Dissemination patterns of scientific abstracts presented at the first and second African Conferences of Emergency Medicine

by

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DECLARATION

I, Marlin Abrams, hereby declare that the work on which this thesis is based is my original work (except where acknowledgements indicate otherwise) and that neither the whole work nor any part of it has been, is being, or is to be submitted for another degree in this or any other university. I authorise the University to reproduce for the purpose of research either the whole or any portion of the contents in any manner whatsoever. I further declare the following:

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Abbreviations

LMIC	-	Low- and middle-income country
MMed	-	Master of Medicine
HIC	-	High income country
HIV	-	Human immunodefiency virus
HINARI	-	Health Internetwork Access to Research Initiative
RTC	-	Randomised Control Trials
FOAMed	-	Free Open Access Medical Education

Part A: Literature review

Evidence-based medicine integrates the best available research with clinical expertise to achieve effective and patient-centred management. (1,2) Biomedical research provides evidence that can be used on its own or in combination with other research in systematic reviews and meta-analyses. Ongoing research is thus vital for the advancement of knowledge to improve current practices and subsequently enhance quality patient care. Multiple factors influence the attainment of research, especially in low- and middle-income countries (LMICs). Limiting factors often relate to the availability of funding, resources, and skilled researchers. However, dissemination of research results is as important as the knowledge generating process and its role should not be under estimated.

Objectives of literature review

- To provide overview of development of evidence-based medicine
- To provide an overview or research capacity gaps in Africa
- To describe the significance and methods of dissemination of biomedical research
- To evaluate the factors associated with publication and non-publication of biomedical research

Literature search strategy including inclusion, exclusion and quality criteria

The literature search strategy consisted of using a variety of online medical and scientific databases including PubMed, NBCI, Google Scholar, and EMBASE, to maximize yield of relevant references to this study. Searches were conducted using MeSH terms, which included [evidence-based medicine; biomedical research; research capacity gaps; research capacity strengthening; dissemination; publication bias; emergency medicine; world health organization]. The relevant abstracts and titles of studies identified from the search were obtained and reviewed individually. Those that could not be obtained from the online library were excluded. Only the English abstracts and papers were reviewed, other language-journals were excluded. More references were identified from the already chosen references were also reviewed and included. Included papers were limited to papers published after 2000, except where the content proved to be of interest.

The MMed literature review does not require a formal assessment of the quality of papers. Although this was not formally done, we sought to emphasise the papers we felt were of a better quality or relevance through inclusion in the brief review.

Summary or interpretation of literature

The development of evidence-based medicine

The concept of evidence-based medicine is relatively new. The term *evidence-based medicine* was first used in the 1990s and was defined as "a systemic approach to analyse published research as the basis of clinical decision making." (3) In 1996, the definition was changed to "the conscientious and judicious use of current best evidence from clinical research in the management of individual patients." (3)

The development of evidence-based medicine can broadly be categorized into four periods. The *ancient period* occurred before the seventeenth century and was known for anecdotal information. It was followed by the *Renaissance period* which lasted till the late nineteenth century. This phase was known for its infamous use of bloodletting, but due to complications and a high failure rate lead to the realization that the procedure might have no scientific merit. This sparked the *transitional period* which marked the development of randomized controlled trials and the establishment of registries. This era continued till the 1970s and was the precursor of the modern era of *evidence-based clinical practice* that took off in the late twentieth century. A hallmark of this era was the establishment of the Cochrane Collaboration and the creation of high-quality systematic reviews. (3)

The purpose of evidence-based medicine is to ensure safe, efficient, affordable and effective clinical practices (2,3). It aims to improve the quality of patient care by recognizing practices that work and abolishing those that are ineffective or harmful. Evidence-based medicine scrutinises and incorporate the best evidence through a five-step model (Figure 1). The process starts by formulating an answerable clinical question, followed by a thorough literature search, before assessing the evidence for validity, generalisability and efficacy. A decision then needs to be made combining the found evidence with the clinical experience of the healthcare provider and the individual needs of the patient. Evaluating the effect of the decision is necessary to assess compliance, effectiveness, patient satisfaction and adverse reactions. The process restarts if the desired outcome has not been achieved.

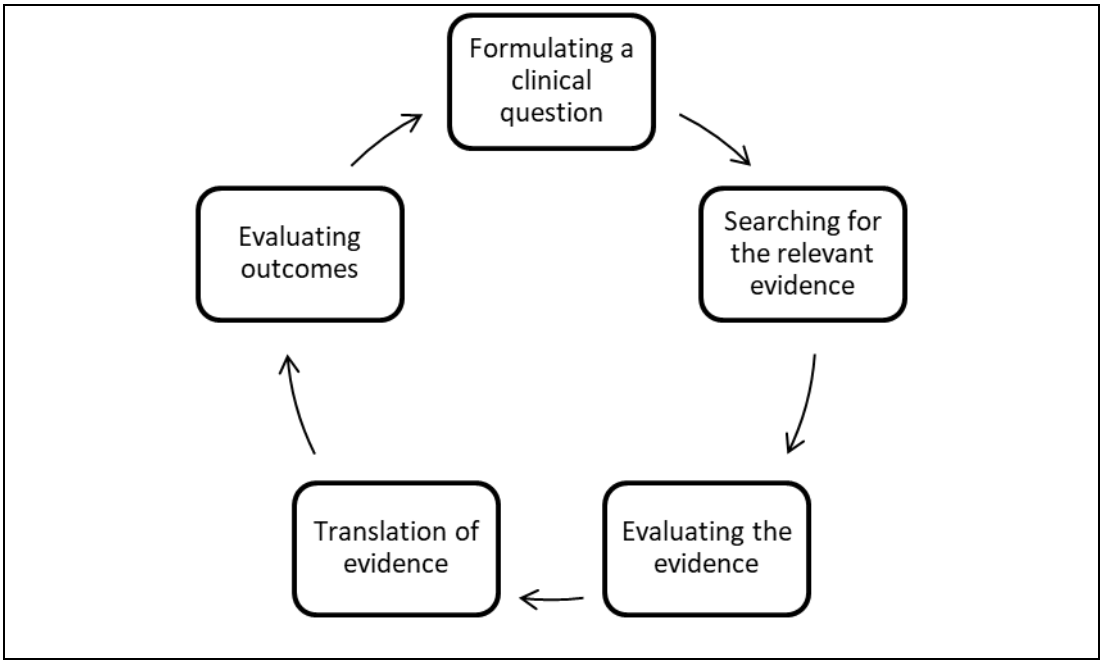

Figure 1: The Evidence based model (1)

The evidence-based model aims to develop the most efficient and least harmful strategies to improve the quality of healthcare. (1) Quality research outputs are thus needed to preserve and improve evidence-based medicine.

Research ideas originate from unanswered clinical questions or where insufficient or inconclusive data exists. Research is a planned and organised process, with various checkpoints to ensure progress. The process starts with formulating an idea and consulting with various stakeholders. Subsequently, a research protocol is written and submitted for ethical approval. Data collection and analysis follows. The final step is the dissemination of research findings. The research cycle is depicted in Figure 2.

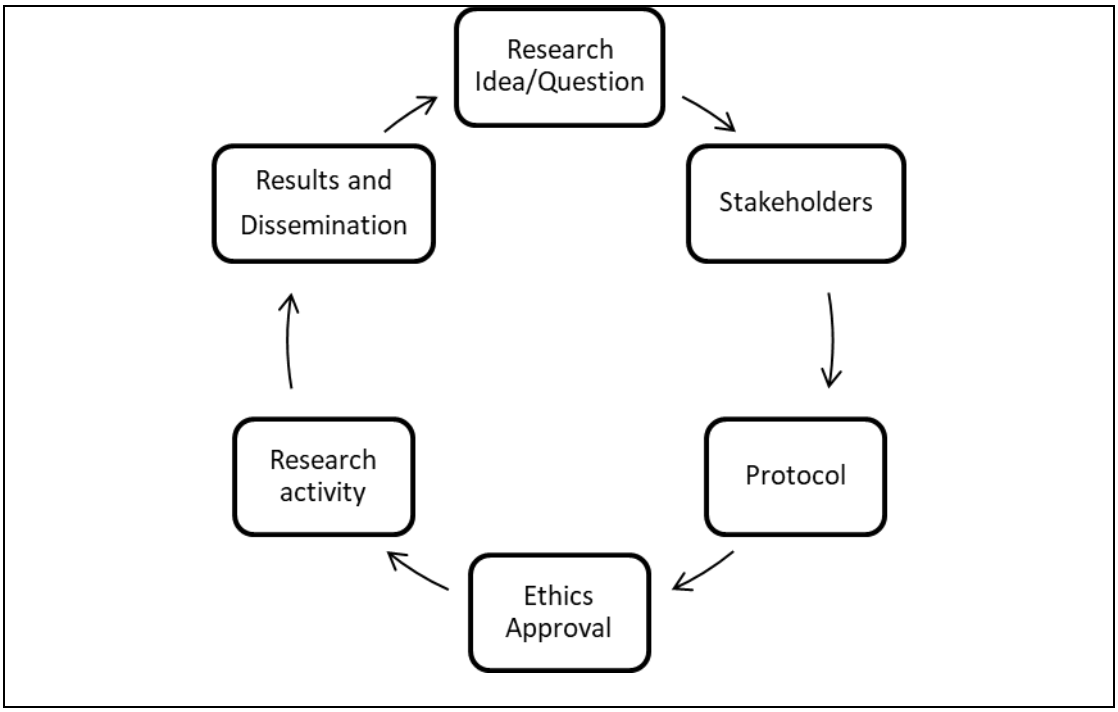

Figure 2. Research activity sequence

Research outputs in Africa

Research outputs from LMICs are commonly lower than those from higher-income countries (HIC).(4) Publication counts from Africa have increased over the years, but remains far from ideal – contributing but 2.3% of globally published articles in 2012.(5) The publication counts relating to African emergency care have doubled between 2010 and 2015, from 92 to 183.(6) Most of these articles were published in the African Journal of Emergency Medicine.(6) However, Africa's contribution to global emergency medicine publications is lagging compared to the USA and Europe. Africa only contributed 1.8% (829 of 46901) of the international emergency medicine publication output between 2010 and 2015. Nearly 74% (34503 of 46901) of publications were contributed by authors from Europe and Northern America while they only account for 15.3% (1092 of 7137 million) of the world's population. (7,8)

LIMCs collectively share 85% of the world`s population and 92% of the global burden of disease, yet only 10% of international research funds are spend tackling these enormous challenges.(9,10) This has led to the Global Forum for Health Research creating the term: *the 10/90 gap*.(10–12) This term highlights the finding that regions contributing to more than 90% of the world's burden of preventable deaths receives less than 10% of global health research resources. The Forum's focus is to address these disparities and create a

framework to promote research and development in LMICs. Sub-Saharan Africa has the worst health indicators according to United Nations 2018 Human Development Indices and Indicators report.(9) Sub-Saharan Africa has the highest infant mortality rate, the highest under-five mortality rate, the highest incidence of malaria, the highest incidence of tuberculosis and has the highest HIV prevalence in adults.(9) The region faces challenges like political unrest, poverty and natural disasters; all having direct impact on the socioeconomic growth and advancement of the region.(11) Unfortunately, socioeconomic sustainability and growth are crucial to improve the quality of health and living.

