**Medical Practitioners perceptions and views of current continuing professional development programmes in the Kingdom of Eswatini; the design of an accessible model.**


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# DEDICATION

I dedicate this work to my wife, mother, maiguru and family who have believed in me and encouraged me. To my children Akudzwe and Josh that I wish to set an example for, so that they can achieve anything they set out to do. Also, to my late sister Debra, her words and advice remain an important source of inspiration in my life.

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I would like to acknowledge the following individuals: Professor Andrew Ross, without whose guidance and support this project would not have been possible. Ms. Carrin Martin for her work in editing the various manuscripts included in this thesis. Finally, all the participants and colleagues who helped in making this work relevant to our setting.

# PUBLICATIONS

1.  Magwenya, R. H., Ross, A. J., & Ngatiane, L. S. (2022). Continuing professional development in the last decade–A scoping review. Journal of Adult and Continuing Education, 14779714221147297.

2.  Magwenya, R. H., & Ross, A. J. (2021). Continuing professional development in Eswatini: Factors affecting medical practitioners' participation. South African Family Practice, 63(4).

3.  Magwenya, R. H., & Ross, A. (2023). Developing a CPD model for Eswatini—a participatory action research study. BMC Medical Education, 23(1), 1-13.

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# ACRONYMS

| | |
|---|---|
| AMCOA | Association of Medical Councils of Africa |
| BREC | Biomedical Research Ethics committee |
| CIG | Cooperative inquiry group |
| CME | Continuing Medical Education |
| CPD | Continuing Professional Development |
| EMDC | Eswatini Medical and Dental Council |
| EPA | Entrustable Professional Activities |
| NHRRB | National Health Research Review Board |
| PAR | Participatory Action Research |
| QI-CME | Quality Improvement Continuing Medical Education |
| QI-CPD | Quality Improvement Continuing Professional Development |
| UME | Undergraduate Medical Education |

# ABSTRACT

**Background**

Eswatini currently has no formal continuing professional development (CPD) requirements for doctors to renew their licenses. The Medical Council of Eswatini has embarked on a process to introduce an accredited CPD system possibly through the adaption of existing models, but there is lack of published local data to inform such a process. Moreover, even where formal CPD is available it may not necessarily translate to adequate levels of participation by practitioners.

**Methods**

The setting for this study was Eswatini. Firstly, a scoping review was done to derive lessons for the country from established databases and grey literature describing models of CPD. This was followed by a focus group discussion (FGD) and interview-based study to determine factors affecting participation in CPD by local practitioners. Lastly, a participatory action research study on how CPD in Eswatini could be improved and formalised was conducted.

**Results**

The scoping review provided an overview of the CPD models available in various global settings and highlighted perceptions and views of medical practitioners towards these. The FGDs and interviews provided insights on motivating and demotivating factors for doctors to participate in CPD activities in Eswatini. Motivating factors included professional responsibility and learning needs, while demotivating factors included lack of recognition for efforts and CPD activities not being relevant to one's practice. The PAR identified three ways to improve CPD in Eswatini; making it compulsory, recognising achievements and ensuring that it is relevant to doctors' practice areas.

**Conclusion**

There are many models for CPD which Eswatini can adopt; each has its own advantages and disadvantages. A CPD model that is formalised, compulsory, considers the needs of practitioners and recognises their efforts is likely to be viewed favourably. There are ways to improve CPD which consider these identified issues and these form important considerations for Eswatini as it endeavours to develop its own model.

# Layout of the thesis

**Chapter 1**: Introduction-Provides an overview and looks at the rationale of doing the study and an overview of the methodology employed.

**Chapter 2**: Contains three papers published in peer reviewed journals.

Paper 1: Continuing professional development in the last decade–A scoping review.

Paper 2: Continuing professional development in Eswatini: Factors affecting medical practitioners' participation.

Paper 3: Developing a CPD model for Eswatini- a participatory action research study.

**Chapter 3**: Synthesis, conclusion, recommendations

# CHAPTER 1: INTRODUCTION

## 1.1     What is the Problem?

The kingdom of Eswatini (formerly Swaziland) currently has no official/ formal continuing professional development (CPD) program requirement for physicians for renewal of licenses. The available CPD activities have been arranged by hospital committees and by the Ministry of Health and its partners. These educational meetings are largely didactic in nature which greatly affects their effectiveness (1).

I am a generalist doctor based at a 250 bed sub-regional hospital in the Manzini region of the country. This facility caters for the secondary health care needs for patients from eleven primary health care facilities in the region; it has three specialists in internal medicine, general surgery and obstetrics and gynaecology; and ten general medical officers who rotate through different departments (casualty, outpatients department, obstetrics and gynaecology, internal medicine, pediatrics, and general surgery) annually. I also serve on a committee within the facility which has the mandate of ensuring that CPD is provided for health care workers (which includes doctors, nurses, physiotherapists, laboratory personnel, radiographers, dieticians, and occupational therapists). It was while serving in this committee that the lack of structured and relevant CPD programmes became apparent. Having previously practiced elsewhere (Malawi and Zimbabwe) where CPD was required for medical council license renewal, it became clear that this lack of access to formal CPD activities made it difficult for healthcare workers to share ideas, network, benefit from the experiences of others, discuss new best practices, and grow in their respective areas of practice. This was especially true for doctors in smaller facilities like ours where there are few specialists and few experienced medical officers (that is, with more than ten years of experience). Many of the smaller health care facilities are also relatively far from other support services (Government and Non-Governmental) which makes it difficult to provide appropriate mentoring and support to medical staff as compared to doctors in the urban hospitals. In addition, a few of the CPD programmes that I attended felt far removed from my practice needs.

Currently there is no set policy in Eswatini that speaks to the need of a CPD program specifically for medical officers and neither is there a move to make it compulsory. However, the hospital In-service committees has been mandated with ensuring that staff is provided with relevant continuing medical education, but this is too wide a responsibility must cater for doctors, nurses, allied health professionals and support staff, thus making it difficult to address different and at times competing needs of each cadre. There is also no data available on how the target audience (including medical practitioners) perceives and views any of these CPD activities.

## 1.2      What is known so far?

Undergraduate medical education (UME) and Continuing Professional development (CPD) are two different forms of medical education that serve different purposes and audiences. UME is designed for medical students who are pursuing their initial medical degree, while CPD is designed for healthcare professionals who have already completed their medical education and are practicing in the field (2–4). The purpose of UME is to provide students with a comprehensive foundation in medical knowledge, skills, and attitudes that they will need to become competent and compassionate physicians (2). The purpose of CPD is to provide practicing healthcare professionals with opportunities to update their knowledge and skills, stay current with new medical research and technologies, and maintain their licensure or certification (2,4). UME typically takes place in a structured and sequential manner over four to six years, with students completing a series of courses, clinical rotations, and assessments (2). CPD, on the other hand, is typically less structured and more flexible, with healthcare professionals choosing from a range of educational activities such as conferences, workshops, online courses, and self-directed learning (2,4). UME focuses on building a foundational knowledge base in basic and clinical sciences, as well as developing clinical skills and professionalism (2). CPD, on the other hand, focuses on updating and expanding knowledge and skills in specific areas of practice, such as new diagnostic and treatment modalities, or emerging public health concerns (4). Finally, UME typically involves regular assessments of student performance, including written and practical exams, clinical evaluations, and standardized tests (2). CPD, on the other hand, may involve assessments of learning outcomes, such as the application of new knowledge or skills to clinical practice, but these assessments are typically not as formal or comprehensive as those used in UME(2,4).

CPD is often viewed as being essential to the health service as it provides healthcare workers with support for keeping up to date with best practices and helps them tackle deficits in their practice. However, there are arguments on how effective CPD is in changing physicians practice due to the inherent challenges of measuring its impact of CME (5,6). A survey by the American Hospital Association found that most of its members felt that CPD was of value in addressing key competencies such as medical knowledge and patient care, they however found it less effective in promoting team-based care, system-based care delivery, communication skills and improving efficiency of doctors practice (7). Again, one should emphasise how difficult it is to apply a randomised control study (the gold standard) in studying CPD (5,6). The effect size of CPD activities vary according to how it is delivered and can be large when many methods are used, or smaller groups from one clinical discipline are involved, and when the delivery is more interactive(6).

Continuing Medical Education (CME) and Continuing Professional Development (CPD) are two distinct approaches to lifelong learning for healthcare professionals. While both are focused on ensuring that healthcare professionals maintain and improve their skills and knowledge, there are some

differences between the two. CME is a structured approach to learning that is focused on providing healthcare professionals with the knowledge and skills they need to maintain their medical licenses and certifications (8). CME programs are typically designed to provide healthcare professionals with the latest updates in their field and to help them stay up to date with the latest research and best practices. CPD, on the other hand, is a broader approach to lifelong learning that encompasses all aspects of a healthcare professional's practice, including clinical, non-clinical, and managerial skills(9). CPD is focused on developing the individual's knowledge, skills, and professional attributes throughout their entire career, and can include a wide range of activities, such as attending conferences, participating in workshops, and engaging in self-directed learning (3). One of the main differences between CME and CPD is their focus. CME is primarily focused on updating healthcare professionals on the latest medical knowledge and research, while CPD takes a more holistic approach, focusing on developing the individual's overall professional skills and attributes (3,9).

One of the general goals of CPD programmes is to improve patient outcomes by modifying practice behaviour of doctors; however, this is difficult to measure due to the challenges in producing a suitable design and standardized assessment tools(5). There are wide ranging disparities between individual practitioner needs and priority educational needs identified by bodies that offer CPD activities (10). A potential solution to overcome these differences is conducting a needs assessment (11). Learning needs of different doctors may be identified through benchmarking (comparison with exemplary peers), individualized audit results compared with practice guidelines (or current literature), periodic internal audits and maintenance of practice diaries of intriguing cases (12). Practitioners can be motivated to keep practice diaries by being awarded CPD credits for doing so and recognition on the impact of these dairies on their practice (13). Practice diaries have been shown to assist doctors in producing specific learning objectives in a Canadian model developed by the Royal College of Physicians and Surgeons (12,13). Another way to do a need assessment may be through standardized assessment exercises akin to the objective structured clinical examination which can provide valuable feedback to doctors but may require a larger investment in time and financial resources (6).

The design of a CPD model should employ methods of delivery which have been shown to have the most effect on patient care outcomes. Such methods include audit, academic detailing, and reminders (14). Such a design may be grossly incomplete if it should fail to include and allow for web/internet-based learning due to the wide availability of smart devices in common use by people (including doctors) nowadays (15,16). The University of Dundee developed a set of criteria which they felt every CPD model should address, these include convenience, relevance, individualization, self- assessment, interest, speculation and systematic, also known by the acronym 'CRISIS' criteria (11). If the CRISIS criteria are applied to a CPD program it can highlight areas needing improvement and consequently ensure that all activities and material, it produces are of high quality and are effective (11).

## 1.3    What needs to be known?

There is a need to find out how different regions of the world meet their CPD needs and the perceptions and views of Eswatini medical practitioners of the available CPD. It is also important to look at the needs of Eswatini medical practitioners with respect to activities that they feel may benefit them the most, and then address these needs in the design of a CPD model.

Published and submitted manuscripts sought to answer the following questions:

Paper 1:

a)   What CPD models are available in various settings?
b)   What are the views and attitudes of medical practitioners towards these models?

Paper 2

a)   What motivates Eswatini practitioners to participate in CPD?
b)   What are barriers to participation in CPD for Eswatini doctors?

Paper 3

a)   How can CPD in Eswatini be improved?

## 1.4    Why is the problem important?

There are no existing data describing the clinical experiences of and need for CPD in the Kingdom of Eswatini. Medical practitioners are fundamental to the continued provision of healthcare; thus, it is important to understand their experience and needs in terms of ongoing training and education.

It is an ethical duty of all practicing doctors to ensure that they continuously aim to maintain and update their professional knowledge and competence. Indeed, in most countries this is a legal requirement. Since the Kingdom at this time does not have a formal CPD program specifically for medical practitioners the country may be lagging international norms and quality medical standards.

## 1.5    How will the study solve the problem?

The study aimed firstly to review the different CPD models available in other countries, and in doing so highlight some policy gaps that exist locally. Doctors working in the Kingdom of Eswatini were then assessed to determine how they perceived the available CPD activities in the country. This information was used to inform the next steps and ensured that when the needs assessment was done, the resulting CPD model proposed was not only evidence based but also addressed real needs of the doctors. The model developed included mechanisms of monitoring and evaluation so that it could constantly be improved. It is hoped that the study will inform the CPD policy which is still in development stages by the Medical Council of Eswatini and allow for a CPD model that is not only accessible but addressed the concerns of medical practitioners in the country. It is not the objective of the study to replace current practice, but to augment and improve on the options for CPD currently available.

## 1.6    Conceptual framework

### 1.6.1    Paradigm, ontology, and epistemology
**Constructivist Paradigm**

Paradigms are basic belief systems based on ontological, epistemological, and methodological assumptions (17,18). As no one paradigm is superior to another there is a lot of debate on this, it is therefore felt that paradigms represent our way of framing knowledge, what it is to us and how we can develop it. For a constructivist, the main aim is to explore the subjective human experience and they view knowledge as not being found but something that is constructed(17) . To understand people (in this case medical practitioners), how they learn, their beliefs and behaviours there is a need to be aware of their experiences and to recognise that they not only see the world differently from us but also experience it differently. I as the researcher in this context may be able to co-construct knowledge and understanding with the participants. Constructivist research relies on the viewpoints of participants about the study area; thus, the focus of this research is on the views and perception of medical practitioners towards CPD which can be explored using the constructivist paradigm. Constructivism is learner focused, thus allowing for the previous learning to be used as a foundation to build new knowledge. It also agrees with adult learning theories which form part of the framework to be used(19). Research practices that can be employed with constructivist view include collecting participant generated meanings, involving the researcher in collaborating with participants (co-creation of

knowledge), consideration of the setting of participants and positioning the researcher within that context (17,19).

**Ontological perspective: Relativism**

Ontology answers the question, 'What is reality?' (17). Reality cannot exist without context. The context of CPD is seen as different between Eswatini and other countries (for example South Africa) because of the different environments of medical practice, indeed it may even be different from one health facility or region to the next. In this research I will accept that multiple mental constructions of reality exist, and these are influenced by experiences and interaction (17,20). Given that both experiences and interaction are different for individual practitioners there may be no one truth of what successful CPD is. Each person may have their own reality that is considered correct. The truths or perceptions in this case are therefore viewed as subjective, dynamic, and contextual (18). The multiple truths may be in conflict, but all remain true. An important consideration here is that the 'reality' that is sought in will be context bound and thus not generalizable, it can only be applied in similar contexts (21).

**Epistemological approach: subjectivist**

Epistemology answers the question, 'how do you know something?' (18). While medicine is taught as fact, when it comes to practice one finds that there are many variations of 'truth' with each practitioner's 'knowledge' being shaped by what they learned at medical school and their experiences (that is, what they have learnt since graduating, what they have learnt while interacting with others and their environment) (17,20,21). In this research I will be adopting a subjectivist epistemological approach which recognises the interactive and subjective nature of the topic and that meanings will be co-created (20). This subjective nature of the reality of CPD (that is: how effective it is, how knowledge is gained, what methods are best or preferred in delivering content, what are the perceptions of practitioners towards it) is best explored through this approach. Interacting with medical practitioners to find out what truth (regarding CPD) means to them is critical. An insider's view of perceptions of CPD will likely yield more valuable information than an etic approach as there is no one truth/reality (17,20).

### 1.6.2   Learning theories

Adult education theories and principles are based on the idea that learning is a lifelong process and that adults learn differently from children (22) . Some of the most prominent adult education theories and

principles include andragogy, experiential learning, self-directed learning, transformative learning, social learning and connectivism (22–26). Andragogy is a learning theory developed by Malcolm Knowles. It emphasizes that adults learn differently from children, and that adult learners are self-directed and motivated to learn (25). Andragogy suggests that adult learners need to know why they are learning something, how it is relevant to their lives and experiences, and that they prefer to learn in a more participatory and collaborative environment, this is discussed further below (25). Experiential learning theory posits that learning occurs through the active engagement with experiences (26). Adults learn best when they can connect new information with their prior experiences and knowledge, and when they can reflect on what they have learned (27). Self-directed learning on the other hand emphasizes that adults are responsible for their own learning and that they can set their own learning goals and objectives (28,29). This theory suggests that adult learners need to be motivated and have the autonomy to control their learning process and builds on from the work of Knowles (25,28,29). Transformative learning theory posits that adults learn through critical reflection on their own experiences and perspectives and its main goal is independent thinking (30). It suggests that adult learners can change their attitudes, beliefs, and values through learning, and that learning can be a transformative experience (30). Social learning theory emphasizes that learning is a social process and that adults learn through interaction with others (31). This theory suggests that adult learners benefit from collaboration, feedback, and support from their peers and instructors(31,32). Lastly, connectivism is a learning theory that emphasizes the role of technology and networks in learning (33). It suggests that adult learners can access a wealth of information and resources through online networks, and that they can connect with others to collaborate and learn together (33). In essence adult education theories and principles provide a framework for understanding how adults learn and what factors are important in facilitating their learning process. These theories highlight the importance of active engagement, self-direction, social interaction, and reflection in adult learning.

Learning theories look at how adults learn or acquire new knowledge. Theory-based model development has been touted as one of the most effective ways to plan CPD activities, with some theories having been validated. According to Mann (2002) it is recognised that most medical practitioner learning occurs through methods other than formal CPD (13). If one takes that view this is clearly a scathing review of CPD practices and calls to question their relevance. However, there are many theories which have been proposed to describe and conceptualise learning in the medical professions. One such theory is by Donald Schon called the reflective practitioner, figure. 1 below (27,34). He described five stages to what he termed reflective practice (27). The first he called "knowing-in-action," this is the knowledge and skill that a medical practitioner would have to solve most clinical conundrums, that is, tacit knowledge (27). The second stage of the model is the 'surprise' that a medical practitioner gets when they encounter a unique or complex case, or even unexpected physical examination findings (13,34). Then the third stage is 'reflection-in-practice,' where the doctor

tries to examine the cause of the 'surprise' and decide what makes the case unique and how to proceed (13). The fourth stage of the model is the 'experiment,' where the doctor attempts and uses existing knowledge in diverse ways in- order to take professional actions that will resolve the issue, this still occurs in the context of the clinical encounter (13,27). Lastly, the practitioner undergoes 'reflection on action', which is essentially looking back at the encounter to examine what happened, the actions taken, the outcomes of those actions, and consideration of what may be done in future practice (13,27). Reflection on action allows integration of the new knowledge and skills into the 'knowing-in-action' until the next cycle of reflection (34). The approach of reflective practice has been used in Canada for the maintenance of competence developed by the Royal College of Physicians and Surgeons, which involves use of a PC-diary (13).

Figure 1: Reflective practice

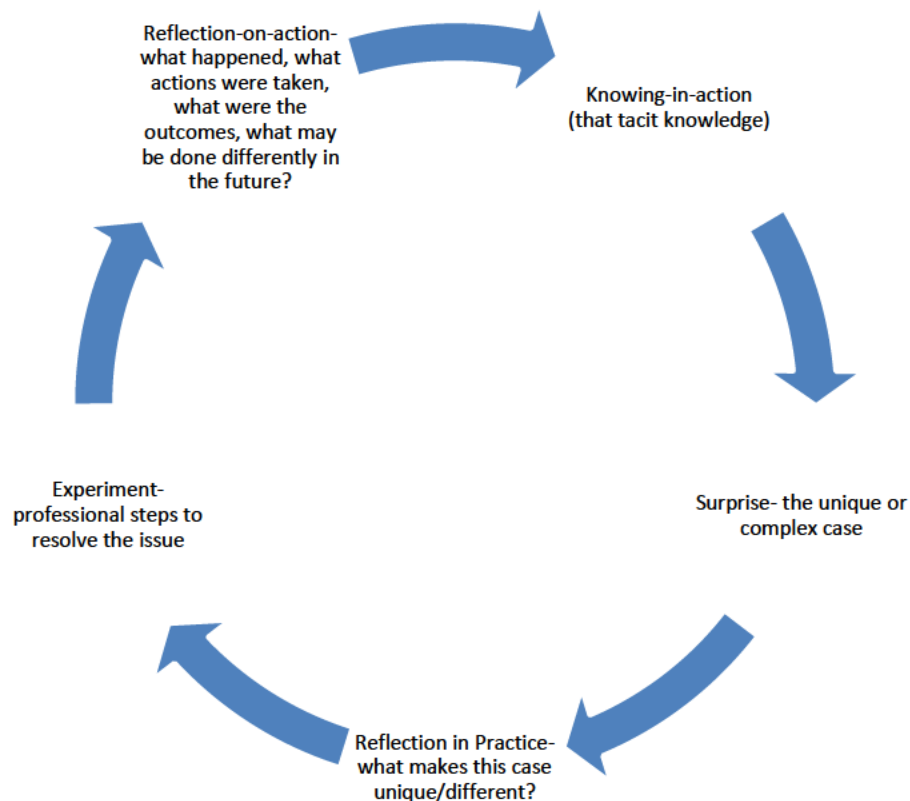Andragogy (adult leaning theory) refers to the methods used by adults to learn, their learning process being different to children and among themselves in terms of needs and styles (see figure 2 below). It was proposed by Knowles who made five assumptions about the way adults learn (25). These include self-concept (self-directed learning); adult learner experience (drawing from previous experience in

order to learn new things); readiness to learn (easier to learn when there is a reason to acquire new knowledge or skill); orientation of learning (learn things that are applicable to their practice) and motivation to learn (want to learn for intrinsic factors, e.g. to improve self-esteem, advance their careers). Furthermore, Knowles added four principles to be applied to adult learning (25). Firstly, that adults need to be involved in the planning and evaluation of their learning activities, this has important bearing when most CPD activities are concerned as they tend to be provider-driven than learner-driven. Secondly, experience including any mistakes made provide an important basis for learning. Thirdly, adults prefer those learning activities that are most relevant to them and impact on their work. That forms the basis of needs assessment in CPD. Fourthly, adult learning should be problem centered rather than merely content oriented.



