Developing indicators for Monitoring and evaluation of the implementation of the Primary Health Care Approach in Health Sciences at the University of Cape Town using a DELPHI method

Submission for the Degree of Masters in Medicine (MMed) in Internal Medicine

University of Cape Town

Faculty of Health Sciences

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Declarations and Acknowledgements

Declaration

The research reported is based on independent work performed by the candidate.

Neither the whole work nor any part of it has been, is being, or is to be submitted for another degree to any other university.

This work has not been reported or published *prior to registration* for the abovementioned degree.

Signed by candidate

Mohammed Ishaaq Datay

Acknowledgements and contributions.

I wish to acknowledge the contributions of the Primary Health Care working group in conceptualising the broader research study wherein this research thesis is based. I wish to specifically acknowledge James Irlam for leading the PHC working group through the larger project and Shajila Singh for leading the Delphi phase of the study. I also wish to acknowledge their support during the protocol development and writeup of this thesis.

Contents

Chapter 1 Research introduction and Literature Review

Introduction

Professor Bongani Mayosi played a major role in my decision to train as a Specialist Physician in Internal Medicine and I owe a great debt to him for his encouragement and support to assist me in getting through this training. Whenever we had our annual performance review and he would ask me where I saw myself long term, my answer would be consistent – teaching and practicing through a Primary Health Care (PHC) approach. To many people the link between the PHC approach and Internal Medicine might not be apparent. To me the link is very strong.

Before I discuss the link, there is an important concept which needs to clarified and that is the distinction between primary level care and the PHC approach (1). Primary level care refers to entry level into health, which is managed by community health workers, clinical nurse practitioners and family medicine practitioners. Internal Medicine Specialists manage patients at secondary and tertiary levels of care. The PHC approach is applicable at all levels of care, including the primary and community level (where family physicians and community health workers operate) as well as at secondary and tertiary levels, where internal medicine specialists operate.

PHC is an approach to health care which goes beyond the biomedical model. It approaches health in a holistic way which includes the psychologic and social domains. The PHC approach also looks at upstream determinants of health, which includes environmental, economic, spiritual and other domains (2). It is with this background in mind that I entered specialist internal medicine training, to look at how we can create stronger linkages between internal medicine, which is traditionally very biomedical, and infuse within its practice, the PHC approach.

I chose to do my training at the University of Cape Town (UCT) for a number of reasons, including Prof Mayosi's influence, the fact that I did my undergraduate at this institution and knew the system, but also because it was at this institution that I came to learn about the PHC approach during my undergraduate training years. From my undergraduate training, my anecdotal experience was that this approach was not fully integrated within the internal medicine rotations.

PHC at the UCT Faculty of Health Sciences

The University of Cape Town Faculty of Health Sciences (FHS) adopted the PHC approach as its lead theme in 1994 (3), which required alignment of the curriculum towards PHC principles. The adoption the PHC lead theme was meant to direct the Faculty's teaching, research, and clinical service to the communities it serves. The PHC Directorate was established in 2003 as a multi-disciplinary unit to promote equity and quality in health care, and the PHC lead theme.

It had long been suspected that alignment between the intended lead theme and its implementation and practice was not consistent. In 2009, Hartman found that whilst there was alignment of the PHC approach in preclinical MBChB teaching, this was not consistent in the clinical years (4).

In 2014 the Directorate underwent a review (5) where it was thought that the Directorate was unable to fully realise its purpose. It remained a small unit with a small staff and a large teaching load. There were several recommendations made by the review, including that a working group be established to assist in charting a way forward for PHC in the faculty.

In 2017 the PHC working group was established with one of its goals being the development of a set of key indicators for PHC to evaluate curriculum alignment. The working group decided to carry this mandate forward through the process of Action Research (6).

The following steps were planned as part of the research process:

- Develop a set of PHC indicators derived from existing literature using a Delphi panel;
- Examine the alignment of learning activities and assessments with the PHC indicators through documentary analysis of learning outcomes;
- Determine factors that enhance or inhibit alignment through student and PHC educator focus group discussions;
- Determine how PHC is currently implemented within curricula, which indicators are prioritized, and why PHC indicators may be absent from the learning outcomes through interviews with PHC educators;
- Develop recommendations collaboratively with key stakeholders in the Faculty by means of group discussions in a faculty workshop.

The manuscript included is the write-up of the first phase of the research process, i.e. the use of the Delphi panel to develop a set of PHC indicators, which will be submitted to the African Journal of Health Professions Education (AJHPE). The overview paper (7) of the entire case study has been submitted for publication and is currently under review.

In order to give more background to the reader who might not be familiar with concepts described in this paper, there are a few theoretical constructs in the manuscript which will be expanded upon in this literature review

- PHC approach
- Social Accountability and Health Sciences Education
- The Delphi method

The PHC approach

This approach has its formal roots in the Alma Ata Declaration of 1978, wherein representatives from over 130 countries signed this revolutionary declaration which aspired towards Health for All by 2000 (8). The declaration reiterated an expanded definition of health as 'not just being the absence of disease', but being a state of 'complete physical, mental and social wellbeing.'

The PHC approach, contrary to many misconceptions, is not about limited basic or primary level care. It is a holistic approach which encompasses all levels of care, including not only the practice population of primary, secondary and tertiary health care services, but also care for the population at risk within the communities which we serve. Clinicians often see patients downstream, when complications are already established and effect on overall outcomes is limited. This is because patients often only present when they are symptomatic. The PHC approach tries to deal with challenges many years in advance of the problem presenting (9).