Low- and middle-income countries faces health care challenges related to poverty, lifestyle, and tropical diseases; however, Sub-Saharan Africa have the additional burden of severe trauma, the practice of traditional medicine and the presence of certain endemic diseases such as human African trypanosomiasis. Research from HICs cannot always be used in Sub-Saharan Africa due to lack of local infrastructure, feasibility challenges, and dissimilar accessibilities. Local research is thus needed to find locally applicable solutions for Sub-Saharan Africa.

The commission on Health Research for Development declared that reinforcing research capacity in LMICs is “one of the most powerful, cost effective and sustainable means of advancing health and development”. (10,12) Research capacity gaps have been attributed to inapt legislative framework, poor infrastructure, and lack of resources.

Researchers from LMICs are fewer, less experienced and less competent than their HIC counterparts.(11,13–15) They also have fewer support structures.(11,13–15) One study indicated that 22% of emergency care providers in Africa have never been involved in research while 56% have never published.(15) Lack of resources like computers and telephones, along with poor internet access, make networking and communication extremely difficult. This massively contributes to the existing gap in skilled researchers. (13)

Shortage of research funding is a major limiting factor in LMICs. In Sub-Saharan Africa, only 0.5% of the gross domestic product is spend on research and development. (9) This forces LMICs’ researchers to rely heavily on funding from international organisations or institutions. This hierarchy has unfortunately led to problems in the past. Local research priorities must be prioritised and not be prescribed by funders or researchers from HICs. On the other hand, the management of these funds needs to be transparent to enhance confidence and ensure continuous support.

Collaborative partnerships between LMICs and HICs are essential to address the research capacity gaps in LMICs.(16) North-South collaborations are strengthened by organizations like The Global Forum for Health Research and The European and Developing Countries Clinical Trial Partnership.(10,13,17) Additionally, numerous programmes have been sustained by the World Health Organisation, the Swedish International Development Agency, the European Union, the Bill and Melinda Gates Foundation and the Wellcome trust.(17,18) Regional collaborations have also been formed by certain countries within Sub-Saharan Africa.(16) South to South collaborations were sponsored by the European and Developing Countries Clinical Trials Partnership to address the burden of HIV, tuberculosis and malaria.(9,11) Academic institutes from Uganda, Rwanda, Tanzania and Kenya are supported through the Training Health Researchers into Vocational Excellence in East Africa, financed by British universities which also provide technical support.(13) The Netherlands African Partnership for Capacity Development and Clinical Interventions of Poverty-related Disease is an initiative to build research capacity between academic institutes in Sub-Saharan Africa with guidance from the Dutch associates.(13) Apart from these methods to promote research in LMICs, the Career Development Fellowship programme was created to develop research knowledge and skills of researchers from LMICs.(19)

The main reason for conducting research is to address regional health care issues by promoting regional evidence-based medicine and ultimately improving regional healthcare. The secondary objective is to improve and promote global health through the impact from regional studies. Knowledge generated regionally can influence policies and policy, play a crucial role in the development of undergraduate and postgraduate curricula, and can play a vital role in public health like prevention of diseases, disease modifying behaviour and addressing modifying factors associated with outbreaks.

Dissemination of research

Dissemination of biomedical research findings plays a fundamental part in the research process. The dissemination plan can be regarded as a structured and planned process where research discoveries are communicated to a target audience which can scrutinise and deliberate on the results with the intention to incorporate findings into clinical practice.(20,21) The purpose of sharing results is not limited to academics or clinicians only;

informing politicians can enhance government support, involving policy makers can guide policy development and public participation can spark changes in health behaviour.

Various dissemination channels are available to communicate research outputs e.g. academic journal, conference presentation, research reports, seminars, press releases and through social media. Each channel has its own strengths and shortcomings in reaching target audiences, therefore more than one avenue should ideally be used to reach the broadest audience. The relevant parties involved often influence which pathways are used in the dissemination process.

Conference presentations are crucial in the disseminating process of research findings. The advantage of announcing new discoveries at conferences is that experts can scrutinize findings and provide immediate feedback. Furthermore, there are also prospects to create new network opportunities by meeting potential collaborators. (22,23) A negative point is that abstracts presented often only contains preliminary results, thereby limiting the discussions about new advances. The method of accepting abstracts to be presented at conferences have been questioned in the past. Most conferences use a peer-review process similar to academic journals; following the verdict of a selection committee.(24–27) The standard of peer review for abstract selection seems to vary between conferences, and poor inter-rater reliability could lead to low quality abstracts being accepted for presentation.(26) The quality of conferences are also not equal and different metric systems are used to determine the success of a conference. These variables include the number of attendees, distinguished guests, speakers and experts; the number of abstracts presented; the abstract-to-publication ratio and the number of new collaborations formed. The number of delegates attending conferences is influenced by the location (popular tourist destination attracts more delegates), the cost and the popularity of the conference. The registration fees and travel expenses are often cost-prohibitive and delegates with adequate financial resources or those with sponsorships more frequently attend conferences. Therefore, conferences should be used in conjunction with other dissemination methods to ensure that a broad range of people are informed.

The publication rate of abstracts presented at conferences are one of the quality markers of the conference. (28–31) The rate not only reflect the success of a conference but also allows one to compare different conferences within a speciality as well as across specialities. The publication rate of scientific abstracts presented at Emergency Medicine conferences globally range between 15% and 35%, (29,32–35) and is lower than the global mean weighted publication rate for biomedical research (44.5%). (36) Emergency Medicine

is an emerging speciality in Africa, and the publication rate for African Emergency Medicine conferences are unknown.

Publications of research manuscripts in peer-reviewed journals are one of the major tools used to distribute research findings. Manuscripts undergo a vigorous process and publication are often viewed as prestigious and the product of the research process. The quality of the research paper is usually crucial for acceptance and subsequent publication. The peer-review process is a quality assurance tool for academic journals but are flawed by discrepancies in accepting or rejecting manuscripts and by potential bias. (24) The merit of the peer-review process itself is unknown as it unfolds without public knowledge. Accessing manuscripts published in academic journals can occur via three methods: i) subscription based where readers pay an access fee; ii) Open Access where authors pay the production cost of the manuscript; or iii) Open Access with no cost to the authors or readers. The standard of peer review between these publication models might differ as the purpose and interests vary. The assumption can be made that poor-quality manuscripts is publishable through Open Access (where authors pay the production cost of the manuscript) due to lower peer review standards to be profitable. (37) Furthermore, access to academic journals are often limited in Africa due to subscription cost. A recent study indicated that 47.6% of African healthcare workers are unable to access articles due to subscription charges. (15) This common phenomenon was the drive behind launching the HINARI (Health Inter Network Access to Research Initiative) programme in 2002. This initiative was to allow LMICs to obtain access to biomedical research and literature. Access for low-income countries is free while countries from low-middle income have low-cost access. (5,38) High-middle income countries like South Africa are excluded; therefore, access to published manuscripts in these regions are through academic affiliated institutions or via subscription fees.

Scientists consider the publication of research outcomes in a high-impact academic journal as prestigious and the pinnacle step in the research process. Studies using randomised controlled trials (RCTs) or controlled clinical trials are more likely to be published than studies using other designs, accounting for 63% of scientific abstracts published as full-text articles. Study designs are ranked according to the level of evidence they provide and RCTs is regarded as the most reputable study design (Figure 3). Studies with statistically significant results, a significant sample size and positive outcomes are associated with higher rates. Manuscripts relating to basic sciences are also more frequently published than clinical research studies. Similarly, abstracts accepted for presentation at conferences were

also more readily published. The publication rate of oral abstracts to full manuscripts is higher than poster presentations. Oral presentations are considered of higher quality or contain more interesting advances or inventions than poster presentations. Funding of research is associated with acceptance and publication of research. Research funded by pharmaceutical companies is often published with lower mean time to publication. (36)