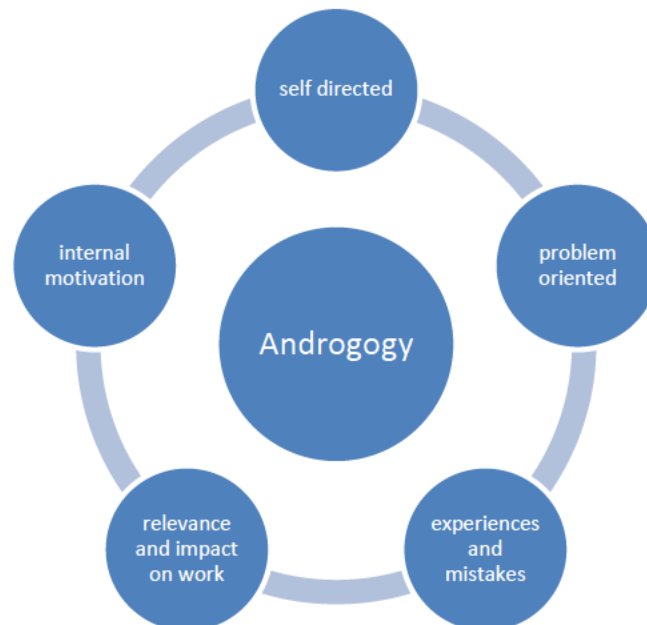Figure 2: Concepts of adult learning theory

## 1.7    Methodology and methods considerations

A qualitative methodology was employed (35). Phenomenology looks at describing the nature of lived experience (in this case CPD) within a group (Eswatini medical practitioners). The research problem best suited for phenomenological research is one in which it is important to explore several individuals'

common experiences of a phenomenon, as is the case for CPD (21,36). It is important to understand such shared experiences to develop practices or policies for use in Eswatini (21,37).

The steps and procedures for gathering and analysing data are detailed in the methods section of each manuscript but will consist of interviews and focus group discussions ((21,35). Some authorities recommend that researchers interview from 5 to 25 individuals who have all experienced the phenomenon (21). Interviews are the typical methods in phenomenological research, and they attempt to answer two broad questions; 'what have you experienced of the phenomena (CPD)'? and 'What situations have typically influenced your experience?' (38). In this research project an assumption is made that all practicing doctors have attended some form of continuing professional development activity, and using that as their baseline, the attempt is to understand their views of this and eventually be able to find out their views of a new model of CPD (36). The study was divided into 3 phases, see figure 3 below for the brief aim and methods employed for each phase.



| Phase 1 | |
| --- | --- |
| review literature on CPD from published literature and regulatory authorities | Scoping review |

| Phase 2 | |
| --- | --- |
| detemine the factors that motivate practitioners in Eswatini to participate in CPD | Qualitative focus group discussion |

| Phase 3 | |
| --- | --- |
| how to improve cpd in Eswatini | Participatory action research |
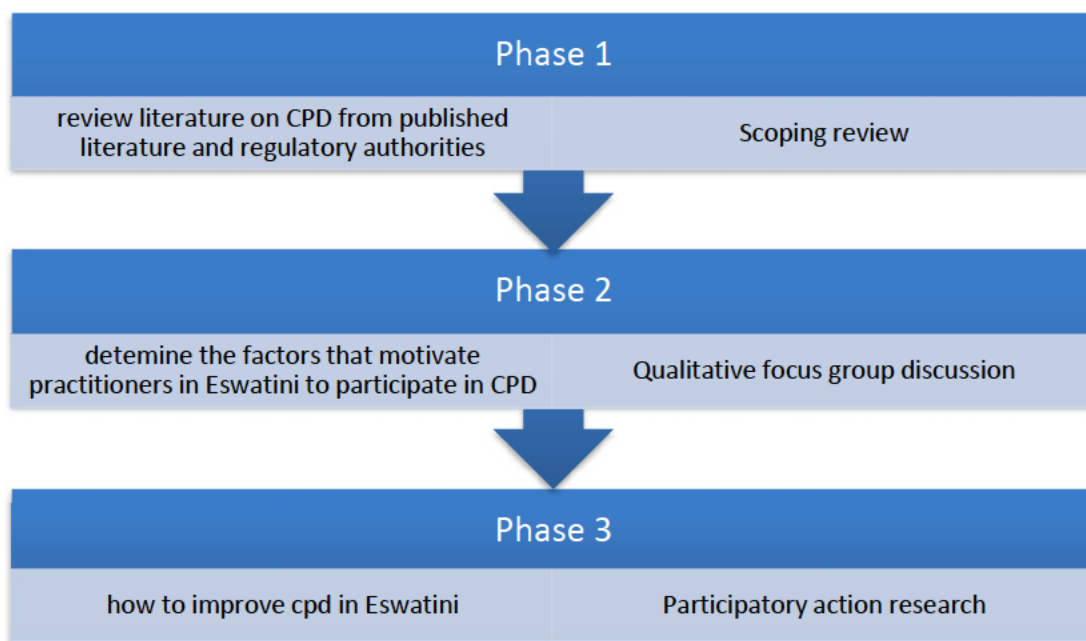
Figure 3: Methods employed for the distinct phases.

### 1.7.1   Scoping review
A scoping review is a research method that involves systematically mapping the literature on a particular research question or topic (39,40). Unlike a systematic review, which aims to answer a specific research question by synthesizing the results of multiple studies, a scoping review seeks to identify the scope of the existing literature on a topic and the key concepts, theories, and gaps in knowledge(39) . Advantages

of scoping reviews as a research method include enabling a comprehensive review, inclusion of diverse literature, flexible methodology, and cost effectiveness. Scoping reviews provide a comprehensive overview of the literature on a particular research question or topic (40). This can be useful for identifying gaps in knowledge, identifying key concepts and theories, and informing the development of future research studies (39). They can include a wide range of literature sources, such as research studies, grey literature, and non-research sources(39). This can provide a more holistic understanding of the literature on a topic. Scoping reviews can also be conducted using a flexible methodology that allows for the inclusion of various types of literature sources and study designs. This can make them more adaptable to different research questions and contexts(40) . They are generally less time and cost-intensive than systematic reviews which can make them more feasible for researchers who have limited resources or time.

Despite having all these advantages scoping reviews also have some disadvantages including lack of rigor, risk of bias, limited synthesis, and potential for overlooking key studies (39,40). Scoping reviews may not be as rigorous as systematic reviews since they do not involve a detailed assessment of the quality of the studies included in the review (40). This can limit the conclusions that can be drawn from the review. They may be subject to bias if the search strategy is not comprehensive or if the inclusion criteria are not clear and well-defined (40). Scoping reviews may not involve a detailed synthesis of the literature, which can limit the ability to draw robust conclusions (39,40) . They may also not be as comprehensive as systematic reviews, which may result in important studies being overlooked (40). In general, scoping reviews are a useful research method for providing a comprehensive overview of the literature on a particular research question or topic. While they have some advantages, they also have some limitations and researchers need to carefully consider the strengths and weaknesses of scoping reviews when deciding whether to use them as a research method.

### 1.7.2 Focus group discussion

Focus groups are a qualitative research method that involves a group of people, typically 6-10, who are asked to discuss their perceptions, beliefs, and attitudes towards a specific topic (41–43). In healthcare research, focus groups are often used to explore patient experiences, healthcare providers' attitudes towards care, or to evaluate the effectiveness of healthcare interventions. However, they are increasingly used in medical education research (43).

Advantages of using focus groups in healthcare research include allowing for group interaction, in-depth data, participant diversity and ability to get real time feedback (41). Focus groups allow for group interaction, which can generate more ideas and insights than individual interviews (leech 2009). Participants can build on each other's responses, leading to a deeper exploration of the topic (41,44).

Focus groups can provide in-depth data on the experiences, attitudes, and beliefs of participants (44). By including participants from diverse backgrounds, focus groups can provide insights into the perspectives of different subgroups (44). Focus groups can provide real-time feedback, which can help researchers identify emerging themes and issues that may not have been apparent in individual interviews (44,45).

There are however some challenges related to the use of focus groups. These include group dynamics, social desirability bias, limited generalizability, and complexity of data analysis (42,44). Focus groups can be influenced by group dynamics, which can lead to dominant voices overpowering quieter voices (41). This can limit the diversity of perspectives that are represented (41,44) . Participants may also feel pressure to conform to social norms or to give responses that they believe are socially desirable (41,44). This can limit the depth of the insights that are generated. Focus groups involve a small sample size and may not be representative of the larger population (41). The findings may not be generalizable to other settings or populations (41). Importantly, analysing focus group data can be time-consuming and challenging, researchers therefore need to carefully analyse the data to identify key themes and patterns(41).

In summary, focus groups can be a valuable research method in healthcare research, providing insights into the experiences, attitudes, and beliefs of participants. However, researchers need to be aware of the challenges of using focus groups, such as the potential for social desirability bias and limited generalizability. By carefully designing and analysing focus group data, researchers can generate rich insights into the social and cultural context of health-related behaviours and experiences.

### 1.7.3    Participatory action research

Participatory action research (PAR) is a collaborative research approach that involves active participation by community members or stakeholders in the research process (46,47) . In healthcare, PAR can be used to explore health-related issues, identify solutions, and promote social change  (46).

Advantages of using PAR in healthcare research include empowerment of participants, contextual understanding, collaboration, and social change. PAR can empower community members and stakeholders to take an active role in identifying issues affecting them and developing solutions (46). This can lead to a greater sense of ownership and investment in the research process and outcomes (47). It can provide a more contextual understanding of health-related issues by incorporating the perspectives and experiences of community members and stakeholders which can lead to more relevant and effective solutions (46,48). PAR involves collaboration between researchers, community members, and stakeholders(46). This can lead to a more equitable distribution of power and resources and can enhance the relevance and feasibility of research findings (46–48). Lastly, PAR can lead to social

change by promoting the participation of otherwise marginalized groups in the research process and by identifying and addressing social inequalities (46).

Some of the disadvantages of PAR include lack of generalisability, time and resources, objectivity, and power dynamics. PAR involves a small sample size and may not be representative of the larger population (46). It can be time and resource-intensive, requiring significant investment in building relationships, facilitating participation, and managing conflicts (46,47). PAR can challenge traditional notions of objectivity in research, as it involves collaboration and active participation by community members and stakeholders. This can lead to questions about the validity and reliability of research findings (46). Since PAR involves collaboration between researchers and community members, this can create power dynamics and conflicts of interest (46). Researchers need to be aware of these dynamics and take steps to mitigate them.

Overall, participatory action research can be a powerful approach in healthcare research, promoting collaboration, empowerment, and social change. However, researchers need to be aware of the potential challenges of using PAR. By carefully designing and implementing PAR studies, researchers can generate rich insights into health-related issues and promote more equitable and effective solutions.

## 1.8    Reliability and trustworthiness

The findings were validated following Creswell's strategies of validating qualitative research (21). Namely:

1. Triangulation- of methods where possible, for example using interviews and focus group discussions to provide corroborating evidence (17,21).

2. Rich, thick description- when detailed description (of both participants and setting) is given it allows the reader to make decisions regarding the transferability of the findings(17).

3. Member checking- the researcher will seek participants views on the credibility of the findings and interpretations (17).

## 1.9    Ethics

The required ethical approval was obtained from the National Health Research Review Board (Eswatini) and the Biomedical Research Ethics Committee of the University of KwaZulu-Natal (BREC/00001700/2020), South Africa. In phases with participants all of them signed an informed

consent to take part in the studies. Prior to starting the project support was sort from the Eswatini Medical and Dental Council and local ethical clearance from the National Health Research Review Board (NHRRB).

## 1.10 Conclusion

CPD is an important aspect of medical practice throughout the world including in Eswatini. It enables practitioners to stay up to date both in terms of skills and knowledge. In Eswatini there is currently no formal CPD programme for doctors, though there is a move to adopt one soon. A knowledge gap exists because there is a lack of published information regarding CPD for doctors in the country, and it is the aim of this study to provide some insight into the issue for policy makers and local practitioners alike. A constructivist research paradigm has been chosen for this exploration as we feel that it will allow us to get rich data from our study and lean to meaningful knowledge being created about CPD in Eswatini.

# Chapter 2: **Publications**

## Paper 1: Continuing professional development in the last decade–A scoping review.

Published in the Journal of Adult and Continuing Education.

Magwenya, R. H., Ross, A. J., & Ngatiane, L. S. (2022). Continuing professional development in the last decade–A scoping review. Journal of Adult and Continuing Education, 14779714221147297.

In order to know how to proceed in the development of a CPD model for Eswatini it was necessary to review the available literature on CPD. There was an enormous volume of literature on the subject and therefore we limited ourselves to the more recent work from 2010. We decided on doing a scoping review because we felt this would help identify, map, and determine the scope of literature on CPD.

Responds to Critical questions,

1- What CPD models are available in various settings?
2- What are the views and attitudes of medical practitioners towards these models?

Declaration regarding a Doctoral student's contribution to the manuscript for publication to be included in a doctoral "Thesis through publications."

Student name: Rodney Hudson Magwenya

Student number: 218087082

The student's contribution to the article was as follows:

1. Formulation of hypothesis: I was responsible for the concept for the paper

2. Study design: I was responsible for the study design.

3. Ethical permission: I was responsible for obtaining ethical permission for the study

4. Work involved in the study: I was co-responsible for gathering the data and the initial analysis.

6. Writing the article: I was responsible for writing the article and reviewing and rewriting the article based on the feedback from the coauthors and journal reviewers.

I declare this to be a true reflection of my contribution to this journal article.

Signed: ……………………    Date: …………………………………29/03/…. 2023

# Continuing professional development in the last decade – A scoping review

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## Abstract

**Background:** Continuing professional development (CPD) provides support to healthcare workers to keep up to date with best practices and addresses deficits in their knowledge and practice. **Aim:** The purpose of this scoping review is to summarise data from the past decade on CPD models. **Method:** For this scoping review, we searched PubMed, Web of Science and Scopus databases and conducted a grey literature search for studies/documents describing models of CPD. We limited our search to those written in English and published since 2010. **Results:** 74 references were included. These were grouped under two main questions: (1) What CPD models are available in various settings globally? (2) What are the perceptions and views of medical practitioners towards these? Under the first question, they were grouped into six categories: (a) Legislation, theoretical framework/learning theories, (b) CME credit systems, revalidation/recertification and maintenance of certification, (c) content delivery (choice of format), (d) quality standards, monitoring and evaluation, (e) funding and (f) country/region CPD models. **Conclusions:** CPD should be supported by appropriate legislation and policy, be directed at the needs of practitioners, and based on adult learning theory, have a mechanism in place for evaluation and improvement and have sustainable funding.

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## Introduction

CPD is any learning outside undergraduate and postgraduate education and is an essential component of the health service, as it provides support to healthcare workers to keep up to date with best practices and helps to address deficits in their knowledge and practice (Al-Ismail et al., 2022; Forsetlund et al., 2009). It is recognised that CPD remains an underutilised strategy of improving healthcare quality and safety (Davis & McMahon, 2018). The reasons for this are multifactorial ranging from poorly designed CPD activities that do not use objective performance data to failure to appreciate the learning needs of practitioners (Al-Ismail et al., 2022). There are arguments as to how effective CPD is in changing physicians practice due to the inherent challenges of measuring its impact (Mansouri & Lockyer, 2007; Samuel et al., 2021). A survey by the American Hospital Association found that most of its members felt that CPD was of value in addressing key competencies, such as medical knowledge and patient care, but found it to be less effective in promoting team-based care, system-based care delivery, communication skills and improving the efficiency of doctors' practice (Combes & Arespacochaga, 2014).

The available CPD activities in some resource constrained settings can be classified as educational meetings, usually arranged by hospitals through their 'in-service committees' as well as by the relevant departments of health and in some cases non-governmental organisations. A Cochrane systematic review of 81 randomised control trials reporting on objective measures of professional practice or healthcare outcomes concluded that such meetings alone are not likely to be effective for changing complex behaviours (Forsetlund et al., 2009). Furthermore, the didactic nature of these meetings makes them not as effective unless used with other methods (Chekijian et al., 2021; Forsetlund et al., 2009). An additional concern is that in peripheral hospitals and health centres practitioners do not have the same opportunities to take part in CPD activities when compared to their colleagues in the main hospitals.

CPD looks at ways in which medical practitioners acquire new knowledge, competencies, and skills over the course of their career, and ultimately or hopefully improve patient care (Van Nieuwenborg et al., 2016). Continuous Medical Education (CME) is a component of CPD, though the terms have been used interchangeably consensus now views them as separate entities (The consortium et al., 2013).

This scoping review aims to summarise the information reported on CPD models since 2010. As there is currently no objective evidence to suggest that one CPD system is preferable or more effective than another (McBride et al., 2022; The consortium et al., 2013), it is hoped that some countries can learn important lessons from this scoping review as they move to establish or improve their own systems of continuing professional development.

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## Methods

The framework employed for this review was based on work done by Arksey and O'Malley, and further elaborated by Levac et al., as well as on the PRISMA checklist for scoping reviews (Arksey & O'Malley, 2005; Levac et al., 2010; Moher et al., 2009). The scoping review questions were as follows:

1) What CPD models are available in various settings globally?
2) What are the perceptions and views of medical practitioners towards these CPD models?

The inclusion criteria were as follows:

1. Studies reported in English that were published from 2010 to date.
2. Those that described CPD models in use,
3. Those detailing the perceptions and views of medical practitioners towards such interventions, irrespective of study design,
4. Commentaries, editorials, letters, studies and online sources (CPD guidelines and policies from regulatory authorities in the Sothern African Development Community (SADC) region and international ones) describing the CPD models.

We excluded references that did not describe the CPD models in sufficient detail, and those where the full paper could not be obtained from the databases searched.

### Search strategy and study selection

On 05 October 2021 and 21 April 2022, we searched PubMed, Web of Science and Scopus databases for articles published from 01 January 2010. The grey literature searches were restricted to regulatory authority websites in the Southern African (the authors' practice setting), Australian, European and American regions, as these offered websites in English. The 2359 retrieved studies were exported into Mendeley, from which duplicates were automatically identified and removed. Two scholars (author 1 and 3) independently screened the titles and abstracts for eligibility, any inconsistences that occurred in their selection were solved by discussion. Finally, one scholar (author 1) ensured literature saturation by searching the reference lists of the included studies and the regulatory authority guidelines, where available.

### Data extraction

A data extraction form was developed on an Excel® spreadsheet to collect the information necessary for data synthesis. Two scholars (Author 1 and 3) independently performed a pilot data extraction on a random sample of five articles and subsequently refined the form.

### The extracted data consisted of

1. Publication characteristics: title, year of publication, author, author's affiliation and country.
2. Characteristics of the CPD model:
   a) Population (e.g. general practitioner, physician),
   b) Study design (e.g. Randomised Controlled Trial),
   c) Details of implementation,
   d) Challenges
3. Practice points from the papers

The scholars (author 1 and 2) then independently performed data extraction for all studies except for the grey literature (guidelines from regulatory authorities) which was done by one scholar (author 1). Differences between reviewers were discussed and solved by consensus. The database and grey literature search yielded 1961 citations after de-duplication (Figure 1), and after screening the titles and abstracts, 66 papers were included. A further 17 references from forward citation searching were included. Nine full-text articles were excluded during screening with reasons (Table 1) which resulted in a total of 74 references for full-text review.

### Data synthesis

Following data extraction, author one performed the initial categorisation using conventional content analysis (Allen et al., 2019), which was verified and refined by author three, with data being categorised with respect to the two questions:

1) What CPD models are available in various settings globally?
   a) Legislation, theoretical framework/learning theories
   b) CME credit systems, revalidation/recertification and maintenance of certification
   c) Content delivery (choice of format)
   d) Quality standards, monitoring and evaluation
   e) Funding
   f) Country/regional CPD models
2) What are the views and attitudes of medical practitioners towards these models?
   g) Barriers to CPD and practical solutions

### Limitations

This scoping review has some limitations. Firstly, the methodological qualities of the studies were not assessed as it was not part of the scope of this study, the intention being to provide an overview of the evidence available from the past decade. Secondly, restricting the search to certain databases, or not having standard search terms for the individual databases searched and limiting the search period to the last decade,
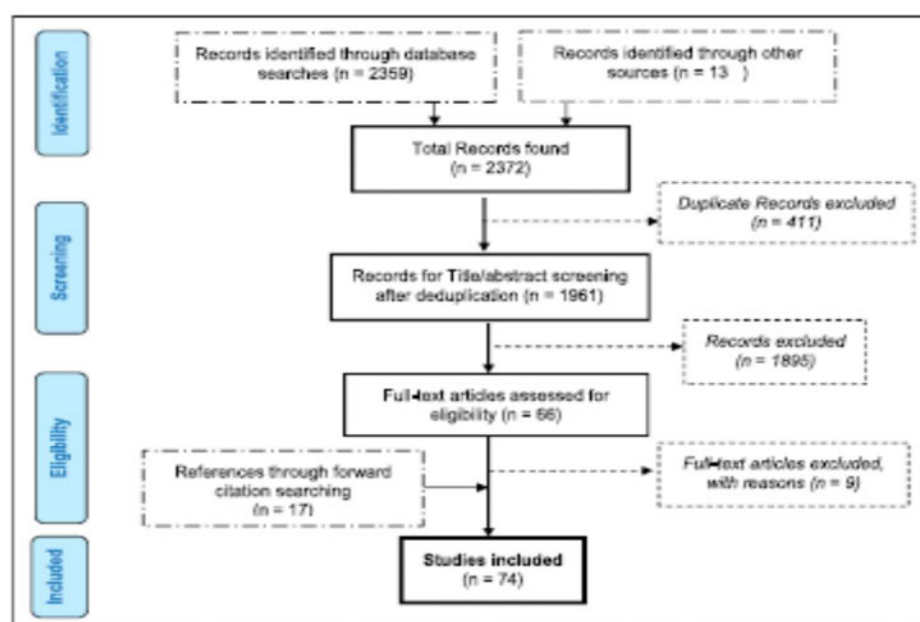
**Figure 1.** Figure 1. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) flow diagram (Moher et al., 2009).

may have excluded relevant publications. This was intended to identify the most recent innovations in CPD and allow for a meaningful overview to be given, but admittedly means that important papers published before 2010 were excluded. Thirdly, it is possible that evidence of models may have been missed that has not been reflected in the published or grey literature but are used in practice. The section on the different CPD systems focused on regional Southern African countries and a few international examples for comparison. The local focus was due to the challenges experienced within this region being similar. However, this meant that other countries with potentially suitable systems were not reviewed. In addition, only those regional countries with clearly defined guidelines on CPD for doctors available online were considered.

