

Workshop Report

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Empowering Brunei's Health Professionals in Research Amid Clinical Demands: Post Workshop Report and Reflection

Siti Nurliyana ABDULLAH^{1*} and Afwi BAKAR²

Summary

Clinical research plays a pivotal role in advancing evidence-based healthcare, yet many health professionals face barriers to sustained research engagement due to lack of knowledge and skills in research, competing clinical demands, limited time, and insufficient institutional support, rather than lack of interest or drive. To address this challenge, a workshop titled '*Empowering Brunei Darussalam's Health Future*' was conducted in May 2025. The workshop brought together allied health professionals, medical doctors and nurses to explore how research can be integrated into routine clinical practice. The workshops involved lectures, interactive sessions, practical group case studies, and individualised discussions, with a focus on overcoming barriers such as time limitations, lack of research training, and inadequate expertise. Pre- and post- surveys were used to measure participants' overall satisfaction, improvements in research knowledge, and the extent to which their initial expectations were met and aligned with the workshop's learning objectives. Participants' positive feedback emphasised the relevance of the workshop and the need for ongoing support mechanisms. Participants perceived notable improvements in technical knowledge, particularly in academic writing, research planning and methodology. However, gaps were identified in motivation, research alignment with professional roles, and other aspects of research like data analysis and practical research application. Based on these findings, this report recommends actionable strategies to foster a sustainable research culture within Brunei's health workforce, aligning with national goals to advance evidence-informed healthcare.

Keywords: Allied health professionals, Clinical research, Evidence-based practice

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INTRODUCTION

With its universal access to healthcare, Brunei Darussalam ensures its people have access to safe, effective, efficient, timely, equitable and patient-centred care. Critical to this is a health workforce that can meet the increasing demands placed on the healthcare system.

As with many countries and jurisdictions, there are challenges¹ that confront the health system including rising healthcare costs,² workforce shortages,³ and the rise of chronic conditions.^{4,5} Meeting these challenges are healthcare professionals who are at the frontline of clinical practice. These clinicians and other healthcare stakeholders continue to provide care through creative, contemporary, and innovative means. It is important these clinicians and other healthcare stakeholders are supported, their efforts celebrated, and their good work promoted widely.

Professor Saravana Kumar, Professor in Allied Health and Health Services Research, Co-Director, IIMPACT in Health at the Allied Health and Human Performance Unit at the University of South Australia was invited based on his long-standing collaboration with healthcare stakeholders in Brunei Darussalam. With his extensive experience in research, education, and training, Professor Kumar has delivered workshops internationally on a range of topics which have aimed to support and mentor health professionals through a combination of face to face, online and hybrid approaches. His involvement has contributed to strengthening workforce development, building clinical and research capacity and demonstrating the value and impact of their contribution.

The workshop, titled '*Empowering Brunei Darussalam's Health Future*' aimed to achieve this through a series of carefully curated topics to include a mixture of training for technical skills such as evidence-based practice competencies and offer opportunities to improve dissemination and communication such as effective presentations and publishing. Ensuring that health professionals in Brunei Darussalam have up-to-date knowledge and skills in key evidence-based practice competencies, such as framing answerable questions, literature searching, critical appraisal, and evaluation, will result in a health workforce capable of engaging effectively in contemporary healthcare practices. By also promoting opportunities for dissemination and communication, the health workforce will be ideally placed to showcase the impactful work undertaken in Brunei Darussalam for a wider audience.

RATIONALE and OBJECTIVES

Brunei Darussalam's commitment to delivering high-quality, patient-centred healthcare relies not only on effective systems and infrastructure, but also on continued investment in the development of its health workforce. A skilled, confident, and continuously evolving healthcare workforce is imperative to meet the demands of a rapidly changing healthcare environment.⁶ As new research, technologies, and models of care emerge, healthcare professionals are increasingly expected to engage with current evidence, integrate best practices into their practice, and contribute to ongoing improvements in service delivery.^{7,8} This workshop was developed in response to these demands, as part of a broader effort to strengthen capacity within the Ministry of Health. It aimed to equip healthcare professionals with essential skills and knowledge to conduct research through application of evidence more effectively in their clinical and professional roles.

The motivation for the workshop arose from a recognised need to enhance research literacy across the health sector. While clinicians across the Ministry of Health demonstrate strong practical expertise, there remains a lack of accessible, structured opportunities to build capability in evidence-based practice and research-related areas.