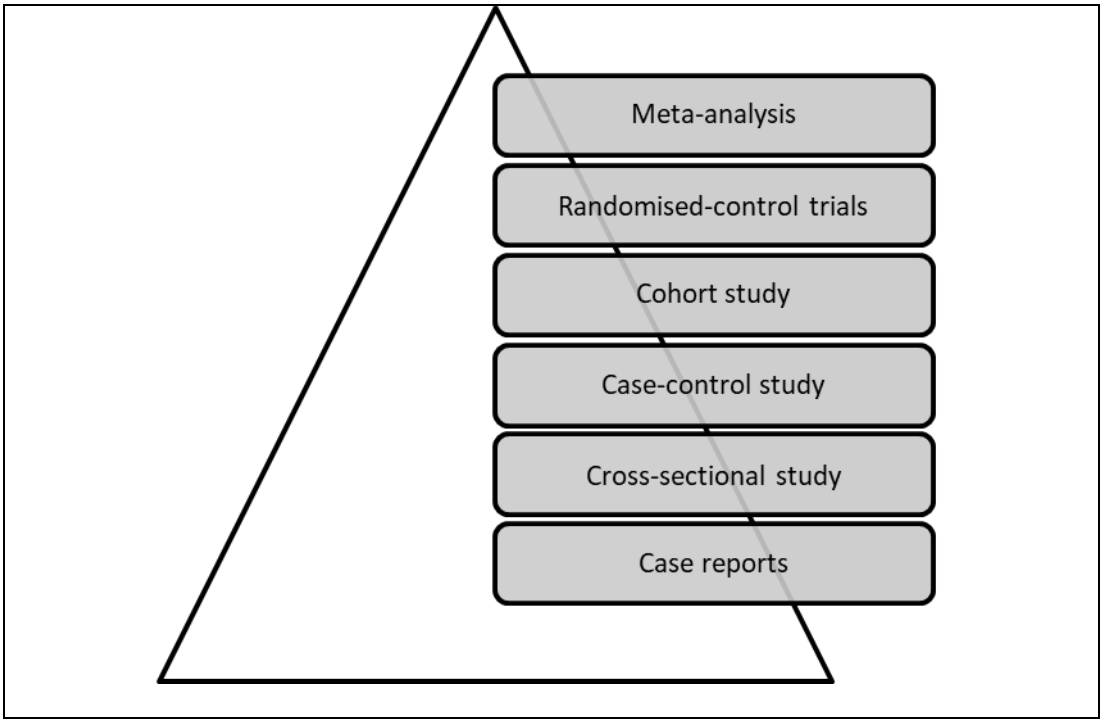

Figure 3. Hierarchy of evidence obtained through study designs (2)

The rationale for not publishing research is often complex with a variety of factors at play. The devoted time, effort, and resources goes wasted if results are not reported, but the impact on meta-analysis are unknown. As mentioned earlier, research with statistically insignificant or negative results are frequently not published. (14,36,39,40) Another reason frequently cited for not publishing research findings is lack of time. This seems to be a universal problem, affecting researchers from LMICs and HICs and across different specialities. (29,30,32–35) An extensive list of factors associated with non-publication is depicted in Table 1.

Table 1: Reasons for non-publication of research findings (41)

Study	Reasons for non-publication	Percentage
Cooper 1997(42)	Publication not an aim	48%
	Class project only	30%
	Assistant loss interest	26%
	No significant results	22%
	Results were not interesting	20%
	Design or operational problems	12%
	Researchers did not recall	6%
	Others loss interest	2%
Hopewell 2001(43)	Low priority or too busy	24%
	Not deemed appropriate	19%
	Findings became rapidly outdated	5%
	Rejected by journal	1%
	Limited interest	1%
	Internal Cochrane issue	1%
	Concerns of unity of approach	1%
	Unknown	41%
Krzyzanowska 2003(44)	Lack of time, funds or other resources	14 (35%)
	Study incomplete	6 (15%)
	Article submitted	5 (13%)
	Manuscript under review	4 (10%)
	Manuscript in preparation	5 (13%)
	Insufficient priority	4 (10%)
	Other	5 (13%)
	Not provided	6 (15%)
Sanossian 2006(45)	No time	28 (38%)
	Low priority	11 (15%)
	Co-author responsibility or lack of participation	10 (14%)
	Study ongoing	8 (11%)
	Methodological limitations	6 (8%)
	Different versions published	4 (4%)
	Other similar articles published	2 (3%)
	Does not recall	1 (1%)
	No reasons given	5 (7%)

Local or regional academic meetings is another useful way to share research findings. Academic institutions and departments have open days, research days, and courses where results can be communicated and discussed. This promotes institutional policy change, creates future research topics, attract funding and possibly strengthen collaborations between institutions. With technological advancement the use of social media to share research findings have increased and is widely used. There has been a steady increase in the use of social media platforms; evident by the commencement of 141 educational blogs and 42 podcasts between 2002 and 2013 in Emergency Medicine and Critical Care. (46) Distributing information through social media is effortless and less costly than conventional methods. Summarised and cryptic information can be shared by tweeting, podcast, video clips, blogposts, Facebook and Instagram posts. Conferences are starting to use live tweets to keep the medical community up to date with proceedings. These platforms allow for immediate interaction between numerous respondents where opinions, comments and questions can be raised. One initiative, Free Open Access Medical education (FOAMed) was started in 2012. FOAMed integrates most social media platforms to provide up to date emergency medicine practices and information. (46,47) Access is easily obtained through compact devices like smartphones and tablets in combination with adequate internet access. Lack of internet access and slow connectivity speed in certain regions of LMICs prevents the effective use of social media as medical reference and dissemination tool. (48) One of the shortcomings of social media is that misinformation can spread quickly and uncontrollable, with unintended and detrimental consequences.

Modern and innovative ways of translating knowledge need to be developed in LMICs that is cost-effective but efficient. Examples include: PowerPoint presentations that are projected in health institutions to create public awareness, whereas plain language summaries in local newspapers can inform relevant communities. Voice recordings of plain language summaries can also be shared with intended listeners or even played on the local radio station.

Identification of gaps or needs for further research

Generating knowledge through high quality research is an important component of the evidence-based medicine process. Research outputs from Africa is low and various reasons have been postulated. Numerous strategies and innovations have been created like collaborations, partnerships and allocation of research funds to Africa to tackle these obstacles.

Disseminating research findings is as important as the knowledge generating steps to better healthcare practices and thereby improving healthcare. Several communication avenues are available but is influenced by the target audience and relevant stakeholders. A publication in a peer-reviewed journal is regarded as the pinnacle of the research process, but access is prohibited by cost. Conferences is another major mechanism to share research findings, but often only preliminary findings are presented. Conference attendance is also limited, and it is thus important for researchers to publish their research findings to reach a broader audience. The use of social media as a communication channel to share findings can be useful, as distribution happens at a rapid pace, with immediate review and discussion. The downside is that information shared is chaotic and unfiltered with the possibility of misinformation being distributed. Innovative ways are needed to share results that are cost-effective and efficient in LMICs. All study findings should be placed in the public domain to prevent skewed meta-analyses and ultimately negatively impact evidence-based medicine and patient care.

Research output data from Africa is scarce. Although there is documented publication counts from Emergency Medicine in Africa, there is no data on the publication rate of Emergency Medicine conferences in Africa or its trends. The reasons for unpublished studies have been postulated but identifying reasons from African researchers are necessary to tackle and address those challenges to create an environment where quality research can flourish.

References

1. Akobeng AK. Principles of evidence based medicine. Arch Dis Child. 2005;90(8):837–840.

2. Karagianis J. Understanding and Teaching Key Concepts and Tools of Evidence-Based Medicine: Perspectives of a Clinician-Researcher Pharmaceutical Physician. Clin Ther. 2011;33(12):B3–10.

3. Claridge JA, Fabian TC. History and Development of Evidence-based Medicine. World J Surg. 2005;29:547-553

4. How can we strengthen research and knowledge systems in the Global South? Access to research in the Global South: Reviewing the evidence. 2019

5. Schemm Y. Africa doubles research output, moves toward knowledge-based economy [Internet]. Available from: https://www.elsevier.com/connect/africa-doubles-research-output-moves-toward-knowledge-based-economy

6. Bruijns SR. There has been an awakening; publication sources in African emergency care. F1000Research. 2016 June 3. https://doi.org/10.7490/f1000research.1112098.1.

7. Bruijns S. Emergency medicine publication impact and habits between different. F1000Research. 2016 Jun 3;5. Available from: https://f1000research.com/posters/5-1139

8. Haub C, Kaneda T. 2013 World Population Data Sheet. 2013. Available from: https://assets.prb.org/pdf13/2013-population-data-sheet_eng.pdf

9. Human Development Indices and Indicators: 2018 Statistical Update. Available from: http://report.hdr.undp.org/

10. Franzen SRP, Chandler C, Lang T. Health research capacity development in low and middle income countries: reality or rhetoric? A systematic meta-narrative review of the qualitative literature. BMJ Open 2017;7(1):e012332.

11. Kilama WL. The 10/90 gap in sub-Saharan Africa: Resolving inequities in health research. Acta Trop. 2009;112:S8–15.

12. Davey S. The 10/90 report on health research. 2000. Available from: www.globalforumhealth.org

13. Chu KM, Jayaraman S, Kyamanywa P, Ntakiyiruta G. Building Research Capacity in Africa: Equity and Global Health Collaborations. PLoS Med. 2014; 11(3):e1001612.

14. Singh D. Publication bias- a reason for the decreased research output in developing countries. South African Psychiatry Rev. 2006 ;9(3):153–155.

15. Van Hoving DJ, Brysiewicz P. African emergency care providers' attitudes and practices towards research. Afr J Emerg Med. 2017; 7(1):9–14.

16. Bank TW. A decade of development in sub-Saharan African science, technology, engineering and mathematics research. 2014. p. 1–74. Available from: http://documents.worldbank.org/curated/en/237371468204551128/A-decade-of-development-in-sub-Saharan-African-science-technology-engineering-and-mathematics-research

17. Whitworth JA, Kokwaro G, Kinyanjui S, Snewin VA, Tanner M, Walport M, et al. Strengthening capacity for health research in Africa. Lancet. 2008 ;372(9649):1590–1593.

18. Volmink J, Dare L. Addressing inequalities in research capacity in Africa. BMJ. 2005; 331(7519):705–706.

19. Käser M, Maure C, Halpaap BMM, Vahedi M, Yamaka S, Launois P, et al. Research Capacity Strengthening in Low and Middle Income Countries – An Evaluation of the WHO/TDR Career Development Fellowship Programme. Mwinzi P, editor. PLoS Negl Trop Dis. 2016; 10(5):e0004631.

20. Wilson PM, Petticrew M, Calnan MW, Nazareth I. Does dissemination extend beyond publication: a survey of a cross section of public funded research in the UK. Implement Sci. 2010; 5(1):61.