## Results

The data is presented with respect to the seven categories that were divided between the two research questions:

**Table 1.** Summary of full text articles assessed and those excluded from the scoping review.

| Full text articles breakdown by methodology (n) | Excluded studies (n) | Reasons for exclusion |
|---|---|---|
| Observational (53) | German study (1) | Abstract was in English but full text only available in German |
|  | Observational studies (3) | Insufficient details on CPD model |
| Guidelines/policies (13) | Country guidelines (4) | Insufficient details on CPD model |
| Randomised studies (8) | Cluster randomised study (1) | Focused on electronic prescribing |
| Systematic reviews (3) | — | — |
| Pre-test post-test studies (3) | — | — |
| Editorial (2) | — | — |
| Commentary (1) | — | — |

## 1) What CPD models are available in various settings?

*a. Legislation, theoretical framework/learning theories.* In most countries, governments (usually through quasi-state or professional bodies) have a legislative framework and a responsibility to implement and develop regulations impacting medical practice (Faghihi et al., 2017). There may however be no legal obligation for doctors to keep abreast of trends in their profession and mandatory versus optional CPD is a common discussion (Waheed et al., 2019). A structured program with clear and enforced targets encourages more widespread participation in CPD activities, but in some countries, practitioners address their identified needs and engage in CPD activities without legal enforcement (Abdul Samad et al., 2014). By 2014, a few European Union (EU) countries were still allowing self-regulation to ensure compliance with CPD requirements to maintain competence while most had specific systems in place (Solé et al., 2014).

Theory-based model development has been touted as one of the most effective ways to plan CPD activities, with some theories having been validated. Andragogy refers to the methods used by adults to learn, their learning process being different to children, and among themselves in terms of needs and styles (Seymour-Walsh et al., 2020a; Van Nieuwenborg et al., 2016). Adult learning theory (Andragogy) as described by Knowles (1985), has been used to develop some CPD programmes for doctors in Belgium, and focuses on five concepts, namely, self-concept (self-directed learning); adult learner experience (drawing from previous experience in order to learn new things); readiness to learn (easier to learn when there is a reason to acquire new knowledge or skill); orientation of learning (learn things that are applicable to their practice) and motivation to learn (want to learn for intrinsic factors, for example, to improve self-esteem, advance their careers) (Knowles, 1985; Van Nieuwenborg et al., 2016).

The theory of planned behaviour (TPB) and social learning theory were used in a Welsh study, in which 'the why of change' had its foundation in exposure to evidence and expert opinion, while 'the how of change' was rooted in clear communication strategies being taught to practitioners, allowing them to determine the unspoken motives and

intentions of patients and respond appropriately to their needs (Bekkers et al., 2010). The TPB states that a practitioner's behaviour is determined by the intention to perform certain clinical practices, these being favourably or adversely impacted by factors such as perceived behavioural control (ease of conducting the task) and subjective norms (influence form experts) (Tian et al., 2010).

Problem-based learning (PBL) is where learners improve their critical-thinking skills using clinical scenarios (Berjano et al., 2018). PBL, such as clinical case discussion facilitated by an expert, may be more appropriate than traditional lecture-based teaching (Berjano et al., 2018). A European study found that the effectiveness of PBL was enhanced when participants were allowed to anonymously respond to periodic multiple choice questions during the case discussion, the results of the voting system would then be discussed (facilitated by an expert) to enable consensus to be reached in a second round of voting (Berjano et al., 2018).

Reflective practice has been described in a number of papers, with one describing a variation of reflective practice, called the Practicum Script Concordance Test (Hornos et al., 2013). This uses an online platform to foster reflection on clinical practice through daily testing (using clinical scenarios) and detailed feedback on their performance in the scenarios, with an expert panel providing the answer key for the clinical cases (Hornos et al., 2013).

Quality improvement CME (QI-CME) integrates concepts of traditional CME with those of quality improvement (QI) (Shojania et al., 2012). One paper suggested four levels of integration that could be attempted, with the lower levels being simpler and less resource intensive than the higher ones (Shojania et al., 2012). Level one examined clinical areas with challenges (e.g. in diabetes management where focus should not only be about blood glucose control but also include foot care and diet counselling). This allows doctors to be sensitised about quality gaps in care of their patients while gaining knowledge on managing conditions. The second level is to overtly add QI in the CME of specific topics through the inclusion of sessions on how practitioners can identify and address gaps in their own practice. The third level was to complement second level CME with post-event outputs, where a scenario would be presented, and specific QI processes and goals taught that the practitioner could apply in their own practice. This could be submitted as a QI project to the CME providers for CME credit. The fourth level entails embedding CME in a larger QI strategy, for example, having a broader QI goal to improve a certain clinical problem or gap, then instituting multiple multimodal CME sessions in line with that goal and based on current best practices (Shojania et al., 2012). A QI-CME program called the 'pink card', a pocket memory prompt with indications and guidance on post-operative analgesic use for hand surgery resulted in a decrease in prescription size and standardised use of opioids in one United States of America (USA) study (Stanek et al., 2015). A growing proportion of CME activity in the USA is now part of the health system and institution quality improvement (Mcmahon, 2016).

Some authors have proposed learning from a cyclical assessment and feedback data model: a four-phase approach to CPD built upon using practice/performance data (Sargeant et al., 2013). In this model, the first step is to have access to data, this being available from sources such as electronic records, chart audits and patient surveys.

Practitioners should be trained and afforded protected time to access the data. The second step is training doctors on data interpretation so they can engage with the data. Here, expert/peer facilitated reflection and feedback is important. The third step is using the data for learning and change; the practitioner is trained to make realistic goals and action plans to achieve them. The last step is the ability to measure outcomes and evaluate change (Sargeant et al., 2013).

Interactive strategies that are based on established education theory and evidence, founded on the perceived need of practitioners, and involve multiple exposures to material are effective ways to design CPD models (Mcmahon, 2016; Shojania et al., 2012). The CPD model should also encourage self-directed learning, allow time for practice, and consider the diversity of medical practice (Schostak et al., 2010; Zabar et al., 2010).

*b. CME credit systems, revalidation/recertification and maintenance of certification.* CME credit system may assist individuals to achieve the minimum level of learning required, and some countries have made them prescriptive and compulsory for practice license renewal (Faghihi et al., 2017). From 2010, the USA Medical boards required between 12 and 50 hours of CME credit hours yearly for re-registration (Yousem & Nidecker, 2010). There is a gradual shift worldwide from time-based to more value-based credit systems. While the challenges and complexities of relating such changes to health outcomes remains, there is general agreement that on its own a time-based system is inadequate (General Medical Council, 2019; Yousem & Nidecker, 2010).

Registration, revalidation and licensing are complex processes that may involve more than just CPD. These terms do not have one universal meaning, and depending on the country, may refer to the same or different thing. In some areas, licensing/registration is lifelong, while in others it is time limited, and practitioners can either apply for a license renewal or they may need to demonstrate ongoing competence or fitness to practice, this being known as revalidation in the United Kingdom (General Medical Council, 2019; The consortium et al., 2013). Workplace-based assessment (Multi-Source Feedback) is increasingly used to appraise competence and is part of recertification/revalidation process in Australia, UK and Canada (Narayanan et al., 2018). A European study described systems for ensuring fitness to practice in the European Union (EU) as falling in a continuum, from implicit to explicit (Solé et al., 2014). In implicit systems (e.g. in Spain), incentives are provided through voluntary accreditation and there is periodic assessment of competence, which has no bearing on their status as health care practitioners (Solé et al., 2014). In explicit systems, there are interventions (e.g. license revocation and fines) on licensing/accreditation, such as in the UK, where an external review of one's practice is an additional requirement to CME program attendance (Solé et al., 2014). Other countries fall between the two extremes, such as Belgium and Hungary, where the level of regulation is not as stringent as in fully explicit systems but is not as relaxed as in implicit systems (Solé et al., 2014). In one country (e.g. USA), there may be differences within different regions and specialties regarding licencing requirements (Aparicio, 2015; Solé et al., 2014; The consortium et al., 2013).

The American Board of Medical Specialties (ABMS) approved the maintenance of certification (MOC) in 2000 to improve the quality of care offered by certified specialists

and increase public accountability (Cook et al., 2015). While there is no argument that there is a need for doctors to maintain competence throughout their careers, there are differing views whether formal MOC is the way in which this can be accomplished (Sawalha & Coit, 2019). There is a paucity of data to fully support its implementation and controversy around how competence can both be developed and demonstrated (Cook et al., 2016; Sawalha & Coit, 2019). The cost and cost effectiveness of the MOC program is regularly debated, with many doctors viewing it as a burden (Cook et al., 2016). In 2010, the American board of Radiologists (ABR) introduced a MOC, which consisted of four levels of assessment, these being: cognitive expertise (examination), self-assessment, prescribed hours of CME credit and conducting a prescribed number of practice quality improvement measures (PQI) over a certain period (Yousem & Nidecker, 2010). The lack of awareness of PQI and complexities surrounding it has led to unfavourable views being expressed by doctors about MOC (Yousem & Nidecker, 2010). Others suggest wider acceptance of MOC is possible if it is integrated into everyday clinical work and relevant to local needs (Cook et al., 2016). However, doctors distrust the board-certifying institutes and feel that MOC has increased the burden on practitioners who are already prone to burnout and early retirement (Sawalha & Coit, 2019).

*c. Content delivery (choice of format).* There are many ways in which CPD content can be delivered (Table 2) each of these have advantages and disadvantages. There is significant overlap between some of the formats.

*d. Quality standards, monitoring and evaluation.* There are few validated theoretical frameworks for evaluating CME (Tian et al., 2010). One of the more widely used models for evaluation is Kirkpatrick's four level outcome evaluation model that looks at training effectiveness, with the contents being evaluated in terms of reaction, learning, behaviour and results(Tian et al., 2010). There have been various adaptations of the model, specifically for CME evaluation, including one in which the four levels are modified to learner satisfaction, learning outcomes, performance improvement and health outcomes (Tian et al., 2010). In this adaptation, there is a gradual shift from one level to another, with information gained from the previous levels being used as the foundation for the next. This is time consuming and requires complex analysis to progress to the next level (Tian et al., 2010).

A paper by Somasekhar et al. discusses Moore's seven level pyramid of outcomes measurement (participation, satisfaction, learning, competence, performance, patient health and community health), and contends that a growing public health awareness has resulted in the latter four components being required for meaningful CME (Somasekhar et al., 2012). However, there is an increasing need to assess higher level outcome measures, which are time consuming, complex and costly to measure. The paper also lists audits and patient chart reviews as the preferred methodologies to evaluate outcomes of CME programs (Somasekhar et al., 2012). The USA Accreditation Council for Continuing Medical Education (ACCME) stipulates that CME providers should evaluate their programs using outcome measures to obtain accreditation (Cook et al., 2015). Another

Table 2. Methods of CME content delivery.

| Choice of format | Key aspects/example | Advantages and disadvantages |
| --- | --- | --- |
| i. E-learning/online CME (OCME) | - Some criteria to use when designing online CME programs; needs assessment, content based on current evidence, use of multiple modalities in delivering content, modular structure of the program, clinical case vignettes, customization to individual requirements, ability to interact with the material and others, audit and feedback integration, downloadable education material for patients, ease of use and trustworthiness of website host (Bonevski et al., 2015)<br>- For example, A variation of e-learning platforms is the Tel:ma, a technology enhanced learning environment used in teaching minimally invasive surgery. (Sánchez-González et al., 2013)<br>- Spaced education: a question-based learning method of CME delivery based on psychology theories of spacing and testing. A user is asked a question and gives an answer following which he is directed to a separate page with the answer and explanations why other options are incorrect. The question is then repeated using an adaptive algorithm which is inbuilt into the website depending on whether the user got it correct or not (Boespflug et al., 2015)<br>- An addition to e-learning is the commitment-to-change (CtC) method. It involves asking practitioners after a CME session if they intended to change their practice and in what specific ways they wished to change. Later reminders are sent to the practitioners about commitments made and asking if they had made any changes (Bos-Bonnie et al., 2017) | - Convenient, flexible, with easily be updated content and systematic way to learn which can be individualised while also allowing some form of assessment and evaluation of the OCME program (Al-Sughayr et al., 2010; Banevski et al., 2015; Bos-Bonnie et al., 2017; Kimura et al., 2018; Yee et al., 2014)<br>- Ability to interact via voice or text chat and discussion forums (Boneviski et al., 2015; Kimura et al., 2018)<br>- Can assist rural/remote doctors to have access to quality CME (Kimura et al., 2018)<br>- can be as effective as live interactive group CME (Yee et al., 2014)<br>- Favourable general attitude towards OCME among practitioners (Al-Sughayr et al., 2010; Cates et al., 2020)<br>- Even when knowledge of OCME is high, few practitioners may complete the evaluation tests at the end of the OCME and register for CME credit hours using OCME (Al-Sughayr et al., 2010)<br>- An e-learning platform combined with CtC was found to be useful in affecting the knowledge, views and behaviour of doctors and the positive effects were found even at the 2-year follow up (Bos-Bonnie et al., 2017) |
| ii. Interactional group discussions | - Practice-based small group learning (PBSGL), with a trained facilitator (Kühne-Eversmann et al., 2013)<br>- In one Indian study reported this to be effective to reduce prescription of injections. (Bhunia et al., 2010)<br>- Other variations, for example, Balint groups: Small interactional groups that focus on the physician-patient relationship (Bhunia et al., 2010) | - PBSGL can enhance evidence-based medicine (EBM) and guideline adoption (Zaher & Ratnapalan 2012)<br>- Shown to be preferable by Australian and Irish general practitioners in separate national surveys (Dowling et al., 2015; Yee et al., 2014)<br>- Success relies on effectiveness of a facilitator |

(continued)

**Table 2.** (continued)

| Choice of format | Key aspects/example | Advantages and disadvantages |
|---|---|---|
| iii. Workplace-based assessment | - Assessment during performance of daily duties, may include clinical supervision by a named consultant (Rao, 2010)<br>- Multisource feedback (MSF) also known as 360° assessment), doctors receive feedback from their peers, co-workers and patients usually through a survey (Mcmahon, 2016; Miller & Archer, 2010; Narayanan et al., 2018)<br>- In a Dutch variation participants had random video recording of two of their consultations then received feedback (including peer comparisons) from experts and a rating from their patients about their communication skills (Noordman et al., 2011) | - Although not well studied, some evidence that such systematic feedback can lead to change in practice, but the frame of reference for feedback and type facilitation may be important factors<br>- This video feedback model was generally well accepted by participants (Noordman et al., 2011) |
| iv. Blended learning | - Uses multiple strategies. An example is the Stemming the Tide of antibiotic Resistance (STAR) program which used 5 approaches, namely, an online, on-site face-to-face seminar, video scenarios and reflective practice (participants had to report and reflect on 3 of their own cases (Bekkers et al., 2010)<br>- Another example is the Distributed Asthma learning initiative (DALI) program which used multimedia (CD ROM and internet) and teleconferences to provide CME on asthma care. (Lee et al., 2010) – In Kenya, an interactive workshop plus small group case discussion and role playing to teach about genetic counseling for retinoblastoma (Hill et al., 2015) | - More effective than single method CME (Yee et al., 2014)<br>- Improved knowledge may not be retained later, illustrating the low impact once-off workshops/seminars even when multimodal delivery of content is employed (Hill et al., 2015)<br>- Advantages and disadvantages linked to the different components |
| v. Academic detailing | - Entails educational visits, external audits and supervision. Audits give feedback and guidance for clinical work to the practitioner (Frich et al., 2010)<br>- Used in an opioid campaign with some success although study had methodological flaws (Kattan et al., 2016) | - Benefits of making general practitioners reflect more on their prescribing habits and be willing to make changes to their practice<br>- Viewed as an arduous exercise (Frich et al., 2010) |

(continued)

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**Table 2.** (continued)

| Choice of format | Key aspects/example | Advantages and disadvantages |
|---|---|---|
| vi. Evidence-based medicine (EBM)/ Critical appraisal/guidelines/ resource guide/pocket guides | - Involves systematically looking at and reviewing current evidence with the aim of delivering the best care to the patient (Al-Kubaisi et al., 2010; Nejašmić et al., 2020) | - Generally positive attitudes towards EBM (Nejašmić et al., 2020)<br>- A significant proportion of doctors especially in developing countries do not actively practice EBM (Al-Kubaisi et al., 2010)<br>- Clinicians have more confidence in discussing options available for management if they have access to evidence-based guidelines (Bekkers et al., 2010) |
| vii. Reading journals/academic publications | - Traditional way of staying updated. Now mostly accessed online<br>- Clinical Communique - encourages reflective practice and practice change by providing information from death inquest investigations into avoidable deaths in different settings in Australia (Cunningham et al., 2017) | - Familiar to most<br>- Well received by most clinicians<br>- Relative low cost and ease of disseminating information are advantages; its effectiveness may also be enhanced if combined with views or input of key opinion leaders (Cunningham et al., 2017) |
| viii. Maintaining a portfolio/ e-portfolios | - Typically for assessment and involving learners logging their experiences at the most elementary level, but with room to include elements of personal reflection about those experiences at a higher level (Haines et al., 2013) | - Negative sentiment towards portfolios among learners<br>- Acceptable if are tied to recertification, revalidation, career-long updating and CME credit (Haines et al., 2013) |
| ix. Meetings/symposia/seminars | - Traditional CME offering (Thai et al., 2020)<br>- May have combination of a didactic lecture, a case discussion and incorporate frequent question and answer sessions (Drexel et al., 2011) | - Widespread familiarity with method making it preferable<br>- May not be as effective as other methods (Drexel et al., 2011) |
| x. Mentoring | - Can be an adjunct to distance CME<br>- Mentors are trained in a workshop setting to equip them with the theoretical and practical framework of their task (Butterworth et al., 2011a) | - Mentees may not make much use of the mentoring system if they lack knowledge about mentorship (Butterworth et al., 2011b) |

(continued)

**Table 2.** (continued)

| Choice of format | Key aspects/example | Advantages and disadvantages |
|---|---|---|
| xi. Mobile learning | ▪ Uses mobile technologies, for example, phones, across contexts, with diverse target groups and learning models (Zolfo et al., 2010)<br>▪ For example, 3D animations to simulate consultations; MLE Moodle to facilitate peer/mentor discussion and multiple-choice questions before/after each module (Zolfo et al., 2010) | ▪ Convenience, easy access and ability to plan educational activities according to perceived need (Curran et al., 2019; Tarchichi & Szymusiak, 2020) |
| xii. Skill-based CME/standardized patient interviews/Objective structured clinical examinations | ▪ Preferred method of assessment of skills in medical schools (Zabar et al., 2010) | ▪ Found to be useful to improve clinicians' communication skills (Zabar et al., 2010)<br>▪ time consuming and requires a lot of resources to set up |
| xiii. Social media platforms | ▪ Internet-based applications used to create/exchange user generated content<br>▪ Includes both online social networking and professional communities (Curran et al., 2019) | ▪ Practitioners more likely to be involved in physician only online communities (Curran et al., 2019)<br>▪ Most practitioners would not use certain platforms for sharing medical advice with other professionals (McGowan et al., 2012) |
| xiv. Virtual world | ▪ Virtual immersive world akin to modern online multiplayer video games<br>▪ Second Life is one such world that is used for CME delivery<br>▪ A successful pilot of second Life has been described (Wiecha et al., 2010) | ▪ Anonymity offered by use of avatars reduces apprehension while encouraging more interaction among participants<br>▪ Offer participants scope for interaction, simulation, role play<br>▪ Security of online environment from hacking is a concern (Wiecha et al., 2010) |

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resource is the adaptable 12 item instrument for assessing the impact of CME on physician behaviour change based on validated socio-cognitive theories (Légaré et al., 2017).

Pre and post-test assessments are usually used to evaluate CME related knowledge gain, while Objective Structured Clinical Examinations (OSCEs) can be used to assess skill acquisition and questionnaires can be used to assess the intention to change practice (Fraguas et al., 2020). The issue of ensuring the quality of a CPD/CME activity is another area of concern. One paper identifies indicators of quality for a CME program which include self-assessed improved knowledge, growth in the number of participants, mean length of time users spend on e-learning platforms, improvement of practice and guideline adherence (Van Nieuwenborg et al., 2016).

e. *Funding.* One of the most contentious aspects of CPD programs relate to how they are funded, with self-funding through registration fees often being seen as a burden to practitioners who may thus be unwilling to participate (Stephenson et al., 2020). Despite this, registration fees constituted the largest source of accredited CME funding in the USA in 2018 (McMahon, 2018). However, government supported CPD programmes (such as the UK CPD support grant for staff doctors in England) indicate that in settings where resources permit, this model can assist in reducing the burden of additional costs on the health practitioner (Bimpong et al., 2020).

Pharmaceutical industry funding is common globally, with most conferences and approximately half of the revenue of educational companies involved in CME coming from commercial sponsorship (Torgerson et al., 2022). However, in the current regulatory environment which insists on objectivity and freedom from commercial bias, there is a reluctance to promote such sponsorship, even when there is evidence that such industry funded programmes can be unbiased (Chekijian et al., 2021). Measures put in place to ensure this impartiality include peer review of CME content (material), development of content in the absence of industry influence, declaration of conflict of interest among organizers/presenters, and prohibiting marketing activities within the meeting area (Chekijian et al., 2021; Torgerson et al., 2022). Some have cautioned that there may still be some subtle bias in industry funded CME modules; they appeared to minimise dangers of opioid use (death and addiction) while promoting (through use of a new disease term Breakthrough pain), off-label use of the drug fentanyl for chronic rather than cancer pain (Infeld et al., 2019).

Other authors have suggested that there is a need to institute clear policies to avoid ethical conflicts related to funding, and identified four components to include (Sahm, 2013; Torgerson et al., 2022). Firstly, establish code of ethics to guide the professions; secondly, have clear guidelines to deal with how practitioners will relate with pharmaceutical companies, limiting payments that can be made, and enforcing financial disclosure rules. Thirdly, have programs to ensure that doctors have a robust academic mind-set, and lastly, establish and enforce laws that impose penalties for unethical conduct and encourage vigilance in adherence to the policies (Infeld et al., 2019; Sahm, 2013).