The determinants of health go beyond the health care sector, and as such there are social, economic, spiritual, political, environmental and other determinants of health (2). An intersectoral or whole of society approach is thus needed to address these determinants (10). Furthermore, access to care often depends on the socioeconomic status of the patient. Hence there are issues of equity and social justice, which are core to the PHC approach. There is widespread applicability of this approach to internal medicine, whether it be at a curative level of

accessing dialysis for a patient in renal failure(11) or at a preventive and promotive level such as smoking cessation, creating safe spaces for exercise and facilitating access to nutritious food(12). The PHC approach is thus critical if we want to make a siginficant impact on the quadruple burden of disease(13).

The PHC approach was reaffirmed at a number of subsequent conferances including 2008 WHO PHC conferance held in Ouagadougou, Burkina Faso(14,15). In South Africa it was adopted as the cornerstone of the health care system with a firm plan to re-engineer health care and address issues around inequity, inadequate access and a grossly divided health care system(16).

The decision by the UCT FHS to adopt PHC as a lead theme was a bold one which sought to expand the teaching model beyond the dominant biomedical model which existed at that time(3). There are few other universities which have adopted the PHC approach as one of their main themes, such as Walter Sisulu University(17). The South African context has inherited inequalities from the apartheid era, hence, the application of the PHC approach becomes even more pertinent. This approach recognizes that unless the social determinants of health are addressed, the health challenges we face will perpetually continue(12). Addressing these challenges includes the development of upstream clinicians, who not only excel at managing patients downstream but also have a keen interest in trying to address upstream issues. In my opinion, the PHC approach needs to be adopted, not only by all departments within the FHS, but by all faculties within the university.

The challenge of the faculty not yet reaching the point of universal acceptance and adoption of this approach is a serious one, which requires contemplation and study (5). In making a statement that there is a lack of universal acceptance of PHC, there are several assumptions. For example, in some departments, adoption of the PHC approach might not be explicit. However, it may be that some of the PHC principles have been implicitly adopted within a department through the type of research or other activities undertaken that are not explicitly stated as aligned with the PHC approach, but are clearly related to PHC upon closer inspection. Another challenge is measuring the degree to which such a complex approach has been adopted.

Therefore indicators needed to be developed to measure the adoption/integration of the PHC approach within teaching, research and clinical practice within a health sciences context. After an extensive search through the literature, using Google Scholar, PubMed and their own

literature banks, the faculty PHC working group could not find any published indicators with regards to PHC in a health sciences education space. In this paper we address the development of indicators in the teaching space.

Social Accountability and Health Sciences Education

Within the last century, health sciences education has gone through major revisions marking significant advancements in the understanding of the management of illness (18). The need to re-evaluate health sciences education was highlighted by the 2010 Lancet commission (19). Within this report three eras of educational reforms were identified: firstly the teaching of a science-based curriculum with the Flexner report of 1910 (20); the introduction of a problem based approach to teaching around mid-century; and a third era speaking to how education needs to deal with health systems issues. PHC and Social accountability theory are part of the third era of reforms. The two concepts are related through the concepts of health equity and social justice. Unlike PHC, Social Accountability has developed extensive indicators to measure its implementation within the health care space (21). These indicators will be discussed a bit later, after a brief historical sketch on Social accountability.

In the 1990s, Charles Boelen was one of the main protagonists, as part of the WHO, to promote the Social Accountability of health sciences schools (22). He argued that health sciences schools need to be, at the very least, responsive to the needs of the communities which they serve. He developed the Social Obligation scale (23) which assesses the degree to which health sciences schools are socially accountable. The following table A has been taken from the published paper.

Table A: Social Obligation Scale (Permission to reproduce obtained via email from C. Boelen)

	Responsibility	Responsiveness	Accountability
Social needs identified	Implicitly	Explicitly	Anticipatively
Institutional objectives	Defined by faculty	Inspired from data	Defined with society
Educational programs	Community oriented	Community based	Contextualized
Quality of graduates	Good practitioners	Meeting criteria professionalism	Health system change agents
Focus of evaluation	Process	Outcome	Impact
Assessors	Internal	External	Health partners

The Social Obligation Scale assesses different categories to determine the extent to which a health sciences school fulfils its social obligation. Each category has a greater degree of social engagement than the previous one, beginning with social responsibility, followed by social responsiveness and with the highest degree being social accountability.

In a socially responsible health sciences school, the health faculty academia commits to address issues it considers to affect the welfare of society, with the intention of producing 'good practitioners' based on an implied identification of the health needs of society (23).

A socially responsive health sciences school responds to society's welfare needs. It does so by explicitly identifying societal health priorities and then directing its education, research and service activities towards addressing these explicitly identified health priorities. The health sciences faculty intends to produce graduates that have acquired specific competencies relating to people's health concerns (23).

The socially accountable health sciences school takes its obligation further. It not only takes specific actions to address priority needs of society through its education, research and service activities, but it also works collaboratively with different partners such as governments, health service organizations, and the public to positively impact people's health. It is also able to demonstrate impact by providing evidence that its work is relevant, of high quality, equitable, and cost-effective. It aims to produce change agents in its graduates, with the capacity to address health determinants and who contribute to adapting the health system (23).

Boelen also envisaged the Towards Unity for Health (TUFH) movement which advocates for intersectoral approaches to improving social accountability (24). Using this approach, multi-

professional teams deal with challenges related to the social determinants of health. To achieve this, health care practitioners need to work with policy makers, communities and academic institutions to provide services based on people's needs. In 2008 the Academy of Science of South Africa (ASSAf) issued a statement on Global Health which called on different sectors, in addition to the health sector, to address the social determinants of health (25) aligned with the approach of the TUFH movement. The HPCSA built upon the ASSAf statement as well as the 2010 Lancet commission through holding a series of workshops whereby aspects of THEnet framework was workshoped and threaded into the evaluation of Health Sciences accreditation(26).