WORKSHOP DESCRIPTION

The one-and-a-half-day workshop was held from 1st to 2nd May 2025, jointly organised by the Allied Health Professional (AHP) Development and Training Committee and the AHP Research Committee, funded under the Ministry of Health. The programme featured a combination of lectures and interactive workshop sessions, with supplementary materials provided to support learning on key topics. A total of 70 participants attended, including ten AHP committee members, four medical doctors, four nurses and the remaining 42 participants came from various disciplines and specialties, reflecting a diverse and multidisciplinary representation from the healthcare workforce. Sessions were conducted in a small-group roundtable format, with each group guided by a committee member to encourage discussion and peer learning. Participants were introduced to essential skills in formulating answerable clinical questions, sourcing and interpreting relevant literature, developing research protocols, ethical considerations, data collection, analysis methods and engaging more critically with research findings, and equipping attendees with strategies for manuscript submission and publication.



Figure 1: Photos of workshop facilitator, Professor Saravana Kumar and participants captured in various sessions including group discussions, presentations and interactive activities.

SUMMARY of CONTENT and ACTIVITIES

Designed around the theme of empowering Brunei Darussalam's health professionals through evidence-based practice, the workshop covered a spectrum of topics that addressed both theoretical understanding and practical application of research methodologies. The programme started with foundational sessions on quantitative research designs, covering both observational and experimental studies, and qualitative paradigms, including philosophical assumptions and methodological considerations. Participants were shown how to frame research questions, applying the PICO/PECOT frameworks, and adaptation of qualitative and scoping framework through Pico and PCC. Strategies for effective literature search, included interactive sessions for academic and grey literature, using keywords, subject headings and search limiters. Finally, the workshop addressed research communication and publication, with sessions on demonstrations of effective research presentations skills, scientific writing, understanding of journal metrics, and tips on publishing strategies, including personal insights on editing and peer review process.

Additional to the structured sessions, participants took part in small group case discussions and presentations, fostering collaboration and peer feedback. To enhance engagement and interaction, *Slido* was used throughout the sessions, allowing participants opportunities to submit comments and questions in real-time. The workshop also provided opportunities for one-on-one mentoring sessions. These personalised meetings offered participants to seek tailored guidance on research ideas or challenges. This component was instrumental in fostering a supportive environment that

encouraged knowledge-sharing and critical thinking.

PARTICIPANT ENGAGEMENT and FEEDBACK

An online, self-administered pre- and post-workshop survey (**Appendix I—Refer to the Supplementary text**) was distributed amongst participants to assess their research knowledge, and expectations of key objectives using Likert scale ratings (1 = Strongly Disagree to 5 = Strongly Agree). A total of 14 questions pre- and post-workshop surveys were distributed, with the first seven focusing on knowledge acquisition and the remaining seven evaluating whether participants' initial expectations were met. To complement the quantitative data, three open-ended questions were included to capture qualitative feedback and insights. These questions explored what participants found most valuable about the workshop, what topics they would be interested in learning more about in future sessions, and suggestions for improving the workshop experience. Participants' professional titles and duration of employment were also captured.

The analysis included data extrapolated from participants who completed both the pre- and post-workshop surveys. Of the 70 participants, 82.3% (n=58) completed both surveys (**Table I**).

Overall, participants rated an average rating of 4.64 out of 5, reflecting strong positive feedback on the workshop experience. There was a clear overall improvement in knowledge (**Table II**), with an average gain of +1.06 points across the first seven questions, calculated as the mean difference between post-workshop and pre-workshop scores. The first six ques-

Table I - Distribution of participants completing both pre- and post-survey included in the analysis (n=58).

Profession	n	%	Years of Employment
Audiologist	5	8.6	7 (2–19)
Dietitian	4	6.9	20 (12–27)
Doctor	4	6.9	11 (5–25)
Health Education Officer	3	5.2	10 (4–14)
Medical Social Worker	4	6.9	18 (6–25)
Nurse	3	5.2	25 (25–30)
Occupational Therapist	7	12.1	13 (2.5–27)
Optometrist	4	6.9	9.5 (8–20)
Orthoptist	1	1.7	20
Physiotherapist	7	12.1	10 (7–25)
Podiatrist	5	8.6	10 (5–20)
Psychologist	6	10.3	4 (1.5–15)
Radiographer	2	3.4	17 (7–27)
Speech and Language Therapist	2	3.4	5.5 (5–6)
Teacher of the Hearing Impaired	1	1.7	18

particularly in research methodologies (Q3), data collection and analysis (Q4) and writing a research paper (Q5). In contrast, Question 7 showed a slight negative mean difference (-0.33), suggesting a small decline in participants' agreement with the statement regarding the value of research and publication in enhancing the recognition of health professionals.