*f. Country/regional CPD models.* CPD models in various countries and regions in the world share some similarities but have important distinctions (Tables 3 and 4). The chosen countries/regions represent those that had their documents in English and readily available in sufficient detail online. Generally, they are mandatory, and regulatory authorities oversee implementation. In some cases, the policies are also clear on those activities not recognised for CME credit (e.g. where activity is part of normal duties of the practitioner) (Medical and Dental Practitioners Council of Zimbabwe, 2016; Medical Council of Malawi, 2011).

## 2) What are the views and attitudes of medical practitioners towards these models?

*Barriers to CPD.* Impractical CME programmes and content, which fail to address the needs of practitioners and issues they face in their daily practice are common (Faghihi et al., 2017). This can be addressed by continuous needs assessments (Simper, 2021).

Insufficient interaction between facilitators and practitioners during the learning (CME) process is a significant barrier in didactic style delivery and can be addressed by redesigning such activities to be in line with adult learning theories (Faghihi et al., 2016). The limited opportunities for CPD activities are an important barrier in developing countries, which can be mitigated by having a project working group and collaboration between countries (Mukhopadhyay & Arora, 2021; Rao, 2010). A number of papers have looked at barriers encountered in the various CPD formats and ways to overcome them (Table 5).

Time constraints are usually sited as a barrier to participation in CPD activities; in the UK protected time for CPD is offered to address this (General Medical Council, 2019). Online CPD activities can also assist by being flexible enough to allow practitioners to participate at their convenience (Chandrasekaran et al., 2014).

Costs of CPD are often prohibitive and most countries acknowledge these challenges (Stephenson et al., 2020). Partnerships with pharmaceutical companies under strict ethical guidelines may assist in addressing this. The initiative by the South African Medical Association (SAMA) through its company Medical Practice Consulting (MPC) which offers online journal access is a good example. Some of the access to these journals is industry sponsored (MP Consulting, 2019).

Availability of mentors/expert advisors is an important barrier especially in developing countries. In Nepal, partnering with established institutions through teleconferencing facilities allowed practitioners in less resourced areas to access CPD activities and expert advice (Butterworth et al., 2011a). Faculty development through mentorship training of specialist and other key opinion leaders is a sustainable way to build local expertise (Butterworth et al., 2011b).

Access to appropriate CPD activities is often a challenge (Arisanti et al., 2019). Given that medical practice is very heterogeneous, a CPD model designed for anaesthetists may not necessarily work for general practitioners (Schostak et al., 2010). Trying to accommodate this heterogeneity comes at a significant financial cost.

Table 3. Comparison of some SADC countries' CPD systems.

| Country | Responsible authority | Mandatory? | Accredited service providers | Minimum targets and credit systems | Incentives | Penalties for non-compliance | Peculiarities to structure |
|---|---|---|---|---|---|---|---|
| Malawi(Medical Council of Malawi, 2011) | Malawi medical Council (CPD committee) | Yes | College of medicine, professional associations/hospitals/ collaganisations/research units/meeting out criteria; joint provider-ship allowed | Yes; 30 points in a 12-month period, half of the points within the scope of the practitioner's normal work; no carry-over of points | CPD costs tax deductible; rural doctors get twice the base points of urban specialists get 2 points for each hr of accredited CPD they facilitate in rural areas | Monetary 100% of annual renewal fees | All health institutes required to have CPD programmes; Specific aim to simplify tasks and structure of CPD programmes |
| Namibia(Health Professions Councils of Namibia, 2011) | Health professions Council of Namibia- HPCNA (CPD committee) | Yes | Profession-specific higher education institutions and departments, professional associations who meet the specified criteria and have been accredited by the HPCNA CPD committee | Target 30 continuing education units (CEUs) over 12 months: 5 for ethics, human rights and law. Valid for 24 months from when completed. Aim is to maintain a balance of 60, 10 for ethics, human rights and medical law | 2CEU for practitioners at ethics, human rights and law programs | 6 months to comply extended by council for further 6 months; multiple outcomes, for example, exam, suspension from practice, remedial programme for continuing education | Encouraged to offer learning activities in line with adult education principles and greater learner involvement; guidance provided for learning portfolios and practice audits |
| South Africa(Health Professions Council of South Africa, 2017) | Health professions Council of South Africa- HPCSA (CPD committee) | Yes | Profession specific higher education institutions and departments, professional associations which meet the specified criteria and have been accredited by the board | CEU 30, ethics, human rights or law 5 per 12 months; all CEUs are valid for 24 months from date of event | Not specified | 6 months to comply, then name sent to professional board - board examination, suspension from register, supervised practice till compliant | Providers should offer learning activities in line with adult education principles and greater learner involvement; individuals randomly selected for audits; guidance for online and journal CPD |
| Zimbabwe(Medical and Dental Practitioners Council of Zimbabwe, 2016) | Medical and Dental practitioners Council of Zimbabwe (education and Liaison committee) | Yes | Professional association or formally constituted professional interest groups who meet the specified criteria and been accredited by the MDPCZ; joint provider-ship possible | 50 CPD points per year, of which half should be within practitioners' scope of practice, no carry-over of points to next 12 month | Not specified | monthly monetary penalty for those submitting later than the cut-off date | Accredited bodies collate the CPD information and send to council by specified period not individuals |

Table 4. Comparison of some international CPD systems.

| Country | Responsible authority | Mandatory/ enforced by legislation? | Accredited service providers | Minimum targets and credit systems | Incentives | Penalties for non-compliance | Peculiarities to structure |
|---|---|---|---|---|---|---|---|
| Australia (Medical Board of Australia 2016) | Australian medical Council (AMC) | Yes | Specialist medical colleges, other AMC accredited institutions | For non-specialists 50 hrs of CPD per year | Not specified | Board can impose conditions on registration, denial of renewal, CPD registration standards can be used in disciplinary hearing | Complex system varying requirements between and for specialists/non-specialists, complete minimum of 50 hrs CPD per year (self-directed program), must include at least 1 practice-based reflective element, clinical audit, peer review or performance appraisal, participation in activities to enhance knowledge, compliance checked by audit. |
| Canada (The College of Family Physicians of Canada, 2019) | College of Family physicians of Canada (CFPC) | Yes | Professional organisations and higher education institutions, for example, medical colleges and faculties | Minimum 250 credits in each 5-year cycle (125 certified/ uncertified from other association: Royal College of physicians, Surgeons of Canada, American medical association, at least 25 each year | Not specified | 6-week grace period following cycle end date, if still not compliant will be placed in a 2-year remedial cycle, CFPC membership and right to use any Special designation may be suspended or revoked | Online system called maintenance of Proficiency (Mainpro+) for family physicians, industry-sponsored events not bearing CFPC certification treatment not eligible for Mainpro + credits, CFPC has credit reporting and reciprocity with specified organisations |
| Europe (The consortium et al., 2013) | Varies between countries, includes professional bodies with regulatory competence, professional associations and Ministries of health | Mandatory and voluntary system, depends on country | Accreditation systems differ across countries (accreditation of CPD activities more common than accreditation providers) | Varies between country | Often in voluntary systems may include financial incentives | Varies significantly (loss of practice licence, temporary suspension, fines, other penalties, no systematic consequences) | No unified CPD structure across all members of the union |
| United Kingdom (General Medical Council, 2018, 2019) | General medical Council | Yes | Professional organisations and higher education institutions, for example, medical colleges and faculties | Variable (e.g. may depend on employment status, royal college/faculty standards and phase of career) | Study leave budgets, tax incentives for self-employed doctors | Loss of good standing, reprimand, temporary suspension, and loss of licence to practise without revalidation | Periodic revalidation exercise which has CPD as one of its components |

**Table 5.** Barriers to CPD and suggested solutions.

| CPD/CME choice of format | Barriers | Some approaches to overcome them |
| --- | --- | --- |
| Peer group academic detailing | - Discussion of negative assessment report findings can cause distress | - Feedback following regular formative assessments needs to be done in good faith and professionally by both assessor and assessed, despite the unpleasantness and discomfort it may cause for there to be any benefit (Haines et al., 2013); (Frich et al., 2010) |
| EBM | - Lack of protected time, limited resources/facilities (internet, libraries, university), and lack of training/workshops on EBM (Abudahish & Bella, 2010; Al-Kubaisi et al., 2010) | - Deliberate policies for protected time, better funding from governments to support EBM implementation (Schostak et al., 2010) |
| OCME/ e-learning | - Lack of knowledge and requisite computer skills, lack of resources (Wi-Fi/internet access/computers), being unaware of medical council regulations on acceptance of OCME credit, and the belief that OCME is not as effective as traditional CME activities (Bekkers et al., 2010)<br>- Lacks face to face interaction(in general), has high drop-out rates, poor accountability of learners and lacks hands on sessions (Chandrasekaran et al., 2014b) | -Training, aggressive marketing of OCME, and clearer guidelines on its acceptability for CME credit by medical councils (Al-Sughayr et al., 2010; Chandrasekaran et al., 2014a)<br>- Installation of fast internet at hospitals(Curran et al., 2019)<br>- A suggested solution is by using it in a blended program which also includes skill learning session and OSCE type assessments at the end (Chandrasekaran et al., 2014b) |
| Reflective practice exercise | - Viewed by some as time consuming (Bekkers et al., 2010; Schostak et al., 2010) | - Training and raising awareness on benefits (clinicians are forced to review their own work critically and be able to examine areas where they can improve) |
| Virtual world | - Significant computer system requirements (including up to date video card and fast internet connectivity), and learning the controls is challenging for first time users, possibility of technical difficulties during an event are high, privacy is not guaranteed in free access platforms (Wiecha et al., 2010) | - Training and installing appropriate systems including data security at health facilities (Wiecha et al., 2010)<br>— |

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**Table 5.** (continued)

| CPD/CME choice of format | Barriers | Some approaches to overcome them |
|---|---|---|
| Mentorship- | - Not making use of mentoring system- (Butterworth et al., 2011b) | - Initial sensitisation workshops and training with regards to mentorship (for both mentors and mentees), and also allowing mentees to choose their preferred mentor (Butterworth et al., 2011a) |
| QI CME | - Barrier expensive to carry out- <br> - Resistance among doctors (Shojania et al., 2012) | - Look for support from organisations that have a commitment to QI. <br> -Incentivise by offering additional CME credit tied into recertification/ credentialing (Shojania et al., 2012) |
| Face-to-face seminars | - Waste of time and money for some busy clinicians (Bekkers et al., 2010) | - Costs can be reduced by having the seminars on-site (Zabar et al., 2010) |

## Discussion

### 1) CPD models

*a) Legislation, theoretical framework/learning theories.* A legislative framework is a fundamental requirement in ensuring credible CPD. This framework can be further enhanced by multi-lateral agreements which ensure standardisation of CPD policy in specific regions of the world. A consultative process with various stakeholders to determine whether the model adopted should be mandatory or optional is important as there is no evidence to suggest that one is more effective than the other. The appeal of a mandatory system is that it is in line with many other countries in the world and may ensure widespread participation. The downside is that significant resources will be required to make CPD available to all practitioners.

Regulations for accrediting CPD activities should include a requirement that all of them should be based on validated theories. There is no evidence that any of the theories is better than others; however, there is consensus that the use of a validated theory improves the learning experience and potentially influences adoption of what has been learned into clinical practice. QI-CME can be introduced in CPD activities because of its potential to improve healthcare systems and patient care. A cyclical assessment and feedback data model may be difficult to implement in resource constrained settings due to the challenges of obtaining adequate practice data since electronic records are not widely available. It may be possible to implement using inpatient records for practitioners working in public hospitals and facilities in which detailed paper records are kept.

*b) CME credit systems, revalidation/recertification and maintenance of certification.* Although time-based CME points systems are giving way to value-based credit systems, they are

still widely used in the Southern African region. It is important for countries to consider recognition of the CPD credits from other jurisdictions should they meet certain clearly defined and agreed upon standards. The number of CME credits per year is a matter which can be determined through a wide stakeholder consultative process. Such a process would consider the available CPD opportunities and how these vary between different regions. In the countries considered in this review, around 30 to 50 points per year is the standard, (Health Professions Council of South Africa, 2017; Medical and Dental Practitioners Council of Zimbabwe, 2016; Medical Council of Malawi, 2011).

The responsible authority should accredit CPD providers, using well defined regulations outlining criteria for an organisation to get provider status. It is possible to grant provider accreditation to universities, hospitals, non-governmental institutions and professional associations if these meet a set of established criteria. Joint-provider-ship agreements are an important consideration in limited resource settings as they can potentially increase available CPD activities. Clear regulations should be provided to specify the roles of accredited and non-accredited provider organisations. The regulations should also ensure ethical conduct of CPD offerings to ensure commercial bias is minimised.

Maintenance of certification and similar models as used in the United States remain very controversial with their processes, costs, cost-effectiveness and outcomes in question even to date. More research is needed in this area.

*c) Content delivery (choice of format).* Given the diverse ways in which CPD content can be delivered, it is prudent that a variety of formats be used if they meet a set criterion as defined by the regulating authorities. In resource constrained settings, it may be difficult to use such methods as virtual world and OSCEs. However, it is possible to take advantage of telecommunication technologies which can facilitate mobile and web-based formats. Improving access to Wi-Fi and training of practitioners on use of different web and mobile technologies will assist wider adoption of CPD. Specialists and other experts can be trained on mentorship and be involved in mentorship programmes in more remote areas. They can also be requested to assist in developing CPD material and adapting material (including guidelines) from other countries and the WHO to their local setting. Even where there are few specialists available, they would have more impact on the health system by being able to mentor general practitioners through such formats as interactional group discussions, mobile/web-based leaning, social media platforms and academic detailing. Use of technology also allows CPD activities happening at major hospitals to be shared with practitioners in private practice and those in remote settings. It also enables international faculty to assist in delivering content.

Social distancing measures and other restrictions that have come with the coronavirus disease (COVID-19) pandemic have limited face-to-face teaching and learning and promoted online CME delivery (Seymour-Walsh et al., 2020b). Even courses for COVID-19 by WHO have been made into OCME offerings. Some have argued that this should not be viewed as a temporary measure but should be taken as an opportunity for improving access and quality of OCME to benefit clinicians in rural and remote regions (Seymour-Walsh et al., 2020b).

An understanding of the capability of online systems for online learning is important for choosing the most appropriate one to adopt for CPD (Seymour-Walsh et al., 2020b). OCME delivery can be both synchronous and asynchronous and thus is a convenient way to deliver content to busy clinicians who can catch up with the content later if unable to attend live events. Potential distractions are well documented barriers to learner engagement with material in online learning. It is therefore important to clearly define expected conduct before each interactive session (e.g. turning off push notifications and placing phones on silent mode) (Seymour-Walsh et al., 2020b). Another consideration is limiting the amount of information into smaller bits that can be well understood and applied, while ensuring that the session involves significant interaction among participants (Seymour-Walsh et al., 2020a). OCME should be critiqued and assessed using a validated framework to ensure that it meets the set objectives and required standards.

*d) Quality standards, monitoring and evaluation.* Although currently there is no consensus on how quality standards of CPD can be monitored or evaluated, there is a general agreement that behaviour change, and patient outcomes are important considerations. To this end, one of the methods above which have been shown to have utility, the Kirkpatrick's four level outcome evaluation model and its adaptations can be used (Tian et al., 2010). These allow gradual shift from basic evaluation (reaction and learner experience) to more complex measures such as performance improvement and health outcomes.

*e) Funding.* Sustainable funding strategies are essential for the success of any CPD model, as financial limitations are likely to adversely affect the quality and quantity of contents available. Various incentives can be put in place to ensure that practitioners are not overburdened by cost of the CPD program and can include tax incentives and government subsidies for the fees. Engaging with industry partners and non-governmental organisations to fund programs can be beneficial but should be done in the presence of a suitable framework that prevents unethical practices and bias.

*f) Country/regional CPD models.* It is important to have clear, simple policies relating to CPD. The common findings, such as the mandatory nature of CPD, time-based credit systems and the presence of penalties for non-compliance are important considerations in drafting a CPD policy. It is also important to consider incentives to make the program more accessible and affordable to practitioners, specifically those in resource constrained settings.

## 2. What are the views and attitudes of medical practitioners towards these models?

An understanding of the perceived and real barriers encountered in various CPD models allows for them to be minimised. The model must incorporate regular needs assessment to keep it relevant to its target group, and to create capacity to develop local content through available experts.

In terms of learning formats most studies reviewed emphasised the use of multiple methods and encouraged interaction and feedback. Blended learning is preferred by many practitioners, its main barrier being cost (Bekkers et al., 2010). All material developed for use needs also to be based on relevant peer reviewed evidence and evidence-based medicine is an important one consideration. Internet-based learning is set to increase and installation of fast internet at all hospitals and health centres is key in enabling available resources to be used effectively. Practitioners will also need to be trained on the use of mobile technologies and on critical evaluation of data available. Clear guidelines on the acceptability of online-CME activities for CPD credit are needed. Traditional face-to-face seminars are popular but are costly and may not be suitable for busy clinicians or doctors working in more remote areas. The use of technology platforms which allow live streaming, remote participation or recording of events and viewing it later, can assist. Interaction between facilitators and practitioners during educational meetings can be addressed by redesigning such activities to be in line with adult learning theories. The cost of CPD can be significant and affects its accessibility. Tax incentives, funding from pharmaceutical companies and other NGOs, partnerships with universities and other organisations can be encouraged under well-defined guidelines.

## Conclusion

A CPD model that is supported by appropriate legislation, addresses the needs of the doctors, and is based on valid adult education theories is likely to be both effective and acceptable to medical practitioners. Additionally, it should include a blended way of delivering its content while keeping abreast with current best practices. There should also be a mechanism to conduct continuous quality assessments and improvement in knowledge and practice for better patient care and outcomes. The model should take cognisance of the views of various stakeholders (including doctors, patients, regulatory authorities and government) and have a sustainable funding model. More research is required into effective methods of identifying individual practitioners' learning needs to make relevant CPD activities. Also essential is research into CPD needs and barriers to participation in CPD for each category of medical practitioner (various specialties and general practice) as these may be unique to the group. At government level it is important that policies are developed that foster continued evolution of CPD. Further research is required to evaluate the learning outcomes of CPD offerings on healthcare quality and sustainable funding models (and related policies including implementation).

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## Supplemental Material

Supplemental material for this article is available online.

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## Paper 2: Continuing professional development in Eswatini: Factors affecting medical practitioners' participation.

Published in the South African family Practice Journal.

Responds to Critical question:

c) What motivates Eswatini practitioners to participate in CPD?
d) What are barriers to participation in CPD for Eswatini doctors?

We felt that a critical step in developing a CPD model for Eswatini was to find out what the motivating factors were for those who chose to participate in CPD. It was also important to find out the factors that hindered participation. Only when these are known does it became possible to make the necessary provisions in designing CPD programmes which would be deemed acceptable by practitioners.

Declaration regarding a Doctoral student's contribution to the journal articles to be included in a

Doctoral "Thesis through publications."

Student name: Rodney Hudson Magwenya

Student number: 218087082

The student's contribution to the article was as follows:

1. Formulation of hypothesis: I was responsible for the concept for the paper

2. Study design: I was responsible for the study design.

3. Ethical permission: I was responsible for obtaining ethical permission for the study

4. Work involved in the study: I was responsible for gathering the data and the initial analysis.

6. Writing the article: I was responsible for writing the article and reviewing and rewriting the article based on the feedback from the coauthor and journal reviewers.

I declare this to be a true reflection of my contribution to this journal article.


Signed:………………………..       Date: …………………………29/03/…. 2023

AOSIS

# Continuing professional development in Eswatini: Factors affecting medical practitioners' participation

CrossMark

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**Background:** The availability of continuing professional development (CPD) activities does not necessarily translate into good participation by health practitioners. Reasons for low participation include time constraints, cost of some activities, irrelevant material and lack of access. This study aimed to explore the views of medical practitioners' working in Eswatini regarding the factors that affect their participation in CPD programmes.

**Methods:** A qualitative study using seven in-depth semi-structured interviews and three focus group discussions (FGDs) of medical officers working in the public heath sectors in Eswatini was conducted between November 2020 and February 2021. Open-ended questions were used to explore factors that both motivate and demotivate medical officers participation in CPD activities. The interviews and FGDs were audio-recorded and transcribed verbatim, the qualitative data were analysed using the thematic approach.

**Results:** The emerging motivating themes described by the participants were: (1) professional responsibility and (2) personal interest and learning need. Whilst the demotivating factors were: (1) non-relevance to clinical practice, (2) cost of participation, (3) lack of reward, and (4) no recognition for staying up-to-date.

**Conclusion:** The motivating factors are associated with deep learning and linked well with the principles of adult learning. The demotivating factors found were in keeping with findings from other studies in a variety of countries. It is important for the Medical Council and CPD organisers to be aware of the different motivations and de-motivations for practitioners to engage in CPD to enable them to plan and implement their programmes effectively.

**Keywords:** continuing medical education; continuing professional development; medical practitioners' views; motivation; barriers; adult learning theory.

## Introduction

Continuing professional development (CPD) is the purposeful updating and improving of professional knowledge and competence that is generally undertaken throughout an individual's working life.[1] It is regarded as essential for healthcare professionals (HCP) to enable them to improve their knowledge and clinical care practices.[2,3] However, compliance with CPD is a major concern in many countries and making it mandatory may not be as effective as addressing the educational quality of the activities offered.[4,5] It is therefore important to understand what motivates HCP to participate in CPD to improve compliance.

Based on the literature, there are five broad categories of motivations as to why medical practitioners participate in CPD activities.[6,7,8,9,10,11] These include: (1) the expectation to be knowledgeable and up-to-date, (2) a topic of interest, (3) to improve behaviour or skills learned, (4) to learn more about a specific condition, and (5) the need for social contact with other practitioners and to escape from the daily work routines.[6,7,8,9,10,11] Irrespective of the motivating factor, for learning to be effective it must be based on sound educational principles.