The ASSAf position was further consolidated in a 2018 report on the reconceptualization of Health Sciences education and spoke to the historical socio-political context of South Africa, the development of a conceptual framework based on Social Accountability and key issues in health science education such as criteria of student selection, rural health care and interprofessional training among other things(27). The Millennium Development Goals and Sustainable Development Goals developed by the WHO, despite being criticised by some for their narrow focus and lack of global applicability (28), can also be argued to be part of a broader approach to address the social determinants of health.

Equity and social justice are key concepts within social accountability theory. The Training for Health Equity network (THEnet) represents Health Sciences schools which subscribe to this philosophy. The UCT FHS is a supporter of this network and has had workshops and publications related to Social Accountability through its involvement in the Collaboration for Health Equity in Education and Research (CHEER)(29). CHEER, formed in 2003, explored how to encourage more health professionals to practice in rural and under-served areas in South Africa(30). UCT has recently appointed a new Dean who is a local authority on Social Accountability (31,32).

Indicators for monitoring implementation of Social Accountability have been developed by THEnet (23). Earlier iterations of the indicators divided them into the Conceptualization, Production and Utilisation (CPU) model. The THEnet framework (21) formulates these indicators as questions: What needs are we addressing?; How do we work?; What do we do?; and What difference do we make?

One can thus argue that a relationship exists between PHC and social accountability, especially with regards to community impact as well as equity and social justice. It is for this reason that the THEnet indicators were used for the initial Delphi survey.

The Delphi method

The Delphi method is an iterative multistage group facilitation technique, designed to transform opinion into group consensus(33). It was developed initially by the Rand Corporation in the 1950's and has subsequently been extensively used by numerous sectors including the health sciences sector. Participants (ideally with expertise in the area of interest) are approached to participate in the study and invited to give quantitative or qualitative input around a particular question. The advantage of this method is that face to face interaction is avoided between participants, thus minimizing group mentality and maximizing individual independent thought. These responses are put through a number of rounds, ranked and re-ranked, until consensus or convergence is achieved (34).

The Delphi method was applied in this study to derive PHC indicators to be used in the subsequent phases of the research. There are a number of indicators within the PHC and Social Accountability sphere, and it can be challenging to select key indicators for use within any particular research study. The Delphi method provides a useful way to prioritise indicators. In this study, Delphi panelists rated the indicators according to measurability and feasibility. The indicators were then scored, ranked and adjusted over two rounds before a final set of indicators was developed.

Conclusion of literature review

The birth of the PHC approach at the Alma Ata conference is arguably one of the most significant events in modern history, the application of which has the potential to revolutionise the global epidemiologic trajectories of the future.

The UCT FHS recognized the value of the PHC approach and adopted it as its lead theme. Research suggests that the application of the PHC approach has been uneven across the curriculum in the faculty, which could be attributed to different understandings of the PHC approach and/or to certain disciplines being traditionally rooted in a biomedical model. Social accountability has been applied across several health sciences schools and potentially overlaps with PHC.

The progress of any change process requires monitoring and evaluation with valid indicators. Some indicators, which have been developed within the social accountability context and may potentially be applied to PHC, will be explored in chapter 2.

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Chapter 2 Publication ready Manuscript for submission to the African Journal of Health Professions Education (AJHPE)[1].

Title: Developing indicators for the monitoring and evaluation of the implementation of the Primary Health Care Approach in Health Sciences Education at the University of Cape Town using a Delphi method

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[1] AJHPE requires anonymization of manuscript. Names and contributions of co-authors have been included in this thesis submission as requested by examiners. They will be removed when submitting to journal reviewers.

Abstract

Background

The University of Cape Town Faculty of Health Sciences (UCT FHS) adopted the Primary Health Care (PHC) approach as its lead theme for teaching, research, and clinical service in1994

Aim

To develop indicators to monitor and evaluate the implementation of the PHC approach in Health Sciences Education .

Method

A Delphi study, conducted over two rounds, presented indicators of Social Accountability from the Training for Health Equity Network (THEnet), as well as indicators derived from the principles of the PHC approach in the UCT FHS, to a national multidisciplinary panel. An electronic questionnaire was used to score each indicator according to relevance, feasibility/measurability, and its application to undergraduate and postgraduate curricula. Qualitative feedback on the proposed indicators was also elicited.

Results

Round 1: Of the 59 Social Accountability indicators presented to the panel, the 20 highest ranked indicators were selected for Round 2. Qualitative feedback challenged the link between social accountability and PHC, resulting in an additional 19 PHC-specific indicators being presented in Round 2.

Round 2: The indicators which scored >85% and made the final list were:

PHC: Continuity of care (94%); Holistic understanding of health care (88%); Respecting human rights (88%); Providing accessible care to all (88%); and Promoting health through health education (88%).

THEnet: Safety of learners (88%); Education reflects communities' needs (86%); Teaching embodies social accountability (86%); Teaching is appropriate to learners' needs (86%)

Conclusion

These PHC and THEnet indicators can be used to assess the implementation of PHC in Health Sciences Education. The specific indicators identified reflect priorities relevant to the local context. One limitation is that some key priority indicators did not make the final list.

Keywords

Primary Health Care; Indicators; Social Accountability; Delphi, Health Sciences Education

Introduction

The Alma Ata Declaration on Primary Health Care (PHC), adopted in 1978 at the landmark conference hosted by the World Health Organization (WHO), recognized the need for equity-driven health care and aspired towards the goal of 'Health for All by the year 2000' (1). South Africa has a history of health inequities, driven by its colonial past as well as the Apartheid laws which discriminated against large segments of society (2). Social Accountability has been trending within the Health Science education space within the past decade(3) as a means by which Health Science schools and their graduates can potentially play meaningful roles in addressing these inequities. Components of this approach have been adopted by the Academy of Science of South Africa (ASSAf) (4)and the HPCSA and incorporated into its accreditation(5).