21. Wilson PM, Petticrew M, Calnan MW, Nazareth I. Disseminating research findings: what should researchers do? A systematic scoping review of conceptual frameworks. Implement Sci. 2010; 5(1):91.

22. Frank L. The importance of attending professional conferences. Landscape and Irrigation. 2007; 31(11):20–1.

23. Fiona-Maree Gilmartin J, Gnjidic D. Complementing or expanding on existing areas of research expertise: The importance of attending and organising conferences in specific clinical areas. Res Soc Adm Pharm. 2017; 13(3):656–657.

24. Iredale J, Al- R, Salman S. Peer review: a flawed but essential process. J R Coll Physicians Edinb. 2012; 42:290–291.

25. Ward TN. Peer review. Neurology. 2015; 85(20):1734–1735.

26. Deveugele M, Silverman J. Peer-review for selection of oral presentations for conferences: Are we reliable? Patient Educ Couns. 2017; 100(11):2147–2150.

27. Kratz JE, Strasser C. Researcher Perspectives on Publication and Peer Review of Data. Smalheiser NR, editor. PLoS One. 2015; 10(2):e0117619.

28. Chan JWM, Graham CA. Full text publication rates of studies presented at an international emergency medicine scientific meeting. Emerg Med J. 2011; 28(9):802–3.

29. Walby A, Kelly A-M, Georgakas C. Abstract to publication ratio for papers presented at scientific meetings: How does emergency medicine compare? Emerg Med Australas. 2001; 13(4):460–4.

30. Khajehnoori M, Stupart D, Watters D. Publication rate of General Surgery abstracts presented at the Royal Australasian College of Surgeons Annual Scientific Congress. ANZ J Surg. 2018; 88(1–2):16–91.

31. De Meijer VE, Knops SP, Van Dongen JA, Eyck BM, Vles WJ. The fate of research abstracts submitted to a national surgical conference: a cross-sectional study to assess scientific impact. Am J Surg. 2016; 211(1):166-171

32. Kalkan A, Kose O, Bilir O, Ersunan G, Ozel D, Guler F. Publication rate of abstracts presented at the emergency medicine congresses held by the European Society for Emergency Medicine (EUSEM) in 2011 and 2012. Emerg Med J. 2015; 32(9):728–732.

33. Ravn A, Petersen D, Folkestad L, Hallas P, Brabrand M. Full-text publication of abstracts in emergency medicine in Denmark. Scand J Trauma Resusc Emerg Med. 2014; 22(1):33.

34. Chan JWM, Graham CA. Full text publication rates of studies presented at an international emergency medicine scientific meeting. 2011; 28(9):802–803.

35. Macmillan CD, Moore AK, Cook RJ, Pedley DK. Abstract-to-publication ratio for papers presented at scientific meetings: a quality marker for UK emergency medicine research. Emerg Med J. 2007; 24(6):425–426.

36. Scherer RW, Langenberg P, von Elm E. Full publication of results initially presented in

abstracts. Cochrane Database Syst Rev. 2007 Apr 18;(2):MR000005.

37. Wicherts JM. Peer Review Quality and Transparency of the Peer-Review Process in Open Access and Subscription Journals. Derrick GE, editor. PLoS One. 2016; 11(1):e0147913.

38. WHO | Publishers' Statement of Intent. WHO. 2011; Available from: https://www.who.int/hinari/statementofintent/en/

39. Mlinarić A, Horvat M, Šupak Smolčić V. Dealing with the positive publication bias: Why you should really publish your negative results. Biochem medical. 2017; 27(3):030201.

40. Bassler D, Mueller KF, Briel M, Kleijnen J, Marusic A, Wager E, et al. Bias in dissemination of clinical research findings: structured OPEN framework of what, who and why, based on literature review and expert consensus. BMJ Open. 2016; 6(1):e010024.

41. Song F, Parekh, S, Hooper L, Loke Y, Ryder J, Sutton A, et al. Dissemination and publication of research findings: an updated review of related biases. Health Technol Assess (Rockv). 2010; 14(8).

42. Cooper H, DeNeve K, Charlton K. Finding the missing science: The fate of studies submitted for review by a human subjects committee. Psychol Methods. 1997; 2(4):447–452.

43. Hopewell S, Clarke M. RESEARCH NOTES METHODOLOGISTS AND THEIR METHODS Do Methodologists Write Up Their Conference Presentations or Is It Just 15 Minutes of Fame? International Journal of Technology Assessment in Health Care. 2001; 17(4):601-603.

44. Krzyzanowska MK, Pintilie M, Tannock IF. Factors Associated With Failure to Publish Large Randomized Trials Presented at an Oncology Meeting. JAMA. 2003; 290(4):495.

45. Sanossian N, Ohanian AG, Saver JL, Kim LI, Ovbiagele B. Frequency and Determinants of Nonpublication of Research in the Stroke Literature. Stroke. 2006; 37(10):2588–2592.

46. Cadogan M, Thoma B, Chan TM, Lin M. Free Open Access Meducation (FOAM): the rise of emergency medicine and critical care blogs and podcasts (2002–2013). Emerg Med J;31(e1):e76–e77.

47. Nickson CP, Cadogan MD. Free Open Access Medical education (FOAM) for the emergency physician. Emerg Med Australas. 2014; 26(1):76–83.

48. Measuring the Information Society Report 2014 [Internet]. 2014. Available from: https://www.itu.int/en/ITU-D/Statistics/Documents/publications/mis2014/MIS2014_without_Annex_4.pdf

PART B: MANUSCRIPT IN ARTICLE FORMAT

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Title page

Dissemination patterns of scientific abstracts presented at the first and second African Conference of Emergency Medicine

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Abstract

Introduction:

Evidence based medicine is the standard of modern health care practices. Ongoing biomedical research is needed to expand existing knowledge and improve quality of care, but it needs to reach clinicians to drive change. Journal articles and conference presentations are dissemination tools. The aim of the study was to establish the publication rate of scientific abstracts presented at the first and second African Conference of Emergency Medicine. The secondary objectives were establishing non-publication dissemination and the factors associated with publication and non-publication. Determining non-publication dissemination patterns and the factors associated with reasons for publishing or non-publication were also investigated.

Methods:

Presenters of the 129 scientific abstracts from the first and second African Conference of Emergency Medicine were invited to participate in an online survey. The survey was followed by a manual literature search to identify published manuscripts of authors that did not complete the survey, to determine the most accurate publication rate.

Results:

Thirty-one presenters responded (24%), of which 18 published in a peer-reviewed journal. An additional 25 publications were identified by the literature search. The overall publication rate was 33.3% (26.9% from 2012 and 40.3% from 2014). Oral presentations were more likely to be published (p=0.09). Sixteen manuscripts (37.2%) were published in the African Journal of Emergency Medicine. Presentations at local academic meetings were the most used platform beyond publication (43%). The main reason to publish was to add to the body of knowledge (100%), while lack of time (57%) was the major obstacle for not publishing.

Conclusion:

The overall publication rate for the first and second Africa Conferences of Emergency Medicine is comparable to other non-African Emergency Medicine conferences. The increasing publication trend between conferences might reflect the development of regional research capacity. Emergency Medicine providers in Africa need to be encouraged

to participate in high quality, locally relevant research and to distribute those findings through accessible formats.

African relevance

- Disseminating African emergency care research helps to improve the local knowledge economy
- Publications from research presented at African emergency care conferences are not known
- There are several barriers to publication in this setting that need to be overcome

Main text of article

Dissemination patterns of scientific abstracts presented at the first and second African Conferences of Emergency Medicine

Introduction

Evidence-based medicine drives modern health care practices. At the core of evidence-based medicine lies clinical research, that together with clinical expertise offer effective and safe patient-centred management. Ongoing research is needed to advance diagnostic tools, to develop new treatment modalities, and to improve existing practices. It plays an integral part in expanding existing knowledge and subsequently improvement of quality of care. (1-3)

Dissemination of research findings is an important part of the research process. The dissemination plan can be described as a structured and planned process where research findings are communicated with a specific audience and where the results are scrutinized and discussed with the aim to incorporate the latest findings into clinical practice.(3) It is therefore imperative that study results are shared with relevant stakeholders in a specific field as this will facilitate and strengthen the process of evidence-based medicine.(1,3-5)

Various dissemination tools are available to distribute research outputs e.g. peer-reviewed articles, research reports, press releases or social media platforms. Each tool has certain strengths and weaknesses in reaching audiences; therefore, in order to reach the broadest audience possible more than one tool should be used to complement one another.(6) Conference presentations are an important part of the dissemination strategy since professionals attend conferences mostly for educational opportunities and to network with peers.(7) But, as with every other dissemination tool, conference presentations are limited in reaching a wide-ranging audience. Conferences are typically very costly to attend as the registration fees are high and travelling to and from the conference is expensive. Local professionals or those with adequate financial resources are often the only ones to attend conferences. For this reason, additional dissemination tools need to be used to the reach a larger relevant audience.

The publication of research findings in peer reviewed journals still remains one of the most important mechanisms to distribute research findings.(8) Although access to journals might

be limited in Africa, most researchers in Africa do use online bibliographic databases (e.g. PubMed) on a regular basis to access original research articles.(9) Research quality is vital for manuscript publication acceptance and publication rate of conference presentations may be seen as a surrogate indicator of the quality of the scientific abstracts presented at a conference.(10) The publication rate of scientific abstracts presented at Emergency Medicine conferences outside Africa range between 15% and 35%.(11-15). It is not known what the publication rate is of scientific abstracts presented at Emergency Medicine conferences in Africa.

The aim of this study was to determine the publication rate of scientific abstracts presented specifically at the first and second African Conferences of Emergency Medicine. The secondary objectives were to determine dissemination patterns of abstracts presented and the reasons for publishing or not publishing.

Methods

An online survey was completed followed by a manual literature search. The study was approved by the Human Research Ethics Committee at the University of Cape Town and the executive committee of the African Federation for Emergency Medicine (AFEM).

