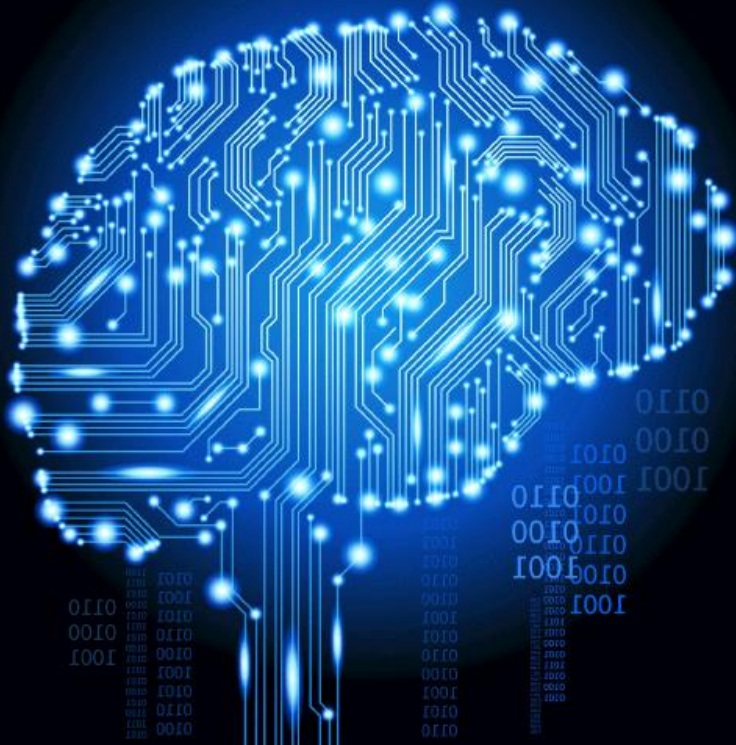




Artificial Intelligence in Critical Care: Perceptions of the Multidisciplinary Team

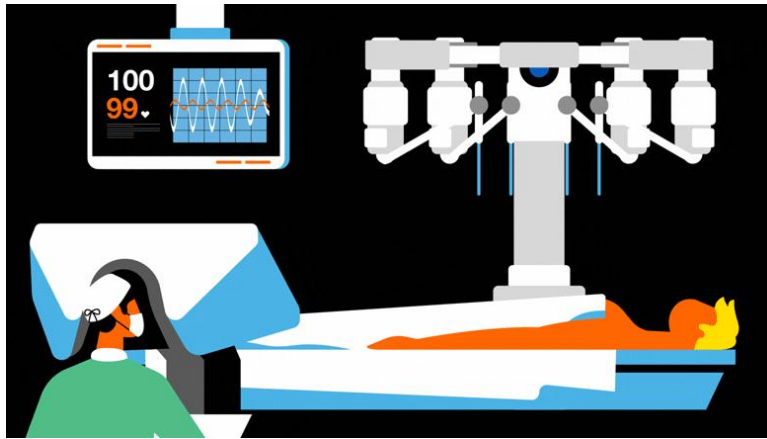
40th ANNUAL BACCN CONFERENCE
7th & 8th October 2025, Blackpool

Mary Grace Anne P. Batalla, MA, RN

Senior Staff Nurse in Critical Care, Guy's and St. Thomas' NHS Foundation Trust
Predoctoral Fellow, National Institute for Health and Care Research

INTRODUCTION

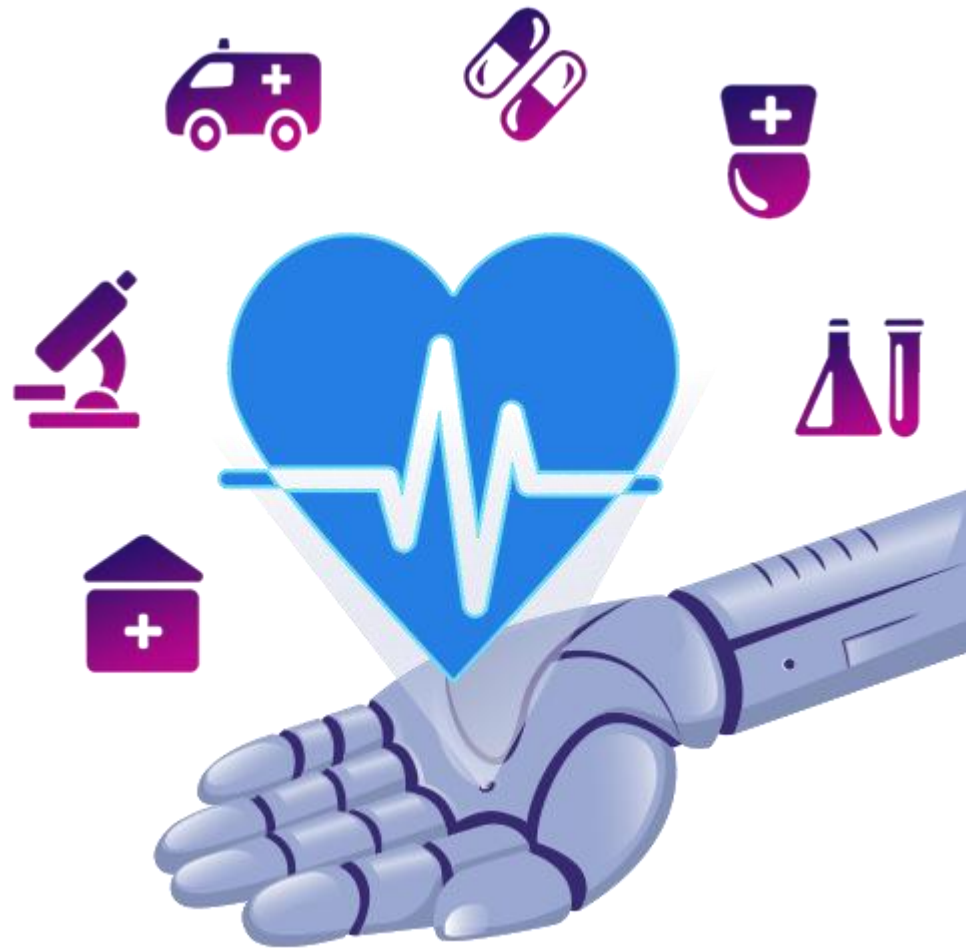
Artificial intelligence (AI) in healthcare is on the rise, pervading aspects of surgical robotics, smart medical devices, predictive diagnostics, quantum technology , and pharmacotherapeutics.