In 1994 the University of Cape Town (UCT) Faculty of Health Sciences (FHS) adopted the PHC approach as its lead theme, in keeping with PHC-inspired health policy developments in the 'New South Africa'(6). This approach was to guide the Faculty's teaching, research and clinical service to the communities it serves. In order to facilitate the implementation of this approach, in 2003, an inter-disciplinary PHC Directorate was established. The mandate of the directorate included the promotion of equity and quality in health care, guided by the PHC approach to teaching, research, policy, health services and community engagement by the Faculty.

Every academic department academic reviews are periodically conducted and in one such review of the directorate in 2014 by a panel of internal and external reviewers (7), it was recommended that indicators be developed for the monitoring and evaluation of the implementation of the PHC approach in the curricula of programmes in the UCT FHS. It is within this context, that a PHC Working Group was established in 2018 to carry out the mandate to develop indicators for teaching and learning in the Faculty, to learn from current 'best practice' and to guide further implementation of the PHC approach. To allow for a variety of data collection methods, an exploratory single case study design was used (8). The case study occurred in phases to: Develop a set of PHC indicators derived from existing literature using a Delphi panel; Examine the alignment of learning activities and assessments with the PHC indicators through documentary analysis of learning outcomes; Determine factors that enhance or inhibit alignment through student and PHC educator focus group discussions; Determine how PHC is currently

implemented within curricula, which indicators are prioritized, and why PHC indicators may be absent from the learning outcomes through interviews with PHC educators; Develop recommendations collaboratively with key stakeholders in the Faculty by means of group discussions in a faculty workshop. The overall case study is awaiting publication (6) with the main findings being that final year health sciences disciplines engage inconsistently with selected PHC principles at Community Based Education (CBE) sites, with the strongest alignment between PHC learning outcomes and teaching activities occurring in the Health and Rehabilitation Sciences. Further, good interprofessional teamwork, educator role-modelling, and good infrastructure and logistical support facilitated PHC teaching and learning. It was recommended that strong faculty leadership was needed to achieve better departmental and interprofessional collaboration in teaching the PHC approach and promoting the PHC lead theme. In this paper the development of the PHC indicators by the Delphi panel will be described.

Methods

Aim

This phase of the overall case study aimed to develop a set of indicators for monitoring and evaluating the implementation of the PHC approach in the health sciences curricula in the FHS.

Design

This study used a basic Delphi method to structure communication processes among an expert panel, in order to arrive at the most reliable consensus of the key indicators (9).

Development of the Delphi questionnaire

A search for established indicators was conducted of published databases. PubMed and Google Scholar were searched using the terms ‘Primary Health Care’ AND ‘indicators’ AND ‘Health sciences education’ in February 2018. Whilst PHC indicators have been developed in the service delivery space (10,11), no framework that specifically addresses curriculum alignment with PHC indicators was found.

The authors reviewed the Framework for Socially Accountable Health Workforce Education of the THENet framework (12), which includes the Alma Ata Declaration in its foundation

documents (13). Since this was the only published framework which approximated PHC and Health Sciences education, it was selected to form the initial impetus for the derivation of indicators for the study. The Framework for Socially Accountable Health Workforce Education version 2016 consists of 179 indicators. These indicators are divided into the following categories: What needs are we addressing? How do we work? What do we do? and What difference do we make? The research team examined these indicators and decided to focus on those indicators related to 'what do we do', since these were perceived to be indicators that had a bearing on PHC in the education and training of health practitioners in our context .

Setting

The UCT FHS is attached to the academic teaching hospital complex. The faculty has 13 departments and 3 cross cutting units (14). It has teaching sites at tertiary, secondary, primary and community level health, education and other facilities, in both urban and rural parts of the province. The authors of this paper are part of a PHC working group, nominated and selected from the UCT FHS with experience in teaching, research or implementation of the PHC approach.

Participants

Inclusion criteria: Participants in the national Delphi panel were educators and /or researchers with experience of PHC in education and training, who were willing to commit to a few rounds of participation in the Delphi process. There were no exclusion criteria.

Recruitment: Participants were recruited based on the research team's knowledge of eligible educators and researchers respected in their field within and external to the UCT FHS, working nationally at different South African health science institutions. 'Snowball sampling' using the networks of the research team and panel members was used to identify additional participants.

Sample size: The Delphi method does not require expert panels to be representative for statistical purposes (15). As the expert group would be homogeneous, a minimum of 10 and a maximum of 15 participants was the desired sample size (16).

Participant Description:

For Round 1, 28 experts were identified, and 18 (64%) participated in the study; in Round 2, there were 20 experts (18 participants from Round 1 plus two additional experts who had been identified), of whom 16 (80%) responded (See Table 1). The 18 experts who responded, in addition to having Health Science education backgrounds, were from the following disciplines: 1 audiologist; 2 Internal Medicine Specialists; 1 physiotherapist; 1 Speech Language Therapist; 1 Surgeon; and 6 Family Medicine Specialists.

Table 1 Study participation rates and number of comments

Study stage	Study 1	Study 2
Number of potential panelists invited to participate	28	20
Number of invited panelists who participated (%)	18 (64%)	16 (80%)
Number of panelists who posted comments	16	14
The number of comments made: THEnet indicators PHC indicators	348	133 91
Average number of comments per panelist who posted comments	22	16

Of the 18 participants, 16 participants posted 348 comments, with an average of 22 comments per participant. The comments related either to why a particular indicator was given a particular score, or requesting clarity around what an indicator meant. These comments significantly altered the indicators which were presented to the second round, as described below.