Many theories have been proposed to describe and conceptualise learning in the medical profession in order to apply these educational principles to develop CPD activities. One such theory is andragogy (adult leaning theory), which refers to the methods used by adults to learn. It has long been recognised that the learning process for adults is different from children, and it varies amongst them in terms of needs and styles.[12,13]

Knowles highlighted five important assumptions about the way adults learn[12]; these include the importance of self-directed learning, their ability to draw from previous experiences in order to learn new things and a recognition that they learn more easily when they are able to identify a

reason for acquiring new knowledge or skill. In addition, adults want to learn things that are applicable to their practice and finding the motivation to learn is important for improving self-esteem and career advancement.[12,13,14]

In most countries, including Eswatini, attendance at formal CPD activities largely remains poor, with opportunities not founded on adult learning theories cited as one of the reasons for this.[2,7,15] Other reasons include a lack of accessibility of activities (especially in more remote and rural regions), irrelevant topics, time constraints (for already overworked and busy professionals), and lack of personal motivation.[4,7,10] Whilst the goal of CPD is behaviour change and improved clinical practice, there is some controversy as to how and whether this can be achieved through CPD programmes. Ideally, HCPs should be self-directed learners who are able to take charge of their own learning by identifying their individual learning needs, setting goals and using appropriate resources and activities to attain them (applying knowledge to practice) rather than forcing participation in compulsory CPD activities.[16] Various strategies for CPD have been developed globally to encourage self-directed learning (e.g. experiential and reflective, portfolio, problem-based and discovery-based learning).[16] Self-directed learning is regarded as an efficacious method of CPD, with individual motivation being a key factor in ensuring its success.[17]

Understanding the motivation of doctors in Eswatini to attend CPD activities is important for creating relevant programmes, improving participation, and hopefully encouraging a change in behaviour and practice. Gibbs classified learning into surface and deep learning.[18] He described knowledge acquisition as surface or 'superficial' learning, which is not sufficient for the development of critical thinking or application of gained knowledge to practice.[18] Such learning is motivated by an external factor such as an examination or in the context of CPD for HCPs, the need to acquire points.[18] Deep learning on the other hand goes beyond knowledge acquisition and seeks to understand the underlying principles and being able to apply those principles in practice.[18] Motivating practitioners through CPD points alone is unlikely to lead to sustainable deep learning as described by Gibbs, because it stems from an external source.[18] In addition, research has shown that when adult learners feel that their personal development is valued and indeed expected, they are more likely to engage in deep learning and to apply knowledge gained into practice.[18,19] Internal motivation and collaborative work are regarded as some of the pillars of deep learning, with issues such as satisfaction of understanding new concepts and joy of finding applicability of knowledge being likely to be more sustainable in the long-term than external ones (financial reward or CPD points).[18]

Whilst the Eswatini Medical and Dental Council (EMDC) views CPD as important, there is currently no framework in the country and no guidelines for practitioners to know what constitutes acceptable outcomes. Under the current system, medical practitioners are informally encouraged to take part in CPD programmes on an ad hoc basis that are mainly provided through non-governmental organisations (NGOs) and the Ministry of Health. In addition, they are encouraged to participate in online CPD and to establish in-service committees at the hospitals where they work, with these committees being responsible for journal club meetings and CPD activities. The EMDC is in the process of formulating a formal CPD system. Although there is considerable literature from around the world about CPD programmes and how they are structured, there is a paucity of research in this area in Eswatini that might inform the EMDC as they develop this system, especially regarding the factors that motivate practitioners to engage in CPD. In developing a new system, it is important for the EMDC to consider the views of practitioners to ensure that they have ownership of their CPD.[14,20] One way to do this is to address the issues that drive local practitioners to participate in CPD and identify how these considerations can be incorporated into the system being developed. This study aimed to establish the opinions of practitioners working at government healthcare facilities in Eswatini regarding factors affecting their engagement in CPD activities. It also aimed to make recommendations about how CPD could be implanted in the country.

## Methods

This qualitative study was conducted between November 2020 and February 2021 using in-depth semi-structured interviews and focus group discussions (FGDs) of medical practitioners working in Eswatini public sector hospitals. The FGDs were based on an interview and guide that was developed using the results from an earlier scoping review. The use of these two methods of data collection enabled data triangulation, which enhanced the data richness and depth of inquiry and increased the validity of the findings.[21]

A systematic but purposeful sampling technique was used to identify public sector medical practitioners registered with the EMDC who were invited to participate in the study. From the list of 297 practitioners registered with the EMDC who had correct and updated contact details, every 29th practitioner was selected for inclusion. Out of 25 participants who were approached to participate in the study, 17 agreed, with the remaining who declined citing their busy schedules and the coronavirus disease 2019 (COVID-19) pandemic amongst the reasons for their decision.

All potential interviewees were informed telephonically about the study's aims, what their participation entailed, its voluntary nature and the steps taken to ensure their anonymity and data confidentiality. They were also provided with information to help them reach an informed decision before agreeing to participate and signing the informed consent forms. Coronavirus disease 2019 protocols were followed in compliance with the Ministry of Health guidance for both data collection methods.

Individuals who were able to meet at the selected locations were assigned to the focus group in that region, whilst those who were unable to meet participated in in-depth interviews. Seven face-to-face interviews and three FGDs were conducted by the first author, each lasting from 30 min to an hour. The three FGDs were conducted with 10 participants from the three administrative regions of Manzini (four participants), Hhohho (three participants) and Shiselweni (three participants), although the participant numbers were relatively small they managed to engage in rich discussions.[22] An open-ended question: 'What motivates you to participate in CPD programmes?' was used to initiate the discussion in both the interviews and the FGDs. Summarising their comments and asking for further explanations were used as prompts to provide clarity about what the participants were saying. An interview and a FGD were carried out, then the data were reviewed and analysed for each participant before moving on to the next session. Data saturation was reached when no new themes emerged.

The FGD and interview audio recordings were transcribed verbatim and the data were managed using NVIVO®.[23] The data were analysed via constant comparison analysis, which allowed the assessment of saturation in general, as well as across-group saturation. Data saturation was reached when no new themes were identified from the final FGD. Two researchers read the transcripts repeatedly to become familiar with the data, after which they developed a coding framework and coded the transcripts separately. Line by line coding was used to form free codes that were then grouped to form themes and later combined to make categories. The coding framework developed was applied to all transcripts and any new codes or themes that emerged. When the two researchers identified different codes, these were discussed until consensus was reached on the final list of codes and themes.

### Ethical considerations

The required ethical approval was obtained from the National Health Research Review Board (Eswatini) and the Biomedical Research Ethics Committee of the University of KwaZulu-Natal (BREC/00001700/2020), South Africa.

## Results

A total of 11 men and six women participated in the study, their ages ranging from 25 to 67 years, with the duration of their practice ranging from 1 to 35 years. All were medical doctors working in public sector hospitals, with two being specialists and the rest general practitioners (GPs). The factors affecting their participation in CPD activities were divided into those that motivate and demotivate them to attend.

## Motivating factors

Two main themes emerged from the data analysis regarding the motivating factors, these being professional responsibility and personal interest and learning needs.

### Theme 1: Professional responsibility

The most common acknowledgement was that attending CPD activities was part of their professional responsibility to engage in various forms of acquiring new knowledge and skills, this being regarded as an important motivation for the participants:

> 'It goes without saying that CPD is a fundamental activity for all practitioners; the question may be how to go about it though.' (Female, GP, 57 years old)

There was general agreement that healthcare practitioners needed to take part in CPD activities as part of fulfilling the life-long learning obligation they made when they joined the profession. Two sub-categories were observed in the data when looking at the participants' knowledge about CPD in Eswatini. The first was the 'aware participants', who felt an obligation to engage in CPD because of where they practised before coming to Eswatini, whilst recognising that there was no formal enforcement of CPD points in the country:

> 'Where I used to practice, they required us to accumulate a certain number of points for us to be able to renew our licences; luckily, here it's not yet like that. But I still wish to keep up that practice of doing my CPD [*continuing professional development*].' (Male, GP, 39 years old)

The second sub-category was 'unaware participants', which consisted of those who were not aware of the current CPD system in Eswatini, but participated as they were either from countries where it was compulsory to do CPD or had heard in medical school that it is an important and necessary part of being a doctor:

> 'It's unclear how many points one should accumulate to be able to be eligible for re-registration or to be compliant with the requirements, so I just do as much as I can just in case.' (Male, GP, 27 years old)

> 'I'm really not sure what points are required per year, but I know even from my medical school years that we have to do CPD [*continuing professional development*].' (Female, GP, 25 years old)

### Theme 2: Personal interest and learning need

Another common motivation for engaging and completing CPD activities was the issue of personal interest of a professional nature. As they all worked in public sector facilities, they were also likely to manage health conditions that are particular to the country and want to keep abreast of developments in the field:

> 'Let's have more opportunities to do CPD [*continuing professional development*] which is line with our interests. We would definitely attend these.' (Male, GP, 27 years old)

Some felt that their decision to take part in CPD was motivated by a clinical case they were dealing with (or had dealt with) and wanted to learn more about managing such cases:

> 'I commonly get to know what I don't know after reviewing an interesting or difficult case. Then I try and read around the topic from trusted medical websites like Medscape[®]. The guidelines

available I feel do not answer most of my questions; though I am hopeful the new and upcoming guidelines will tackle some of the shortcomings of previous ones.' (Male, GP, 37 years old)

The emergence of a new disease (COVID-19) also featured prominently as a motivation for engaging in CPD, and whilst they wanted to know more in general about the virus to provide appropriate patient care, they also wanted more information to protect their loved ones. Others also mentioned the issue of misinformation on social media as a driver for them to attend formal CPD on COVID-19:

'I rarely saw the usefulness of CPD [*continuing professional development*] until we had COVID [*coronavirus disease*] in the country; it was a new disease with lots of conflicting messages in the media. I had to go for special CPD courses organised by the Ministry to learn how to protect myself, my family and also help my patients.' (Male, GP, 39 years old)

# Demotivating factors

Four themes emerged under demotivating factors, these being non-relevance to clinical practice, the cost participating in CPD activities (time and finance), lack of reward, as well as no recognition of achievements.

### Theme1: Non-relevance to clinical practice

A number of participants stated that they would not attend CPD activities that were not relevant to their practice, as this was a waste of their time and did not contribute to improving patient management:

'Most CPD [*continuing professional development*] activities are less practice oriented. They don't apply to where we are. We can learn some skills but if we can't apply them to our practise they are useless to me, and I therefore won't attend.' (Male, GP, 37 years old)

Others were concerned that they were not consulted in identifying CPD activities and topics, given that they worked in under-resourced public sector facilities and were well equipped to know what they needed to learn about:

'Local experts and practitioners should be heavily involved in designing and coming up with content, as they are aware of some of the challenges unique to our setting that an outsider may not really appreciate.' (Female, GP, 31 years old)

### Theme 2: Cost of participation

The expense and time constraints associated with attending some CPD activities were stated as a disincentive by some practitioners, as they not only had to pay for the courses but also for the travel and accommodation costs. Their high patient numbers and lack of staff to replace them should they be away made it difficult for them to leave their posts:

'There are some international and regional CPD [*continuing professional development*] meetings that we fail to attend due to lack of sponsorship; they are too expensive for us to even consider paying for them as individuals. So, we may miss out on discussing new trends with our peers.' (Male, Specialist, 65 years old)

'Many practitioners already feel overworked and on the brink of burnout if not already there, with most hospital units stretched very thin, there is hardly enough time for CPD [*continuing professional development*] unless some major changes happen.' (Male, GP, 39 years old)

### Theme 3: Lack of reward

There was a recurring sentiment amongst the participants that they did not want to participate in CPD activities if this was not linked to some career reward or financial compensation. There was an expectation that engaging in CPD should lead to better career prospects and therefore improved remuneration. The only other means of improving their career options was to study for a higher qualification, which they did not have the time or the inclination to do. The statements reflect the view that engaging in CPD did not translate to career advancement, and that irrespective of how much CPD was performed, it would not change their status at their place of employment:

'… Other small courses should be recognised and lead to better compensation or career prospects, which is not the case currently.' (Female, GP, 41 years old)

'In the past, when you attended a CPD [*continuing professional development*] meeting, you were reimbursed for the fuel used, and at times even given some stipend, therefore attendance was always very good.' (Female, GP, 57 years old)

Some expected a financial incentive to participate, such as tax deductions, as in settings such as Malawi:

'I practised in Malawi for a while, and what I liked about CPD [*continuing professional development*] there was that in the event you paid for some event, this would be considered as a tax-deductible expense.' (Female, GP, 41 years old)

### Theme 4: No recognition for staying up-to-date

There was also a feeling amongst the participants that their acquisition of new knowledge and skills obtained at CPD courses were not appreciated by those in authority, which they contended was a reason for the low turnout. Whilst they may want to upskill themselves, the absence of the recognition for keeping abreast with developments in their field made them feel that their employer did not care if they stayed up to date. In the absence of a formal CPD system with points being awarded for qualifications, they were concerned that their own private efforts to improve their knowledge and skills would not be acknowledged:

'The issue of self-development needs to be tied to a system of recognition of such endeavours. Otherwise the motivation to self-develop is not there.' (Male, specialist, 65 years old)

'The current system doesn't allow us to grow … When we look at private learning and qualifications obtained will these be considered for CPD [*continuing professional development*] points in the system?' (Male, GP, 42 years old)

# Discussion

The emerging motivating themes described by the participants were: (1) professional responsibility and (2) personal interest and learning need; whilst the demotivating

ones were: (1) non-relevance to clinical practice, (2) cost of participation, (3) lack of reward, and (4) no recognition for staying up-to-date.

This study found that professional responsibility was an important motivating factor for participating in CPD activities for most practitioners. This aligns well with the literature regarding the motivation behind doctors' decisions to engage in CPD; the issue of professional duty being fundamental to their participation as articulated by Cervero and Richards and Cohen.[6,8] Most participants agreed that there was an expectation for any practising doctor to engage in CPD to stay abreast of their field. By putting in place a clearly outlined system with mandatory and enforceable CPD point target, the EMDC can fulfil its mandate of regulating the profession and ensuring that quality care is given to patients, as required by the Medical and Dental Practitioners Act of 1970 and encourage practitioners to participate in CPD.[10,24] However, this must be communicated effectively to remove any doubts for both 'aware' and 'unaware' professionals, as one of the recognised causes of noncompliance with CPD activities in other parts of the world is poor communication and lack of comprehension of their importance and requirements.[20]

With regard to personal interest and learning needs, participants expressed a motivation to participate in a CPD activity that would answer particular clinical questions they might have which is in keeping with the literature on participation in such activities.[8,9] This intrinsic motivation for learning should lead to greater self-exploration, discovery and reflection, all of which are important components of deep learning. Some of the CPD activities in Eswatini are hospital based (such as journal clubs/teaching ward rounds), making it more practice-based than those run by pharmaceutical companies, which are usually related to their products.[25] The EMDC needs to incorporate hospital-based CPD activities by setting standards for them to be acceptable for consideration and indicating the number of points that can be awarded. Many CPD activities continue to be performed by NGOs and other partners, which may not be in line with the interests of practitioners. The EMDC needs to put mechanisms in place for providers to carry out needs assessments before implementing their activities and make it mandatory for participants to evaluate the CPD activities they attend.[26] The evidence suggests that learning through CPD activities may lead to changes in practice, if a needs assessment is carried out and what is learnt is linked to practice.[26,27]

Non-relevance to clinical practice was found to be one of the demotivating themes emerging from the data, with a study in Iran finding that impractical CPD activities were a major concern of practising doctors.[7] This was supported by a study in Denmark, which concluded that what was learnt had to be relevant for it to have an impact.[28] In this study, some participants suggested that local specialists and experts needed to play a larger role in identifying CPD content and be involved in facilitating the events. This is an important consideration which was supported by Peloso and Stakiw,

who found that CPD was more likely to be effective in leading to improved practice if information was presented by trusted peers or local experts.[29] The EMDC should also consider giving guidelines for CPD providers that make it necessary for the content to be evaluated by local experts and for their inclusion in conducting the events. Such capacity building and clinical governance needs to become a cornerstone of a sustainable CPD system.[29]

A recurring theme amongst participants was the cost of participation, both in terms of financial and time, as reported by a survey of doctors in Spain, which also identified these two issues as important determinants for physicians' CPD attendance.[30] This is similar to the findings of a national survey in the United States of America, which found time to be one of the most important barriers to attending CPD across specialities.[31] In an attempt to deal with the issue of time constraints, the United Kingdom provides 'protected time', which enables practitioners to use time during work hours to attend some of their CPD activities.[32] and was supported in a Spanish survey also.[30] In Eswatini, protected time is generally not available, except for programmes run by the Ministry of Health and its partners that require travel to a distant city to attend. To mitigate the issue of cost to participate (mainly because of cost of travel), remote learning opportunities could be made more accessible, as has been the case for the COVID-19-related CPD events. In addition, in developing compulsory CPD in Eswatini, consideration needs to be given to how time can be made available for medical officers to participate in CPD activities and be included in the general training plans for medical officers. Such a protected time system would require their clinical responsibilities during that period to be covered by their peers and senior colleagues.[4]

The lack of reward emerged as a theme in the data that is in keeping with the need to improve their financial position or status by engaging in CPD activities.[8,9] However, if participation is based solely on financial reward as a motivation, learning is likely to be superficial, where practitioners do not go beyond the acquisition of knowledge and may make no attempt to understand facts or put then into practice.[18] When developing a compulsory CPD programme in Eswatini, addressing both the incentives and the disincentives to participate are important. Although the financial incentives are seen as resulting in only superficial learning, addressing this aspect can remove a major disincentive to participate in CPD activities. In Malawi and the United Kingdom (for self-employed doctors), CPD costs are tax deductible.[33] An option would be for the EMDC to engage government and motivate for a tax incentive system for those who wish to take part in paid outcomes-based CPD events.

There was some despondence amongst participants who felt there was no recognition of their CPD achievements by authorities. According to Gibbs, when personal development is valued and expected, learners (in this case medical practitioners) will be more likely to apply the knowledge

gained and exhibit more critical and analytical thinking,[18] which are all attributes of deep thinking and learning. In dealing with this issue, the EMDC could consider having a reciprocal recognition system with its neighbouring countries, which means that CPD activities performed via recognised providers within the region and other selected jurisdictions could be submitted for local credits. Such recognition mechanisms are already in place in Namibia, where CPD points from South Africa are recognised.[34] It will also be important for the EMDC to set out guidelines on all activities acceptable for CPD credit and to include the number of points that can be claimed for attending certain courses (short courses, diploma courses and longer programmes). In addition, to encourage participation in meaningful CPD programmes, the Ministry of Health could consider putting in place a career notch progression system that would recognise a practitioner's experience and link it to their outcomes-based CPD. Outcomes-based CPD would consider the impact of learning activities on both change of practice by participants and patient outcomes.[35] This may take a similar form to the Chinese CPD system, in which the credits are linked to annual performance appraisals, credentialing and promotions.[36]

Only one of the five motivations described in the literature was not seen in this study,[6,8] this being related to meeting and interacting with colleagues or escaping from daily routines. It is unclear whether this was related to changes in how CPD activities were performed during the COVID-19 pandemic, with most being performed via online platforms, such as Zoom®.

The four principles of adult learning by Knowles are applicable to the findings from this study.[12] Firstly, it is important to recognise that adults need to be involved in the planning and evaluation of their learning activities to ensure that CPD activities are self-directed and learner-driven.[9,12] The sentiment amongst the practitioners of personal interests not being well addressed by current activities supports this assertion and that they are not involved in topic identification as those covered were not perceived to be relevant to their practice. Secondly, experience provides an important basis for learning, this being evident when participants expressed a need to improve their patient management when dealing with a similar case as a motivation for attending CPD activities. Thirdly, adults prefer learning activities that are relevant to them and impact their work and this is indicated by the need for CPD activities that address their interests and are applicable to their work. Fourthly, adult learning should be problem centred rather than merely didactic or content-oriented, which aligns well with one of the motivations expressed by practitioners that their learning needs should be based around their working environment. It is important that adult learning theory is incorporated into any CPD programme, as it addresses intrinsic motivation to learn, lifelong learning and the application of learning to practice.

The findings from this study need to be considered with an understanding of its limitations. It is a qualitative inquiry with a small sample size and the results may therefore not be generalisable beyond the participants, although they may give insights as to what may motivate a similar cohort of medical practitioners. The small participant numbers in the focus groups is a limitation. However, according to Fern more information may be obtained in conducting two groups of a smaller participant number (four) than a single group (of eight).[37] In the case of this study, we looked at conducting our three focus groups with smaller participant numbers rather than having one with 10 participants. This was also influenced by the COVID-19 pandemic and the desire to ensure participant's safety. The practitioners were all based at Government hospitals and their views may be different from those working in private settings.

## Conclusion

Eswatini medical practitioners engage in CPD for a variety of reasons, amongst these, two are linked to deep learning, namely (1) to address a particular learning need and (2) satisfaction of having their achievements recognised. It is important that in planning and implementation of CPD activities, organisers consider these motivations and ways in which adults learn. Future research should focus on the preferred methods of achieving effective CPD (in terms of patient outcomes and change of practice).

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### Disclaimer

The views and opinions expressed in his article are those of the authors and do not necessarily reflect the official policy or

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## Paper 3: Developing a CPD model for Eswatini- a participatory action research study.

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**Responds to Critical question:**

1.      Responds to Critical question: How can CPD in Eswatini be improved?

Having determined some of the motivating factors to participating in CPD, the next task was to see how CPD in Eswatini could be improved to meet these.

Declaration regarding a Doctoral student's contribution to the journal articles to be included in a

Doctoral "Thesis through publications."

Student name: Rodney Hudson Magwenya

Student number: 218087082

The student's contribution to the article was as follows:

1. Formulation of hypothesis.

2. Study design: I was responsible for the study design.

3. Ethical permission: I was responsible for obtaining ethical permission for the study

4. Work involved in the study: I was responsible for gathering the data and the initial analysis.

6. Writing the article: I was responsible for writing the article and reviewing and rewriting the article based on the feedback from the coauthor and journal reviewers.

I declare this to be a true reflection of my contribution to this journal article.

Signed: ██████████ ………. Date: …………………………29/03/…2023

**BMC Medical Education**

# Developing a CPD model for Eswatini—a participatory action research study

Rodney Hudson Magwenya[1*] and Andrew Ross[2]

## Abstract

**Background**  Continuing professional development (CPD) is a key aspect to fulfil a commitment to lifelong learning for professionals registered with the Medical and Dental Council, the intention being to promote the health of patients and develop clinical expertise. The absence of formal CPD requirements for practitioners in Eswatini has resulted in a move to introduce an accredited system.

