Policy Document
Research and Reportage (2024)

Executive Summary

High-Quality Research & Research Integrity

High-quality research is rigorous, transparent, conducted with accountability, innovative and efficiency. However, fabrication, falsification, and plagiarism (all forms of research misconduct) are all very common in research. To prevent poor outcomes resulting from academic misconduct, it is important that measures are implemented to promote research integrity and best practices.

AMSA calls upon the establishment of an independent body to investigate research misconduct. Moreover, AMSA calls on research institutions and researchers to promote a culture that encourages and rewards research integrity.

Participant Diversity in Clinical Trials

A range of disadvantaged groups are currently underrepresented in clinical trials including women, the elderly, the LGBTQIASB+ community, people from culturally and linguistically diverse backgrounds, and Aboriginal and Torres Strait Islander peoples. Consequently, the health outcomes of these groups are poorer as research findings are generalised and applied to marginalised groups. There are a number of ways to improve participant diversity, including addressing upstream socioeconomic factors enabling the continuous marginalisation of disadvantaged communities.

AMSA calls for the development of guidelines clearly defining the 'fair recruitment' of participants. It is also important that funding models are reviewed or established to ensure the funding of research targeting these underrepresented groups. Additionally, AMSA encourages community involvement in every stage of research and the adoption of more inclusive practices such as using local sites and translated research information.

Research Biases

Though industry funding has done a lot of spearhead research development, there are still some precautions that need to be taken when analysing industry-funded research and or starting new research and considering industry-funding. The omitting of study results (particularly those that contradict hypotheses), is

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dangerous to patient health as it can lead to the development of clinical guidelines that are not in line with best practices.

AMSA calls for improved transparency of industry funded research, including the advanced publication in peer-reviewed journals.

Open Access (OA) Research

Medical research is evolving at an incredible pace and with that, so is our understanding of clinically efficacious care. For these reasons, it is important that those involved in patient care are able to stay informed and educated around ongoing evidence-based developments and are able to thus improve patient care/outcomes without being limited by research paywalls.

As such, AMSA calls upon the Australian Government to encourage the OA publication of results pertaining to projects, whether publicly or privately funded. AMSA also calls upon research institutes to implement local and systemic systems that enable the monitoring of institution-wide compliance to OA policy. This also involves providing staff and students with the appropriate education and training necessary to uphold OA policy standards in their research. On an individual level, AMSA asks that researchers and academics are aware of any OA policies at their institution and implement policies supportive of OA in cases where they don't already exist, as well as being mindful of publishing practices - ensuring to publish in OA journals/repositories where possible.

Evidence-Based Medicine (EBM)

In practice EBM is considered a core competency for most health professionals, and efforts have been made to integrate such practices into teaching curricula at all stages of a physician's training. In saying this, current efforts still fall short of what is required. Insufficient knowledge and skills in EBM remain the most significant barrier to its proper implementation and it is hypothesised that a reason for the difficulty in its uptake stems from the inconsistency in EBM teachings across the nation.

Accordingly, AMSA calls upon all Australian higher education institutions and other relevant bodies to assess the quality and content relevant to EBM at their institution(s) and adjust the curriculum to ensure adequate exposure to EBM within the teaching environment. AMSA also calls upon researchers and academics at an individual level to investigate barriers to the implementation of EBM in clinical practice and proactively contribute to the evidence base by conducting research to guide evidence-based solutions. For health practitioners who are actively incorporating EBM in their care - it is important that they are taught to be judicious when using the knowledge they have gained, ensuring that evidence does not supplant professional judgement, but rather is used cohesively to elicit the best possible outcome.

Medical Student Involvement in Research

Increasing research requirements for career progression have resulted in increased medical student involvement in research. However, several barriers to their involvement exist. In order for students to thrive in the world of research, a great deal of support is required from stakeholders and those already established in the field. Supportive and insightful mentorship is required to not only encourage student participation but also enable students to develop important clinical skills and pursue their areas of interest.