Round 1 questionnaire

Following deliberation by the research team, 61 indicators were included in the electronic questionnaire for the Delphi panel in Round 1 (See Table 2). The questionnaire listed the indicators with a 5-point Likert scale (i.e. strongly agree = 5; agree = 4; neutral = 3; disagree = 2;

strongly disagree = 1) for scoring determination of relevance to study purpose; and three response options (i.e. yes = 3; maybe =2; no = 1) were offered to signal whether the indicator was measurable/feasible. There was provision for comments, including suggestions for additional or alternative indicators and edits.

Table 2 Study dates, indicator source and rating criteria used

Study Information	**Round 1**	**Round 2**
Study dates	4/ 4/ 2018	04/7/ 2018
THEnet indicators	61	20
PHC indicators (Health for All)		19
Number of rating criteria	2	3
Rating criteria used		
Relevance	X	X
Measurable/Feasible	X	
Undergraduate teaching and assessment		X
Postgraduate teaching and assessment		X

Round 2 questionnaire:

Based on the scores and panel feedback from Round 1, the top 20 highest scoring indicators were prioritized for Round 2 (considered to be a fair number to prioritise from the first round).

There were some comments that challenged the researchers as to why the THEnet indicators were used for PHC. These comments included that whilst the indicators were clearly related to social accountability, it was not clear how they were related to implementation of PHC in health professional education and training at the UCT FHS and that they emphasized more monitoring and evaluation rather than the theory of PHC.

Thus the research team derived 19 PHC specific indicators for the second round (See Table 3). These indicators were derived from teaching material on PHC used in the faculty, specifically a mnemonic HEALTH FOR ALL where each letter stands for a different principle of PHC (6).

The comments also questioned the use of the categories 'measurable/feasible', and this was removed. Thus the Round 2 questionnaire made provision for panelists to indicate whether the THEnet indicators were relevant (using a 5-point Likert scale), and whether the PHC indicators should be 'taught and assessed', 'taught only', or 'neither taught nor assessed' with two categories of students i.e. undergraduates and postgraduates. Provision was once again made for comments (including motivation for ratings) on each indicator.

Table 3 PHC (Health for All) indicators presented to Delphi round 2

		PHC Indicator used	**Explanation/Definition of indicator**
1		Having a holistic understanding of health care users and their context	Health is a state of total wellbeing, not just the absence of disease
2		Providing person-centered care with client/patient participation	Health care should be person-centred and community-centered and should reach people where they live and work
3		Working as a multidisciplinary team	Every member of the health team should be valued and appropriately involved in care
4		Promoting community participation in health care	People, families and communities should be engaged as active partners in caring for their health
5		Continuity of care at all levels of health care delivery	Primary care should be the first level of contact between people and the health system, and should refer appropriately and without delay to higher levels of care
6		Promoting equity and social justice in health care delivery	Priority should be given to the health needs of vulnerable people who have been marginalized by society
7		Respecting human rights in health care	People's rights to quality health care must be respected at all times
8		Promoting broad intersectoral collaboration in addressing the social determinants of health	Different sectors of society must work together for healthy living conditions for all

9	Providing care that is:		
	A	affordable to users	Health care should be affordable for all
	B	accessible to all users	Everyone, everywhere should have good access to quality health care
	C	appropriate to users' needs	Health care should be appropriate to people's health needs
	D	acceptable to users and their families	Health care should be socially and culturally acceptable to people's health needs
	E	sustainably funded	Health care should be sustainably funded and cost-effective
	F	environmentally sustainable	Health care should minimise any negative impacts on the natural environment
10		Providing EBC	Health care must be based on the most up-to-date evidence of what is effective and safe
11	Promoting health by means of:		
	A	health education	Health education should always be offered to individuals, families, communities, and health care workers.
	B	behaviour change	Methods to change behaviour for better individual and community health must be effective and acceptable
	C	public advocacy	There must be work at different levels to remove barriers to optimal health
	D	policy reform	Working towards 'Health in All' policies is needed to optimally address the multiple determinants of health

Procedures

Round 1 Data Collection: Following UCT FHS HREC approval of the study, Delphi panel members were invited via email to participate in the study and provide informed consent. They were sent instructions together with the electronic questionnaire which contained the list of indicators. A reminder was sent to the panel members before the deadline. Some panelist in

addition to sending the questionnaire also sent in more detailed feedback through email. **Data Analysis**: Responses from Round 1 were scored and collated in terms of relevance and whether the indicator was measurable/feasible across participants (Table 2). The 20 indicators with the highest relevance scores were included in the questionnaire for the second round of consultation with the Delphi Panel. The reason 20 were chosen was because it was thought to be a feasible number that could be analysed and taken to the next level. As described above, based on feedback provided by the panelists, the researchers added PHC indicators (Table 3) to the questionnaire.

Round 2 – **Data Collection**: The revised questionnaire, together with the collated feedback from Round 1, was submitted to the Delphi Panel for completion. Before the due date, reminders were sent to those who had not yet responded. **Data Analysis**: Responses from Round 2 were scored and collated in terms of relevance, and importance within undergraduate and post graduate teaching and assessment (Table 2) across participants. Comments were reviewed to add insights into the scores provided by panel members. The original plan was to include all indicators scoring more than 80%. If too many indicators scored more than 80%, the ideal thing to do would have been to conduct a third round. However because the Delphi was one of many phases of the project which had certain set deadlines, a higher cutoff such as 85% was used to feasibly carry indicators to the next phase of the research.

Study Duration

The study took place between March and August 2018. Round 1 invitations were sent in March 2018 and responses received in April 2018. Analysis of Round 1 results and formulation of the Round 2 questionnaire took place in May and June 2018. Round 2 questionnaires were sent in July 2018 and responses were received and analysis was done in August 2018. The number of rounds was determined by the amount of time available to conduct the DELPHI, whether a reasonable number of responses were received and consensus was reached for indicators to be carried to the next phase of the research.

