a groundbreaking innovation that has the potential to truly revolutionise and benefit the way many industries operate, including healthcare. This wider adoption, as with all new technologies and innovations, however, is extremely complex. These complexities, if not properly planned for and addressed, have the potential to cause substantial harm.
9. The ANMF highlights that the adoption of AI technologies must be accompanied by thorough safeguarding measures that ensure systems are designed and maintained to rigorous national and international standards. Such safeguards should be developed in consultation with consumers, industry, peak bodies, and other key stakeholders.

Risks and opportunities in the development and adoption of AI technologies:

Education

10. The potential for benefit as well as harm in the development and adoption of AI technologies, particularly generative AI, in the education sector as it relates to the training of nurses and midwives is a key concern of the ANMF. The use of AI in education and training will directly influence the preparation of the current and future nursing and midwifery workforce, thus it influences professional practice and workforce safety as well as the safety, health, and wellbeing of the wider public.
11. The emergence and penetration of generative AI into the education sector presents a transformative opportunity, albeit one accompanied by manifold complexities.¹ Debates regarding its role, ethical considerations, and the varying technological preparedness of jurisdictions and education institutions create a multifaceted landscape of both potential



benefits and hurdles. These complexities and possible challenges and opportunities will influence the way that the future healthcare workforce - including nurses, midwives, and carers – will be educated and trained.

12. Careful consideration must be given to how AI influences education experiences, outcomes, and workforce preparedness for every industry. This is particularly important for healthcare; a high-stakes sector where the lives, health, and wellbeing of every Australian are in some way impacted.
13. Wherever AI is used, from applications in prenatal genetic testing to inform clinician and consumer decision-making to how a nurse provides bedside care to an older person reaching the end of their life having used AI during their studies, it will be an influential factor, and thus, will have an impact on the nature of all healthcare planning, delivery, experiences, and outcomes.
14. This is not just an issue for clinicians training in Australia. As the Australian workforce is, and will continue to be, culturally diverse, our future healthcare workforce will include individuals who have been educated either partially or completely in overseas jurisdictions. The international adoption and integration of AI into education and training and the policies that govern this are therefore of interest too. While this is not governed by Australia, this highlights the need for Australia to be involved in international opportunities and conversations regarding AI as well as the development of international standards.
15. As every clinician will in some ways soon have contact with some form of AI technology, either in the workplace, during their education, or both, understanding and considering how AI and healthcare worker training intersect and could be impacted will be vital to ensuring the best possible future for Australia's health and wellbeing.
16. Already, there is a divergence of perspectives on the impact of generative AI in education. Generative AI can be both a useful and promising tool for personalised



learning and enhanced educational attainment, but it can also be misused, particularly in assessments. The concerns that generative AI may be overly relied on by students or misused for dishonest writing in assignments or cheating on tests are underpinned by potential knock-on effects on learning experiences, outcomes, and work readiness of future clinicians. This, in turn, has implications for the safety, effectiveness, and appropriateness of care.

17. Despite these concerns, AI also offers great potential in classrooms where educators could improve and enrich teaching and learning through ethical, careful, and high-quality integration of technology into lesson planning and the development of engaging learning activities.
18. As regions, jurisdictions, and education providers possess diverse levels of technological readiness and access, we face a considerable challenge around harmonising policies, infrastructure, and educator training to ensure responsible and equitable integration and monitoring of generative AI in the education sector. As AI is largely trained on particular datasets (e.g., where an AI technology is based largely on data generated by Western countries), biases and therefore potential discrimination can arise which poses challenges and risks for integration into education.
19. Another concern is equitable access to resources where inequity could lead to some communities having access to more advanced or reliable technologies than others leading to discrepancies in education preparation, attainment, and outcomes.
20. National and institutional initiatives, informed by frameworks like UNESCO's AI Competency Frameworks, highlight the importance of comprehending both the potential and limitations of AI.¹ As stakeholders around the world navigate the transformative shift of the emergence of AI in education and beyond, fostering a culture of responsible AI use becomes paramount. This will help to ensure that educators and students can effectively navigate the evolving educational landscape, while simultaneously cultivating critical thinking, adaptability, and ethical awareness which will continue to be vital for the future



healthcare workforce.