Moving forward, AMSA calls upon research institutes to provide students with appropriate and sufficient research opportunities. As part of this process, policies must be developed that help researchers and medical students understand their respective roles and expectations within any research endeavours they choose to undertake. For effective reflection, it is advised that feedback is collected from medical students about their ongoing experiences in research, with feedback being properly considered and actioned where appropriate. AMSA also calls upon all researchers to be conscientious when working with students in research - committing to best-practice mentorship of said students.

Policy Points

AMSA calls upon:

1. The Federal Government to:
    a. Encourage the collection of representative data by:
        i. Devising and enforcing guidelines detailing diversity of research participation and the recruitment of representative subgroups to which the research pertains;
        ii. Allocating more resources and funding for research involving participants who are currently under-represented in clinical trials;
        iii. Prioritise funding studies in under-researched areas of medicine including women’s health, mental health, migrant health, Aboriginal and Torres Strait Islander health, LGBTQIASB+ health, rural outcomes and Neglected Tropical Diseases.
    b. Encourage the release of raw data from research where appropriate and ethical;
    c. Encourage the formation of an independent body to review cases of research misconduct;
    d. Develop a standardised database for OA publishing resources. This may include information around and links to OA journals, their publications and/or other relevant free-to-access sources. The goal would be standardise information pertaining to OA publishing to minimise conflict between sources.
2. The Australian Research Council and other governing bodies to:
    a. Encourage an environment of self-regulation for research misconduct and of scientific rigour;
    b. Provide adequate and ongoing training and support about research integrity and misconduct;
    c. Support OA publication by:
        i. Encouraging OA publication of results pertaining to projects, whether publicly or privately funded;
        ii. Implementing systems to support and monitor institution-wide compliance to OA policy;
        iii. Supporting staff and students financially, and through education and training to uphold OA policy standards in their research outputs;
    d. Provide detailed ethical guidelines on participant recruitment in clinical trials, with particular focus on participant rights and representation;

   e. Provide training on the benefits and the means to achieve a representative sample of research participants;
   f. Encourage staff to educate themselves on or pursue research in understudied areas such as women's health, mental health, migrant health, Aboriginal and Torres Strait Islander health, LGBTQIASB+ rural outcomes and Neglected Tropical Diseases.
3. Australian medical schools to:
   a. Support medical students to undertake extra-curricular research opportunities by;
      i. Developing policies to help researchers and medical students understand their respective roles and expectations in research endeavours (including how each individual involved will benefit from the collective completion of a research task);
      ii. Exposing students to research environments and experiences that teach them the importance of research integrity, whilst reiterating the need to critically appraise findings to optimise patient care;
      iii. Collect feedback from medical students about their experiences in research as a method of ongoing reflection and appraisal.
   b. Assess the quality and content relevant to EBM at their institution(s) and adjust their curriculum accordingly.
4. Companies and organisations that fund and/or sponsor research to:
   a. Ensure the advanced publication of protocols for clinical trials to ensure transparency of post-trial publications where appropriate;
   b. Advocate for the inclusion of negative result studies and to encourage the release of raw data from research where appropriate and ethical;
   c. Support OA publication by:
      i. Securing an undertaking from researchers that they will publish in OA and support these researchers to do;
      ii. Investing in programs that support the transition to OA;
   d. Base research funding to include priority areas as identified by clinicians, such as women's health, mental health, migrant health, Aboriginal and Torres Strait Islander health, LGBTQIASB+ health, rural outcomes and Neglected Tropical Diseases.
5. Australian researchers to:
   a. Continue conducting research with high scientific rigour and validity, including the advanced publication of protocols for clinical trials to ensure transparency of post-trial publications where appropriate;