Results

Round 1 Indicators

The top 20 indicators from Round 1 are listed in Table 4, which were carried to Round 2. For convenience they have been grouped into themes. There were 6 indicators which focused on different aspects of curriculum design and teaching philosophy, such as respect for dignity and rights (core values of social accountability), interprofessional learning, disease prevention and intersectoral collaboration. Six indicators focused on learner placement, such as time spent in primary and community settings vs. secondary and tertiary settings, criteria and guidelines for community placement, and selection and evaluation of community placements. Four indicators focused on learner issues, such as learner safety and satisfaction, and contextually appropriate preparation. The remaining four indicators looked at how curriculum, placements and assessments addressed priority community and social needs.

One indicator (The criteria for selecting community placement sites are clearly defined) was not scored because it was a heading for other indicators within the THEnet framework. It was thought to be relevant enough by the research team to be included as one of the top 20 indicators to be carried to the next round.

Table 4 Top 20 THEnet indicators obtained after Round 1.

	Indicator	**Relevance score (%)**
1	The curriculum design and delivery provides sufficient learning about priority health needs of the communities served	94
2	The community placements provide good learner exposure to priority health needs	92
3	The curriculum design and delivery provides sufficient learning about cultural issues impacting the community	91
4	Assessment is designed to assess required knowledge, skills and competencies to meet priority community health and social needs	91
5	The curriculum design and delivery provides sufficient learning about social and environmental determinants of health	90
6	The teaching philosophy and practice embodies core values of social accountability (e.g. respect for dignity and rights of learners and patients, social justice)	90
7	Local community partners are involved in the selection & evaluation of community placements	90
8	The curriculum design and delivery provides sufficient inter-professional learning and team work	88
9	The curriculum design and delivery provides sufficient learning about disease prevention	87
10	The curriculum design and delivery provides sufficient collaboration with sectors other than health	87
11	The safety of learners in the community is a priority	87

12	Learner satisfaction with curricula and teaching methodology is reviewed frequently	86
13	The education program, including curriculum content, reflects priority health and social needs of the communities served by the institution	85
14	There is contextually appropriate preparation (e.g. role-playing) for community placement and engagement	84
15	The teaching philosophy and practice is appropriate to learners' needs and context (e.g. support for dealing with language & cultural diversity in unfamiliar settings)	83
16	Placement opportunities are measured in terms of the proportion of learner time spent in community & primary care settings VS. time spent in secondary & tertiary settings	83
17	There are continuous and sequential community and clinical experiences throughout the curriculum	83
18	A specified proportion of curriculum weeks is allocated to learning about priority community health and social needs	82
19	Clear guidelines are provided to learners about their placement locations	81
20	The criteria for selecting community placement sites are clearly defined	

Round 2 Indicators

In addition to THEnet indicators prioritised from round 1, PHC indicators (Table 3) were also presented to the panel.

Thirteen THEnet indicators had a relevance score of greater than 80% (Table 5). Five THEnet indicators focused on curriculum design and teaching philosophy, 5 indicators focused on community placement and the others focused on community needs and student safety.

Table 5 THEnet indicators relevance score >80% results Round 2

Indicators	% Relevance score
The safety of learners in the community is a priority	88
The education program, including curriculum content, reflects priority health and social needs of the communities served by the institution	86
The teaching philosophy and practice embodies core values of social accountability (e.g. respect for dignity and rights of learners and patients, social justice)	86
The teaching philosophy and practice is appropriate to learners' needs and context (e.g. support for dealing with language & cultural diversity in unfamiliar settings)	86
There is contextually appropriate preparation (e.g. role-playing) for community placement and engagement	84
Assessment is designed to assess required knowledge, skills and competencies to meet priority community health and social needs	84
Placement opportunities are measured in terms of the proportion of learner time spent in community & primary care settings vs. time spent in secondary & tertiary settings	84
The curriculum design and delivery provides sufficient inter-professional learning and team work	83
There are continuous and sequential community and clinical experiences throughout the curriculum	83
Clear guidelines are provided to learners about their placement locations	83
The curriculum design and delivery provides sufficient learning about disease prevention	81

The criteria for selecting community placement sites are clearly defined	81
The curriculum design and delivery provides sufficient learning about social and environmental determinants of health	80

Eight PHC indicators had a relevance score of more than 80% (Table 6) at the end of Round 2. These indicators were continuity of care, holistic care, human rights, health promotion through health promotion and behaviour change, acceptable and accessible care as well as behaviour change. They were scored with regards to relevance for both postgraduate and undergraduate programmes and the indicators were ranked by relevance to undergraduate programmes.

Table 6 PHC Principles relevance score >80% (UG – Undergraduate PG – Postgraduate)

Principle	UG%	PG %
Continuity of care at all levels of health care delivery	94	87
Having a holistic understanding of health care users and their context	88	80
Respecting human rights in health care	88	87
Providing care that is: accessible to all users	88	80
Promoting health by means of health education	88	80
Providing care that is: acceptable to users and their families	81	87
Providing evidence-based care	81	87
Promoting health by means of behaviour change	81	80

Initially the cutoff for indicator selection was set at 80%. It would not have been feasible to carry so many indicators to the subsequent phases of the study. One option could have been to conduct a third round, however, there were set deadlines for the subsequent phases of the study to be

completed, and a third round would have resulted in significant delays, potentially derailing the entire project. For the sake of expediency, efficiency and feasibility the cutoff was thus set at 85% resulting in the top 5 PHC indicator and the top 4 THEnet indicators being selected for use in subsequent phases of the study (Table 7).