The inaugural African Conference of Emergency Medicine was held in Accra, Ghana in 2012. It was attended by 439 delegates of which 366 (83%) were from Africa. Overall, 67 scientific abstracts were presented by 58 presenters; 57 posters and 10 oral presentations. The second African Conference of Emergency Medicine was held in 2014, in Addis Ababa Ethiopia. This conference was attended by 497 delegates from 29 different countries, the majority again from Africa. In total, 48 presenters presented 62 scientific abstracts, 42 posters and 20 oral presentations. Both conferences were organized under the auspices of the African Federation for Emergency Medicine.

All presenters of the 129 scientific abstracts from the first and second African Conference of Emergency Medicine were eligible for inclusion. Sampling was based on the scientific abstract; presenters with more than one abstract thus received a questionnaire for each abstract presented.

A list of the scientific abstracts was obtained from the relevant scientific committee of the conference. All presenters were invited via e-mail to participate in the survey. An online survey tool (Survey Monkey®) was used and the invitation included a personalized link to an online questionnaire. The survey was only available in English. Participants had four weeks

to complete and return the survey; non-responders were reminded at 1-week intervals until they responded, or the deadline expired.

Variables collected as part of the survey included: demographic information (age, country, profession, highest qualification), publication status of the scientific abstract, name of scientific journal (if applicable), reason(s) for publication or non-publication, and dissemination of results other than publishing.

The survey was followed by a manual literature search to identify published manuscripts of authors that did not complete the survey. This was done to determine the most accurate publication rate and to cross check information obtained through the survey. Electronic databases searched were PubMed, Science Direct, Scopus, the EBSCOHost research databases (including CINAHL) and Google Scholar. Authors' names and exact abstract titles were used as search terms, both individually and as a combination. Keywords were also derived from abstract titles if the initial search failed to identify a publication. If a publication was identified, the methodology was compared to the presented abstract to ensure fit.

All data were imported onto an access-controlled spreadsheet (Microsoft Excel®, Microsoft Corporation, Redmond, WA). Identifying information of authors (e.g. names) was replaced by unique study numbers once all data were collected for the specific scientific abstract. A code sheet with the de-identifying data was stored separately from the coded data. A weekly back up was done on access controlled external hard drives.

Analysis was done using Microsoft Excel® and OpenEpi (*Open Source Epidemiologic Statistics for Public Health, version 3.01, www.openepi.com/*). Summary statistics have been used to describe all variables. Distributions of variables are presented with frequency tables. Comparisons were done using the χ^2 test and two-tailed p-values are reported. A p-value of 0.05 was used to describe significant findings.

Results

Responses were received for 31 of the 129 abstracts (response rate 24.03%). Four surveys were excluded; three were incomplete and one survey was duplicated for the same abstract. Eighteen (58.1%) responders indicated that their scientific abstracts were published in academic journals (Table 1). Most responders were male and 51% were aged between 31 and 40 years. Specialist emergency physicians responded more frequently. The other professions included general practitioners (9.7%), medical students (3.2%), allied

health practitioners (3.2%) and support personnel (3.2%). The greatest number of the responders were working in United Kingdom (22.6%) followed by United States of America (19.4%) and South Africa (16.1%). Other countries included Ethiopia, Nigeria, Ghana, Australia, Canada, Kenya, Libya and Somalia.

An additional 25 publications were found by the manual literature search, resulting in an overall publication rate of 33.3% (43/129). Eighteen abstracts (26.9%) from the 2012 conference were published compared to 25 (40.3%) from the 2014 conference (p=0.111). Oral presentations from both conferences (14/30, 46.7%) were more likely to be published than poster presentations (29/99, 29.3%), although this difference was not statistically significant (p=0.09) (Figure 1). Similarly, no statistical significance was found when the conferences were evaluated individually (2012 p=0.80; 2014 p=0.12).

The United States of America (n=29) and South Africa (n=20) were the countries where published authors most frequently resided at the time of the conferences. First and last authors originated equally from African and Non-African regions (Table 2). The ratio of first authors from African and Non-African countries were 1.25 in 2012 and 0.92 in 2014; for last authors it changed from 0.64 in 2012 to 1.08 in 2014.

Seventeen different peer-reviewed journals were used to distribute research results. More than a third of the abstracts (16/43; 37.2%) were published in the African Journal of Emergency Medicine. Other journals used included Emergency Medicine Journal, Prehospital and Disaster Medicine, Annals of Emergency Medicine, PLOS One and South African Medical Journal. Dissemination patterns beyond publishing in academic journals are presented in Figure 2.

All responders that published (n=18) indicated that the main reason to publish their research findings was to add to the body of knowledge. Other frequent reasons for publishing include career advancement (n=14), improving their research skills (n=12), and to become a recognized expert in their field (n=11) (Table 3). Lack of time (n=4) was mostly the reason to not publish research findings (Table 3).

Table 1. Characteristics (at time of conference) of presenters that responded

	All responders n (%)	Responders who published n (%)
Gender		
Male	18 (58.1)	11 (61.1)
Female	13 (41.9)	7 (38.9)
	31 (100)	**18 (100)**
Age (years)		
≤30	6 (19.4)	4 (22.2)
31-40	16 (51.6)	10 (55.6)
>40	9 (29.0)	4 (22.2)
	31 (100)	**18 (100)**
Qualification		
PhD	14 (45.2)	9 (50.0)
Master's degree	12 (38.7)	8 (44.4)
Bachelor's Degree	3 (9.7)	1 (5.6)
Other	2 (6.5)	0 (0)
	31 (100)	**18 (100)**
Profession		
Specialist Emergency Medicine	16 (51.6)	12 (66.7)
Specialist other than Emergency Medicine	2 (6.5)	0 (0)
Emergency Medicine Trainee	7 (22.6)	2 (11.1)
Other [a]	6 (19.4)	6(33.3)
	31 (100)	**18 (100)**
Country of employment		
Africa	16 (51.6)	7(38.9)
International	15(48.4)	11(61.1)
	31 (100)	**18 (100)**

[a] Include general practitioners, medical students, nurses, allied health practitioners, support personnel

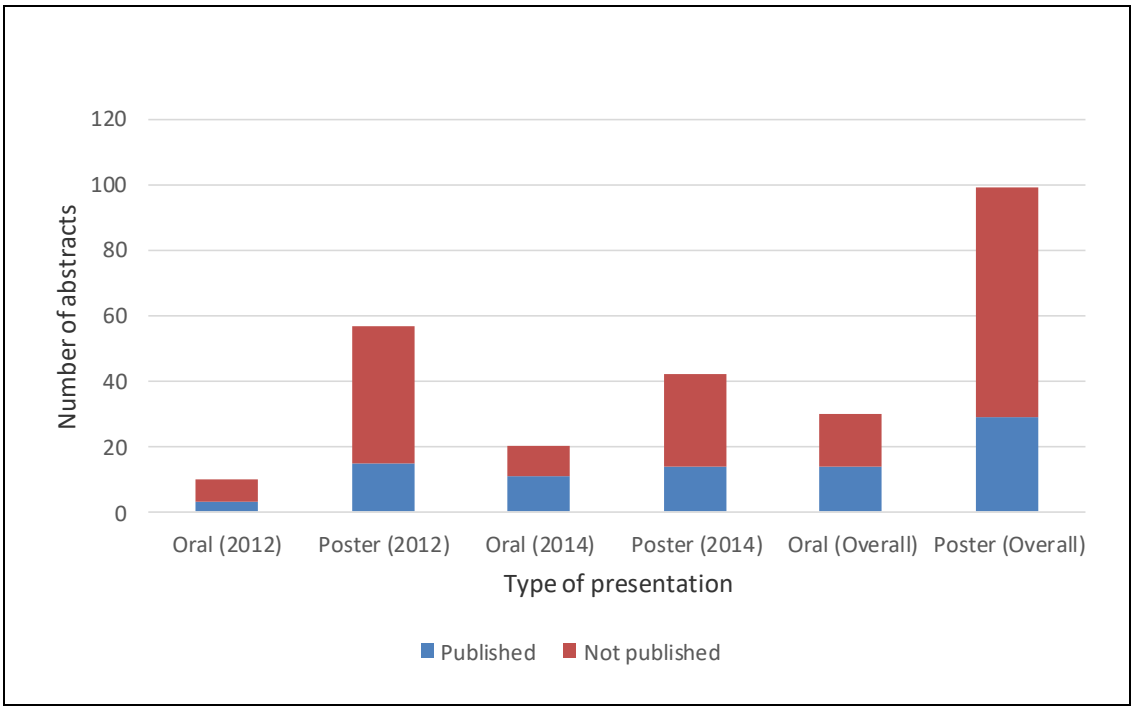

Figure 1: Distribution of publication versus non-publication of scientific abstracts presented at the first and second African Conference of Emergency Medicine

Table 2: First and last author per region (at time of conference)

	Overall (n=43)		2012 (n=18)		2014 (n=25)	
Region	**First author n (%)**	**Last author n (%)**	**First author n (%)**	**Last author n (%)**	**First author n (%)**	**Last author n (%)**
African	22 (51.16)	20 (46.51)	10 (55.56)	7 (38.89)	12 (48.00)	13 (52.00)
Non-African	21 (48.84)	23 (53.49)	8 (44.44)	11 (61.11)	13 (52.00)	12 (48.00)