Expectations Met (Q8–Q14)

The second part of the survey assessed whether participants' expectations were met (**Table II**). Overall, the average change was slightly negative (-0.04), indicating that expectations were generally maintained but not significantly exceeded. Questions Q8 (study design) and Q9 (methodology) showed modest positive shifts. In contrast, Q10 (data analysis), Q11 (ethics), Q12 (publication), and Q13 (research tools) experienced minor declines, with the most notable decreases seen in Q10 (data analysis) and Q11 (ethics).

The results from these surveys suggest that while overall knowledge was gained, particularly in areas that are typically barriers for beginners, such as research

methodologies, data collection and analysis and writing a research paper, the motivational or perception-based impact, where research is seen as valuable for professional identity may need reinforcement. This feedback highlights the importance of creating an ecosystem that welcomes and embeds research as part of professional identity.

The observed decline in participants' expectations may be attributed to participants having anticipated more extensive or more comprehensive coverage in these areas (data analysis, ethics, publication and research tools). These areas pertain to practical execution of research. While workshops of this nature are effective in building foundational knowledge, additional support during actual conduct of research is required. This underscores the importance of establishing a continuous pipeline of training and support that extends from foundational learning through to experiential, practice-based guidance.

Qualitative feedback from participants identified recurring themes highlighting the practical relevance and comprehensive structure of the sessions, stating positive gains in overall research know-how, deeper

Table II - Mean differences in responses for each survey questions (Q1 to Q14).

Questions	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14
Mean Difference	1.03	1.17	1.28	1.36	1.60	1.33	-0.33	0.16	0.09	-0.26	-0.29	-0.03	-0.02	0.07

Note: Mean difference represents change scores between pre- and post- survey responses.

understanding and confidence in choosing appropriate study designs, formulating meaningful research questions and clinically appraising literature. Participants identified the value of the presence of an experienced and professional speaker as a key strength. In response to future workshops, participants expressed strong interest in deeper understanding and practical interactive sessions, particularly in areas such as data analysis, statistical methods, interpretation of research training, and publication process including ethics approval procedure within the local context of Brunei.

Participants provided several constructive suggestions for the improvement of future events. A common theme was the desire for extended sessions, allowing for more-in-depth exploration of topics through group work and hands-on activities and opportunities to critically appraise research papers together. Several noted Friday sessions were less than ideal due to long lunch breaks and fatigue. Overall, participants' feedback emphasised the importance of interactive and contextually relevant training to support clinicians' engagement in research.

CHALLENGES ENCOUNTERED

One of the key challenges encountered was enabling staff to attend the workshop, given the difficulty of releasing the workforce from clinical duties. Holding the workshop on a Thursday afternoon followed by a full Friday was a strategic choice to minimise disruption to clinics and healthcare services requiring participants to engage during their personal time. The intensive 1.5-day format required a tightly structured agenda, which limited opportunities for in-depth reflection, particularly on complex and nuanced topics. To help address this, group exercises and presentations were incorporated throughout the program to support active learning and reinforce key concepts.

Despite these challenges, the overwhelmingly positive feedback highlights the value of staff placed in the workshop. The next challenge lies in translating the knowledge gained into practice. These reflections suggest several ways forward. Extending the workshop or delivering it in phases could support more gradual skill development. Follow-up sessions or post-workshop clinics may also help reinforce learning and provide ongoing guidance as participants begin applying their skills. The experience further highlighted the need for institutional support, particularly through protected time for research training within clinical roles.

RECOMMENDATIONS and FUTURE DIRECTIONS

Reinforce Motivation & Value of Research

Systematic reviews emphasised that linking research to clinical practice helps bridge the gap between academia and healthcare delivery, which can increase clinician engagement and practical relevance of research activities.⁹ To further support participants' motivation and appreciation of research, it is recommended to include a dedicated session highlighting real-world examples that show how research contributes to professional recognition and improves health service performance. Additionally, inviting a clinician-research role model to share their personal journey in integrating research into clinical practice, offering insights from those who have "walked the walk" can serve as a powerful means of inspiring clinicians to embed culture of evidence-based care¹⁰ and view research as part of their role and responsibilities.

ENHANCE DEPTH in ETHICAL and ANALYTICAL CONTENT

To address the decline in participants' confidence in areas related to ethics and data analysis, future workshops should aim to deepen engagement through more interactive and applied learning strategies. A presentation and guidance on ethical review processes by a member from the Medical and Health Research Ethics Committee (MHREC) could help participants understand the practical steps involved in preparing ethically sound research proposals within their own organisational or regional context. Localised input ensures that the guidance reflects the realities of specific institutional expectations and community considerations, which may differ from national frameworks or textbook examples.