**Methods**  The qualitative study followed a participatory action research (PAR) methodology using a cooperative inquiry group of 10 medical practitioners in Eswatini to investigate how the current CPD program could be improved and formalised. PAR entailed four stages; observation, reflection, planning and action, using a semi-structured format to explore the areas of concern.

**Results**  Reflecting on the current situation resulted in three ways to improve CPD being identified: (1) adopt a formal, compulsory CPD model; (2) recognise achievements by practitioners who endeavour to improve their skills/knowledge through Entrustable Professional Activities; and (3) ensure that CPD is relevant to the workplace by using Quality-Improvement CPD (QI-CPD) and reflective diaries. These would be done by involving local practitioners, using adult learning principles and ensuring continuous evaluation and improvement of the CPD model.

**Conclusions**  There was general agreement on the need for a formalised CPD system to improve skill levels and provide an open platform to enhance patient care in a resource constrained setting. The findings provided information that can be used to plan and action its implementation through engagement with the country's doctors in various forums and through ongoing research.

**Keywords**  Participatory action research, Continuing medical education, Continuing professional development, Entrustable Professional Activities

## Background

Continuing professional development (CPD) is a key aspect in the fulfilment of a commitment to lifelong learning for health care professionals, the intention being promote the health of the patients and develop clinical expertise [1, 2]. Although there are some informal CPD activities, the Medical and Dental Council (EMDC) in the Kingdom of Eswatini has identified the need to develop a formal / compulsory CPD model.

Eswatini is a small southern African country with a population of around 1.172 million people [3]. It has around 336 registered general medical practitioners, the majority of whom are working in the public service in one any one of the six government hospitals, two mission hospitals or five health centers [4, 5]. There is a growing private sector, but it caters for a minority of the population. There is currently no medical school in Eswatini, and all doctors practicing in the country trained in many different countries (including but not limited to

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recognised medical schools in South Africa, Taiwan, Russia and China). In 2018 an internship programme was established for newly qualified doctors returning from their studies and all doctors wishing to practice in Eswatini must pass registration examinations [5]. However, there is a significant adjustment and adaptation that is required before newly registered doctors can practice optimally, due to the differences between where they studied and where they will practice. Current CPD programmes which should help bridge this gap may not exactly prepare them for this.

The available CPD opportunities are mainly hospital based in-service programmes run by local CPD committees, which cater for all healthcare workers in a facility. They have widely varying effectiveness and rely on the willingness of staff members to participate as there is no obligation to attend. A few other opportunities are available through the Ministry of Health and its partners; these are mainly targeted programmes (such as clinical updates for specific conditions under specific ministry projects). As of May 2022, there are no enforced CPD targets, although all those registered with the medical council (health care practitioners) are encouraged to participate. Practitioners are encouraged to report the CPD programmes they attended over a year when they submit their annual practice license renewals, though currently this is not a precondition for renewal [5].

In a majority of CPD programmes (Eswatini included) the target audience are often excluded from policy and other decision-making processes [6–8]. Faghihi et al. (2017) contend that when there is a disconnect between the CPD offerings and the needs of practitioners, the programmes are likely to be impractical and not well received [8]. Determining the needs of practitioners is an important step in developing effective CPD programmes [9]. Continuing professional education is at its fundamental level adult education [10]. As such it should be underpinned by adult education theories and principles. Andragogy (adult learning theory) refers to the methods used by adults to learn, their learning process being different to children, and among themselves in terms of needs and styles [10]. It was proposed by Knowles who made five assumptions about the way adults learn [11]. These include self-concept (self-directed learning); adult learner experience (drawing from previous experience in order to learn new things); readiness to learn (easier to learn when there is a reason to acquire new knowledge or skill); orientation of learning (learn things that are applicable to their practice) and motivation to learn (want to learn for intrinsic factors, e.g., to improve self-esteem, advance their careers) [11]. Furthermore, Knowles added four principles to be applied to adult learning. Firstly, that adults need to be involved in the planning and evaluation

of their learning activities, this has important bearing when most CPD activities are concerned as they tend to be provider-driven than learner-driven. Secondly, experience including any mistakes made provide an important basis for learning. Thirdly, adults prefer those learning activities that are most relevant to them and impact on their work. That forms the basis of needs assessment in CPD. Fourthly, adult learning should be problem centred rather than merely content-oriented [11].

Participatory action research (PAR) is a research methodology in the emancipatory –critical paradigm that combines equal involvement of research participants and researchers in the research process (participatory research), using the findings to address issues affecting a particular group (action research) [12–14]. Action research consists of multiple cycles each with three main stages, namely inquiry, action and reflection [15]. Participants are regarded as experts due to their lived experiences, and their participation in the collaborative work with the researcher ensures relevance of what is being studied, which in turn produces findings that present some possible solutions to practical problems [12, 14], the collaborative relationship forming the basis of the cooperative inquiry group (CIG) [14]. In a CIG, individuals, including the researcher, come together to explore matters of interest as 'co-researchers', with the aim of transforming their (environment) practice [14, 16]. PAR can thus promote changes desired by a group in terms of policy development and practice, in this case around CPD. Personal dissatisfaction with some CPD activities that were on offer led to a need to examine if there were ways in which the professionals could have a better CPD experience while also trying to improve patient care. There have been proposed methods of ensuring PAR meets the required quality and rigor following criticism of the original description by Kemmis and McTaggart [15] that was thought to lack well defined criteria to consistency between researchers' philosophy and methodology [17]. Proposed criteria to ensure quality include alignment of group members with purpose, democratic and collaborative group dynamics and facilitation, development of reflexivity, commitment to practical action and detailed documentation of the process [14, 17, 18].

This paper seeks to explore how CPD can be improved for medical doctors practicing in Eswatini to enable policy makers and other stakeholders to know what doctors think should be included in the CPD model being developed.

## Methods

The qualitative study followed a participatory action research methodology using a cooperative inquiry group process. The participants were recruited from two public

sector hospitals in Eswatini, and the data collection process occurred from December 2021 – February 2022.

## Selection of participants

Convenience sampling was used to identify suitable participants, with 10 – 15 being required for the group discussions. Initially, all 12 doctors at the hospital where the author is based were asked to participate, with an additional five at the nearest facility being invited to join the process to achieve the desired number. The participants involved were limited to general medical practitioners working at the two Government Hospitals in Eswatini to create a relatively homogenous group. Presentations were made to potential participants at locations and times convenient for them, and interested individuals were asked to sign an informed consent until the required number was reached. Of the 17 doctors who were approached, 10 agreed to take part.

## Data collection methods

The initial aim of the study was to develop a CPD model for Eswatini, which was discussed within the group to establish its suitability for the purpose of the process, as this informed the direction of the discussion. Two data collection methods were used: these being group discussions and research diaries. Participants were encouraged to keep a personal diary of their CPD and participation experiences to enable different perspectives to be documented, compared with and used in the reflective processes of the cycle [12, 14].

## The cooperative inquiry group process

The participants received initial basic training on the PAR methodology (from the author), CIG and reflectivity [14, 19]. This was an important stage that allowed the author to relinquish power (over the participant and the process) to the group, which enabled everyone to be aware of their role and contribute fully to the process. The aim was discussed and after the group deliberations, the research question 'How to improve CPD in Eswatini' was adopted.

The study CIG process entailed four components of the action research cycle, these being observation, reflection, planning and action (Fig. 1). Attention was also given to the group process to ensure commitment and maximum participation. Participants were involved at all stages of the project [12, 14]. For each major stage of the study the group observed their experiences, and then reviewed the experience considering what was undesirable in their observed experience or what changes they wanted. The plans were put into action and later the cycle repeated only this time the observation looked at the changes done in the previous cycle. Fig. 1 is a simplified representation of the stages of the process which is at times depicted a spiral [12, 20, 21]. The number of times the cycle was repeated was different for each issue deliberated upon, with an average of two to three for each.

## Action research cycle



**Observation:** be aware of one's experiences, document what has happened or changed, includes evaluating past actions

**Reflection:** in a systematic way considering the observed experience

**Planning:** Integrate lessons learnt into prepared plans for new action at the start of the next cycle.

**Action:** act on the plans that have been created

**Fig. 1** The four components of the action research cycle [12, 20, 21]

## Data collection, analysis and reaching a consensus

The discussions were held in English, recorded, transcribed verbatim, with participants receiving a summary of the meetings for review and corrections.

Consensus was built mainly using group discussion, and in the few issues were this was a challenge, a nominal group technique was employed, in which participants wrote down their ideas, then selected what they considered to be the best idea and presented it [14, 16]. After all the ideas were compiled, they were discussed in turn, wording of an idea was only changed if its originator agreed, and duplicates were struck off, while other ideas were removed by unanimous agreement. Multi-voting was used to prioritise the recorded ideas [14, 16]. A total of 12 meetings were planned and conducted, the numbers varying for each, with seven practitioners being able to attend all meetings.

## Ensuring the quality of the process

To ensure the quality of the PAR process, several steps were taken, in line with the criteria proposed for the appraisal of cooperative inquiry. Firstly, in terms of ownership of the inquiry process by members was ensured by training them on the research methodology to prevent the author from dominating the inquiry. Secondly, there was an emphasis on developing reflectivity in all aspects of the inquiry, which was done by sensitizing the members to the importance of reflectivity and encouraging open mindedness and critical thinking [19]. Thirdly, members were encouraged to share their thoughts freely without fear of judgment, and democratic and collaborative group facilitation was followed as much as possible through the inquiry. Fourthly, the process was documented in as much detail as possible, where individual experiences, group processes, reflections and final consensus were documented, and individuals had an opportunity to make relevant corrections and additions where they felt their ideas were not clearly addressed.

## Results

### Participants

The 10 participants consisted of four female and six male general practitioners, with between two and 15 years of post-qualification experience, the youngest being 27 and oldest 49 years old.

### CIG Process

In the CIG we examined what it meant to have a new CPD model and its desired characteristics. After deliberations, consensus was reached that the research topic should be 'how to improve CPD' rather than 'developing a new CPD programme'. We further explored what improving CPD meant for us and decided that over the next six months we would:

1. Make observations about the current CPD processes and possible options to improve the programme.
2. Reflect on the current CPD activities and how we felt about it, whether it met our expectations and was making any meaningful contribution to our practice.
3. Plan how we could improve CPD to enable our experiences to meet our expectations.
4. At the end of six months we agreed on three main areas to act on, through a nominal group technique. The first was a structured CPD model, the second was that the CPD program needed to recognise of the efforts made by practitioners to develop themselves, and the third was that CPD needed to be relevant to local practice area.

### A structured CPD model (policy development)

Using the Action Research Cycle there was an observation that there was a lack of a clear CPD policy in eSwatini. Upon reflection we developed consensus that there needed to be a clear policy and structure that could be implemented and subject to continuous evaluation. The following points were agreed upon as being important for CPD in Eswatini. The further action agreed upon was to make available the summary of the deliberations to the medical council for consideration when they were drafting the CPD policy.

1. CPD was a necessary part of the profession, and the new model should be made mandatory.
2. The model should also follow Association of Medical Councils of Africa (AMCOA) CPD protocol which the country has already committed to implementing [22]. The principles of which include participation by all practitioners, mutual recognition of CPD done in member states, monitoring of compliance and penalties for not reaching CPD targets, aligning and developing policy frameworks to comply with the protocol [22].
3. Annual targets were important. There were two main contributions regarding the mandatory nature of CPD, on one hand there was a group that felt that a stepwise implementation would be most ideal, while another felt that there should be mandatory CPD targets from the onset of this new model. Given that local CPD opportunities are not widely available; the group calling for stepwise

CPD felt it was important that CPD point targets only be made enforceable once there were enough CPD opportunities for all practitioners in the country. The group calling for enforceable targets from the onset countered that there were already enough relevant CPD opportunities available online from various neighbouring and other countries. They added that the only issue was to incorporate these online CPD activities in a relevant framework to allow them to be recognisable for CPD credit. The latter became the consensus conclusion.

4. The Medical Council needs to establish a CPD committee to formally draw up clear CPD guidelines to be given to all practitioners on registration and to make them available on the council's website.

5. The composition of this committee must include senior practitioners (both specialists and general practitioners) in the country.

6. CPD activities should follow established adult learning theories, be based at the workplace to make them relevant to practitioners and be oriented to patient outcomes.

7. The CPD model should also be guided by varied sources of performance and outcome data, with a view of using these to improve on itself [4, 23, 24].

8. CPD should be viewed as a collective responsibility of all stakeholders in the health system and fully integrated to it.

9. Recognition of achievement should be promoted

10. Impact on practice should be one of the main goals of CPD

### Recognition of achievements

There was an observation that in the current system there was no formal recognition of the effort taken by practitioners to stay up to date or even to improve their clinical skills. In our reflection, most practitioners felt discouraged by this. Furthermore, there was agreement that if efforts were recognised these should be tied to a salary notching scale and could also lead to better satisfaction amongst practitioners and attendance at CPD activities.

*'It is disheartening to know that no matter how much I improve myself through various CPD activities I take part in, I will still not get any formal recognition. For example, some of us have done some courses in HIV management and have not had any acknowledgement from our employers or medical council.' (TD, 25yrs Female).*

*'When I finished my training, I had to learn some skills as a medical officer. These included doing some surgical procedures like caesarean sections.*

*However, there was no formal way to acknowledge that I had successfully acquired these skills. This is very disappointing, because when I switch hospitals, they only have my word that I'm able to do certain procedures.' (MM, 44yrs Male)*

*'It would be nice to have a way to formally recognise all the skills that I have made an effort to acquire during my practice' (RM, 40yrs Male)*

In our planning we reviewed literature on CPD and discussed attending courses / hospital based CPD, journal clubs, reading of journals and completing questionnaires, attending accredited courses and postgraduate training, all of which play an important role in CPD. However, the group decided to focus on Entrustable Professional Activities (EPA's) because not only do they provide a way to formally recognize training that occurs at the workplace, but they can also be made to be a part of CPD [25–27]. Entrustable Professional Activities (EPAs) were initially proposed by the Association of American Medical Colleges (AAMC), for use in medical education to provide a practical approach when assessing resident competence in carrying out defined tasks [26, 27]. They are units of professional practice that use observable work descriptors and enable the formalisation and justification of trainee entrustment measurement [26].The use of EPAs allows individuals to have proof of leaning a new skill, and if they are standardised nationally, would ensure that when people are being asked to do certain tasks their level of competence in those tasks has been formally assessed. For recognition of important skills learnt there was general agreement that EPAs would meet that goal. Due to the complexity in developing EPAs, we used a simplified system that looked at a few examples of possible EPAs basing this on the available literature (see Tables 1 and 2) [25–28]. We discussed some entrustment decision scales for use with EPAs, such as the Ottawa scales (both original and modified), and the Chen entrustment scale (original and modified) [29]. Through a consensus the original Ottawa scale (see Fig. 2) was chosen as it was simple, used in several studies and applicable to post medical school EPAs (unlike the modified Ottawa scale) [29]. It shows how an individual can progress along the 5 levels on entrustment (see Fig. 2 below).

In our action stage we looked at identification of EPAs. Following a week-long job task analysis some units of work which could be developed into EPAs were identified. These needed to be activities that could be easily observed, measured and suitable for making an entrustment decision. The table (Table 1) below shows some of the identified tasks.

A few EPAs were chosen by consensus to develop further for exploration in this project. These are

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**Table 1** Some identified skills for EPAs

| General | Medical | Paediatrics | Surgical | Obstetrics and gynaecology |
|---|---|---|---|---|
| History taking | Lumbar puncture* | Assessment of the newborn | Preoperative assessment | Caesarean section |
| Prescribing* | Pleural tap | Nasogastric insertion | Insertion of an intrathoracic chest drainage tube* | Evacuation of retained products of conception* |
| Obtaining informed consent | Ascetic tap | Intravenous cannula insertion* | Incision and drainage of an abscess | Bartholin abscess management |

*EPAs selected for further development

marked with an asterisk. Table 2 shows an example of an EPA, though this is not the assessment tool it is adaptable to most procedures.

The development of EPAs for our 'pilot' was largely welcomed by participants. A fair number (6 out of 10) were hopeful that if introduced and properly standardized, EPAs could enable recognition of and improvement in skills acquired.

> 'I think EPAs provide a structured way of not only learning skills through description of what's expected, but also allow one to demonstrate their competence in an objective manner. I really am hopeful that these may ease my concerns of recognition of work done by practitioners in upgrading themselves or learning new skills' (MM, 44yrs Male)

> 'I enjoyed the use of EPAs during the pilot. Even though I had done lumbar punctures many times when I was being assessed I found that I had to work harder at communicating with the patient than I have previously done and the requirement from the EPA ensured that I did so. If we can develop them for our routine tasks, we may be able to also improve our standard of care.' (BT, 28yrs Male)

> 'EPAs initially were sounding very daunting to me, but once I was able to assist in developing the one for prescribing, I realized how useful they could be' (MN, 27yrs Male)

A minority (2 out of the 10) still felt apprehensive and was unsure if these EPAS would be useful for them.

> 'I am still not convinced that EPAs will have the desired impact here, they seem more like what can be done at teaching hospitals. I think they may add more work for overburdened clinicians' (TG 38yrs female).

However, there was consensus that EPAs should be explored as a possible way of recognizing competence / achievements.

### Making CPD relevant to the workplace- Quality improvement CPD (QI-CPD)

There was a general observation that CPD needed to assist in improving the quality of practice, with the participants reflecting that activities are often not relevant to their practice area.

> 'I strongly feel that CPD has to help improve me so that I can help my patients. This isn't the case with most CPD activities I have done in the past' (RM, 40yrs Male)

> 'I wish that CPD could be helping address important issues I struggle with at my facility rather than just being another useless academic exercise.' (BT, 28yrs Male)

In planning we looked at approaches to CPD that are workplace based and have been associated with improved patient outcomes [24, 31–33]. Several activities were considered including the development of a learning plan, quality improvement projects, peer review of patient charts, the use of a diary and reflective practice. Quality improvement CPD (QI-CPD) and the use of a diary (see following section) and reflection were chosen by consensus as ways to ensure that learning is relevant to the workplace and it had a clear well-developed process.

In the action phase we identified by brainstorming the needs of practitioners based on their peculiar work environment and tailored to patient/clinical outcomes. Then, short term and long-term educational initiatives were planned to meet the identified needs. Lastly every practitioner engaged in a quality improvement project, guided by local objective outcomes and performance data. It was not possible to compare practice to benchmarks or peers due to the unavailability of relevant data [23]. Quality improvement was done through adaptation of the Plan–Do–study-Act cycles [34]. Two of the projects that were done as part of the QI initiative are summarised in Tables 3 and 4.

### Making CPD relevant to the workplace-reflective diary

In the observation stage, we noted that practitioners rarely reflected formally on cases that they were involved

**Table 2** Examples of an EPA for lumbar puncture [30]

| Key competencies | Behaviour requiring corrective action | Developing behaviour | Expected behaviour for an Entrustable practitioner |
|---|---|---|---|
| Technical skills | Lacks required skills, fails to follow sterile technique | Variably Applied, completes procedure. Unreliably, Uses universal precautions and aseptic technique inconsistently | Makes necessary preparation before performance of procedure, Correctly performs procedure on many occasions over time. Makes consistent use of both aseptic technique and universal precautions |
| Knowledge | Lack of awareness of knowledge gaps | Demonstrates dependency in some likely indications, contraindication risks, benefits, has limited knowledge of procedural complication or prevention of these | Demonstrates most of these key issues. Has knowledge of Common complication but struggles to manage them | Has adequate knowledge of essential anatomy, physiology, indication, contraindications, risks, benefits, and alternatives for the procedure. Knows and can take steps to prevent and manage complications |
| Communication | Does not communicate effectively. Uses inaccurate language, presents dated information. Disregards patient's and/or relatives when fails to obtain appropriate consent before performing a procedure | Uses jargon or other ineffective communication techniques unable to read emotional responses from the patient. Fails to engage patient in shared decision making | Conversations are respectful and mostly free of jargon and involves patient's where. When focussed on the procedure may have difficulty in recognising emotional response from the patient | Demonstrates patient-centred behaviour such as avoiding jargon, enabling shared decision making, and respects patient's emotional response), obtain appropriate informed consent |
| Confidence | Overconfident takes actions that could endanger patients or others | Displays a lack of confidence either increases patient's stress or discomfort, or over-confidence that erodes patient's trust when practitioner struggles to perform the procedure, Accepts help when offered | Asks for help with complication | Seeks timely help. Has confidence commensurate with level of knowledge and skill that puts patients and families at ease |
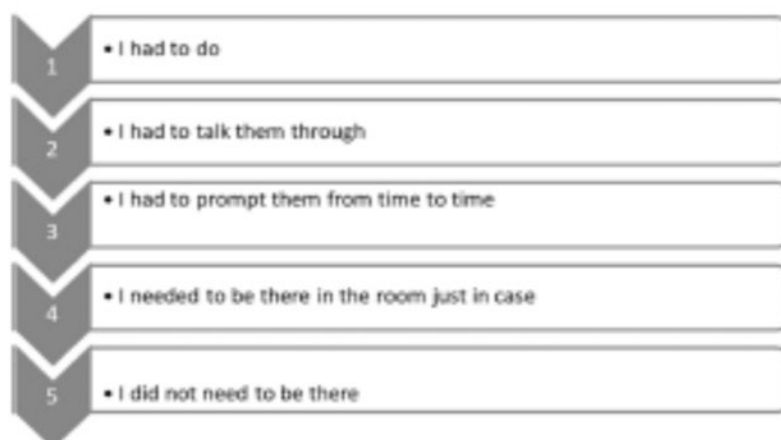
Fig. 2 Ottawa entrustment scale [29]

in managing. Part of the reason was lack of training on reflectivity. We looked at how reflection can become a regular part of practice and how CPD can play a role in its formal adoption by practitioners. A consensus was reached after nominal group method that a reflective diary is one way to encourage this. The main objections were related to the time required to complete the reflective diary.

Of the 10 practitioners, seven completed their reflective diaries. The first step required them to choose a specific case which had an impact on their practice or on them personally. This step was the easiest for all that responded.

*"I had so many cases I could think of that have been pivotal in my career. So, choosing one was not too difficult" (TG, 38yrs female).*

The second step was to share details about their thoughts, feelings, behaviours and actions. For some, detailing how a particular case made them feel was a new experience.