b. Engage in OA research by:
    i. Being aware of any OA policy of their institution and its associates;
    ii. Where the above does not currently exist, initiating and supporting action to implement policies supportive of OA at their institution and its associates;
    iii. When financially supported, publishing in OA journals, deposit manuscripts in OA repositories, and ensure underlying data is openly available where appropriate, and where prior consent has been obtained from research participants;
c. Advocate for the publication of all clinical trials in their respective capacities;
d. Improve data collection by:
    i. Ensuring participant information contains simplified English with minimal jargon, and that information is translated when necessary;
    ii. Ensuring that research involving diverse and vulnerable populations is of benefit to the populations being studied, and is conducted in a fair, respectful and appropriate manner;
    iii. Recognising that research with Aboriginal and Torres Strait Islander peoples should be based on spirit, integrity, cultural continuity, equity, reciprocity, respect, and responsibility and comply with the Ethical Conduct in Research with Aboriginal and Torres Strait Islander Communities Guidelines;
    iv. Continuing to support and advocate for community-led Indigenous research via roles such as chief researcher or research team members;
    v. Maximising efforts to achieve representative samples, including taking on participants form marginalised communities;
    vi. Prioritising under-researched areas of medicine including women's health, mental health, migrant health, Aboriginal and Torres Strait Islander health, LGBTQIASB+ health, rural outcomes and Neglected Tropical Diseases;
e. Investigate barriers to the implementation of EBM in clinical practice and conduct research to guide evidence-based solutions;
f. Commit to best-practice mentorship of students undertaking research (including engaging with students, encouraging involvement and fostering important non-theoretical clinical skills).

6. Medical Students to:
    a. Engage with existing and forthcoming research;

b. Appreciate the importance of research undertaken with integrity and rigour; and
c. Engage in informed and judicious use of the evidence when practising EBM.

Background

Defining High Quality Research

The National Health and Medical Research Council (NHMRC) defines high quality research as research that is [1]:

- **Rigorous:** uses robust scientific methods and avoids or acknowledges biases.
- **Transparent:** research findings, methodologies and supporting data are made openly accessible, and shared responsibly and accurately.
- **Conducted with accountability:** in accordance with relevant legislation and policy guidelines.
- **Innovative**: the need for both novel research and replication studies is balanced.
- **Efficient:** there is timely reporting and synthesis of research.

Research Integrity & Academic Misconduct

According to the NHMRC Research Integrity and Misconduct policy, the primary responsibility of researchers is to conduct research with integrity [2]. Conversely, research misconduct, as defined by the U.S. The Office of Science and Technology Policy is the “fabrication, falsification, or plagiarism in proposing, performing, or reviewing research, or in reporting research results.” that is “committed intentionally, or knowingly, or recklessly,” [3]. However, a 2023 meta-analysis and systematic review of biomedical research showed that research misconduct was prevalent in most articles reviewed. Statistics suggest that the prevalence of plagiarism varies between 4.2% to 27.9% depending on the type of study. The rates of data fabrication and falsification are estimated at 4.5% to 21.7% and 9.7% to 33.4 % respectively [4]. Such a high prevalence of misconduct is extremely dangerous because “if healthcare practitioners rely on information based on fabricated study data, people may be in danger or suffer harm” [4]. Indeed, modern clinical guidelines are centered around research, and if research misconduct is widespread, guidelines will likely be based on some level of incorrect information, putting patients at risk. Not only this, but research misconduct can result in the misappropriation of research funding, slowing the progress of research and medicine, and further harming patients [5].

Minimising Research Misconduct

With these confronting figures, the Australian Code for the Responsible Conduct of Research calls on research institutions to provide ongoing training that supports responsible research conduct [6]. In fact, the NHMRC defines it as misconduct if institutions do not engage in this responsibility [2]. This focus on institute culture and training is a strength of Australia’s approach to promoting research integrity, as a study on the best ways to prevent research misconduct concluded that efforts to reduce it should be focussed on promoting research integrity policies, improving mentoring and training, and encouraging transparent communication amongst researchers [7].

Common recommendations to improve institute culture and training involve making it clear that if fellow researchers report misconduct, they will not face retaliation, setting clear expectations of supervision, providing high-quality research mentoring, and setting an expectation of following clear and rigorous research procedures with rigorous record taking [8].

However, self-regulation of scientists and changes to institute culture is not the only thing that can be done to minimise research misconduct as government regulation can also play a role. In contrast to most countries with developed research sectors, Australia does not have an independent authority with the power to address allegations of research misconduct. Instead, under the Australian Code for the Responsible Conduct of Research, the investigation of potentially dangerous or unethical research relies solely on self-regulation, giving research institutions full control of whether or not they investigate allegations of research misconduct. Investigations that do take place can be run with no public transparency and their findings do not have to be made public. Though appeals against these internal investigation outcomes can be made through the Australian Research Integrity Committee (ARIC), this approach has raised major concerns regarding conflicts of interest, inadequate penalties, lack of transparency, and flawed appeals processes, and is clearly not sufficient as many Australian research papers have been retracted over the past 20 years. This problem has been recognised by the Australian Academy of Science which has considered establishing a body for overseeing research misconduct in Australia [5].