Table 7 Indicators used in subsequent phases of research project

PHC (HEALTH FOR ALL) indicators 1. Continuity of care at all levels of health care delivery 2. Having a holistic understanding of health care users and their context 3. Respecting human rights in health care 4. Providing care that is accessible to all users 5. Promoting health by means of health education
Training for Health Equity Network (THEnet, 2016): 6. Safety of learners 7. Education reflects communities' needs 8. Teaching embodies social accountability 9. Teaching appropriate to learners' needs

Discussion

A basic Delphi process was used to harness expertise from within and outside the UCT setting to assist in identifying and prioritizing indicators for monitoring and evaluation of the implementation of PHC in the UCT FHS curricula. This process generated significant discussion within the research team and shifted the team's thinking on what the indicators would be. We started off with indicators from THEnet and included PHC indicators as a result of the Delphi feedback. Arising out of the Delphi process, 5 PHC (Health for All) indicators and 4 THEnet indicators were selected.

PHC (Health for All) indicators

Continuity of care, providing holistic care, human rights and Health Education are all very important principles of PHC. Whilst a definition of continuity of care was provided to the Delphi panel, there are other meanings which can be implied, such as co-ordination and integration of care (17). South Africa has historically a very fragmented health system which has an impact on different aspects of the quadruple burden of disease and thus affect disease outcomes (18,19). It is thus not a surprise that these have come across as top indicators.

Provision of holistic care is central to the PHC approach (20). It is a key factor which differentiates the PHC approach from the biomedical approach that characterizes a large part of traditional clinical practice (21). Provision of holistic care includes the recognition of the psychologic, social and other domains' impact on health. It is through the holistic lens that one is able to appreciate the impact of social determinants of health (22).

The ability to respect Human rights in health care was also one of the priority indicators by the Delphi panel. Human rights violations have historically played a major role in the social determinants of health. They also continue to perpetuate the health system affecting health on multiple spheres, including access to care and quality of care (23). Conscientizing health sciences students to be able to recognize human rights violations can assist in flagging and ultimately addressing such issues. One can argue that access to health care is an extension of the human rights domain and that the two are very closely linked. Access not only refers to physical access (24). It also refers to issues such as language, disability, and financial status.

Health Promotion is a very broad term and the aspect of health education as one of its components was prioritized by the Delphi panel. One of the challenges of health promotion is that often the understanding of the term is limited to that of health education only. Health education is an important determinant of individual behavior (25) and it is thus understandable why it came out as a top indicator. There were other aspects of health promotion that did not make the 80% cutoff, such as public advocacy and policy reform. These aspects of health promotion are also important in terms of changing health outcomes, but they were not prioritized by the Delphi Panel. Advocacy is recognized to be a neglected area in health science teaching (26). Why they were not prioritized in this setting requires further research.

In a similar vein, affordable, accessible, appropriate care that is sustainably funded are also important indicators which were not prioritized by the panel. It is thus important to recognize that the Delphi exercise gives us a snapshot of what is deemed to be a priority at one particular point in time, and it may be that these priorities might change in a different time or setting. There may be other factors and this would also require further research to establish.

THEnet indicators

Even though some of the panelists challenged the researchers as to why the THEnet indicators were used for PHC, some indicators were carried to the subsequent round and were perceived to be relevant to this study. To the best of our knowledge, the THEnet indicators are the only published set of indicators related to PHC and Health Sciences education. Indicators for PHC within a service delivery context have been published (10), but were not thought to be relevant in a Health Sciences education context.

Indicators prioritised by the Delphi panel may reflect issues pertinent at the time of doing the study. For example, Safety of learners may be a reflection of negative incidents around student safety which happened in the past few years (27). Trauma and violence is one of the elements of the quadruple burden of disease (28). More work is needed to look at how this issue is being addressed.

There were other pertinent indicators which scored above 80% but could not be included in the final list because of logistical issues, since it would not have been feasible to carry a large number of indicators to the next phase. For example, inter professional learning is an important indicator to improve patient care and address issues around hierarchy, which have been prominently discussed at the University of Cape Town over the past few years (29). It is thus important that the Delphi process be revisited in the future and attention be paid not only to the relevance score, but also to prioritizing areas for further research which are absent in the literature.

PHC vs THEnet indicators

Based on the response of the Delphi panel, the question arises as to whether the THEnet and PHC indicators are completely unrelated, or whether there are linkages. Safety of learners, for example, also links to the safety of communities. There are clear linkages between housing density and community safety (30), which in turn has a link with equity (31), one of the PHC principles. Similarly, the THEnet indicators of 'Education reflecting community's needs' and 'teaching appropriate to learners' needs' can be correlated with the PHC principle of 'teaching about appropriate and acceptable health care'. These linkages are implicit in the Social Accountability literature, but not explicitly stated. Publications on the THEnet and PHC tend to look at PHC through the service delivery model rather than comparing principles of the two paradigms. The ambiguity of the term PHC is another challenge, where it is sometimes confused with Primary Level Care or Selective PHC, rather than comprehensive PHC(32) from which the indicators of this study were derived.

One of the lessons learnt from this study is that whilst THEnet indicators are well established and address social accountability, it was not sufficient for the evaluation of PHC application in the Health Science Curricula. The PHC principles were more relevant in this context. More work is needed to compare the potential overlap and differences between the THEnet framework and PHC principles.

Interpretation of these indicators in light of other indicators relating to Health Sciences Education

The derivation of these indicators from the THEnet indicators and PHC principles has been discussed. The indicators selected by the Delphi process was a small proportion of the indicators available. There are other frameworks used within Health Sciences Education; for example, ASSAf published a consensus document on reconceptualizing Health Sciences Education in South Africa (4). This is a broader document which has many elements of Social accountability and Primary Health Care ingrained in it, with overlapping concepts such as interprofessional education and collaborative practice. In our study, intra professional education was one of the indicators which scored greater than 80% but less than 85%, and thus did not make the final list. Perhaps had there been a third round in this study, it may have made the final list.