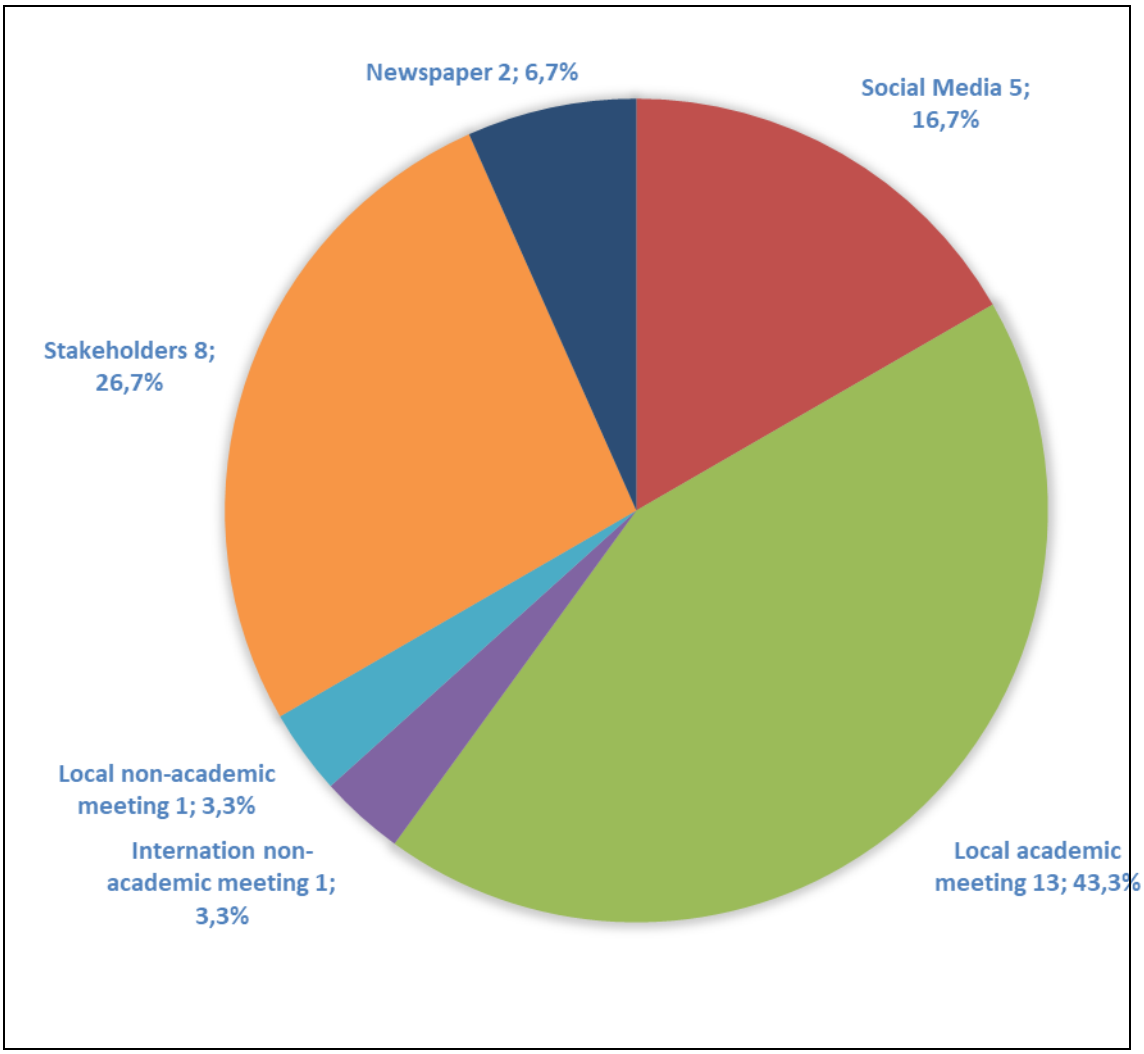

Figure 2: Dissemination of research findings other than publications in academic journals (more than one method could have been selected per abstract)

Table 3. Reasons given for publication and non-publication by responders

Reasons for publication	**n (%)**
To add to the body of knowledge	18(100)
Career advancement	14(77.78)
To improve my research skill	12(66.67)
To become more recognized expert in my field	11(61.11)
Degree requirement	6(54.55)
Institutional requirement	6(54.55)
Funding body requirement	1(0.06)
Reasons for non-publication	**n (%)**

I do not have the time	4(57.14)
Manuscript rejected	2(28.57)
Study not completed	1(14.29)

Discussion

This is the first study describing the outcome of scientific abstracts presented at Emergency Medicine conferences in Africa. About a third of scientific abstracts presented at the conferences were published in peer-reviewed journals which is comparable to those from other non-African Emergency Medicine conferences. (11-15) The publication rate is lower than the weighted publication rate of all biomedical research studies. In addition, the publication rate increased from the first to the second conference.

Emergency Medicine is a relatively new speciality in Africa. It is likely that up until recently specialist clinical training received priority over research productivity. As the number of emergency medicine specialists have increased, more emphasis, time and resources were allocated to research. The increase in published research outputs is thus expected. This hypothesis is strengthened further by the increase seen in annual African emergency medicine publication counts. (16) The establishment of the African Journal of Emergency Medicine (AfJEM), as a dedicated regional emergency care journal, appears to have played a pivotal role. Both the AfJEM and African conferences are managed through the African Federation of Emergency Medicine and so share a similar focus on African emergency care. Another contributing factor could be the pertinent role of collaborations between African and Non-African institutions, as more than two thirds of publications had either a first or last author affiliated to institutions outside of Africa (Table 2). International collaborations help to build regional research capacity with the end goal of fostering experienced African researchers that can address local emergency care issues. The success of these collaborations might explain the increased number of last authors from African countries.

Research findings were often disseminated beyond the conference and its subsequent publication (Table 3). Although publication in a high impact journal is often seen as the pinnacle of dissemination, it does not necessarily reach the most appropriate audience. (17) Around half of African researchers frequently experience poor access to research due to access charges. (9) Disseminating information to the community involved should be prioritised especially as research in most African settings is only just developing. Low cost dissemination could take the form of research highlights posters in health care facilities or

press releases using local newspapers and radio stations. (18) Social media can also effectively be used to sign post content or to disseminate research highlights. (19)

Our survey showed that the main driving force to publish was to add to the body of knowledge. This opinion differed from a recent study that suggested that 70% of African emergency care providers get involved in research in order "to get published", (9) above "improving clinical care and patient-centred outcomes". (9) The most common reason for failing to publish was lack of time. This finding echoes other studies. (11–15,20-23) We did not explore the reasons behind this opinion in our study, though it would be useful to understand if this is down to an individual or system problem.

The study was limited by the low response rate (24%) and therefore care should be taken to generalise the results, especially pertaining to the reasons for publishing or not publishing and the dissemination patterns beyond publication. The study findings are also limited by possible responder bias, 58% of those responded published whilst the overall publication rate was 33%. Although an extensive database was used to search for published articles, some might have been missed, especially those from French speaking African countries. The survey was only available in English which might have limited the response due to language barrier. Nevertheless, the accuracy of the publication rate (the primary aim) was substantially strengthened by the extensive literature search although publications beyond the search date remains possible.

Conclusion

A third of scientific abstracts presented at the first and second African Conference of Emergency Medicine were published in peer reviewed journals and is comparable with non-Africa Emergency Medicine conferences. Various dissemination avenues are available to share study findings; most frequent options utilized are publication in peer-reviewed journal and presentation at conferences. The commonest reason for publication is to add to the body of knowledge whilst time constraints are often associated with non-publication. Emergency Medicine trainees and specialists in Africa need to be encouraged to participate in quality research and aim to publish in peer reviewed journals or distribute those findings through accessible formats.

Dissemination of results

Results of this study were presented at the fourth African Conference of Emergency Medicine 2018 held in Kigali, Rwanda

Author contributions

Authors contributed as follows to the conception or design of the work; the acquisition, analysis, or interpretation of data for the work; and drafting the work or revising it critically for important intellectual content: DJvH contributed 50%, SRB 10% and MA 40%. All authors approved the version to be published and agreed to be accountable for all aspects of the work.

Conflict of interest

Prof Stevan Bruijns is an editor of the African Journal of Emergency Medicine. Prof Bruijns was not involved in the editorial workflow for this manuscript. The African Journal of Emergency Medicine applies a double blinded process for all manuscript peer reviews. The authors declared no further conflict of interest.

References

1. Karagianis J. Understanding and Teaching Key Concepts and Tools of Evidence-Based Medicine: Perspectives of a Clinician-Researcher Pharmaceutical Physician. Clin Ther [Internet]. 2011 Dec;33(12):B3–10. Available from: https://www-sciencedirect-com.ezproxy.uct.ac.za/science/article/pii/S014929181100720X

2. Claridge JA, Fabian TC. History and Development of Evidence-based Medicine. World Journal of Surgery. 2005; 29, 547-553. Available from: https://link-springer-com.ezproxy.uct.ac.za/content/pdf/10.1007%2Fs00268-005-7910-1.pdf

3. Wilson PM, Petticrew M, Calnan MW, Nazareth I. Disseminating research findings: what should researchers do? A systematic scoping review of conceptual frameworks. Implement Sci. 2010 Dec 22;5(1):91. Available from: http://implementationscience.biomedcentral.com/articles/10.1186/1748-5908-5-91

4. Chikwe J, Meakin R, Lloyd M, Ward S, Tsuruoka K, Tsuruoka Y, et al. Evidence Based General Practice. Source BMJ Br Med J [Internet]. 1996;313(13):114–5. Available from: http://www.jstor.org/stable/29732285

5. Wilson PM, Petticrew M, Calnan MW, Nazareth I. Does dissemination extend beyond publication: a survey of a cross section of public funded research in the UK. Implement Sci. 2010 Dec 4;5(1):61. Available from: http://implementationscience.biomedcentral.com/articles/10.1186/1748-5908-5-61

6. World Health Organization. Disseminating the research findings. In: Implementation research toolkit : workbook. Geneva: World Health Organization; 2014. p. 175.

7. Frank L. The importance of attending professional conferences. Landsc & Irrig. 2007 Nov 1;31(11):20–1. Available from: http://go.galegroup.com.ezproxy.uct.ac.za/ps/retrieve.do?tabID=T003&resultListType=RESULT_LIST&searchResultsType=SingleTab&searchType=AdvancedSearchForm&currentPosition=1&docId=GALE%7CA171926469&docType=Conference+news&sort=RELEVANCE&contentSegment=&prodI. Nov 1

8. Constantinescu A. Publishing in peer-reviewed journals as the major mechanism for the dissemination of scientific knowledge. Rev Contemp Philos. 2009 Jan 1;8:124–9. Available from: http://go.galegroup.com.ezproxy.uct.ac.za/ps/retrieve.do?tabID=T002&resultListTy

pe=RESULT_LIST&searchResultsType=SingleTab&searchType=AdvancedSearchForm&currentPosition=1&docId=GALE%7CA267422658&docType=Report&sort=RELEVANCE&contentSegment=&prodId=AONE&co

9. Van Hoving DJ, Brysiewicz P. African emergency care providers' attitudes and practices towards research. African J Emerg Med. 2017 Mar;7(1):9–14.