Participant Diversity in Clinical Trials

Increased participant diversity in clinical trials would produce more effective therapies and enable equal access to such treatment, upholding the medical principles of justice, advocacy, and advancing knowledge [9]. In Australia, minority groups including Aboriginal and Torres Strait Islander peoples, people from culturally and linguistically diverse (CALD) backgrounds, the elderly, people from lower socio-economic backgrounds, the LGBTQIASB+ community, and women, tend to have less participation in clinical trials [10-13]. Approximately 16% of the Australian population is over the age of 65, with 23% of Australians identifying as CALD [14-15]. Furthermore, Aboriginal and Torres Strait Islander peoples make up 3.8% of the population and need to be researched in ways that bring benefits to the community [16]. Collectively, the outcomes of clinical trials often have limited ability to be generalised due to under-representation of these groups, resulting in a lower standard of care and inequity [11].

It is important to recognise that there has been a history of ill assumptions and racist beliefs surrounding Aboriginal and Torres Strait Islander culture and values following colonisation of Australia. This has lead to structural violence which has had devastating long-lasting effects that continue to be felt today, with the rate of disease burden being up to 2.3 times high for Aboriginal and Torres Strait Islander people than for the rest of Australia [17] . Some efforts have been made to combat this in research. Certain guidelines such as the Ethical Conduct in Research with Aboriginal and Torres Strait Islander Peoples and Communities have been put in place to ensure that research involving such participants is meaningful and ethically sound [18] and there now exists a substantial amount of literature on Indigenous health. However, what is truly needed is an effort to pursue research that is beneficial to the community and use research to bring about change in Aboriginal and Torres Strait Islander communities [19]

Current guidelines from the National Statement of Ethical Conduct in Human Research state that research should be “just” and that the “process of recruiting participants is fair” [20]. However, there is no description of what constitutes “fair recruitment”, which threatens the effectiveness of these guidelines.

For example, 20% of cancer clinical trials in parts of Australia continue to exclude participants based on English literacy and proficiency, despite around 23% of the population identifying as having a first language other than English [21-22]. Therefore, guidelines about the diversity of participants in clinical trials need to be reinforced and facilitators to language barriers need to be explored. These include translated participant information and the use of simplified English language [11]. If this is not done, and CALD people continue to be under-reperesented in research, we are likely to continue to see the health gaps we see today, with CALD people having a higher prevalence of chronic conditions [14].

Women, especially women of colour are another group that are sometimes underrepresented and and often under-analysed in samples for medical studies [23] as only 5-14% of studies across disciplines examine outcomes by gender [24]. The failure to examine outcomes by sex and gender prevents the true effectiveness of treatments for women being identified. This continues a historical trend of medical studies excluding women, and research data being collected from men which was generalised to women [25]. Yet, “sidelining women reduces the wider applicability of research findings, because biological characteristics may influence disease presentation, pathophysiology, and responses to treatment” [26]. This gap in research greatly contributes to health inequities and social injustice [22]. For example, while women live longer on average than men, they experience a lower quality of life, experiencing chronic health conditions at higher rates, and experience poor mental health at higher rates [26]. This situation really drives forward the strong need for women's health to be studied in more depth and for women to be continually included in medical studies.

Increasing Diversity in Clinical Trials

A common excuse in research for the underrepresentation of marginalised people is the lack of willingness to participate, however studies show that these groups are just as likely as other groups to participate in research if asked [27]. Despite this, it is still essential to understand that there are many reasons why these groups may not be willing to participate in research. These include long-standing historical and contemporary abuses in medical research and medicine in general, and economic factors which are compounded by the marginalisation of certain groups. Often groups that are underrepresented in research are also more likely to have less financial resources, which can make participating in research difficult. This may be because of jobs with fewer options for time off or more responsibilities to care for children or elderly family members (responsibilities people from lower-income communities often juggle with full time work [27]). Worldwide, nearly 50% of the people who participate in clinical trials are considered "high income," despite representing only 16% of the total population; while the "lower middle class" makes up 38% of the population and only 13.5% of the people who participate in clinical trials [26]. However, researchers can still implement a wide range of support structures to maximise the likelihood of more disadvantaged communities participating in research. These include:

- **The development of research questions:** laypersons are rarely involved in developing research questions, which can cause current research questions to not be geared towards their needs. To minimise this, involvement of the community at every stage of research is a useful strategy for enhancing the participation of underrepresented groups in research [27].

