

Equipping SickleInAfrica Researchers to Develop Abstracts and Manuscripts for Publication in Scientific Journals:

A Report of Pilot Literature and Systematic Review Course

Background

Sickle cell disease (SCD) is a life threatening monogenic disorder that affects millions of people worldwide.¹ SCD encompasses a group of inherited red blood cell disorders caused by a structurally abnormal hemoglobin (Hb) called sickle hemoglobin (HbS). HbS is due to a point mutation in the beta-globin gene.² Persons with SCD suffer from debilitating complications. Early diagnosis is beneficial as early intervention and management can ameliorate both morbidity and mortality.³

While the greatest burden of SCD is in sub-Saharan Africa (SSA), there is growing recognition in SSA that SCD is a disease of public health importance and an increasing global health burden. However, the paucity of SCD studies in SSA countries have been highlighted.⁴ As a result, a number of consortiums have been formed to aid in the harmonization and coordination of research efforts. The Sickle Pan-African Research Consortium (SPARCo) is a network of SCD researchers (in east, west and central Africa) and the SickleInAfrica data coordinating centre (SADaCC), provide administrative support, facilitate data standardization and coordination of SCD research and infrastructure needs.

In 2019 SADaCC created a curriculum for developing different types of reviews. The target audience for the pilot were SickleInAfrica fellows. The overall goal was for these potential trainees to identify their research niches while learning how to develop reviews. In addition, it gave SADaCC a chance to screen for ideal candidates to be trained in an advanced Big Data Analytics Course.

Invitations

Since this was a piloted workshop, potential trainees and researchers were invited from SPARCo, SADaCC and the Sickle Cell Disease Ontology (SCDO) Network. Course material is publicly available on the SickleInAfrica website (www.sickleinafrica.org).

Course Structure

This was a blended course consisting of two online sessions on 30th October, 2019 and 15 January, 2020 and a face-to-face session in November, 2019 during the 4th Sickle Cell Ontology (SCDO) Workshop which was held in Cape Town, South Africa. Participants' expenses during the face to face workshop were supported by the SADaCC grant. Substantial progress on the literature review was used as eligibility to attend the next SickleInAfrica meeting in Nairobi, Kenya and to continue with training in the SADaCC Big Data Analytics Course.

Aims and learning outcomes

Aims of this course were to:

- Use a blended training approach in the course share best practices on scientific writing and publication of abstracts and manuscript publication

The learning outcomes for participants were to:

- identify different types of scientific reviews
- develop a well-formulated research question for a scientific review
- design a literature search strategy and document the search in a standardized format
- summarize and interpret literature findings
- write up an abstract and develop manuscript for submission

Session 1: Webinar- Introduction and Presentations from the SickleInAfrica Fellows

Principal investigators (PI) were tasked to nominate individuals from their sites who might benefit from the training. On 30 October, 2019, Fifteen nominated individuals were invited to attend an online session using GoToMeeting platform. GotoMeeting is a web-hosted service that allows desktop sharing and video conferencing. In addition, nominated individuals were given reading material and key papers on the methodology of conducting reviews. In this session participants gave a brief verbal presentation about their educational background and experience in conducting reviews. Participants included clinicians, graduate students, geneticists, social scientists, and data staff. Participants came from Ghana, South Africa, Nigeria, Tanzania, Cameroon, Zambia, Rwanda, Malawi, Zimbabwe, and Brazil.

Session 2: Face to Face Development of Research Question for Review

This was face to face lectures and tutorials which took place during the 4th SickleInAfrica Ontology Workshop, which took place in Cape Town, South Africa on the 4th to 8th November 2019. Fifteen eligible fellows from different sites in the SickleInAfrica network, were invited and trained on how to formulate research questions and on the process of conducting different types of reviews. In addition, fellows were given key points and papers on SCD to accommodate new fellows in the field of research. Upon completion, the training fellows submitted and presented their manuscript document concepts. It was agreed that fellows would be required to write an abstract to be eligible to attend an upcoming conference. Furthermore there was a possibility for publication in a peer-reviewed journal.

Session 3: Webinar - Scientific Writing Training

This was an interactive online session which was conducted on January 15, 2020. The focus was on effective scientific writing, particularly with regards to abstract writing. Attendees were taught how to write different types of abstracts, making them effective and also how to master the art of writing concisely. Multiple examples of effective abstracts were provided to serve as a template for the attendees. Fellows were encouraged to complete and submit the abstracts they were tasked with writing during session 2 for attendance of an upcoming SickleInAfrica conference.

Feedback, challenges, and future perspective

The majority of the 15-20 attendees of the training sessions provided positive verbal feedback about the sessions. Although, a structured feedback survey was provided, very few were handed back in to the organizers of the event. Overall, the fellows were very interested in developing their own review manuscripts and abstracts. There were a great number of questions asked and high level debate/contributions from the fellows, especially during the face to face session in Cape Town. However, a few challenges were noted by the organizers. Namely:

- Access to the journals.
 - Some of the attendees had limited access to journals of interest
- Time

- Length of the sessions proved to be inadequate
- The need for further training and expanding the workshop to a bigger group.
 - Some of the sites requested online access to the material after the workshop, to allow individuals who were unable to attend to benefit

Based on the positive feedback so far, it would be worth considering offering this training to a larger group. Furthermore, dedicating more time to the sessions would allow for more interactions between the individuals giving the lecture/tutorial/workshop and the attendees.