To reinforce workshop learning, the inclusion of supplementary resources such as video tutorials, reading lists, or online modules can provide ongoing support and allow participants to revisit complex topics at their own pace. This is particularly valuable for areas like statistical methods, which often require repeated exposure that becomes clearer with practice.

Finally, creating pathways for ongoing mentorship is essential for sustaining learning and resolving challenges as they arise. Establishing access to mentors, individuals who can offer advice, methodological feedback, and procedural clarity can provide the "just-in-time" support clinicians need. Evidence from systematic reviews strongly supports mentorship as a mechanism to

enhance research engagement, productivity, and professional development among health professionals.^{11,12}

FOLLOW-UP SUPPORT

To sustain momentum and deepen participants understanding beyond the initial workshop, it is important to implement a structured system of follow-up support that adopts a more extended and flexible delivery model. This approach may include distributing dedicated contents across multiple sessions throughout the year, utilising interactive online platforms when in-person meetings are not feasible. Regular, interactive sessions, such as webinars, case-based discussions can provide participants with opportunities to revisit complex concepts, seek clarification, and apply learning to their own practice contexts. Collaborating with local universities or international research institutions can further enrich these sessions by drawing on diverse expertise, broadening perspectives, and enhancing the overall educational value. Such ongoing, accessible engagement fosters continuous professional development and supports the practical integration of research skills into routine clinical work. Continuous, applied learning of this nature has been shown to facilitate evidence-based change in professional practice, contributing to improved healthcare delivery and patient outcomes.^{13,14}

CONCLUSION

The workshop was a positive step towards strengthening research capacity among health professionals in Brunei. The pre- and post-workshop survey suggested that participants had effectively improved research knowledge, skills, and confidence in conducting and publishing research, reflecting the quality and relevance of the training. The practical, applied format was highly valued, with suggestions for more real-life case studies in future sessions. Importantly, this initiative contributes to building a research-active culture within Brunei's healthcare system, supporting evidence-based practice and professional growth. There was also a strong call for continued support, particularly in navigating the local ethics process, understanding journal requirements, and receiving guidance throughout the research journey.

Perhaps most importantly, the workshop brought attention to a broader need in creating a culture where research is not seen as extra work, but as a valuable part of professional growth and improving patient care. With the right systems in place, including mentorship,

institutional support, and protected time, health professionals in Brunei can move from learning about research to leading it. This workshop lays a solid foundation for that future.

Abbreviations

IMPACT	IMPlimentation And Clinical Translation
AHP	Allied Health Professionals
PICO	Computed tomography
PECOT	Computed tomography angiography
MHREC	Medical and Health Research Ethics Committee

Declarations

Conflict of interests

The authors declare no conflict of interests.

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None.

References

1. Kruk ME, Gage AD, Arsenault C, Jordan K, Leslie HH, Roder-DeWan S, et al. High-quality health systems in the Sustainable Development Goals era: time for a revolution. *Lancet Glob Health* 2018;6:e1196-e1252.
2. Lim MY, Kamaruzaman HF, Wu O, Geue C. Health financing challenges in Southeast Asian countries for universal health coverage: a systematic review. *Arch Public Health*. 2023;81:148.
3. Willis-Shattuck M, Bidwell P, Thomas S, Wyness L, Blaauw D, Ditlopo P. Motivation and retention of health workers in developing countries: A systematic review. *BMC Health Serv Res*. 2008;8:247.
4. Angkurawaranon C, Jiraporncharoen W, Chenthanakij B, Doyle P, Nitsch D. Urbanization and non-communicable disease in Southeast Asia: A review of current evidence. *Public Health*. 2014;128:886-95.
5. Ng M, Fleming T, Robinson M, Thomson B, Graetz N, Margono C, et al. Global, regional, and national prevalence of overweight and obesity in children and adults during 1980-2013: A systematic analysis for the Global Burden of Disease Study 2013. *Lancet*. 2014;384:766-81.
6. Yaqoob Mohammed Al Jabri F, Kvist T, Azimirad M, Turunen H. A systematic review of healthcare professionals' core competency instruments. *Nurs Health Sci*. 2021;23:87-102.
7. Gonzalez-Moreno M, Monfort-Vinuesa C, Piñas-Mesa A, Rincon E. Digital Technologies to Provide Humanization in the Education of the Healthcare Workforce: A Systematic Review. *Technologies (Basel)* 2023;11:88.
8. Al-Jundi A, Sakka S. Critical appraisal of clinical research. *J Clin Diagn Res*. 2017;11:JE01-JE05.
9. Boaz A, Hanney S, Jones T, Soper B. Does the engagement of clinicians and organisations in research improve healthcare performance: A three-stage review. *BMJ Open*. 2015 ;5:e009415.
10. Shepherd M, Endacott R, Quinn H. Bridging the gap between research and clinical care: strategies to increase staff awareness and engagement in clinical research. *J Res Nurs*. 2022;27:168-181.
11. Sambunjak D, Straus SE, Marušić A. Mentoring in academic medicine: A systematic review. *JAMA*. 2006;296:1103-15.