*"I found it challenging to write down my feelings about cases. I guess we are taught to dissociate our personal feelings about cases to keep us as objective as possible. However, mentioning my thoughts helped me think more deeply about my experiences and patient encounters." (BT, 28yrs Male)*

The third step involved formulating learning needs from their experiences. Most practitioners were able to link several needs from each case they discussed.

*"From my case, I recognized that I needed to know about managing electrolyte imbalance. I also needed to know how to deal with stigma around drug resistant Tuberculosis among the different cadres" (TG 38yrs female).*

The fourth step involved listing the strengths and weaknesses of behaviour or action. Many participants felt this was an eye-opener for them.

*"Looking at the strengths and weaknesses of my behaviour or actions allowed me to critically assess my actions and forced me to look at them in an unbiased way" (TD, 25yrs Female)*

*"In my daily practice I rarely get time to look back at cases due to the sheer number of patients I must see. However, I now appreciate how important it is for me to reflect on my actions so that I can improve and where necessary make better decisions next time (TG, 38yrs Female)*

The fifth step was to explore other strategies and approaches. For many this was useful, and they felt it prepared them for the next time they met with similar cases.

*"In my case I would have preferred more guidance from specialists for some of the complicated interventions especially for paediatric patients. However, the favourable outcome for this particular patient also prepared me to manage similar cases in the future" (TG, 38yrs female).*

**Table 3** Summary of the quality improvement project 'Diabetic clinic'

| QI-CPD description | Identified need (gap) | Goals | Educational initiatives to address gaps | Objective outcomes |
|---|---|---|---|---|
| Diabetic clinic | At one facility there was no clearly defined diabetic clinic, yet the hospital served many diabetic patients apparently there had been a diabetic clinic some years back but when the medical officer responsible for the unit was not continuously there the clinic | 1. To formally start a diabetic clinic 2. However clear standards of care required for each diabetic patient attending the clinic, such as scheduling of routine tests like renal function tests and referrals for eye examinations 3. ensure checklists used for each visit to screen for complications 4. use a book to be used as part of the data collection 5. evaluate the project | 1. Sensitisation of the care team about the diabetic clinic. This included nurses, laboratory technicians, dieticians/nutritionists, pharmacy, medical practitioners, physiotherapists, and counsellors 2. short interactive case discussion 3. Some members attended external courses on clinical care of patients with diabetes | 1. A formal diabetic register was created 2. Record keeping for patients was improved, was done using book that had been long available but seldom used 3. Was better compliance with national treatment guidelines and standards of care 4. Was improved follow-up tracking and earlier referrals for those with complications |

**Table 4** Summary of the quality improvement project 'prescription audit'

| Stage | QI-CPD description |
|---|---|
| Identified needs | 1. Complaints from the pharmacy department on the issues of polypharmacy and inappropriate prescription.<br>2. No formal prescription audit had been done before.<br>3. practitioners in Eswatini trained at many different countries, each with own standards of care. Standard treatment guidelines are not readily used where available |
| Goals | 1. ensure that prescriptions met appropriate general standards (legibility, identifiable prescriber, generic drug name use)<br>2. comply with Standard treatment guidelines (STGs)<br>3. review medications and treatment for chronic diseases<br>4. interaction checking<br>5. instructions and warnings to patients |
| Educational initiatives | 1. sensitisation of all prescribers and pharmacy about the audit and its scope<br>2. short interactive presentations on prescribing standards (adapted from the World Health Organisations 'Guide to good prescribing') [35]<br>3. promoting use of the STGs and some short interactive case discussions on management of common cases in the facility |
| Objective outcomes | 1. audit findings (from the audit of prescription scripts) were presented in an open forum to prescribers<br>2. standard operating procedures for non-compliant prescriptions were developed<br>3. improvement in documentation including: legibility, use of generic drug names, documenting instructions/warnings to patients,<br>4. reduction in the number of drugs per prescription when comparing before and after audit |

The last step involved some conclusion of learning points and making smart specific action plans for change of practice. Most participants came up with clear SMART (specific, measurable, achievable, relevant, and time bound) action plans.

*"For my smart action plan, I will be discussing with the paediatricians at my referral hospitals for them to provide us with guidance on managing electrolyte imbalance in paediatrics. Such a guideline will be the measurable outcome together with outcomes once it's implemented. I am hopeful that this can be achieved in 2 months" (MN, 27yrs Male)*

While allocation of CPD points may be deemed to be an objective way to measure whether one has participated in CPD activities it may not necessarily be the most effective way especially when it comes to reflective diaries. The complexities and differences between cases would make this difficult. There was therefore consensus among participants that if diaries were to be used, then certain minimum standards could be put in place. These could involve for example prescribing a minimum of two reflective cases per CPD cycle. A CPD cycle (which can be 2 years for example), being the time to accumulate a recommended minimum number of points/credits. There was also a recommendation that this reflective diary be made into an electronic or web-based application for ease of use.

*'Diaries are a significant strain in our busy work schedules but if they are to be implemented having them on as app may make it easier for us' (BT, 28yrs Male)*

**Evaluation**

One of the greatest challenges faced was capacitating practitioners about PAR which was a new concept for them. It did take more time than had been anticipated and there still were challenges as some had to be encouraged repeatedly to voice their ideas and thoughts. For the authors it was also challenging to try and be part of the process rather than be the one driving it. However, the level of teamwork and engagement with other participants made the experience worthwhile. Choosing a different team member to lead each of the different sessions helped members get more involved in the process.

Many of the participants where initially apprehensive about the PAR but were able to realise its potential in addressing some concerns they had around current CPD activities in Eswatini.

*'The work before us was scary, looked insurmountable, but the process we followed was able to help us make significant progress in getting our thoughts known' (RM, 40yrs Male)*

For a lot of others, they gained some skills which they felt would help them in their practice.

*'I had so much to learn, so many new words and ways of thinking' (MN, 27yrs Male)*
*'If anything was achieved in this project it was to open my eyes to look at myself and see the many ways I could improve' (LN, 36yrs Female).*

The majority also felt that a lot of work was needed to investigate practicalities of these interventions we had suggested above.

*"This project is just the beginning. We hope for more opportunities to further explore how we can improve ourselves as in doing so our patients will benefit the most" (MM, 44yrs male)*

## Discussion

Participatory action research represents a significant change in the way that healthcare research can be done. However, it is a useful methodology to explore our current topic. To a large extent the process was effective, mainly due to the enthusiasm of participants and their willingness to participate. The greatest challenge was to equip all participants with enough knowledge about PAR so that the group discussions would not be dominated by a few individuals. It was also difficult for participants to use the diary (both in terms of time constraints and it being a new concept for some), and the reflective practice was relatively new for almost all of us. We had hoped for answers to our questions but ultimately realized that there were many things that still needed further investigation using perhaps other methodologies as well. However, there was clarity on several issues.

## A structured CPD model (policy development)

CPD is an important part of equipping practitioners with the skills and knowledge to meet the challenges they encounter in their daily practice. Literature highlights that the quality and quantity of the CPD activities undertaken also has a correlation with the quality of professional practice [36, 37]. There are many models of CPD that can be developed and implemented in Eswatini, and any such model needs to be of appropriate quality for it to have meaningful impact. The chosen model needs to involve practitioners with some understanding of the local practice environment and be grounded in the workplace, while also being integrated into the health system [38]. The CPD model should also be based on adult learning principles and be oriented to patient outcomes [38]. This can be achieved by putting in place a well drafted CPD policy which considers all the contributions of stakeholders.

## Recognition of achievements (EPAs as an example)

Entrustable professional activities (EPAs) are specific units of professional practice which, can be entrusted to an adequately competent individual (professional). They are a relevant consideration for inclusion in the CPD model as they can be made to be appropriate to the duties of practitioners and they can potentially be useful in improving patient outcomes by ensuring a standard level of performing certain task is maintained [39]. They also provide documented evidence of competence

to perform a specific activity which has been shown to be a motivation factor for engaging in CPD [4, 25]. Indeed, EPAs should be suitable for credentialing, that is establishing the level of skill for a professional and assessing their legitimacy [26]. In Eswatini they can be developed nationally by specialists working with other experienced medical practitioners for each core competency required of a practicing medical officer [25]. To simplify the documentation and entrustment-decision making of developed EPAs, they can be added to an electronic portfolio [27]. In each facility, specialists or other experienced medical practitioners with sufficient training in each EPA can be responsible for assessments of competence using a scale like the one described in Table 2 in the results section and earn some CPD credits for their supervisory work [29]. The more skills the doctor masters the more completed EPAs they can have, and these can be recognised for CPD, or even in a notching scale for career advancement as an additional incentive [4].

## CPD relevant to the workplace (quality improvement and reflective diaries)

QI-CPD is a type of CPD that incorporates quality improvement into the assessment of current practice. It is an active process that encourages practitioners to measure practice metrics, compare these to peer feedback or benchmarks (where possible) and develop relevant, measurable action plans to improve practice [24]. Some of the recognised barriers to its implementation include lack of adequate training among healthcare practitioners, time constraints, and lack of incentives [24]. It is a viable method of CPD to use in the country as it aligns well with adult learning principles, as, according to Knowles (1985), adults want to be involved in planning and evaluation of their learning activities and prefer those learning activities that are most relevant to them and impact on their work [11]. In the case of QI-CPD practitioners identify their own learning needs and area of improvement and the learning process is directed at solving the identified problem with the aim of improving patient outcomes. By allowing quality improvement projects to count towards CPD credits, practitioners may feel motivated to participate in them [23]. As a recommendation, templates can be made available for easy completion. This would simplify the process of documenting the QI-CPD and of sending it forward for assessment.

The reflective diary is another useful CPD activity to consider in Eswatini. It is based on reflective practice, and an acknowledgement that reflection and feedback can be used as tools to develop not only knowledge but also skills [40, 41]. It is known that workplace learning can be enhanced through reflecting on experiences at work [24]. A key part in reflective practice is personalized

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and objective feedback, which must be provided for each reflective case sent for it to be effective [37]. Such feedback can utilise mentors, who can be specialists in the field and offer guidance and support or senior medical officers working in the facility [37]. Providing protected time for completion of reflective cases and making documenting these cases online/electronically has been shown to assist with improving compliance rates [37]. Using a validated framework such as Kirkpatrick's learning evaluation (which is used for undergraduate learning) can be useful in evaluating the effectiveness of reflective activities [37].

## Limitations

The study findings cannot be generalised due to the small sample size and non-probability sampling of 10 general practitioners working in two Government hospitals in Eswatini. This means that potentially valuable contributions from those in private practice were not obtained. There is a risk of bias due to the dual role of first author as researcher and participant even though the authors did incorporate methods to promote rigor. Additionally, PAR as a research methodology was new for all our participants, as such there were a number who were not entirely comfortable with the approach even after the conscientization sessions, and this may have affected their participation. However, the points raised by participants are a useful indicator of the views and experiences of the participants on issues that affect practitioners undertaking CPD in Eswatini and are an important part of developing evidence-based advocacy for practitioners needs in as far as CPD is concerned.

## Conclusions

There are many options for CPD that can be used in Eswatini. The important consideration is involvement of local practitioners, ensuring use of adult learning principles, and using methods that allow evaluation and change to be implemented. It is encouraging to note that some of the recommendations from the policy development stage are being implemented with the EMDC-CPD committee now in place and it has made a written commitment to engage positively with practitioners. Further dissemination of the findings is in the process. The EPAs, reflective diaries and QI-CPD described are some potential forms that a CPD model can take as each meet most of the criteria for a suitable model. The study used a small group and focused on a few areas of CPD, many other aspects could be added to those suggested. Therefore, more research will still be needed to evaluate each of these in greater detail and their acceptability to the practitioners. Evaluation of CPD activities being currently provided in the country is also requires further study.

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## Publisher's Note

# Results Summary

In this research we sought to find out how CPD was conducted in various regions of the world and the lessons that could be learnt from literature to inform ourselves and policy makers on the possible forms that CPD could take. A scoping review was thus undertaken to give us a broader understanding. We found out that there were many methods of delivering CPD each with its own pros and cons, and furthermore that there were diverse views and perceptions held by medical practitioners toward these methods. CPD policies also varied among different jurisdictions, with some having compulsory CPD and others voluntary for example. CPD funding sources varied but usually included private pharmaceutical entities, there were efforts to limit conflicting interests though these were not always successful. We also found out that there was an evolution of CPD activities from the classic didactic lectures to a more interactive case-based models in some regions.

In trying to ensure better participation in CPD in any model of CPD one needs to understand why attendance is not usually at its best, that is the barriers to participation. We explored the factors that motivate and demotivate practitioners from attending CPD. For this we used focus groups and interviews as we felt these would give us rich data and depth of enquiry from which we could derive important themes and at the end be able to develop a model that dealt with the barriers as identified by the medical practitioners. There were two merging themes which acted as motivating factors; firstly, practitioners felt a sense of professional responsibility to improve their knowledge and skills and thus took part in CPD. Secondly, personal need and learning need was an important motivator for practitioners to participate in CPD. Importantly also we found that there were also significant factors that demotivated doctors from engaging in CPD, four themes were seen here; firstly non-relevance to clinical practice, there was a general feeling that what was supposed to be learnt from CPD activities was not always what they could use in their respective daily clinical practice. Secondly, doctors felt it was too costly to engage in CPD. Thirdly, lack of reward was another key factor, here practitioners felt that participation in CPD should lead to career advancement or better remuneration. Fourthly, practitioners were demotivated by lack of recognition of the effort they put in keeping up to date and stated the lack of formal CPD point targets as an important demotivating factor.

After exploring motivations and barriers to attending CPD we concluded the study by looking at ways in which CPD in Eswatini could be improved. Here a participatory action research (PAR) was chosen as the research methodology as this could allow development of practical steps to take in improving CPD. PAR allowed participants to take ownership of the inquiry and chart a way forward together through building of a consensus. There was general agreement that CPD should be conducted in the context

of a formal structured model. Entrustable professional activities could be used to ensure recognition of efforts by practitioners to improve their skills and knowledge. Lastly, CPD could be made relevant to the workplace using quality-improvement CPD and reflective diaries.

# Chapter 3: Synthesis

CPD refers to all activities undertaken by a practitioner to maintain or improve upon their performance, knowledge, and skills with the goal of improving patient care (49). By its very nature it is broad, and this has led to challenges in determining what effective CPD is. There is a significant amount of literature that has been produced detailing benefits and disadvantages of different CPD models and methods of delivering content with no universally accepted 'gold' standard (50–52). Despite of these challenges there are some forms of CPD that are generally agreed to be more effective than others. For example, it has been shown through multiple trials that didactic format of CPD delivery yields the worst results when change of practice is considered (53). While on the other hand there is consensus that learning in the workplace is not only favourably viewed by practitioners but also leads to lasting change in practice (54).

## 3.1.1 Why are some models of CPD yielding better results than others?

There is no easy answer to this question; however, there is recognition that the use of adult learning principles forms the basis of effective CPD, certainly in terms of encouraging practice change (55–57). Adults learn differently from children and CPD activities should reflect this. Learning theories dovetail well with the best CPD practices, and this has been shown through many trials that have based their interventions on proven principles (58–60). Adults want to learn things that are relevant to their work, and they appreciate being able to draw on their experience when learning new things. These are the same principles that are described in the adult learning theory (54,61). Data from our research are also in line with this, as Eswatini practitioners were motivated to attend CPD activities that addressed challenges and issues they were faced with in their clinical practice (their learning needs). Adult learners also want to be involved in both planning and evaluation of their learning activities; this was also seen in our study as practitioners complained of being excluded when activities were being planned leading to them being subjected to some CPD activities that they found not to be relevant to their needs.

From the above it becomes clear that we cannot simply take from what others are doing in literature and use it in Eswatini. Using the constructivist viewpoint makes sense in that there is no one reality/truth of what is appropriate or indeed effective CPD (though universally there can be agreement that it is an important part of our profession). If that assumption is correct, then effective CPD becomes a subjective issue which in our context is best be explored though value-laden inquiry of practitioners in Eswatini and not adapting experiences from other countries or regions of the world.

### 3.1.2 Motivation to participate in CPD.

A further question to ask is what motivates people to participate in CPD? This can be the key to getting more practitioners to take part since some research suggest that even in settings where there are plenty of CPD opportunities attendance is still poor. We undertook to answer this question and found that Eswatini practitioners were inclined to attend CPD as part of their professional responsibility and to meet their learning needs. However, more pertinent were barriers to participation that they outlined, one of these was lack of recognition by authorities of the efforts they made to stay up to date. By addressing such barriers in the new model for Eswatini it may be possible to have higher levels of participation. Involving practitioners in planning CPD activities may also assist in improving practitioner satisfaction.

### 3.1.3 Collaboration in creating new knowledge and defining our own reality.

Conducting research and generating local data can help low-resource countries to identify gaps in their health systems and inform policy decisions. This can lead to more effective and efficient use of resources, improving the overall functioning of the health system. This leads us to the reason participatory action research was chosen for the last paper. We felt that this was an appropriate methodology as it considered the practitioners to be co-researchers and experts due to their lived experiences in as far as CPD were concerned. In constructivism, people actively create their own knowledge by building on their previous one and their reality is shaped by their lived experiences. Since experiences are different (even among practitioners working in the same environment) then multiple versions of reality can exist. Therefore, exploring these individual's versions of reality through PAR is of great value. PAR ensured relevance of what was to be studied and ensured that some practical solutions could be found to address issues of concern. Some of the barriers identified in paper 2 found some practical solutions during the PAR of the 3rd paper. For example, the issue of recognition of efforts could potentially be addressed by using Entrustable professional activities (EPAs) as a form of CPD. Not only are EPAs in line with andragogy principles (they involve learning and mastering skills that are relevant to ones' workplace), but they also provide documentary proof of competence in a skill. EPAs are a framework that has been developed to assess the readiness of medical trainees for independent practice (62,63). The concept of EPAs is based on the idea that certain tasks or activities are essential to a particular specialty, and that trainees must be able to demonstrate competence in these tasks before they can be entrusted with independent practice (64).

While EPAs are primarily used for assessing trainee competence, they can also be used for continuing medical education (CME) in several ways such as self-assessment, performance review, curriculum

development, and maintenance of certification programmes (62–65). EPAs can be used as a tool for medical practitioners to assess their own competence in various aspects of their clinical practice. This can help them to identify areas where they need further training or development. EPAs can be used as a basis for performance reviews. Doctors can be assessed on their ability to perform various EPAs, and their performance can be used to identify areas for improvement. EPAs can be used to develop CME curricula. By identifying the key EPAs for a particular clinical practice area (such as district hospital, health centre or referral hospital), CME providers can develop educational programs that are focused on improving medical practitioners' competency in these areas. Lastly, EPAs can be used as a component of Maintenance of Certification (MOC) programs (64). By demonstrating competence in key EPAs, doctors can meet the requirements for ongoing certification in their area of practice.

In summary, EPAs can be used for continuing medical education in a variety of ways. By focusing on key activities that are essential to a particular clinical area, EPAs can be used to assess and improve physician competence, as well as to develop CPD programs and MOC requirements.

### 3.1.4 Quality improvement

Professional development of doctors in Eswatini can be viewed using the constructivist paradigm that defines such development as an active process of constructing knowledge based on a practitioner's personal experience. Our study shows that quality improvement CPD can be applied in the context of Eswatini. According to the constructivist paradigm, a doctor is considered as an active participant of the learning process who can use assessment, observation, and critical analysis in generating new knowledge for use in their clinical practice. QI-CPD can be viewed as a long-term process resulting from linkage of previous knowledge with new experience, which presupposes the whole cycle of learning. In applying ideas of the constructivism, we realise that cognition is an active process and knowledge can be created by drawing from previous experience with this knowledge being personal and unique to the individual practitioner. Quality improvement CPD further illustrates that effective learning is and should be grounded on solving important problems. When doctors apply themselves in solving such problems in their clinical practice area the result is new knowledge and hopefully improved care for the patients as well.

### 3.1.5 The importance of reflection

Reflective diaries are also an important consideration in making CPD relevant to the workplace. The metacognitive process of creating a better understanding of self and one's experiences so that future

behavior and actions can be guided and informed by this understanding is the basis of reflection (15, 18). It is clearly relevant even from a constructivist view that new knowledge is built upon existing knowledge, and the more practitioners practice reflection in their work the more learning can occur. When practitioners become comfortable with reflecting on their practice (through using tools such as diaries) every experience they have becomes a point of acquiring new knowledge. The benefits of this transcend the usefulness of this method to deliver CPD.

## 3.2 A proposed framework for CPD in Eswatini

Bearing in mind all the above we developed a framework which could assist policy makers in charting a way forward for CPD in Eswatini. The figure 4 below summarises it.



FIGURE 4: THE 'ANARC' FRAMEWORK FOR CPD IN ESWATINI

This framework consists of five elements which forms the acronym 'ANARC' – which stands for Andragogy, Needs assessment, Applicability, Recognition, and Continuous evaluation and improvement. These elements form the building blocks for CPD in Eswatini which attempts to address

the concerns of the practitioners while also allowing for further development. Irrespective of the method and medium of delivering CPD this framework can still be applied. All elements play a crucial and equal part in this framework, and it is in combination that true benefit is likely to be realised.

Undoubtedly, there are complexities that arise when we probe further how the needs assessment can be done and even how recognition of efforts by practitioners will be dealt with. This paper does offer some ways to do this, but these will need further research. Evaluation needs to be translated to improvement of the CPD offering, and this can be challenging as well. All these challenges will require involvement of the various stakeholders and an implementation subcommittee to be in place.

## 3.3 CONCLUSION AND RECOMMENDATIONS

There are a variety of CPD models available for Eswatini to adapt and use, however there needs to be a focus on creating a clear CPD policy which should be known to all practicing in the country. It is also vitally important that doctors are given a chance to be part of the planning and evaluation process of any CPD programmes that are to be implemented. The factors that motivate practitioners to participate should be addressed to ensure good attendance of CPD activities. An ideal CPD model is one that seeks to continually evolve as and when new evidence becomes available, this is an achievable goal if all stakeholders feel a sense of ownership of it.

**Recommendations:**

Practitioners

- Healthcare providers in low-resource settings may face challenges related to workforce shortages, limited training opportunities, and a lack of mentorship and support. CPD can help address these challenges by providing opportunities for skill development, networking, and mentorship.