AI can offer computational frameworks that can be used to approach the multivariable, multimodal nature of intensive care medicine.



To examine the perceptions of the multidisciplinary team (MDT) within critical care on the role of AI in the areas of cost-effectiveness, safety, and quality health service delivery.



DEFINITION OF TERMS

Artificial Intelligence (AI)

The capability of a computer system to **mimic human cognitive functions** such as:

Learning

Problem-
solving

Understanding

Interpreting visual information

Responding to spoken or
written language

AI uses maths, logic and patterns learned from data to **simulate human reasoning** and **make decisions** and **recommendations**.

Definition of Terms cont.

Machine Learning (ML)

A subset of AI that enables machines to **automatically learn** and **improve from experience without explicit programming**.

ML systems can:

Identify
patterns

Help make
decisions

Improve their performance with
little to no human intervention



Definition of Terms cont.

Deep Learning (DL)

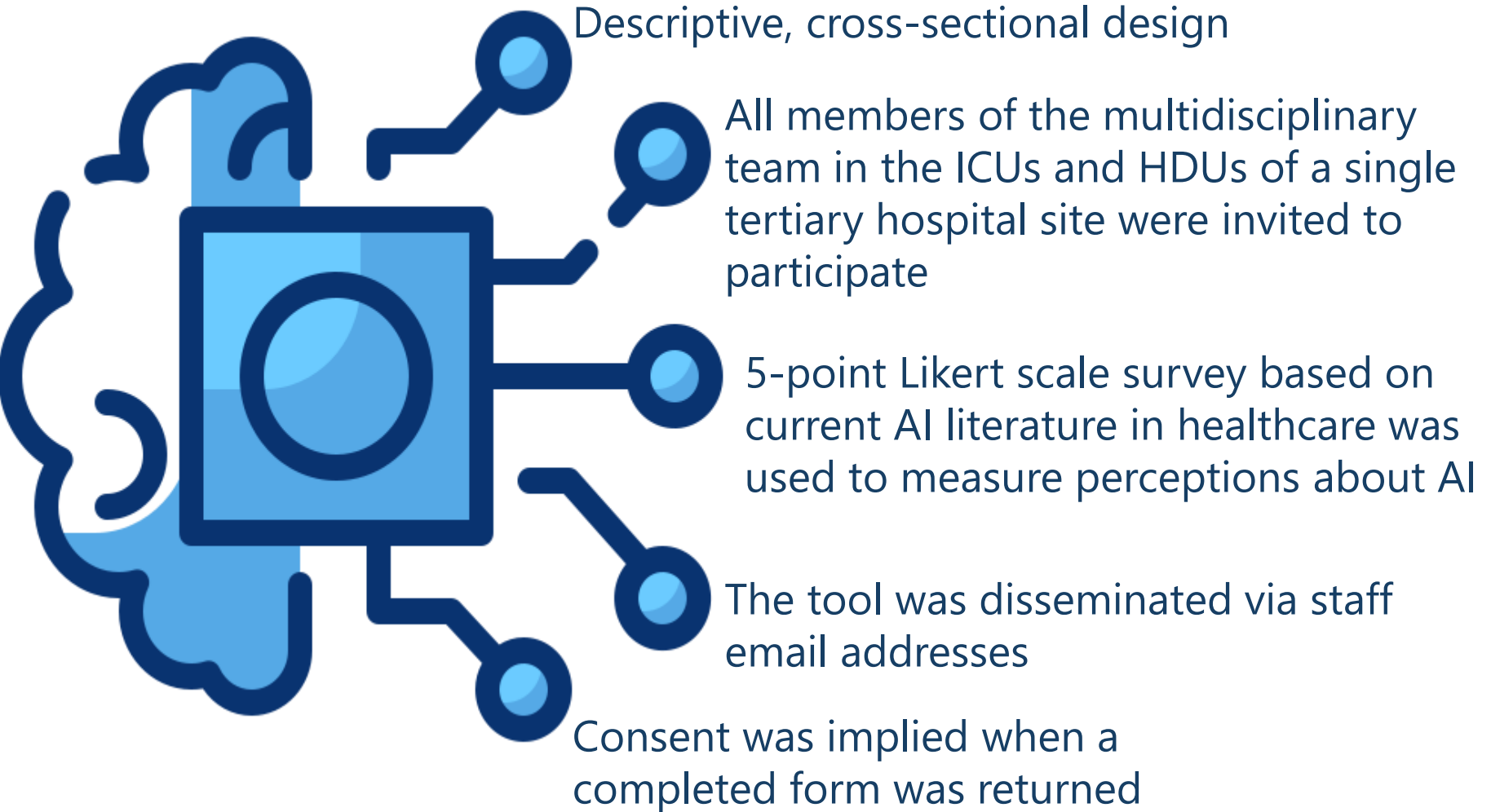
A form of machine learning that works with **artificial neural networks** which are designed **to imitate how humans think and learn**.

Example:

Robots use DL to interpret their surroundings and learn to perform complex tasks autonomously.