21. To be prepared for a future where AI continues to become even more embedded and unavoidable in education, educators must be supported to develop strong and critical understandings regarding the potential risks and benefits of the technology. Likewise, students must be prepared with sufficient digital literacy skills to ensure safe, ethical, effective interaction and use of generative AI.
22. Policy makers, education institutions, governments, and other stakeholders such as the Australian Nursing and Midwifery Accreditation Council (ANMAC) must be proactive and resourceful to ensure that policy and practice regarding AI is effectively integrated into existing education policies and that such policies are also developed with consideration of regional and cross-border dialogue and information sharing. Key policy considerations must focus on the development of national strategies, enhancing educational systems capacity and preparedness, professional development for educators and digital literacy training for students, fit for purpose copyright laws, and consideration of curriculum, assessment, and data protection. Ongoing research and inquiry into the penetration and impact of AI in education and training of clinicians must also occur to ensure decision and policy making continues to be fit for purpose and based on the best available evidence and analysis.

Dehumanisation of healthcare

23. While AI technologies have shown particular feasibility within healthcare for improving health outcomes, access to care, and reducing workforce strain,^{2,3} particularly during this time of workforce shortages, the ANMF emphasises that human practitioners are best suited to providing care. Many members of the community suffer from loneliness and isolation and findings point to a lack of human interaction and engagement both with other members of the wider community and with healthcare providers in genuine face-to-face interactions. Likewise, working in isolation in healthcare can also be harmful in terms of workforce safety and wellbeing.



24. Within the healthcare context, the adoption of AI systems should not replace human practitioners, nor should it be used in isolation. Rather, AI systems are to serve as a tool for practitioners in delivering safe, dignified, and equitable health care.
25. The human element of healthcare (such as responsiveness, assurance, courtesy, empathy, communication, and understanding) has long been recognised as immensely important for the delivery of care,⁴ and the removal of such elements and dehumanisation of healthcare has the potential to adversely affect patient outcomes.⁵ Both nationally⁶ and internationally⁷, examples of AI-enabled autonomous robots being used to deliver aged care have been observed over the last decade.⁸ While the advantages of AI in this capacity to reduce workforce strain and increase the amount of care delivered in residential aged care facilities are recognised, ethical concerns are raised,^{9, 10} particularly in the context of ageism and inhumane treatment of elderly people.¹¹ While these systems represent the ‘extreme’ end of AI’s integration, they serve as an example of the impact that the wide adoption of these systems without appropriate ethical considerations may represent. Interestingly, in some contexts, dehumanisation has been described as ‘beneficent’, with some suggesting that the use of AI systems for conditions and treatments that are shame-inducing may offer the opportunity for the ethical removal of the human element of health care.¹² While the complete removal of humans in health care is never appropriate, this serves to highlight the complexity surrounding the use of these systems and the type of considerations that must be put in place.

Risks of bias, discrimination, and error

26. Concerning bias, discrimination, and error of AI systems, in the healthcare context, this is best observed in the use of AI for diagnostics. The use of machine learning diagnostic systems has been found to outperform or be on par with practitioners in terms of error margins in detecting abnormalities in mammograms for breast cancer screening,¹³⁻¹⁵ analysing echocardiograms to predict cardiovascular risk factors,¹⁶ and using tomography



volumes to predict the risk of lung cancer.¹⁷ These findings have serious implications for increasing the accuracy and consistency of health screenings, particularly in areas where there is a dearth of specialists.