10. Shergill R, Kaka H, Kennedy SA, Baerlocher MO. Publication rates of abstracts presented at major interventional radiology conferences. Diagnostic Interv Radiol. 2017 Nov;23(6):435–40.

11. Kalkan A, Kose O, Bilir O, Ersunan G, Ozel D, Guler F. Publication rate of abstracts presented at the emergency medicine congresses held by the European Society for Emergency Medicine (EUSEM) in 2011 and 2012. Emerg Med J. 2015 Sep ;32(9):728–32. Available from: http://emj.bmj.com/lookup/doi/10.1136/emermed-2014-204063

12. Ravn A, Petersen D, Folkestad L, Hallas P, Brabrand M. Full-text publication of abstracts in emergency medicine in Denmark. Scand J Trauma Resusc Emerg Med. 2014;22(1):33. Available from: http://sjtrem.biomedcentral.com/articles/10.1186/1757-7241-22-33

13. Chan JWM, Graham CA. Full text publication rates of studies presented at an international emergency medicine scientific meeting. Emerg Med J. 2011 Sep 1;28(9):802–3. Available from: http://www.ncbi.nlm.nih.gov/pubmed/20844093

14. Macmillan CD, Moore AK, Cook RJ, Pedley DK. Abstract-to-publication ratio for papers presented at scientific meetings: a quality marker for UK emergency medicine research. Emerg Med J [Internet]. 2007 Jun 1;24(6):425–426. Available from: http://emj.bmj.com/cgi/doi/10.1136/emj.2007.046078

15. Walby A, Kelly A-M, Georgakas C. Abstract to publication ratio for papers presented at scientific meetings: How does emergency medicine compare? Emerg Med Australas. 2001 Dec;13(4):460–4. Available from: http://doi.wiley.com/10.1046/j.1035-6851.2001.00262.x

16. Bruijns SR. There has been an awakening; publication sources in African emergency care. F1000 research. 2016 June 3. **doi:** 10.7490/f1000research.1112098.1

17. Lamanna C, Bruijns S. Measuring regional impact: The case for bigger data. Learn Publ. 2018 Jul 16; Available from: http://doi.wiley.com/10.1002/leap.1183

18. Bruijns S, Maesela M, Sinha S, Banner M. Poor Access for African Researchers to African Emergency Care Publications: A Cross-sectional Study. West J Emerg Med. 2017 Oct ;18(6):1018–24. Available from: http://www.escholarship.org/uc/item/7bz9638t

19. Kleynhans AC, Oosthuizen AH, van Hoving DJ. Emergency medicine educational resource use in Cape Town: modern or traditional? Postgrad Med J. 2017 May;93(1099):250–255

20. Clemency BM, Thompson JJ, Lindstrom HA, Gurien S, Jaison BA, Grates-Sciarrino AA. Frequency of Manuscript Publication Following Presentation of EMS Abstracts at National Meetings. Prehosp Disaster Med. 2014 Jun 15;29(03):294–8. Available from: http://www.journals.cambridge.org/abstract_S1049023X14000338

21. Ogilvie LN, Pauwels J, Chadha NK, Kozak FK. Publication rate of abstracts presented at the Canadian society of otolaryngology- head and neck surgery annual meetings: a five year study 2006–2010. J Otolaryngol - Head Neck Surg. 2014 Dec 17 ;43(1):51. Available from: http://www.journalotohns.com/content/43/1/51

22. Khajehnoori M, Stupart D, Watters D. Publication rate of General Surgery abstracts presented at the Royal Australasian College of Surgeons Annual Scientific Congress. ANZ J Surg. 2018 Jan;88(1–2):16–9. Available from: http://doi.wiley.com/10.1111/ans.14103

23. Egloff HM, West CP, Wang AT, Lowe KM, Edakkanambeth Varayil J, Beckman TJ, et al. Publication Rates of Abstracts Presented at the Society of General Internal Medicine Annual Meeting. J Gen Intern Med. 2017 Jun 30.32(6):673–8. Available from: http://link.springer.com/10.1007/s11606-017-3990-5

PART C: ADDENDA

Relevant journal *Instructions to Authors*

This paper has been published in the African Journal of Emergency Medicine: https://doi.org/10.1016/j.afjem.2019.01.012

Relevant guidelines for authors can be found here: http://www.elsevier.com/journals/african-journal-of-emergency-medicine/2211-419X/guide-for-authors

Questionnaire/data capture instrument

Survey Questionnaire

Please indicate by clicking START SURVEY that you have read and understand the information provided in the invitation letter. This will imply consent to participate in this study.

Q1. Please indicate your age at the time of the [XXX] conference:

Q2. Please indicate you gender:

Q3. Please indicate your profession at the time of the [XXX] conference:

Q4. Please indicate your highest qualification level at the time of the [XXX] conference:

Q5. Please indicate your country (where you work most of the year) at the time of the [XXX] conference:

Q6. Have the data/results of the abstract been published in an academic journal?

Q7. If so, please specify/provide

- Name of journal
- Title of your publication
- Reference, link or digital object identifier (DOI)
- Reason(s) for publishing (can select more than one)
    - Institutional requirement
    - Funding body requirement
    - Career advancement
    - To improve my research skill
    - To become a recognized expert in your field
    - To add to the body of knowledge

Q8. If not, please indicate reason(s) for not publishing (can select more than one)

- Submitted but rejected

- Never submitted because:
    - Publication is not a priority
    - I don’t have the time
    - I don’t have the skill
    - Negative study results
    - Statistically underpowered results
    - Study not completed
    - Other

Q9. Please indicate whether the results were disseminated by any other means (can select more than one):

- Not further disseminated
- Stakeholders
- Local academic meetings
- Non-academic publications
- Social Media
- Other

Thank you for your participation

Acknowledgements

I would herewith like to acknowledge the immeasurable help, support and guidance of the supervisors of this thesis, Dr. Niel van Hoving and Associate professor Stevan Bruijns. Without them this thesis would not have surfaced.

Research protocol

EM2015.056

Research proposal

Publication rates for abstracts presented at the 1st and 2nd African Conference of Emergency Medicine

Lead Investigator: Dr M Abrams,
MMed (EM) candidate
Division of Emergency Medicine, University of Cape Town

Principal investigator: Dr SR Bruijns
Division of Emergency Medicine, University of Cape Town

Co-supervisor: Dr DJ van Hoving
Division of Emergency Medicine, University of Stellenbosch

Introduction

Background

Research is the foundation of evidence-based medicine and forms an integral part in expanding existing knowledge. It is fundamental in various aspects of diseases for the advancement of diagnostic tools, the development of new treatment modalities, and to improve the delivery of emergency care.

The dissemination of research findings is a key component to establish evidence-based medicine. There are many options available to disseminate research findings. Conference presentations and publications are two important tools to disseminate new information to the broader healthcare community. Healthcare professionals attending conferences are exposed to the latest developments in their field and have the opportunity to socialize or set up collaborations with their peers. This can even motivate attendees to undertake new research projects. However, many healthcare professionals are not able to attend conferences due to the costs involved and the amount of time it takes. The secondary dissemination of research presented at conferences is thus very important. This has been accomplished through publications of conference proceedings traditionally in print but recently also including digital and social media. However, conference proceedings only contain abstracts of research presented; dissemination of the full study still lacks.

Publications of original research in peer-reviewed journals have been the cornerstone of disseminating research findings. A significant number of healthcare professionals use publications to demonstrate their academic talent, to bring in more funding for their institutions, and to enable career progression.(1) That said, many healthcare professionals avoid the publication route due to time constraints, or being afraid of having their manuscript rejected. Lately, open access publication fees are also considered prohibitive.(2)

The international publication rate of scientific abstracts within the general field of Emergency Medicine range between 24.2% and 35%.(3-7) The rate is higher (44.3%) for abstracts related to research within Emergency Medical Services (EMS) presented at selected conferences.(8). Reasons for not publishing are multifactorial and examples are given in Box1. 3-8)

Box 1. Examples of reasons to not publish research results after presenting it at a conference

- The research study was never completed
- The article was never submitted for publication
- The article was submitted but rejected by the journal.
- The abstract was submitted for personal gain, e.g. to attend a conference
- The data was disseminated through other media
- The study had negative or statistically insignificant results.

Emergency Medicine as a specialty is slowly growing in Africa. Not only are we witnessing an expansion of clinical emergency medicine, but also an increase in research outputs. This is evident by the increased number of annual African publications in emergency medicine; a 99% increase between 2010 and 2015.(9) Research presented at the African Federation for Emergency Medicine's conferences are mainly focussed on acute care in Africa. The presentations regularly offer unique (and often inexpensive) solutions to Africa's unique healthcare challenges. Dissemination of these research results beyond the conference should thus be encouraged. However, no data are available on the publication rate (and reasons) of scientific abstracts presented at the African Federation for Emergency Medicine's conferences.

Aim and objectives

The aim of the study is:

i. To determine the publication rate of scientific abstracts presented at the 1st and 2nd African Conference of Emergency Medicine (2012 and 2014 respectively).

Secondary objectives are:

i. To determine the dissemination patterns of scientific abstracts presented at the 1st and 2nd African Conference of Emergency Medicine.

ii. To determine reasons for publishing or failing to publish.

Methodology

2.1 Study design

A survey will be conducted using an online survey tool (Survey Monkey®) followed by a manual search of secondary research.

2.2 Study setting

The inaugural African Conference of Emergency Medicine was held in Accra, Ghana in 2012. It was attended by 439 delegates of which 366 (83%) were from Africa. Overall, 71 scientific abstracts were presented; 60 as posters and ten orals (Personal communication: Dr N Mould-Millman, November 2016). The 2nd African Conference of Emergency Medicine was held in 2014, in Addis Ababa Ethiopia. It was attended by 497 delegates from 29 different countries, the majority from Africa. There were 34 poster and 21 oral presentations.(10) Both conferences were organized under the auspices of the African Federation for Emergency Medicine (AFEM).