METHODS



RESULTS

Job Role

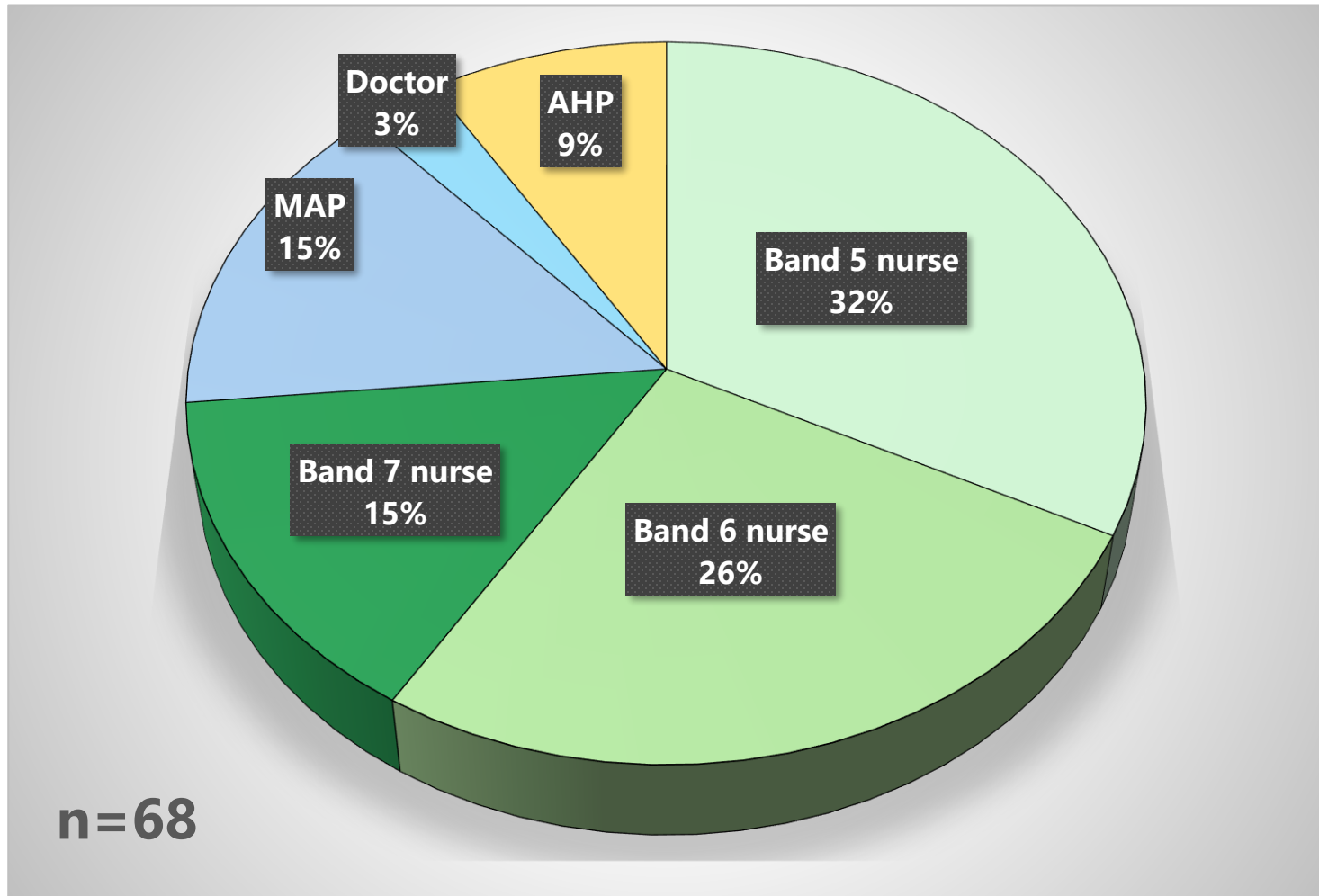
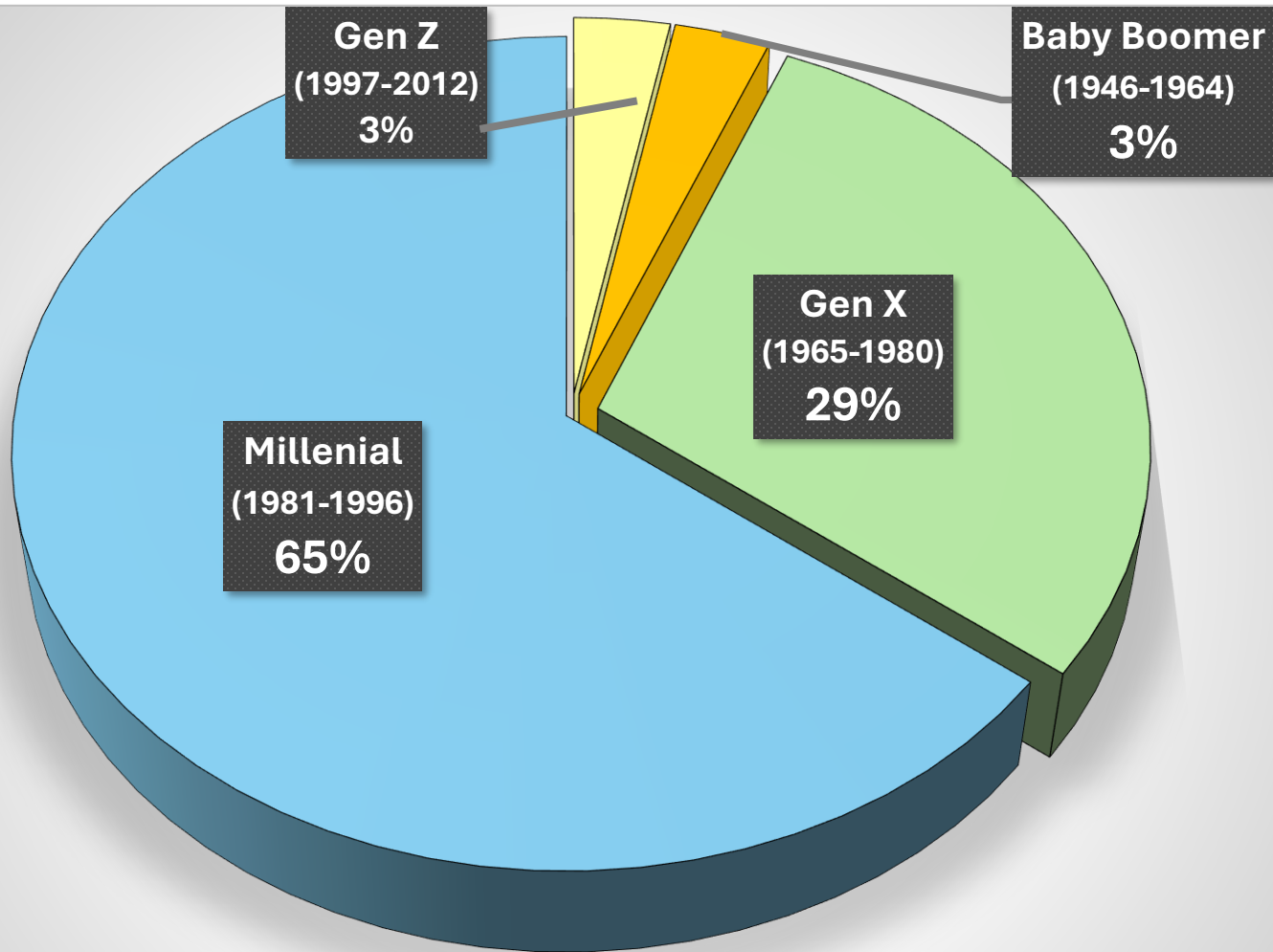


Figure 1. Job role of participants

Age Groups According to Social Generations



*Social generations in the Western world according to the Pew Research Center

** 3 out of 68 participants did not state their age

Figure 2. Age groups according to social generations

In general, how familiar are you with the use of AI in healthcare?