12. Straus SE, Johnson MO, Marquez C, Feldman MD. Characteristics of successful and failed mentoring relationships: A qualitative study across two academic health centers. *Academic Medicine* 2013;88(1).
13. Davis D, O'Brien MAT, Freemantle N, Wolf FM, Mazmanian P, Taylor-Vaisey A. Impact of formal continuing medical education: Do conferences, workshops, rounds, and other traditional continuing education activities change physician behavior or health care outcomes? *J Am Med Assoc* 1999;282(9).
14. Forsetlund L, Bjørndal A, Rashidian A, Jamtvedt G, O'Brien MA, Wolf F, et al. Continuing education meetings and workshops: Effects on professional practice and health care outcomes. *Cochrane Database of Systematic Reviews* 2009;(2).

PRE-WORKSHOP SURVEY

Thank you for registering your interest to participate in the upcoming Workshop titled *Empowering Brunei Darussalam's Health Future: Showcasing and Promoting the Value and Impact of Health Professions Through an Evidence-Based Approach, 1-2 May 2025*.

Before we begin, we would like to understand your current level of knowledge and confidence regarding research and publication. Please respond honestly. Your answers will help us tailor the session to better meet your needs.

Instructions:

Please rate how much you agree with each statement before attending the workshop.
(1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree)

Section 1: Knowledge	1	2	3	4	5
1. I understand the basic steps involved in conducting research.					
2. I feel confident in developing a research question or idea.					
3. I am familiar with research methodologies commonly used in health professions.					
4. I know how to plan data collection and analysis for a research study.					
5. I understand the process of writing a research paper for publication.					
6. I feel confident in identifying suitable journals for research publication.					
7. I believe research and publication can enhance the value and recognition of health professions.					

Section 2: Expectations	1	2	3	4	5
8. I expect to learn how to design a research study.					
9. I expect to gain knowledge about research methodologies.					
10. I expect to understand how to analyse research data.					
11. I expect to gain insight into ethical considerations in research.					
12. I expect to improve my skills in writing research papers for publication.					
13. I expect to learn about research tools and resources available for health professionals.					
14. I expect to understand the importance of evidence –based practices in health professions.					

POST-WORKSHOP SURVEY

Thank you for attending the workshop *Empowering Brunei Darussalam's Health Future: Showcasing and Promoting the Value and Impact of Health Professions Through an Evidence-Based Approach*. We kindly ask for your feedback to assess how the workshop has impacted your understanding, skills, and confidence in conducting and publishing research. Your honest responses will help us improve future sessions.

Instructions:

Please rate how much you agree with each statement before attending the workshop.

(1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, 5 = Strongly Agree)

Section 1: Knowledge	1	2	3	4	5
1. I now better understand the steps involved in conducting research.					
2. I feel more confident in developing a clear research question or idea.					
3. I am more familiar with research methodologies relevant to health professions.					
4. I am better able to plan appropriate data collection and analysis for a study.					
5. I have a clearer understanding of how to write and structure a research paper.					
6. I feel more confident in selecting appropriate journals for submission.					
7. I am motivated to contribute to strengthening health professions through research and publication.					

Section 2: Expectations	1	2	3	4	5
8. The workshop met my expectation of learning how to design a research study.					
9. The workshop met my expectation in gaining knowledge about research methodologies.					
10. The workshop met my expectation in understanding how to analyse research data.					
11. The workshop met my expectation in gaining insight into ethical considerations in research.					
12. The workshop met my expectation in improving my skills in writing research papers for publication.					
13. The workshop met my expectation in learning about research tools and resources available for health Professionals.					
14. The workshop met my expectation in understanding the importance of evidence-based practices in health professions.					

Section 1: Knowledge (Additional comments)
15. What aspects of this workshop were most useful or valuable?
16. What topics would you like to learn more about in future workshops?
17. What suggestions do you have for improving this workshop?