Policy makers

- Establishing a CPD committee that will oversee the development and evaluation of activities in the country. This has been implemented and the EMDC CPD committee has been very open about the need for use of local data (of which this thesis forms an important part) in making improvements to the CPD programme.
- Appreciating limitations of local content and encouraging development of locally relevant programmes while also allowing recognition of other relevant CPD activities offered from credible institutions and organisations outside Eswatini.

CPD providers

- Ensuring that all activities are based on sound educational principles.
- Continuous engagement with practitioners so that their needs can be identified and met.

- Evaluating all CPD programs being undertaken so that there is continuous improvement in what is being offered.
- being initiative-taking in trialing new methods of delivering CPD and ensuring these are adapted to the local practice environment.
- Ensuring relevance of CPD content.

Researchers

- Recognition by researchers that one of the main challenges faced by healthcare providers in low-resource settings is the limited availability of resources, including medical supplies, equipment, and medications. CPD research can help healthcare providers optimize the use of available resources and adapt to the unique challenges of their practice setting.
- Addressing Local Health Needs: Research conducted in developed countries may not always be applicable to low-resource countries as there are differences in demographics, health systems, and cultural factors. Local research can identify health needs specific to the region and address them with appropriate CPD interventions.

**Limitations:**

Individual papers describe the limitations in some detail.

A lot of the data generated from the scoping review (which looked at the most recent ten or so years) is difficult to implement wholesale in Eswatini given that its CPD programme is still in its infancy. This means that most of the current models and ways of conducting CPD need to be significantly adapted to make them relevant. However, important lessons can still be learnt on what is thought to be effective and what is not.

The results obtained are not easily generalizable outside the context of the research participants given the nature of qualitative enquiry. However, they are useful in giving a voice to some of the practitioners in Eswatini in the inevitable process as the country moves to establishing a CPD model of its own.

By deliberately choosing to focus on healthcare practitioners it is acknowledged that the voices of patients and other members of the healthcare team have been excluded. Their views on CPD of their care providers and team members (respectively) would have perhaps resulted in a more in-depth exploration of the topic.

**Future Research:**

Future research opportunities include:

1- Investigating the use of Entrustable professional activities and their acceptability to practitioners. Finding viable ways to link EPA achievements to career notching scales in Eswatini.

2- Exploring use of QI-CPD as part of the requirements for CPD and its acceptability among practitioners. Can this result in more effective interventions and better health outcomes?

3- Critically analysing how reflective diaries can contribute to CPD in Eswatini.

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# APPENDICES

## Appendix 1: Table 5 Learning Theories discussed in various papers (supplement to paper 1)

| source | Learning theory and example |
|---|---|
| (66) | Adult learning theory (Andragogy)- has been used to develop some CPD programmes for doctors in Belgium, and focuses on five concepts, namely: self-concept (self-directed learning);  adult learner experience (drawing from previous experience in order to learn new things); readiness to learn (easier to learn when there is a reason to acquire new knowledge or skill); orientation of learning (learn things that are applicable to their practice) and motivation to learn (want to learn for intrinsic factors, e.g. to improve self-esteem, advance their careers) |
| (67) | Theory of planned behaviour (TPB)- The TPB states that a practitioner's behaviour is determined by the intention to perform certain clinical practices, these being favourably or adversely impacted by factors such as perceived behavioural control (ease of conducting the task) and subjective norms (influence form experts) |
| (68) | Reflective practice- describing a variation of reflective practice, called the Practicum Script Concordance Test. This uses an online platform to foster reflection on clinical practice through daily testing (using clinical scenarios) and detailed feedback on their performance in the scenarios, with an expert panel providing the answer key for the clinical cases |
| (69) | Problem based learning (PBL) is where learners improve their problem-solving skills using clinical scenarios. PBL, such as clinical case discussion facilitated by an expert, may be more appropriate than traditional lecture-based teaching. A European study found that the effectiveness of PBL was enhanced when participants were allowed to anonymously respond to periodic multiple-choice questions during the case discussion, the results of the voting system would then be discussed (facilitated by an expert) to enable consensus to be reached in a second round of voting. |

## Appendix 2: Eswatini Medical and Dental Council letter

# SWAZILAND MEDICAL AND DENTAL COUNCIL

Our Reference; 0962/2014

10th December 2018

To,

Chair; Bio Medical Research Ethics Committee, University of Kwazulu Natal, RSA

Chair, Research and Ethics Committee, Kingdom of Eswatini

Dear Sir/Madam

**RE; PROPOSED RESEARCH ACTIVITIES BY DR RODNEY H MAGWENYA ON MEDICAL PRACTITIONERS VIEWS ON CURRENT CONTINUING MEDICAL EDUCATION PROGRAMS**

It is with great pleasure we acknowledge Dr Rodney H Magwenya , who is a registered member of the Eswatini Medical and Dental Council, is enrolled with the University of Kwazulu natal for post graduate studies.

He has disclosed to the council his concept paper for the proposed research and , as the council, we have no reservations to assist Dr Magwenya in his research study as the Council will also benefit from his proposed research, provided he obtains the approval from the Research and Ethic committee of the Kingdom of Eswatini.

Yours Sincerely

THE REGISTAR
SWAZILAND MEDICAL
& DENTAL COUNCIL

Dr Priyani Mahaliyana Dissanayake

Registrar

## Appendix 3: Department of family medicine approval

UNIVERSITY OF ™
KWAZULU-NATAL
INYUVESI
YAKWAZULU-NATALI

10 October 2018

**Student No:** 218087082

Dr RH Magwenya
Mankayane Government Hospital
297 Mankayane
Swaziland

Dear Dr Magwenya,

**DOCTOR OF PHILOSOPHY (PhD) PUBLIC HEALTH**
**Title: Medical Practitioners' perceptions and views of current continuing medical education programmes in the kingdom of Eswatini: The design of an accessible CME Model**

**Supervisor:**          **Dr A Ross**
**Co-Supervisor:**

The above-mentioned application was reviewed and the protocol has been approved by the Postgraduate Academic Leader of Research for your PhD degree.

**Please note:**

- The study may not begin without the approval of the Biomedical Research Ethics Committee **(BREC)** / Humanities and Social Sciences Research Ethics Committee **(HSSREC)** / Animal Ethics Committee **(AEC).**

Yours sincerely

Michelle Ramlal
**Postgraduate Administration**

cc:      Dr A Ross

# Appendix 4: Local ethics committee approval

RESEARCH PROTOCOL CLEARANCE CERTIFICATE

| BOARD REGISTRATION NUMBER | FWA 00026661/IRB 00011253 | | | | | | |
|---|---|---|---|---|---|---|---|
| PROTOCOL REFERENCE NUMBER | SHR093/2019 | | | | | | |
| Type of Review | | Expedited | X | | | Full Board | |
| Name of Organization | | Student (PHD) | | | | | |
| Title of study | | MEDICAL PRACTITIONERS' PERCEPTIONS AND VIEWS OF CURRENT CONTINUING MEDICAL EDUCATION (CME) PROGRAMMES IN THE KINGDOM OF ESWATINI; THE DESIGN OF AN ACCESSIBLE CME MODEL. | | | | | |
| Protocol version | | 1.0 | | | | | |
| Nature of protocol | | New | X | | Amendment | | Renewal |
| List of study sites | | Hhohho, Manzini, Lubombo, Shiselweni Regions of eSwatini | | | | | |
| Name of Principal Investigator | | Dr. Magwenya, Rodney Hudson | | | | | |
| Names of Co- Investigators | | N/A | | | | | |
| Names of steering committee members in the case of clinical trials | | N/A | | | | | |
| Names of Data and Safety Committee members in the case of clinical trials | | N/A | | | | | |
| Level of risk (Tick appropriate box) | | Minimal ✓ | | | | High | |
| Clearance status (Tick appropriate box) | | Approved | X | | | Disapproved | |
| Clearance validity period | | Start date | 17/07/2019 | | | End date | 17/07/2020 |
| Signature of Chairperson | | | | | | 17 JUL 2019 HEALTH RESEARCH REVIEW BOARD | |
| Date of signing | | 17/07/2019 | | | | | |
| Secretariat Contact Details | | Name of contact officers | | Ms Babazile Shongwe | | | |
| | | Email address | | babazileshongwe@gmail.com | | | |
| | | Telephone no. | | (00268) 24040865/24044905 | | | |

Page 1 of 2

**APPROVAL CONDITIONS**

| Ref. | Conditions | Indication of conditions (tick appropriate box) | | | | |
|------|-----------|------|------|------|------|------|
| 1 | Implementation of approved version of protocol | ✓ | | | | |
| 2 | Reporting of adverse events within 5 days of occurrence | ✓ | | | | |
| 3 | Submission of progress reporting for multi-year studies | Yr. 1 | Yr. 2 | Yr. 3 | Yr. 4 | Yr. 5 |
| | | ✓ | N/A | N/A | N/A | N/A |
| 4 | Submission of end of project report (Hard copy) | ✓ | | | | |
| 5 | Submission of end of project report (Soft copy) | ✓ | | | | |
| 6 | Submission of data sets | ✓ | | | | |

**LIST OF REVIEWED DOCUMENTS (RENEWAL)**

| Ref. | Documents | Reviewed documents (tick appropriate box) |
|------|-----------|------|
| 1 | Completed application form | ✓ |
| 2 | Cover letter | ✓ |
| 3 | Evidence of administrative permission to conduct the research by involved institutions/sites (where applicable) | |
| 4 | Detailed current resume or curriculum vitae of Principal Investigator/s including Principal Investigators declaration | ✓ |
| 5 | Summary resume or biography for other investigator(s) | ✓ |
| 6 | Evidence of approval/rejection by other Ethics Committees, including comments and requested alterations to the protocol, where appropriate. | |
| 7 | Research protocol (see outline in Annex 1) | ✓ |
| 8 | Questionnaires and interview guides (with back-translated versions where applicable) | ✓ |
| 9 | Case report forms (CRFs), abstraction forms and other data collection tools | |
| 10 | Participant/subjects Information Statement(s) (where applicable) | ✓ |
| 11 | Informed consent form(s) including photographic and electronic media consent statements. | ✓ |
| 12 | Advertisements relevant to the study (where applicable) | |
| 13 | Source of funding and detailed budget breakdown including material and incentives to participants if applicable | ✓ |
| 14 | Notification form for adverse effects/events. | |
| 15 | Proof of payment | ✓ |
| 16 | Proof of insurance cover for research subjects in clinical trials or where applicable | |
| 17 | Any other special requirements should be stated, if applicable | |

# Appendix 5: Ethics approval letter (BREC)

UNIVERSITY OF
KWAZULU-NATAL ™
INYUVESI
YAKWAZULU-NATALI

28 September 2020

Dr Rodney Hudson Magwenya (218087082)
School of Nurs & Public Health
Howard College

Dear Dr Magwenya,

Protocol reference number: BREC/00001700/2020
Project title: Medical Practitioners Perceptions and Views of Current Continuing Medical Education Programmes in The Kingdom of Eswatini; The Design of an Accessible Model.
Degree Purposes: PhD

### EXPEDITED APPLICATION: APPROVAL LETTER

A sub-committee of the Biomedical Research Ethics Committee has considered and noted your application.

The conditions have been met and the study is given full ethics approval and may begin as from 28 September 2020. Please ensure that outstanding site permissions are obtained and forwarded to BREC for approval before commencing research at a site.

This approval is subject to national and UKZN lockdown regulations dated 26th August 2020, see (http://research.ukzn.ac.za/Libraries/BREC/BREC_Lockdown_Level_2_Guidelines.sflb.ashx). Based on feedback from some sites, we urge PIs to show sensitivity and exercise appropriate consideration at sites where personnel and service users appear stressed or overloaded.

This approval is valid for one year from 28 September 2020. To ensure uninterrupted approval of this study beyond the approval expiry date, an application for recertification must be submitted to BREC on the appropriate BREC form 2-3 months before the expiry date.

Any amendments to this study, unless urgently required to ensure safety of participants, must be approved by BREC prior to implementation.

Your acceptance of this approval denotes your compliance with South African National Research Ethics Guidelines (2015), South African National Good Clinical Practice Guidelines (2006) (if applicable) and with UKZN BREC ethics requirements as contained in the UKZN BREC Terms of Reference and Standard Operating Procedures, all available at http://research.ukzn.ac.za/Research-Ethics/Biomedical-Research-Ethics.aspx.

BREC is registered with the South African National Health Research Ethics Council (REC-290408-009). BREC has US Office for Human Research Protections (OHRP) Federal-wide Assurance (FWA 678).

The sub-committee's decision will be noted by a full Committee at its next meeting taking place on 13 October 2020.

Yours sincerely,

Prof S Singh
Deputy Chair: Biomedical Research Ethics Committee

## Appendix 6: Consent form

INFORMED CONSENT FORM

Information Sheet and Consent to Participate in Research

Date:

Dear Doctor,

My name is Rodney Magwenya from Mankayane Government Hospital, a student with the department of Family Medicine of the University of KwaZulu-Natal; (Tel: +268 2538 8311, Cell: 76565857, email: rodneyhmagwenya@gmail.com )

You are being invited to consider participating in a study that involves research entitled- "MEDICAL PRACTITIONERS' PERCEPTIONS AND VIEWS OF CURRENT CONTINUING MEDICAL EDUCATION PROGRAMMES IN THE KINGDOM OF ESWATINI; THE DESIGN OF AN ACCESSIBLE CME MODEL".

The aim and purpose of this research is to look at the attitudes and perceptions of medical practitioners working in the Kingdom of Eswatini towards current continuing medical education (CME) programmes; also to find out the various unmet needs of medical practitioners with regards to CME; and to also come up with an accessible CME model for possible adoption and use in the country. The study is expected to enroll participants for four focus group discussions (each with about and 10 participants), with one focus group discussion in each of the country's four regions. It will involve the following procedures; screening for COVID-19, hand sanitizing on arrival, social distancing measures as per ministry of health guidance during the entire meeting, a recorded discussion among members of the focus group at a designated location in the respective region of the participants which will be moderated by the investigator. The duration of your participation if you choose to enroll and remain in the study is expected to be a maximum of 2 hours. The study is self-funded.

The risks of participation in the study are minimal and every reasonable effort will be made to keep any information you provide confidential. The burdens associated with participation in the research study are mostly related to the valuable time that you spend in the discussions. We hope that the study will create the following benefits; inform policy on what medical practitioners such as yourself feel about the current CME programmes and what they want to be included in their CME programmes and how they wish CMEs to be conducted to make them more accessible.

This study has been ethically reviewed and approved by the UKZN Biomedical Research Ethics Committee and NHRRB (approval number_____).

In the event of any problems or concerns/questions you may contact the researcher at (Tel: +268 2538 8311, Cell: 76565857, email: rodneyhmagwenya@gmail.com) or the UKZN Biomedical Research Ethics Committee, contact details as follows:

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION
Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001
Durban
4000
KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604769 - Fax: 27 31 2604609; Email: BREC@ukzn.ac.za

BREC UKZN Oct 2008

1

Please note that participation in this research is voluntary and participants may withdraw participation at any point. In the event of refusal/withdrawal of participation, participants will not incur penalty or loss of any benefit to which they are normally entitled. For orderly withdrawal once one is a participant, please inform the facilitator/moderator.

It is anticipated the discussions will be held in the morning and refreshments will be provided.

All data compiled will be kept confidential. The resulting transcripts will be anonymized while the file with the identities of the focus group members will be kept separate from the recordings. All data files will be encrypted and password protected. Only the investigator and regulatory authorities will have access to the data. At the end of the study data will be archived and stored in accordance with the country's laws. The resulting study reports will not contain any data with personally identifiable information.

---------------------------------------------------------------------------------------------------------------

## CONSENT

I ........................................................................ have been informed about the study entitled "MEDICAL PRACTITIONERS' PERCEPTIONS AND VIEWS OF CURRENT CONTINUING MEDICAL EDUCATION PROGRAMMES IN THE KINGDOM OF ESWATINI; THE DESIGN OF AN ACCESSIBLE CME MODEL" by Rodney Magwenya.

I understand the purpose and procedures of the study.

I have been given an opportunity to answer questions about the study and have had answers to my satisfaction.

I declare that my participation in this study is entirely voluntary and that I may withdraw at any time without affecting any other entitlements I may have.

If I have any further questions/concerns or queries related to the study I understand that I may contact the researcher at:
Rodney Magwenya
PO Box
297
Mankayane, Swaziland
Tel: +268 2538 8311, Cell +268 76565758

If I have any questions or concerns about my rights as a study participant, or if I am concerned about an aspect of the study or the researchers then I may contact:

BIOMEDICAL RESEARCH ETHICS ADMINISTRATION
Research Office, Westville Campus
Govan Mbeki Building
Private Bag X 54001
Durban
4000
KwaZulu-Natal, SOUTH AFRICA
Tel: 27 31 2604769 - Fax: 27 31 2604609
Email: BREC@ukzn.ac.za

_____          _____

**Signature of Participant**          **Date**

--------------------------------          --------------------------------

**Signature of researcher**          **Date**

BREC UKZN Oct 2008

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## Appendix 7: Covid-19 screening tool.

**COVID-19 Screening tool (for focus group discussions)**

**Title: MEDICAL PRACTITIONERS' PERCEPTIONS AND VIEWS OF CURRENT CONTINUING MEDICAL EDUCATION PROGRAMMES IN THE KINGDOM OF ESWATINI; THE DESIGN OF AN ACCESSIBLE CME MODEL.**

*(Circle appropriate response)*

Tool to be used at each FGD, before the participants enter meeting area.

1. Temperature ≥38$^0$C?                                              Yes              No

2. Do you have new onset of any of the below symptoms?

| | | |
|---|---|---|
| Fever > 38°C or subjective fever/ chills | Yes | No |
| • Cough | Yes | No |
| • Sore throat/ hoarse voice | Yes | No |
| • Shortness of breath/breathing difficulties | Yes | No |
| • Loss of taste or smell | Yes | No |
| • Vomiting, or diarrhoea for more than 24 hours | Yes | No |
| • Runny nose | Yes | No |
| • Muscle aches | Yes | No |
| • Fatigue | Yes | No |
| • Conjunctivitis | Yes | No |
| • Headache | Yes | No |
| • Skin rash of unknown cause | Yes | No |
| • Nausea or loss of appetite | Yes | No |

3. Have you been in contact in the last 14 days with someone

   that is confirmed to have COVID-19?                        Yes              No

**Any question answered 'Yes' means an individual will not be able to participate in the focus group discussion and will be referred for testing at nearest facility**

# Appendix 8: Focus group guide

**GUIDE**

1) **Introduction and formalities**

-ensure venue set up is appropriate for the discussion and that recording material and equipment is functioning well

-Welcome participants; thank them for attending, conduct screening using the screening tool and ensure they pass though the hand sanitising station as they enter the room.

- Tasks: have attendees signed in, invite them to be seated, observing necessary social distancing measures, session formally begins

2) **Process overview**

Tasks (by researcher/moderator): Review purpose for the session, introduce moderator, provide a brief overview of the focus group process, and establish any ground rules to encourage positive participation, have participants briefly introduce themselves.

Moderator begins focus group questions with a simple initial question to establish rapport- ask respondents, in a general way, about themselves and their role as it relates to the overall area of continuing medical education (CME).

Then, using only open-ended main questions, with appropriate follow up probe questions (asking for elaboration, opposing views, other influencing conditions) continue.

**Legislation, theoretical framework/learning theories**

What are your views on mandatory versus voluntary CPD as a requirement for medical council registration?

What motivates you to attend CME events?

Are you aware of any adult learning theories, if so, which one do you think most applies to you?

**CME credit systems, revalidation/recertification, and maintenance of certification (MOC)**

What are your thoughts on revalidation/recertification/MOC?

**Content delivery (choice of format)**

Tell me about a recent CME activity that you attended (content, trainers, teaching methods, your own contributions during the sessions, evaluation methods, educational material you received, your general views about it)

How do you generally stay up to date with new trends and knowledge in medicine?"

What are the methods/ different ways of delivering CMEs that you know and prefer?

**Quality standards, monitoring and evaluation.**

Do you have any thoughts on how quality standards and evaluation can be achieved or monitored?

**Funding**

What are your views on NGO/pharmaceutical industry sponsored CPD?

How willing are you to pay for your own CPD needs.

**Country/regional CPD models**

Are you aware of any CPD models in use around the world?

Which model would you be most comfortable with if it was adopted locally?

**Barriers to CPD and possible solutions**

What problems, if any, have you encountered associated CPD programmes?"

What are some of the improvements you feel could make your experiences during CPD events better?

Are CPD meeting your needs as practitioners?

Where do you get relevant information on available CPD? (locations, schedules, topics)

Are there areas/topics you feel need to be urgently addressed with regards to CPD on offer?

How do you determine your own individual learning needs?

Any other contributions you wish to make regarding CME/CPD?

3) Session debrief and conclusion - (an opportunity to ensure all points have been captured effectively and comprehensively)

Tasks: highlight key points of discussion, answer any final questions, describe how results will be used, and inform participants how study results will be made available, thank participants for their participation, remain in the room until everyone leaves.

# Appendix 9: Acknowledgement of intent to submit.

**UNIVERSITY OF KWAZULU-NATAL** ™
**INYUVESI YAKWAZULU-NATALI** | **COLLEGE OF HEALTH SCIENCES**

22 July 2022

**Student No:    218087082**

Mr R Magwenya
c/o Department of Family Medicine
School of Nursing & Public Health
College of Health Sciences

Dear Mr Magwenya,

**DOCTOR OF PHILOSOPY (PHD) Family Medicine**
**Title: Medical Practitioners perceptions and views of current continuing professional development programmes in the Kingdom of Eswatini: The design of an accessible model**

**Supervisor:        Professor A Ross**
**Co-Supervisor:**

I acknowledge receipt of your intent to submit the above thesis. You are required to email an electronic copy of your thesis in pdf format to Francis Kanyile, kanyile@ukzn.ac.za.

**The thesis must be signed and dated by the student and supervisor.** The attached declaration **MUST** be included in the dissertation.

**Please ensure that the thesis submitted bears the above approved title.**

Your sincerely,

Michelle Ramlal
**Postgraduate Administration**
**Administrative Officer | School of Nursing & Public Health**
Postgraduate, Higher Degrees and Research
Ground Floor, George Campbell Building, King George V Avenue, Durban.
Tel : 031 – 2601075        Fax:  031 – 2601543
Email : ramlalm@ukzn.ac.za

cc:    Professor A Ross

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