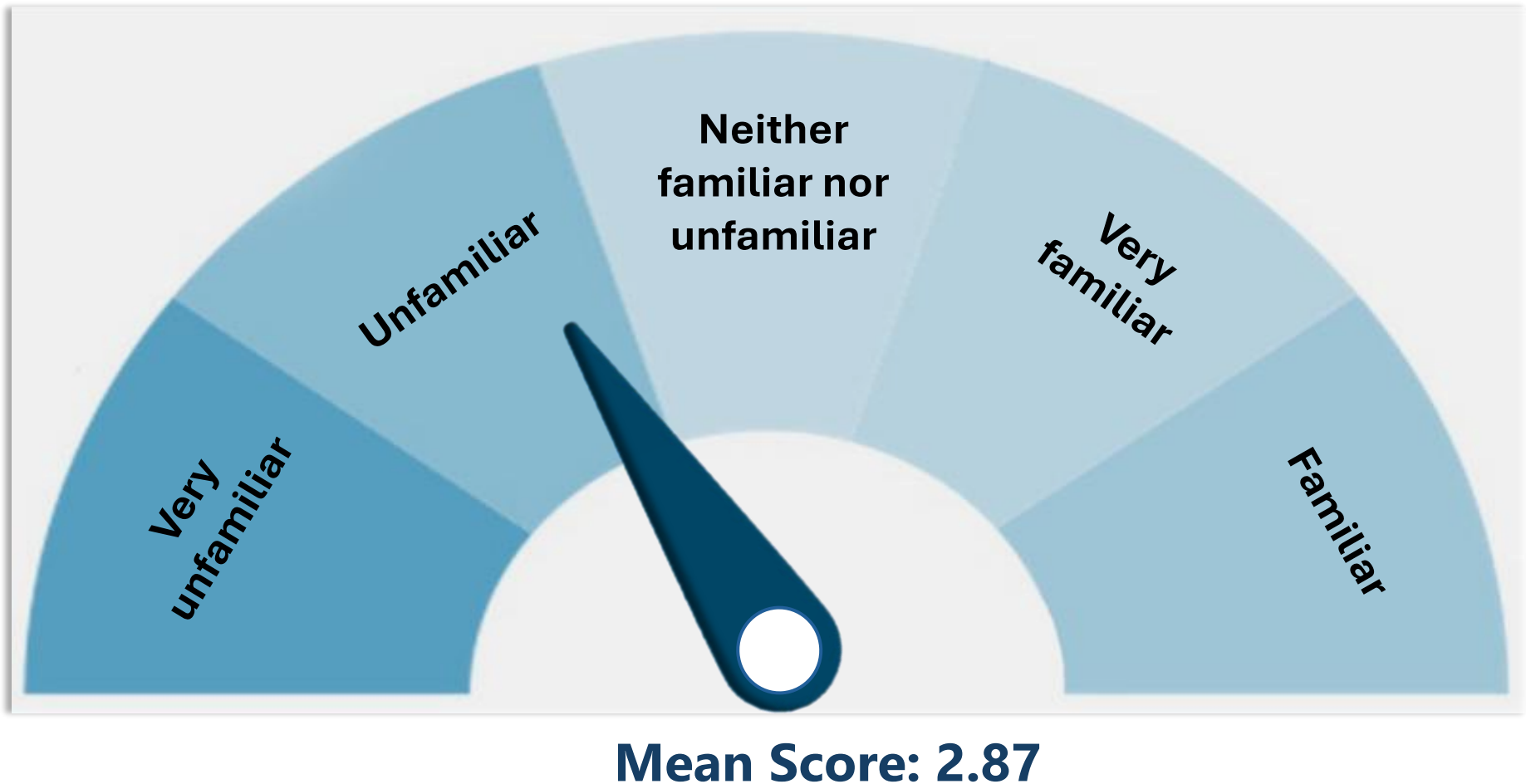


Figure 3. Familiarity with AI

**If there is an application of AI now in your workplace,
how confident are you to use that application?**

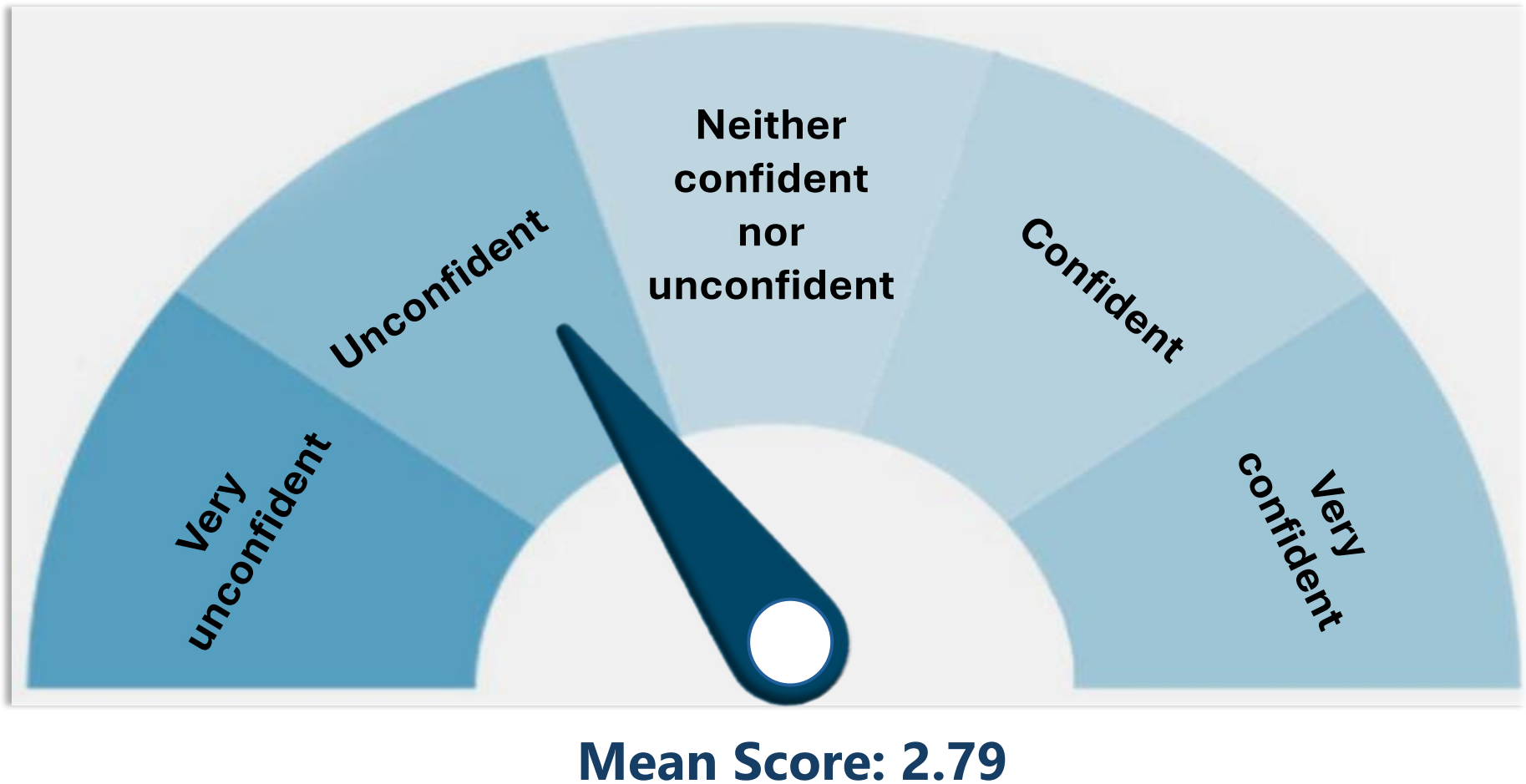


Figure 4. Confidence in using AI application

If training is offered on how to use AI in your