- **Research site selection:** the greater the distance between the participants' home communities and research facilities, the less likely they are to participate. To overcome this barrier, offering subsidised transportation to participants or creating more local research facilities could improve rural representation in studies [27].

- **Inclusive participant recruitment strategies:** the means used to recruit participants (eg: in what ways the study is advertised) and the sampling technique used will influence the diversity of the research. Targeting marginalised communities directly with participation recruitment may sometimes be necessary to increase the diversity of population samples [27].

- **Including informed consent processes, particularly focussing on the potential benefits of the study**: if potential participants believe that might provide personal, familial, or societal benefits, they are more likely to participate [27].

- **The development of multilingual recruitment and consent documents** can help maximise the number of people from culturally and linguistically diverse backgrounds that can participate in a study [27].

As stated above, to be truly representative, research must be conducted in areas of clinical importance and relevance to the populations it is serving. Currently, in Australia, clinicians have argued that there is not enough government funding for research in key neglected areas such as women's health, mental health, and rural health [28, 29]. Internationally, much of the same pattern is also common, however, an even bigger problem is apparent. Indeed, it has been estimated that less than 10% of global spending on health research is devoted to diseases or conditions that account for 90% of the global disease burden [30]. Most of the reason for this is the under-researching of neglected tropical diseases (NTDs). NTDs are hidden diseases as they affect almost exclusively extremely poor populations living in remote areas beyond the reach of health services [31]. These diseases are estimated to affect more than 1 billion people, while the number of people requiring interventions for these diseases (both preventive and curative) is 1.6 billion [32]. All in all, these diseases cost tens of millions of disability adjusted life years. However, governments have a lot of power to limit this as by directing funding, they can guide research priorities and by involving underrepresented stakeholders, they can ensure funded research represents the demographics of the population most in need [33-35].

Industry Funding of Medical Research

Industry funding plays a key role in medical research and innovation and is undoubtedly playing a key role in improving healthcare practices and technologies. Nonetheless, it is critical to view industry-funded research with caution. This is because industry funding (eg: from food or pharmaceutical companies) can influence the design, conduct, and publication of research. Not only does industry-funded research prioritise lines of inquiry that focus on products or activities that can be commercialised (e.g., drugs or devices) and usually focuses on 'profitable' diseases that impact developed countries, but industry-funded research is more likely to have results and conclusions that favour the sponsor's product than those that are not industry sponsored [36].

Another problem with industry-funded research is that it, amongst many other factors, can result in negative results (eg: those that are unfavourable towards a product) not being published. This means that the availability of data for further research/ available to clinicians is not representative of all the collected data [37]. This distorts the results of meta-analyses and systematic reviews which evidence-based medicine is reliant upon [38]. This "could have major consequences for the health of millions" and could seriously distort the literature and drain resources by undertaking research in areas where a multitude of negative results already exist [39]. There is also evidence to suggest that this impactful problem is only increasing significantly [38]. However, this complex problem is contributed to by many factors that increase the likelihood of publication bias, such as [40]:

- Acquiring insignificant results from small studies.
- The researcher(s) deciding not to publish due to negative results.
- Journals rejecting articles with negative results.
- Researchers not publishing due to study results going against the sponsors' expectations.

One method to improve research quality and transparency is the advanced publication of study design for clinical trials prior to commencement. Although current agencies require publication of protocols to registries (including ClinicalTrials.gov), it is not peer-reviewed, and generally lacks extensive detail. Advanced publication in peer-reviewed journals would facilitate the improvement of study design, ensure transparency in study protocol and reporting which leads to increased quality of results [41].