References

1. Weatherall, D., Akinyanju, O., Fucharoen, S., Olivieri, N. & Musgrove, P. Chapter 34. Inherited Disorders of Hemoglobin. *Dis. Control Priorities Dev. Ctries.* (2nd Ed. 663–680 (2006). doi:10.1596/978-0-8213-6179-5/chpt-34
2. Ware, R. E., de Montalembert, M., Tshilolo, L. & Abboud, M. R. Sickle cell disease. *Lancet* 390, 311–323 (2017).
3. Rees, D. C., Williams, T. N. & Gladwin, M. T. Sickle-cell disease. *Lancet* 376, 2018–2031 (2010).
4. Wonkam, A. & Makani, J. Sickle cell disease in Africa: an urgent need for longitudinal cohort studies. *Lancet Glob. Heal.* 7, e1310–e1311 (2019).

Appendix 1: Invitation to the workshop

Training format and topics covered

Who should attend?

This workshop is intended for researchers with a general interest in writing systematic reviews and for those planning to conduct any other type of reviews in the future.

This workshop consists of face-to-face tutorials in Cape Town and weekly online gotomeeting sessions. Each online gotomeeting will not be more than 1 hour. It also includes student-centred teaching practices

such as the flipped class and learning groups. In addition, participants need to be able to submit assignments. The workshop curriculum and study materials will be posted on the Vula website.

What will the participants learn?

By the end of the course participants will be able to:

- Identify systematic reviews and distinguish them from other review
- Develop a well-formulated search question
- Create a search strategy and document a search in a standardized format.
- Assess the quality of studies
- Summarize and Interpret their findings

The workshop will be conducted by experts in systematic reviews from the University of Cape Town and Stellenbosch University. The course content can be found on Vula website.

If you would like to attend please email Arthemon Nguweneza on ngwart001@myuct.ac.za

By 25th October 2019.

Appendix 2: Curriculum

The workshop will be conducted by experts in systematic reviews from the University of Cape Town.

Session 1 Online - SickInAfrica (Introduction and presentations from the fellows)

By the end of the course participants will be able to:

- Identify systematic reviews and distinguish them from other reviews
- Critically assess a review based on PICOT and FINER Table

Reading material	Duration	Pre-Assignment/Exercise	Assignment
<ul style="list-style-type: none"> ● LibGuides: Systematic Review Resources: Systematic Reviews vs Other Types of Reviews ● Systematic review vs scoping review (Cochrane SA Webinar - Scoping Reviews) ● Systematic review vs literature review (https://figshare.com/articles/Difference_between_a_systematic_review_and_a_literature_review/766364) 	Self study Between 28th to 30th November	<ul style="list-style-type: none"> ● Introduction and presentation from the fellows 	Critically assess a review article using PICOT and FINER tables.

Session 2: Development of Research Question for Review (Arthemon Nguweneza and Khuthala Mnika)

By the end of the session participants will be able to:

- Develop a well-formulated research question (using PICOT)
- Create a search strategy and document a search in a standardized format
- Download and install Mendeley

Instructional Plans	Duration	Pre-Assignment/Exercise
<ul style="list-style-type: none"> ● Recap (8.45 - 9.00) ● Khuthala Mnika Developing a Systematic Review in Sickle Cell Disease (9.30-10.00) <ul style="list-style-type: none"> ○ Search strategy - managing in Pubmed (NCBI) ● Arthemnon Nguweneza Practical Guidelines - How to develop a review <ul style="list-style-type: none"> ○ Review assignment ○ Give assignment ○ Protocol development PRISMA Flowchart (Time-lines) ○ Mendeley <p>Curriculum Review & Feedback (10.00 - 10.30am)</p>	8.45 AM-1.00 PM	<ul style="list-style-type: none"> ● Presentations from Fellows with proposed review questions (11:00 - 11.30) ● Groups work to assist trainees with Review questions (11.30 - 12:30) ● Presentations from Fellows with revised review questions (12:30 - 1:00)

Assignment

Write an abstract on their chosen topic

Session 3 Webinar - Scientific Writing Training (Taahira Goosen) (January 15, 2020)

By the end of the course participants will be able to:

- To prepare an abstract for conference presentation and manuscript for publication

Instructional Plans	Duration	Assignment
<ul style="list-style-type: none"> ● Reading material will be distributed on Vula site ● Fellows will be able to post questions and comments on Vula site ● There will be Webinar on scientific writing on the 15th January 	Webinar presentation (on the 15th January 2020)	<ul style="list-style-type: none"> ● Fellows to submit protocol ● Fellows will critique each other's protocols work

Assignment

Fellows will critique each other's work and send comments

Appendix 3: Manuscript Concept Document and Feedback survey

Fellow's Name/s	
Last Author (Senior Author)	
Title of the review	
First reviewer	
Second reviewer	
Team of reviewers	
Feedback/ Training needs– please state if advice/training or personnel required at each stage	
Protocol development	
Literature searching (please get help from a librarian)	
Quality appraisal (Applicable to the fellows who are doing systematic review)	
Data extraction	
Synthesis	
Writing up	
Manuscript Development	
Background / Significance (400 words)	
Specific objectives	
Methods	
Presentation of results & Narrative synthesis	
Indicate if you will be using Flow chart (prisma diagram)? (Y/N) Data extraction form and tables? (Y/N)	
Writing	
Timeline for review – when do you aim to complete each stage of the review (Weeks or months)	
Protocol	
Literature searching	

Data extraction	
Synthesis	
Writing up (Abstract)	
Draft write up (Manuscript)	
Writing up (Manuscript)	