department, how willing are you to participate?

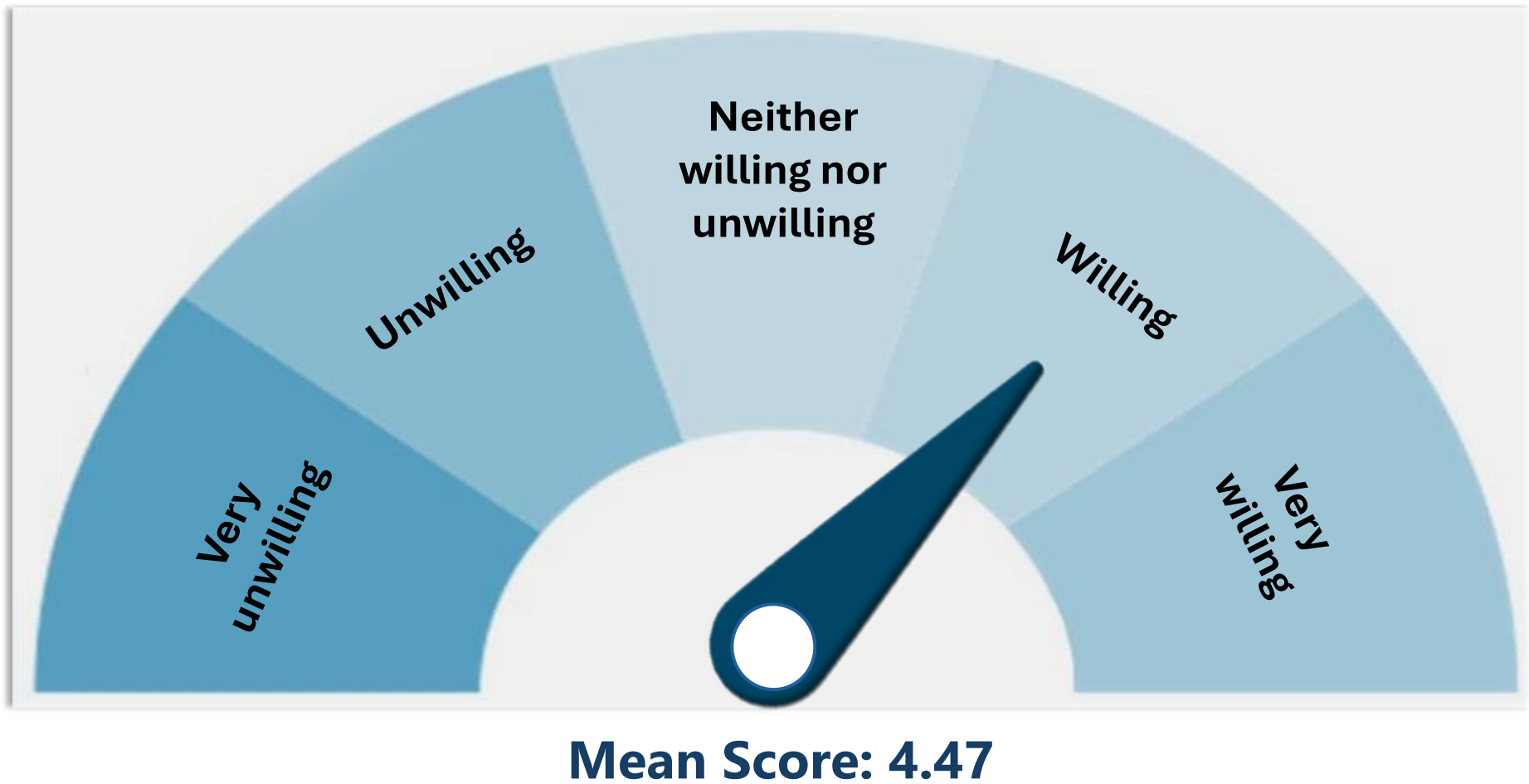


Figure 5. Willingness to undergo AI training

If there is an available AI application that has the ability to help you in clinical decision-making, how likely are you to follow the recommendations of the app in your practice?