Open Access Research

Research and the dissemination of knowledge are central to the progression of every field of academia, yet traditional methods of publishing continue to restrict access to those able to afford subscriptions. Despite efforts to prioritise research transparency and openness, such subscription-based models continue to be the status quo - even for much of the research conducted through private, public, or other public interest sources such as charitable organisations [42]. With the continuing evolution of medical research and what is considered "clinically efficacious practice" - this rigid, inflexible model demands change and requires a shift towards more widely accessible and available research for all. Established in the *Budapest Open Access Initiative* and *Berlin Declaration*, Open Access (OA) refers to a publishing strategy for scholarly communication that makes research information available to readers at no cost [43-44]. This involves removing financial, legal, or technical barriers to access and ensuring that anyone can read, distribute and use such material for education or otherwise [45-46]. The OA movement offers numerous advantages to both researchers and their audiences alike - research visibility is vastly increased and as a consequence, important (and potentially overlooked) findings can be put into action [47].

Today, there are *four* primary sub models of scholarly OA article publishing [48]:

- **Gold:** Every article is published through OA and the journal is indexed through the Directory of Open Access Journals (DOAJ). The author pays the article processing charge.
- **Green:** Manuscripts require reader payment but can be archived in a disciplinary open access archive. An embargo period may be required prior to archiving the article.
- **Hybrid:** Authors have the option to publish through either green or gold models.
- **Bronze:** A less common option than the aforementioned 3 models. Manuscripts are published in a subscription-based journal without a clear licence.

The number of OA policies has grown by 30% in the last four years, with over 1000 OA mandates currently recorded worldwide from a range of funding bodies and research institutes across countries such as the United States, United Kingdom, India, Canada, Australia, China and more [49-50]. Within Australia, institutions such as the NHMRC and Australian Research Council (ARC) have contributed significantly to current OA repositories. The NHMRC mandates OA sharing of publications funded by their financial scheme [51]. Likewise, the ARC specifies that "any research outputs arising from ARC funded research must be made openly accessible within a 12 month period from the date of publication [52]." A model proposed in early 2024 by Australia's Chief Scientist, Dr Foley, goes further - the plan (under departmental consideration) would be to create a centralised repository for Australians to access research papers for free via their MyGov account [53]. Other countries have also followed suit, with the United States mandating all federally funded research to be available to the public by 2026 [54]. Despite being a step in the right direction, this model comes with a key challenge. Namely, it fails to account for the entrenchment publishers have on the academic workflow. Instead, some believe that reform is needed in how grants are awarded, such that academics have more freedom when considering alternative avenues for promotion. The increase in OA uptake also comes with the challenge of combating predatory publishers that exploit the fallible OA model for the purpose of profit rather than furtherance of knowledge [55]. Importantly, it's also imperative to note that currently, OA publishing is not standardised. Because of differences in databases, document types and related terms, facts around OA publishing can be misleading at the best of times, with a large degree of variance between reputable sources.

Importance of Evidence-Based Medicine

With medical knowledge constantly evolving, clinicians must keep up-to-date with the latest developments to provide their patients with the best possible care in accordance with the principles of EBM [56]. EBM involves the integration of clinical expertise, patient values, and best available evidence within the broader healthcare context. The five-step process of EBM is as follows [57]:

1. **Ask the question:** derive a clinically sound question from the case.
2. **Acquire the evidence:** select appropriate sources to then acquire the evidence
3. **Appraise the evidence:** consider validity and applicability.
4. **Apply the evidence:** integrate evidence with clinical expertise and patient preferences.
5. **Assess the effects:** evaluate the performance and success of the change.