27. The success of these models, however, is highly dependent on the data that is provided to inform the model's learning. If the dataset lacks a diversity of presentations across a diverse sample set, real or otherwise, the model has the potential to develop biases and inaccuracies among certain groups. If these biases are not discovered and corrected during development, there is a potential for errors to occur in complex and high-acuity settings, which if unchecked by a practitioner may have serious implications in terms of patient safety.¹⁸ Such an issue was observed in the US with the failed implementation of the Epic Sepsis Model (ESM), a proprietary sepsis prediction model.¹⁹ Despite being widely implemented across hospitals in the US, the model was not effective in improving patient care,²⁰ and was indeed found to miss 67% of patients despite generating alerts for 18% of patients (where actual prevalence was 7%) increasing practitioner workloads.²¹ Here, there is an emphasis on the need for guidelines for the development and rigorous testing of AI models before their implementation.
28. Further, important concerns regarding racial biases in health research must be addressed prior to the wider implementation of AI models based on this data. As white people have been the primary reference group in clinical assessments, AI models based on this data will reflect these biases.²² Historical data, on which AI models are based, are racially biased. For example among women with breast cancer, black women had a lower likelihood of being tested for high-risk mutations compared with white women, leading to an AI algorithm that depends on genetic test results being more likely to mischaracterize the risk of breast cancer for black patients than white patients.²³ Discrimination in medical research also includes dangerous prejudices against gender and sexually diverse people which must be unpacked and disentangled from data sets before they are implemented into AI systems.²⁴



Data privacy concerns

29. Data privacy concerns are at the forefront of the ANMF concerns regarding the use of AI in health care. Many AI tools are based on the principles of collecting and collating the data provided to them to improve the accuracy of future predictions. While this is an effective system, in the context of health care this raises serious concerns regarding the privacy of personal medical data. The sharing of large health data repositories to inform systems, such as machine learning, is often done without the permission or knowledge of patients, and with advanced AI tools that are capable of identifying individuals even in de-identified datasets,²⁵ concerns and hesitancy to provide information are warranted. Further, personal clinician or patient use of AI tools, particularly free and open-source AI, if not used with appropriate precautions can result in personal health data becoming publicly available.
30. The risks of AI tools that contain clinical data being hacked and used for malicious purposes also pose serious risks to patients' privacy and well-being. Further, companies' data mining and selling private patient data for profit is of major concern. Here, the need for strict developmental guidelines and cyber security systems are highlighted, as well as practitioner and consumer training on the appropriate level of personal data to provide to an AI system.

Equitable access to care

31. Artificial intelligence as a method for increasing equitable access, a common selling point for such systems in the healthcare setting, raises several concerns. While such systems are highly regarded for their affordability and offering opportunities for those who are disadvantaged to have some level of care, these systems should not replace a person's access to human practitioners as a means of cost-saving. Unnecessary gatekeeping of human practitioners through the design of autonomous systems to service the health needs of the disadvantaged should not restrict access to human/preferred care and perpetuate inequities. The adoption of AI technologies in healthcare and beyond should



not be such that those with greater means and resources stand to benefit more than those with less.

Approaches to mitigating AI risks:

32. The use of AI-enabled systems can be inhibited by a range of concerns including, a lack of trust in confusing, often untranslatable, models, data security and privacy concerns, health inequity concerns due to underlying data biases, and poor government regulation.¹⁹ Beyond these factors, a large-scale mishap in AI systems, such as the Epic Sepsis Model,¹⁹ will likely shake public and clinical confidence in these tools, leading to the abandonment of these systems.
33. AI opacity or 'explainability' is a particular ethical concern of the ANMF, particularly in relation to the use of AI tools to guide clinical decision-making. As previously stated, AI should never be used in isolation and should be used to represent an alternative opinion that can be consulted during the clinical decision-making process. Artificial intelligence tools used in this manner, however, must be transparent to practitioners and display clear logic to the conclusions drawn. While this is currently regulated by the Therapeutic Goods Administration,²⁶ there is a need to ensure that AI systems used for medical purposes are regulated to a high standard and that the process in which predictions are derived is transparent and explainable.
34. The complexity in the ethical use of AI for healthcare is acknowledged, highlighting the need for national standards in the use of AI systems for healthcare that are underpinned by consultation with consumer groups, industry, workforce, and peak bodies. While international guidelines on the ethical use and development of AI systems for health have been developed by peak bodies such as the World Health Organization,²⁷ and a National Policy Roadmap has been published by the Australian Government,²⁸ there is a need for standardisation in the governance of healthcare-based AI systems to ensure their capability to translate to safe and effective clinical services.