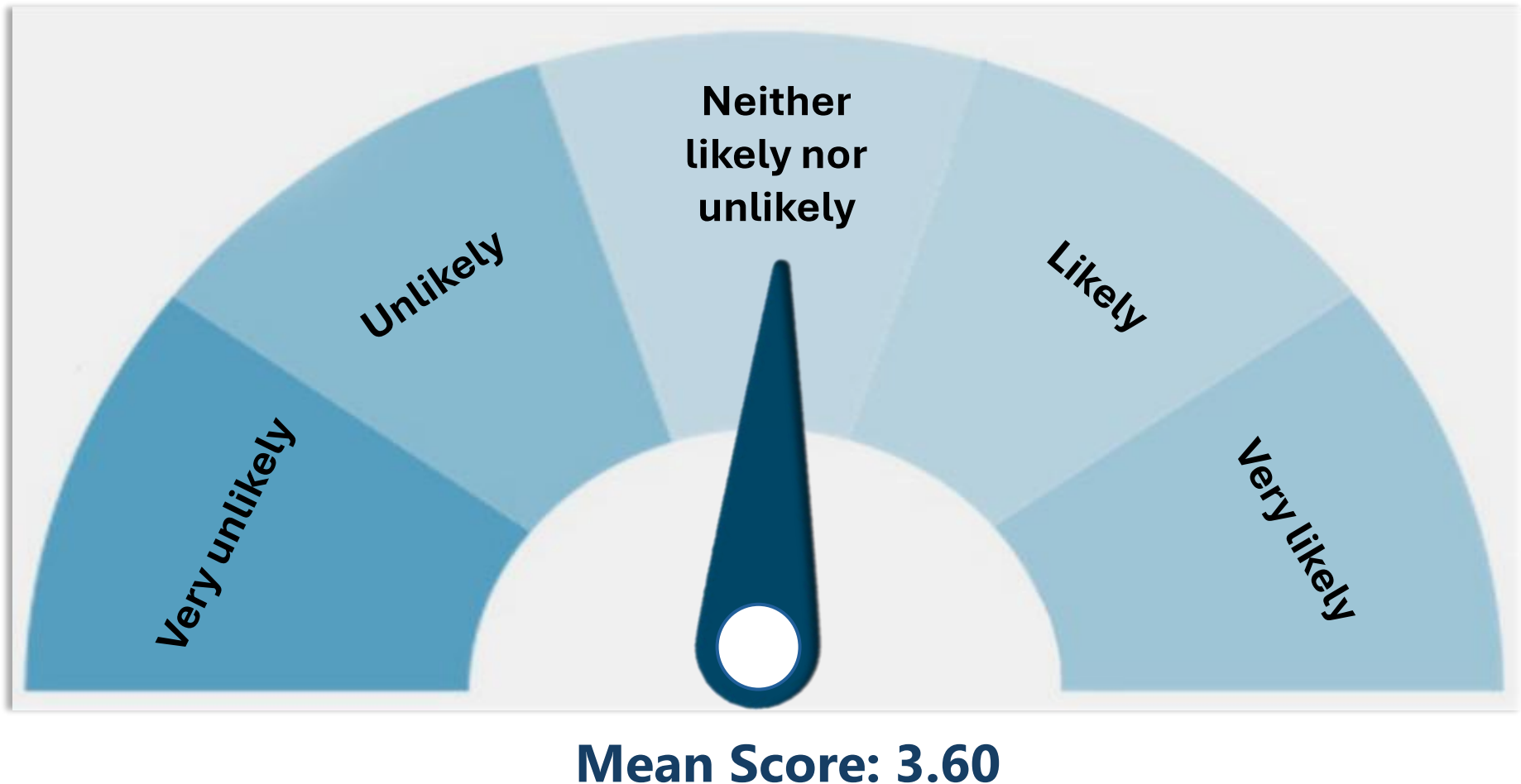


Figure 6. Likelihood to follow AI recommendations in practice

AI can improve the care received by critically ill patients.

