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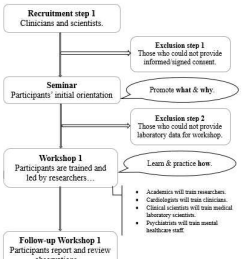
Whole blood viscosity test implementation: Community based participatory approach study protocol



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Ezekiel U Nwose[1], Phillip Taderera Bwititi[2], Lexin Wang[1], Rasheda Khanam[3], Hayder Al-Aubaidy[4], San Low[5], Simon Tawasu[6], Chukwudiebube Ajaero[7]

[1]School of Health and Medical Sciences, University Of Southern Queensland Toowoomba Australia;
[2]School of Dentistry and Medical Sciences, Charles Sturt University Wagga Wagga, Australia;
[3]Health Economics, School of Business, University Of Southern Queensland Toowoomba Australia;
[4]MAPP department, and Diabetes Development & Prevention (DDP) Group, La Trobe University Melbourne Australia;
[5]Queensland Health, Toowoomba Australia; [6]Western Australia Health, Perth Australia;
[7]African-Australian Heart Health Initiative, Adelaide Australia

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Ezekiel U Nwose
University Of Southern Queensland

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Abstract

This study would employ a Community-Based Participatory Research (CBPR) approach, and mapped with implementation strategies, to engage healthcare providers in initiating change. Participants would include cardiologists, general practitioners, and psychiatrists as well as medical laboratory scientists. Expected primary outcome measures include attendance (knowledge impartation) and change in perception regarding the clinical laboratory test tool. Secondary outcome measures will include quantitative analysis of eWBV from workshop.

Image Attribution

Nwose EU, Bwititi PT, Wang L, Khanam R, AL-Aubaidy H, Low S, Tawasu S,
Ajaero C.

Guidelines

This proposal meant to advance existing guidelines
1. for monitoring 'at risk hyperviscosity'
2. to predict bleeding risk

Materials

Clinical laboratory test records
Clinical laboratory facility
Medical records to match pathology
eWBV algorithm (electronic and/or hardcopy chart)

Troubleshooting

Safety warnings

Achievability must be established in terms of the clinicians and medical scientists as well as healthcare facilities.

Ethics statement

Relevant ethics approval should be obtained from at least of the health facility sites, before performing this study

Before start

Knowledge of the eWBV method as well as how to use the electronic and hardcopy chart tools are basic imperatives.

Introduction in brief

1 Monitoring of whole blood viscosity (WBV) is critical in patients at risk of hyperviscosity (The
Royal College of Pathologies of Australia, 2019). Prothrombin Time Test (PT/INR), which is currently used is insufficient to predict bleeding risk (Cao et al., 2024). There is a test for blood viscosity, which is cheaper than currently recommended plethora of tests, but clinicians are unaware that haematocrit and serum protein, can be used in an algorithm to obtain eWBV that is specific for the cardiovascular phenomenon (Nwose & Bwititi, 2022).

The protocol

2 ***Study design:*** This study employs a Community-Based Participatory Research (CBPR) approach (Holkup et al., 2004; Sanders & Baisch, 2008; Wynn et al., 2011). This is also designed to be observational cohort and pilot studies, hence the methods' section of STROBE checklist (Kang & Foster, 2022), is adopted in this protocol layout. The cohort component would involve eWBV analysis of deidentified patients' data, while pilot component is on participant healthcare personnel.

3 ***Participants:*** The participants would comprise Australian-based general practitioners (GPs) and clinicians
specialising in diabetes and cardiovascular management. This includes GPs, registrars, cardiology and mental health registrars, nurses. Participants will provide informed consent and receive detailed written information about the study. Inability to provide de-identified necessary clinical and laboratory data and/or be available at seminar, workshop and survey constitute exclusion criteria.

4 ***Variables:*** This will include the numbers of seminars and workshops organised, attendance at the events, number of clinicians and health facilities reached. There would be results of 'perception and uptake' survey, and publications. Summary of metrics matching study objectives is presented in table 1. Further, data variables for the workshop would include:

- Clinical data of patients' diagnosis and treatment in-between serial laboratory tests.
- Laboratory data including series of routine haematology and liver function test – at least two sets per patients, with known clinical intervention between tests' dates. Also, serial INR results done on the same blood collection with routine haematology and liver function test.
- Survey dataset: Likert scale data on perception and uptake

Table 1: The objectives of the current study and the measurable metrics.

	Objective/goal	Metrics
	Engage with Public Health Network (PHN) to recruit participants	No. of health facilities and individual recruited
	Propagate the developed digital and manual algorithm	No of viewers of the digital and manual algorithm
	Organise seminars to promote agenda (intervention step1 of 2)	No. of seminars and attendances
	Organise workshops among participants (the intervention step 2 of 2)	No. of workshops and attendances
	Assess uptake and user-friendliness of the tools	Qualitative and quantitative analysis of perception

5 ***The process***

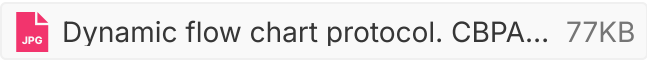

Fig 1: Dynamic flow chart

Seminars and workshops would be convened in at least one facility in the 6 states/territory. Primary outcome measures include attendance, survey analysis. Secondary outcome measures include quantitative analysis of eWBV from workshop (Fig 2).

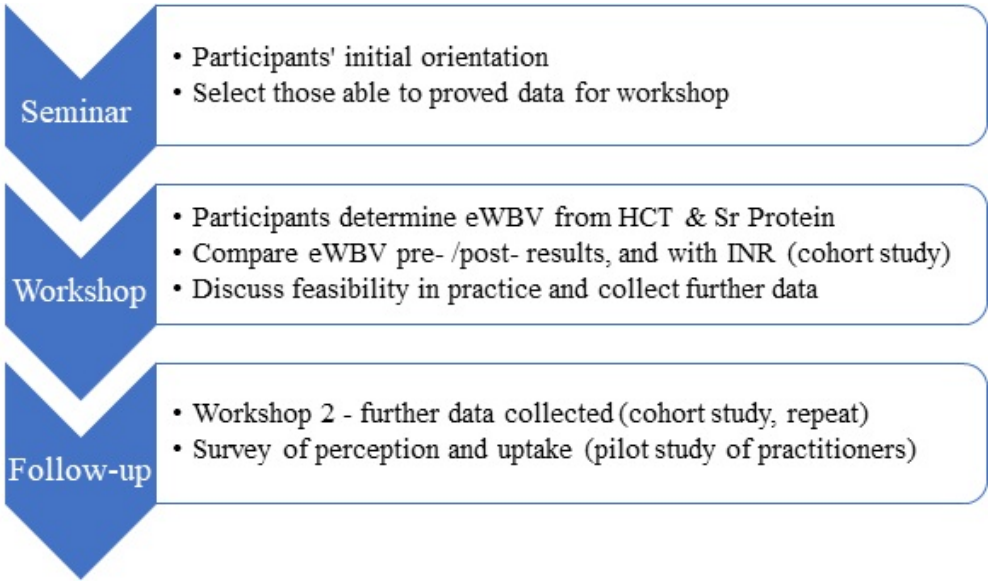

Fig 2: Further details on stages in workflow

Conclusion statement

6 Based on the participants' capacities, survey of ability and willingness to adopt/integrate the laboratory method into practice would be conducted. Analysis of the perception survey will inform next direction in the implementation research.

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