35. It will also be important to ensure that Australian health stakeholders are included and involved in the development of AI technologies. This will assist in ensuring that AI technologies are translatable to the Australian healthcare environment and are sensitive to local use cases and broader system-wide applications while also maintaining a local knowledgebase and pool of expertise.

Potential of the AI industry in Australia:

Health care

36. As discussed in the previous sections, the ANMF is supportive of the adoption of AI systems for healthcare where the potential for benefit and improved outcomes for patients, the community and the workforce outweigh the likelihood of harm. With the aforementioned concerns adequately addressed and evidence and guidelines to dictate the responsible and ethical use of AI systems in clinical practice, AI represents vast health and workforce benefits for Australian citizens. Artificial Intelligence's potential uses in the healthcare setting are numerous, including but not limited to streamlining repetitive tasks that can be automated allowing for more clinician-to-patient time, enhancing diagnostics, remote health monitoring, health chatbots, drug discovery and development, treatment planning, risk stratification and triaging, and education²⁹ some of which are already in place.¹⁹

Climate change

37. Climate change and population health are intrinsically linked, and the potential impact of AI technologies on global emissions and climate change is not yet clear. It can however be considered from several perspectives. That is, the impact of AI technology in terms of computer processing-related impacts, the immediate impact of applying AI technology, and system-level implications.³⁰

38. One important consideration relates to the energy consumption and cost associated with



developing and training of machine learning algorithms. As algorithms become more complex, their energy demands also increase. However, AI technology also offers many potential opportunities for improved understanding and decision making and offers potential benefits in regard to optimisation and effectiveness in many areas related to climate change such as water management, agriculture, and electricity usage. AI technology also has the potential to directly inform our understanding of climate change through climate modelling and natural disaster prediction, thereby contributing to combating the climate crisis effectively.³¹

39. For these reasons it is difficult to quantify or determine a net benefit that might be realised in relation to greenhouse gas consumption, and climate change through the development and use of AI technologies. The ANMF is cognisant that as AI continues to be integrated into society it will be important to better understand and comprehensively assess what the impact might be. This will mean the introduction of transparency measures that may involve new reporting standards, data collection, and new methods for measurement and benchmarking. Such measures would help ensure that decisions relating to investment and usage of AI technology are evidence-based and responsive to environmental concerns and will aid in mitigating adverse consequences regarding climate change as a result of their adoption.^{30, 31}

Industry

40. Across industries AI has the potential to automate and advance operations increasing efficiency and productivity gains. Some estimates suggest the successful integration of AI has the potential to boost Australian labour productivity by 0.1 to 1.1 per cent by 2030,³² highlighting the immense potential of the use of this technology. The Australian government should take advantage of the opportunity to expand the AI industry and support the development of AI systems by Australian companies.
41. Here, however, the ANMF cautions that the use of AI to create workforce redundancies and replace workers has the potential to cause great harm, particularly in relation to lost



employment and income. The wider implementation of AI will require the reskilling of the workforce as jobs become gradually replaced by autonomous AI systems and new jobs are developed.³³ This will necessitate strategic planning in how AI systems are implemented throughout the workforce and investments to support those affected.

Conclusion

42. While AI technologies have the potential to generate great benefits for improving the health of Australians, the ANMF is steadfast that the use of AI to replace human roles in many contexts of the direct provision of health care is inappropriate. Here, AI can be carefully, equitably, and safely integrated into healthcare systems in ways that support and enhance healthcare delivery in terms of effectiveness, safety, cost effectiveness and appropriateness without dehumanising the sector. Likewise, AI's integration into education and training and application in addressing current and future challenges such as climate change must be carefully managed and controlled to promote beneficial outcomes rather than potential harms to health, safety, and privacy.

43. The wider adoption of AI comes with substantial potential risk and much complexity. Safeguarding measures that ensure systems are designed and maintained to rigorous national and international standards must be developed in consultation with consumers and key stakeholders to ensure safe, controlled, and effective adoption and integration of AI into healthcare and wider systems in a way that equitably benefits the Australian community.

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