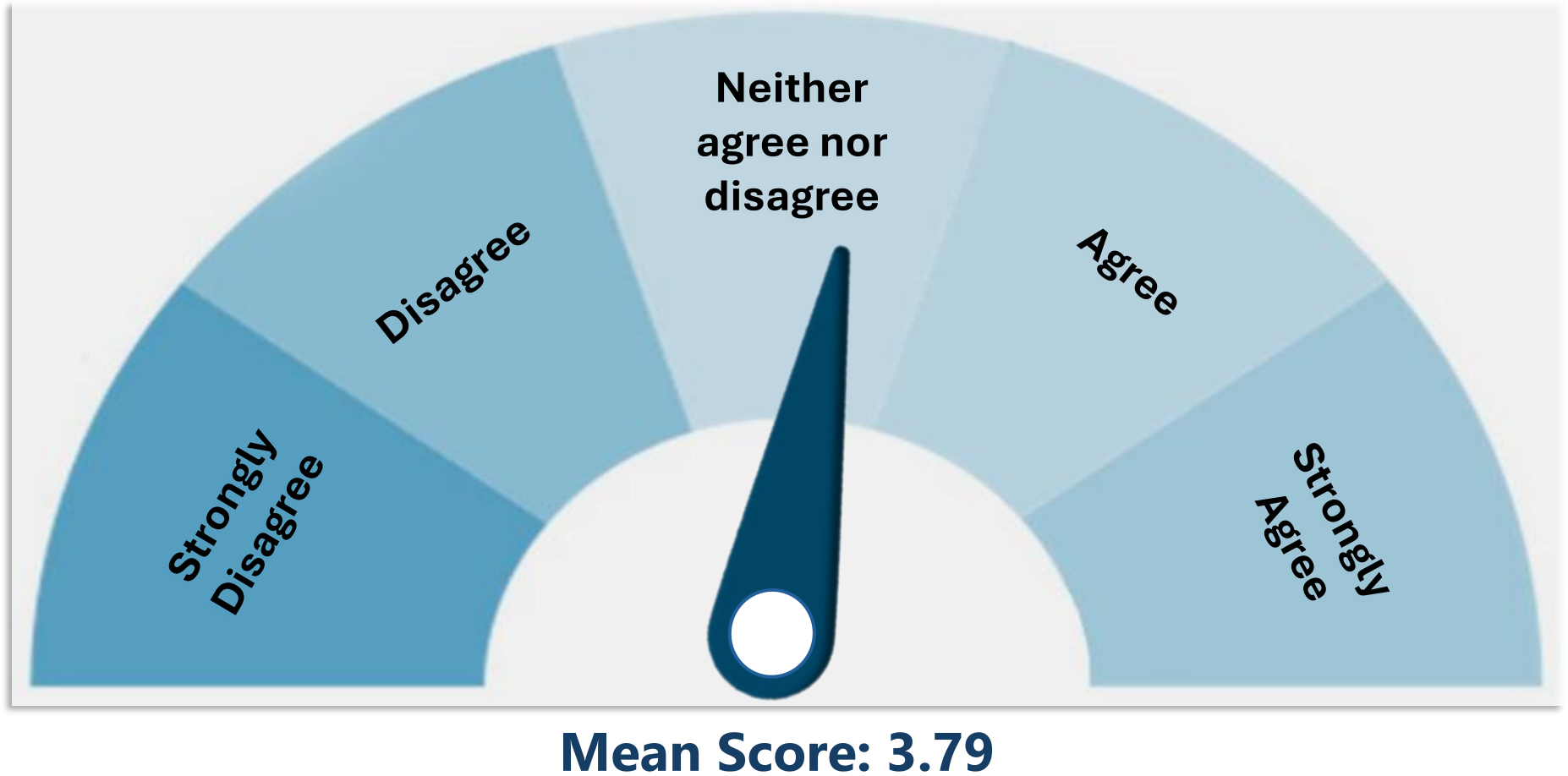


Figure 7. Perceptions on AI improving care

**AI can reduce the cost of care
received by critically ill patients.**

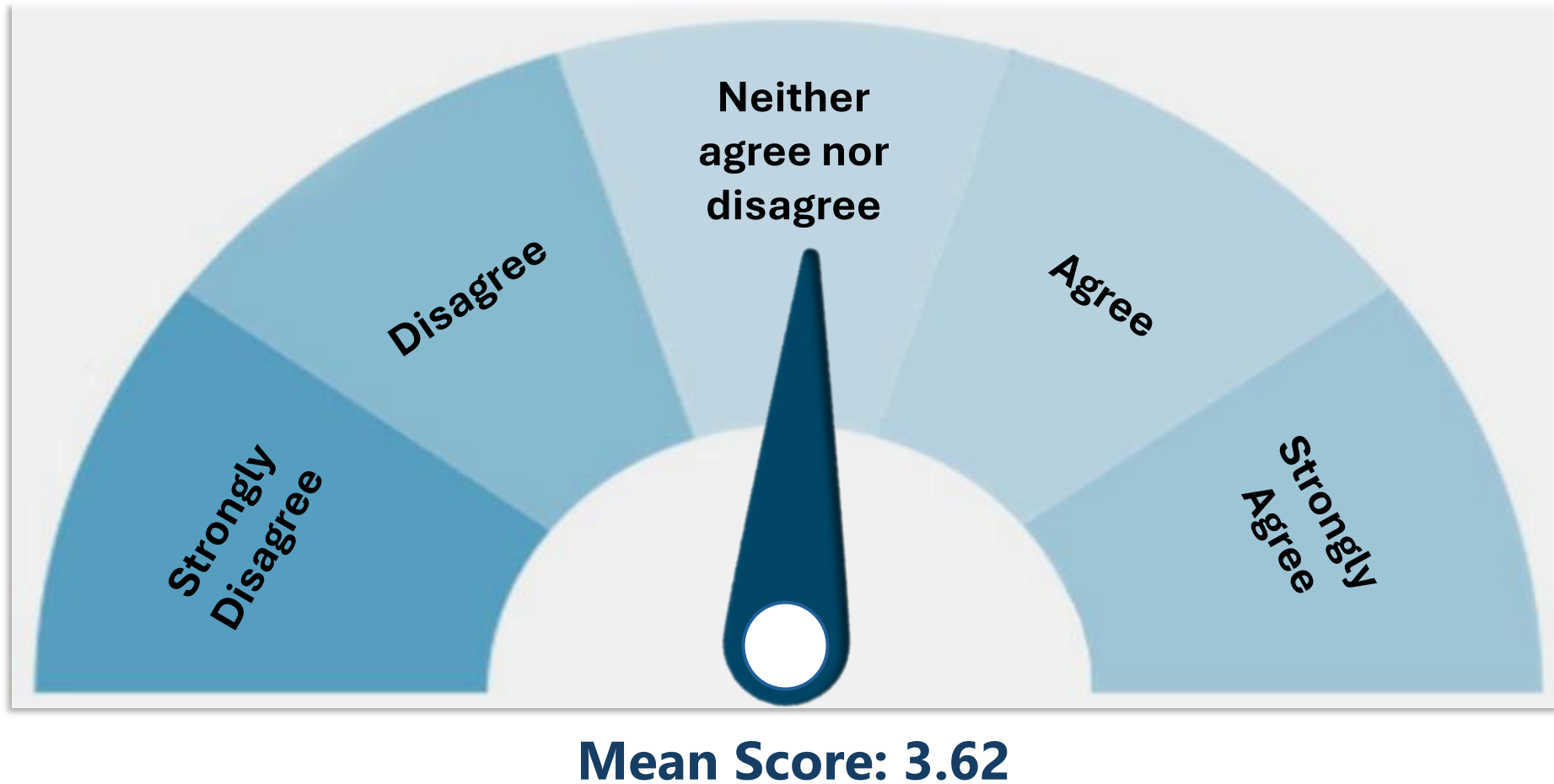


Figure 8. Perceptions on AI reducing healthcare costs

Comparison of Mean Scores

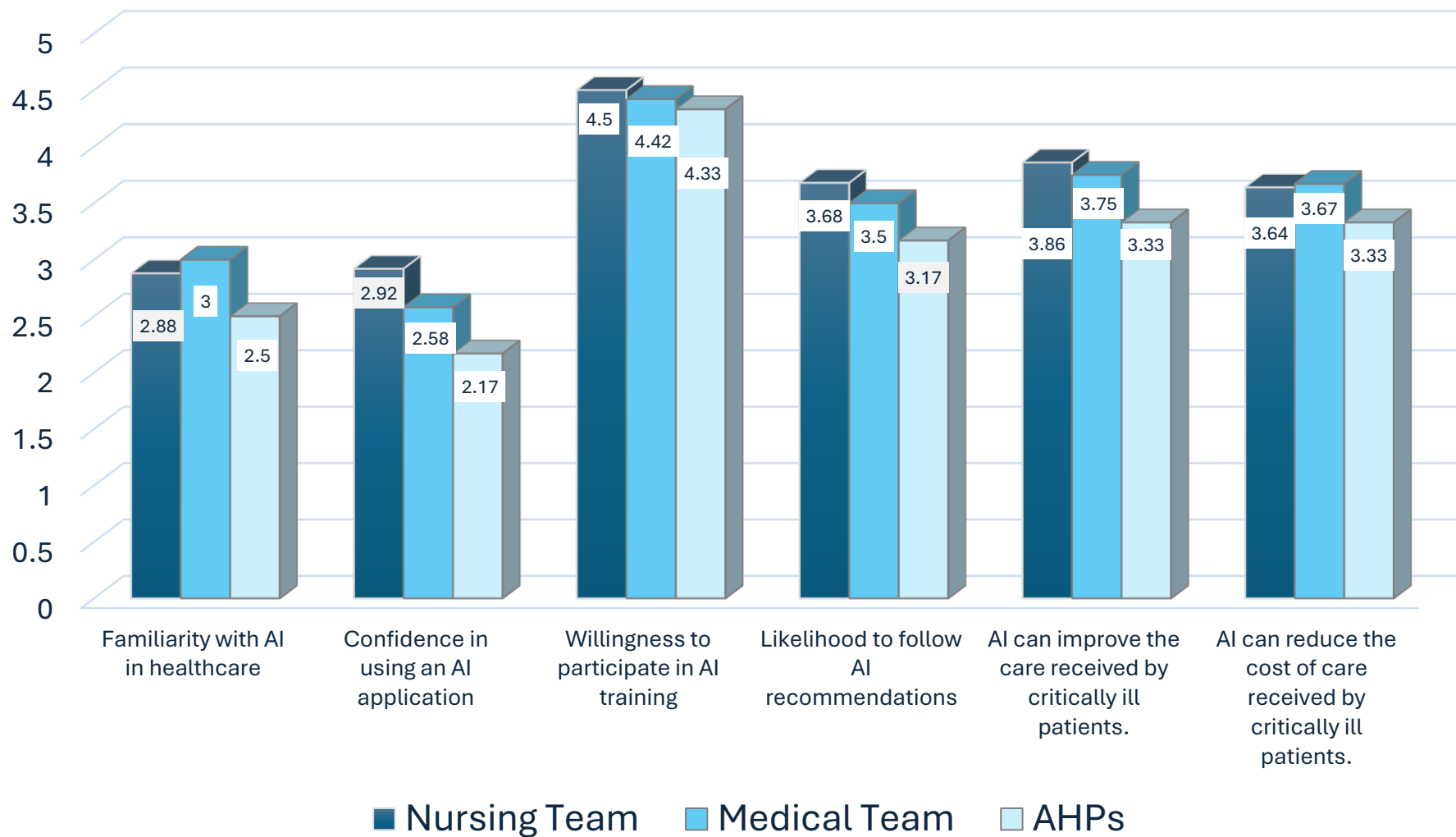


Figure 9. Comparison of mean scores across job roles

Inferential Statistics

Band 7 nurses had better familiarity and higher level of confidence in using AI compared to **Band 5 nurses** ($p < 0.05$).

Band 7 nurses had significantly higher scores in their perceptions of the value of AI in improving care compared to **Band 5 nurses** ($p < 0.05$).

AHPs were significantly more confident in using AI applications compared to **Band 5 nurses** ($p < 0.05$).



Inferential Statistics cont.

- There were **no significant differences** in scores relating to perceptions in AI based on **age**.
- Participants from **HDUs** have significantly higher scores in their perceptions of the value of AI in reducing the cost of care compared to **ICUs** ($p < 0.05$).



- **Doctors** were more likely to use AI to help their **clinical decision-making** compared to nurses and AHPs ($p < 0.05$).

IMPLICATIONS TO PRACTICE

AI has the potential to be used as a tool in intensive care, especially since the clinical utility of AI has been demonstrated in the areas of patient data analytics, real-time and predictive diagnostics, and syndromic surveillance and modelling ¹⁻¹⁶.

Healthcare organisations can take opportunities to introduce AI in critical care and increase staff familiarity on its potential role in improving healthcare services.



References

1. Abujaber, A. A., & Nashwan, A. J. (2025). Artificial intelligence integration in critical care nursing. *Evidence-Based Nursing*.
2. Bai, Y., Gu, B., & Tang, C. (2025). Enhancing Real-Time Patient Monitoring in Intensive Care Units with Deep Learning and the Internet of Things. *Big Data*.
3. Bienefeld, N., Keller, E., & Grote, G. (2025). AI Interventions to Alleviate Healthcare Shortages and Enhance Work Conditions in Critical Care: Qualitative Analysis. *Journal of Medical Internet Research*, 27, e50852.
4. Bourgault, A. M., & Chief, E. I. (2025). The Integration of Artificial Intelligence Into Critical Care Nursing. *Critical Care Nurse*, 45(1), 6-7.