EBM is essential for the provision of quality patient care. For example, *low-value care* occurs when interventions with evidence of very little to no benefit, a risk of harm that exceeds the likely benefit, or costs that are disproportionate to its benefits are delivered to patients [58]. Such care can have severe physical, psychological, and financial implications for patients and their caregivers alike [59]. Comparatively, high-value healthcare involves safe and high quality services; care that is based on clinical evidence, whilst also addressing waste by directing resources to areas in which they are most needed. In saying this, the practicality of EBM, and other concerns surrounding its use in everyday medical practice, have been raised [60]. For example, the often misguided assumption by clinicians and evidence-based guideline creators that statistical significance automatically translates to clinical significance; the overemphasis on following algorithmic rules and technology-driven prompts that may detract from patient-centred care and substitute expert judgement; and the difficulty in applying guidelines about a single condition to patients with multiple comorbidities. “The laudable goal of making clinical decisions based on evidence can be impaired by the restricted quality and scope of what is collected as “best available evidence [61].” Concerns around EBM are well-founded and while it’s certainly important for clinicians to incorporate good EBM, they must also be wary of adopting an overly doctor-centric approach, instead the clinician should use “the best scientific evidence available, in consultation with the patient, to decide upon the option which suits the patient best.”

Application of EBM In Practice

EBM is widely considered a core competency for health professionals of every kind, and has been increasingly integrated into undergraduate, postgraduate and continuing professional education healthcare curricula in recent decades [62]. For example, the Australian Medical Council requires that medical school programs “equip graduates for evidence-based practice and the scholarly development of medical knowledge” to meet their accreditation standards [63]. Despite this, insufficient knowledge and skills in EBM remains one of the most significant barriers to its proper implementation, potentially due to inconsistency in the quality and content of teaching across the nation. For example, courses often only focus on one of the five steps in the (previously outlined) process of EBM, whereas all should be taught and evaluated in trainee healthcare professionals [64]. Whilst multiple resources on teaching EBM have been developed to guide healthcare educators and hundreds of articles have been published on the topic, recent reviews evaluating EBM education point to poor uptake of current resources [65]. For this reason, further investigation into the quality and consistency of EBM education across medical schools and beyond is required, as well as additional insight into why EBM uptake is so inconsistent across the country.

Medical Student Involvement in Research

There has been significant attention around the increasing research requirements for progression along the medical training pathway, with specialty training programs often expecting that prospective applicants can demonstrate a long-held commitment to research [66]. This undue pressure is “forcing” many medical students into research solely to meet specialist entry requirements, which diminishes the potential benefits that come from genuine interest and engagement. When done correctly and with the right intentions, early research exposure can help increase understanding around the importance of EBM, as well as cultivate valuable skills around research literacy, critical appraisal and effective teamwork that may otherwise be overlooked in a purely theoretical education [67-68].

Currently however, a significant barrier to medical students’ involvement in research is the lack of established knowledge around research opportunities [69-71]. Students are often ill-equipped with knowledge on how to properly acquire research opportunities, suggesting a need to overhaul research avenues and their accessibility - particularly for those attempting to take their initial step into the world of research [72]. Eventually, once opportunities are acquired - there is further uncertainty around what exactly is required [70]. Oftentimes, it is unclear how the student will receive credit for their work, what proportion of the authorship will be attributed to them, the hours they must commit to their research and support they will have during the entire process [71].

In order for medical students to thrive in the world of research they need support from relevant stakeholders. This includes the provision of supportive and insightful mentorship that not only encourages student participation but also enables students to develop important clinical skills and pursue their areas of interest [73]. Such oversight is important for consolidating students' appreciation of EBM and their role as not only consumers, but important contributors to the evidence base [74].

Moving forward it is crucial that changes are made to better integrate clinical research into medical school curricula such that students are more prepared, equipped and incentivised to lean into evidence-based clinical care that elicits better patient outcomes. More transparency is also required around research opportunities and how to access them, as well as better supporting infrastructure in the way of mentors and other relevant stakeholders.

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Policy Details:

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Category: H – Ethics

History: Reviewed Council 3, 2024

Eloise Fleming (Lead Policy Author), and Leroy Christian; with Luka Bartulovich (National Policy Mentor), Jonathon Bolton (National Policy Officer), and Harry Luu (National Policy Secretary).

Reviewed, Council 1, 2020

Mary Malek, Eeleen Tey, Akhilesh Ayalasomayajula, Wilhelm Christen Fernando, Shahmza Merani, Terra Sudarmana, Melissa Maysa Younes, Travis Lines (National Policy Officer)

Adopted, Council 3, 2016 as an amalgamation of *Research (Open Access)* 2013 and *Research (Trial Registration and Reporting)* 2013

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