2.3 Study population

All presenters of scientific abstracts from the 1st and 2nd African Conference of Emergency Medicine (2012 and 2014 respectively) will be eligible for inclusion. Sampling will be based on the scientific abstract; therefore, presenters with more than one abstract will receive questionnaires for each abstract presented.

2.4 Data collection and management

A list of the scientific abstracts presented at the 1st and 2nd African Conference of Emergency Medicine will be obtained from the scientific committees of the two conferences. All presenters will be contacted via e-mail with an explanation and invitation to participate in the survey (Appendix 1). All participants will be required to complete informed consent prior to completing the survey. The invitation will include a personalized link to an online questionnaire (Appendix 2). An online survey tool (Survey Monkey®) will be used. The survey will only be available in English. Participants will have four weeks to complete and return the survey: all non-responders will be reminded at 1-week intervals by e-mail until they respond, or the deadline expires. We hope to achieve a response rate of 60%. There is no universally agreed minimum response rate for questionnaires. However, response rates below 60% significantly increase the risk of response bias, especially when data of non-responders are not available.(11)

A manual search will subsequently be conducted of all scientific abstracts. This is to crosscheck information provided through the survey, collect data where presenters failed to respond, and to ensure an accurate determination of the publication rate. Author name(s) will be individually checked; the abstract title will be used in a keyword search (considering the title may have changed during peer review). These will then be reviewed against the abstract list to check for a match. The following databases will be searched: PubMed, Science Direct, Scopus, EBSCOHost research databases (including CINAHL) and Google Scholar. Methodology, sample size and results will be compared to ensure fit.

Data that will be collected includes:

- Demographical data
- Publication status
- Name of the published journal
- Type of article
- Date first submitted for publication
- Reason(s) for publication or non-publication
- Non-publication dissemination of results
- Country in which study was performed or data collected
- First author's country
- Reference link or digital object identifier

All data will be imported onto an access-controlled spreadsheet (Microsoft Excel®, Microsoft Corporation, Redmond, WA). Identifying information of authors (e.g. names) will be replaced by unique study numbers once all data have been collected for the specific scientific abstract. A code sheet with the de-identifying data will be stored separately from the coded data. A weekly back up will be done on access controlled external hard drives.

2.5 Data analysis

Results will be analysed descriptively by the research team using Microsoft Excel®. No inferences will be made.

2.6 Time schedule

- January 2017: EMDRC approval
- March 2017: Ethics approval
- April 2017: AFEM approval
- May – June 2017: Data collection
- July 2017: Data management & Analysis
- August - October 2017: Write up and submission

Ethical consideration

Risks and benefits: As this study will not involve direct or indirect patient care, risk to participants is likely minimal. The contact details of eligible participants will be obtained from the conferences` scientific committees and potential risk due to loss of participant data is possible. For this reason, identifiable data will be coded as soon as the data collection for that specific scientific abstract is completed. Data are to be stored in a password protected document on the lead investigator's personal computer (with access control limited to the lead investigator). The information obtained from the study will create awareness as to why scientific abstracts in Emergency Medicine in Africa are or are not published. Knowledge of reasons for non-publication could further lead to efforts to promote publication like increased funding; the possibility of discussion between authors and editors at conferences; "publication mentors" to ease the writing/submission process; and/or research courses provided by scientific societies.

Informed Consent: Participation in the study is voluntary and participants will not receive any incentive. The invitation letter will include information regarding the study and ethical considerations to ensure participants understand that completion of the survey implies consent. The first question of the questionnaire will act as informed consent. Although we are mainly focussing on secondary data that are already in the public domain, consent is still indicated as we are also evaluating possible reasons for publishing. No consent is needed to search the literature for non-participants as the data are already in the public domain. The executive committee of AFEM will also be approached for study approval.

Privacy and Confidentiality: As described earlier, the study will make use of a combination of safeguards to ensure anonymity of study subjects. This will include use of a personal computer with limited access, a password protected Excel document containing the data,

and the coding of data immediately after data collection is completed. The presenter's name, author names, title of the presentation, title of published work and links to published works will be removed from the coded data sheet. A decoding sheet will be separately kept from the final database. One can argue that some of the data are already in the public domain making anonymization irrelevant, but certain data points (e.g. non-published works and reasons regarding the decision to publish or not) are not, necessitating these safeguards.

Limitations

Survey-based data collection predisposes the interpretation of findings to several difficulties, including selection bias (self-selection and non-responder bias). Measures are in place to ensure an adequate response rate and the manual search should at least ensure valid data to determine the primary aim.

Certain areas in Africa might still have a low internet penetration rate,(12) possible excluding some participants. The results of the study might therefore not be fully representative of all presenters' opinions.

The results will mainly be applicable to healthcare practitioners with an interest in Emergency Medicine in Africa. Care will be taken to extrapolate the results to other healthcare disciplines and beyond Africa.

Data entered into the Excel spreadsheet might be done incorrect resulting in unreliable results. Data entry will not be double checked due to time and resource constraints.

Dissemination of results

It is expected that the findings could be published in a peer reviewed journal. Findings will also be submitted as a scientific abstract at a national or international Emergency Medicine conference. The executive committee and the scientific committee of the African Federation for Emergency Medicine will also be informed about the findings.

Resources

Resources

All resources will be non-clinical. The Division of Emergency Medicine have an active Survey Monkey® account that will be used. The literature search will be done via institutional library access. The remainder of the project will be self-funded.

Budget

Personal Compensation		R 0
Principal investigator	*R 0*	
Co-investigators	*R 0*	
Consulting services		R 0
Statistical services	*R 0*	
Travel		R 0
Equipment and Furniture		R 0
Other		R 200
Telephone	*R 0*	
Internet and e-mail	*R 200*	
Printing and copying	*R0*	
Total		R 200

References

1. Rawat S, Meena S. Publish or perish: Where are we heading? J Res Med Sci. 2014;19(2):87-9.

2. Van Hoving DJ, Brysiewicz P. African emergency care providers' perceptions and practices towards research. African Journal of Emergency Medicine. 2016;(accepted for publication).

3. Kalkan A, Kose O, Bilir O, Ersunan G, Ozel D, Guler F. Publication rate of abstracts presented at the emergency medicine congresses held by the European Society for Emergency Medicine (EUSEM) in 2011 and 2012. Emerg Med J. 2015;32(9):728-32.

4. Ravn AK, Petersen DB, Folkestad L, Hallas P, Brabrand M. Full-text publication of abstracts in emergency medicine in Denmark. Scand J Trauma Resusc Emerg Med. 2014;22:33.

5. Chan JW, Graham CA. Full text publication rates of studies presented at an international emergency medicine scientific meeting. Emerg Med J. 2011;28(9):802-3.

6. Macmillan CD, Moore AK, Cook RJ, Pedley DK. Abstract-to-publication ratio for papers presented at scientific meetings: a quality marker for UK emergency medicine research. Emerg Med J. 2007;24(6):425-6.

7. Walby A, Kelly AM, Georgakas C. Abstract to publication ratio for papers presented at scientific meetings: how does emergency medicine compare? Emerg Med (Fremantle). 2001;13(4):460-4.

8. Clemency BM, Thompson JJ, Lindstrom HA, Gurien S, Jaison BA, Grates-Sciarrino AA. Frequency of manuscript publication following presentation of EMS abstracts at national meetings. Prehosp Disaster Med. 2014;29(3):294-8.

9. Bruijns S. There has been an awakening; publication sources in African emergency care [v1; not peer reviewed]. F1000Research. 2016;5(1140 (poster)).

10. Medicine AFoE. African Conference on Emergency Medicine 2014 [cited 2015 15 December]. Available from: http://www.afcem2016.com/statistics-afcem-2014-addis.

11. Draugalis JR, Coons SJ, Plaza CM. Best practices for survey research reports: a synopsis for authors and reviewers. Am J Pharm Educ. 2008;72(1):11.

12. International Telecommunication Union. Measuring the Information Society Report 20142014 24 June 2016 [cited 2014 23 June]. Available from: http://www.itu.int/en/ITU-D/Statistics/Documents/publications/mis2014/MIS2014_without_Annex_4.pdf.

HREC approval letter

UNIVERSITY OF CAPE TOWN
Faculty of Health Sciences
Human Research Ethics Committee

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Observatory 7925
Telephone [021] 406 6626
Email: shurette.thomas@uct.ac.za
Website: www.health.uct.ac.za/fhs/research/humanethics/forms

12 April 2017

HREC REF: 210/2017

Dr SR Bruijns
Emergency Medicine
F51, OMB

Dear Dr Bruijns

PROJECT TITLE: DISSEMINATION PATTERNS OF SCIENTIFIC ABSTRACTS PRESENTED AT THE 1ST AND 2ND AFRICAN CONFERENCE OF EMERGENCY MEDICINE (MMED CANDIDATE - DR M ABRAMS)

Thank you for submitting your study to the Faculty of Health Sciences Human Research Ethics Committee.

It is a pleasure to inform you that the HREC has **formally approved** the above-mentioned study.

Approval is granted for one year until the 30 April 2018.

Please submit a progress form, using the standardised Annual Report Form if the study continues beyond the approval period. Please submit a Standard Closure form if the study is completed **within** the approval period.
(Forms can be found on our website: www.health.uct.ac.za/fhs/research/humanethics/forms)

Please quote the HREC REF in all your correspondence.

Please note that the ongoing ethical conduct of the study remains the responsibility of the principal investigator.

Please note that for all studies approved by the HREC, the principal investigator **must** obtain appropriate institutional approval before the research may occur.

The HREC acknowledge that the student, Dr Marlin Abrams will also be involved in this study.

Yours sincerely

Signature Removed

PROFESSOR M BLOCKMAN
CHAIRPERSON, FHS HUMAN RESEARCH ETHICS COMMITTEE
Federal Wide Assurance Number: FWA00001637.
Institutional Review Board (IRB) number: IRB00001938