5. Dangi, R. R., Sharma, A., & Vageriya, V. (2024). Transforming Healthcare in Low-Resource Settings With Artificial Intelligence: Recent Developments and Outcomes. *Public Health Nursing*.
6. Egerod, I. (2025). Should we use artificial intelligence (AI) for writing ICU diaries? Not yet!. *Intensive and Critical Care Nursing*, 86, 103868.
7. Goforth, C., & Alderden, J. (2025). Integrating artificial intelligence into critical care nursing: next steps. *Critical Care Nurse*, 45(1), 8-9.
8. Hassan, B. A. R., Mohammed, A. H., Hallit, S., Malaeb, D., & Hosseini, H. (2025). Exploring the role of artificial intelligence in chemotherapy development, cancer diagnosis, and treatment: present achievements and future outlook. *Frontiers in Oncology*, 15, 1475893.

References

9. Hsiao, C. Y., Su, M. I., Chang, Y. C., Lee, Y. H., Lin, P. L., & Chiou, W. R. (2024). Efficacy in predicting mortality of patients with heart failure using heart rate before intensive care unit discharge: a retrospective cohort study from MIMIC-IV Database. *BMJ open*, 14(12), e087725.
10. Levin, C., Suliman, M., Naimi, E., & Saban, M. (2024). Augmenting intensive care unit nursing practice with generative AI: A formative study of diagnostic synergies using simulation-based clinical cases. *Journal of Clinical Nursing*.
11. Mosch, L., Sümer, M., Flint, A. R., Feufel, M., Balzer, F., Mörike, F., & Poncette, A. S. (2024). Alarm Management in Intensive Care: qualitative Triangulation Study. *JMIR Human Factors*, 11(1), e55571.
12. NHS Confederation. (2024). "AI in healthcare: navigating the noise." Retrieved from <https://www.nhsconfed.org/publications/ai-healthcare>.
13. Peschel, E., Krotsetis, S., & Nydahl, P. (2025). Should we use artificial intelligence (AI) for writing ICU diaries? Yes!. *Intensive and Critical Care Nursing*, 86, 103867.
14. Roppelt, J. S., Kanbach, D. K., & Kraus, S. (2023). Artificial intelligence in healthcare institutions: A systematic literature review on influencing factors. *Technology in society*, 102443.
15. Secinaro, S., Calandra, D., Secinaro, A., Muthurangu, V., & Biancone, P. (2021). The role of artificial intelligence in healthcare: a structured literature review. *BMC medical informatics and decision making*, 21, 1-23.
16. Swamy, L., & Munro, C. L. (2024). The Intensive Care Unit: Tomorrow and Beyond. *American journal of critical care*, 33(6), 398-400.

THANK
YOU!