Study strengths and limitations

We believe, if strengthened with further testing, that our method used to derive PHC indicators for use in a Health Sciences setting can be adopted in other settings. The THEnet indicators are well established within the field of social accountability and the PHC indicators used in this study were derived from local and international literature. A national Delphi panel was used to prioritise the indicators.

The Delphi process allowed for a systematic consensus to be reached on the inclusion and prioritization of indicators used in this study. The panel was fairly heterogenous, with a larger contingency of family medicine physicians. Whilst it may have been possible to have included a wider range of disciplines, prioritization was given to experts known to have content knowledge on PHC.

Whilst a combined total of 21 THEnet and PHC indicators scored more than 80% in the second round, only a limited number of indicators could be carried across to subsequent phases of the research. This resulted in the exclusion of other potentially important indicators and may have introduced bias into subsequent phases of the research study. A third round could potentially have resulted in a different indicators in the final list. Because of time constraints and the need to start with subsequent phases of the research, a third round was not conducted.

The findings could be generalizable to other South African settings, however this study was not designed to determine this, and this could be a topic for future research. We would recommend though that institutions follow a similar Delphi process to prioritise indicators potentially more applicable to their local settings.

Conclusion

Using a Delphi process we identified indicators which could be used to assess the alignment of PHC within the learning outcomes and teaching activities of UCT FHS final year students. Nine indicators were identified from the THEnet framework and from the UCT FHS teaching of PHC principles. The Delphi process allowed us to shift our prioritization from our original intent to include both THEnet and PHC indicators. Whilst we are happy with the robustness of the Delphi method applied, because of feasibility, not all indicators identified at the initial cut off value could be used for every subsequent phase of the research, and perhaps a third round could have improved the robustness of the Delphi process used. At a faculty level, these indicators were

used in documentary analysis, student and staff interviews to examine the alignment of the Health Science Curricula with the PHC approach. At a broader level the Delphi methodology used in this paper could be adapted in other settings and further refined and enhanced in future research. The link between PHC and Social accountability could be further explored to determine common elements or whether these are two completely separate frameworks.

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Appendix

A: Author Guidelines for submission to African Journal of Health Professions Education

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If authors' names are added or deleted after submission of an article, or the order of the names is changed, all authors must agree to this in writing.

Please note that co-authors will be requested to verify their contribution upon submission. Non-verification may lead to delays in the processing of submissions.

Author contributions should be listed/described in the manuscript.

Conflicts of interest

Conflicts of interest can derive from any kind of relationship or association that may influence authors' or reviewers' opinions about the subject matter of a paper. The existence of a conflict – whether actual, perceived or potential – does not preclude publication of an article. However, we aim to ensure that, in such cases, readers have all the information they need to enable them to make an informed assessment about a publication's message and conclusions. We require that both authors and reviewers declare all sources of support for their research, any personal or financial relationships (including honoraria, speaking fees, gifts received, etc) with relevant individuals or organizations connected to the topic of the paper, and any association with a product or subject that may constitute a real, perceived or potential conflict of interest. If you are unsure whether a specific relationship constitutes a conflict, please contact the editorial team for advice. If a conflict remains undisclosed and is later brought to the attention of the editorial team, it will be considered a serious issue prompting an investigation with the possibility of retraction.

Research ethics committee approval

Authors must provide evidence of Research Ethics Committee approval of the research where relevant. Ensure the correct, full ethics committee name and reference number is included in the manuscript.

If the study was carried out using data from provincial healthcare facilities, or required active data collection through facility visits or staff interviews, approval should be sought from the relevant provincial authorities. For South African authors, please refer to the guidelines for

submission to the National Health Research Database. Research involving human subjects must be conducted according to the principles outlined in the Declaration of Helsinki. Please refer to the National Department of Health's guideline on Ethics in Health research: principles, processes and structures to ensure that the appropriate requirements for conducting research have been met, and that the HPCSA's General Ethical Guidelines for Health Researchers have been adhered to.

Protection of rights to privacy

Research Participants

Information that would enable identification of individual research participants should not be published in written descriptions, photographs, radiographs and pedigrees unless the information is essential for scientific purposes and the patient (or parent or guardian) has given informed written consent for publication and distribution. We further recommend that the published article is disseminated not only to the involved researchers but also to the patients/participants from whom the data was drawn. Refer to Protection of Research Participants. The signed consent form should be submitted with the manuscript to enable verification by the editorial team.

Other individuals

Any individual who is identifiable in an image must provide written agreement that the image may be used in that context in the *AJHPE*.

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the original source. This credit should be accompanied by a letter indicating that permission to reproduce the image has been granted to the author/s. This letter should be uploaded as a supplementary file during submission.

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Ethnic/race classification

Use of racial or ethnicity classifications in research is fraught with problems. If you choose to use a research design that involves classification of participants based on race or ethnicity, or discuss issues with reference to such classifications, please ensure that you include a detailed rationale for doing so, ensure that the categories you describe are carefully defined, and that socioeconomic, cultural and lifestyle variables that may underlie perceived racial disparities are appropriately controlled for. Please also clearly specify whether race or ethnicity is classified as reported by the patient (self-identifying) or as perceived by the investigators. Please note thatit is not appropriate to use self-reported or investigator-assigned racial or ethnic categories for genetic studies.

Continuing Professional Development (CPD)

AJHPE is an HPCSA-accredited service provider of CPD materials. Principal authors can earn up to 15 CPD continuing education units (CEUs) for publishing an article; co-authors are eligible to earn up to 5 CEUs; and reviewers of articles can earn 3 CEUs. Each month, *AJHPE* also publishes a CPD-accredited questionnaire relating to the academic content of the journal. Successful completion of the questionnaire with a pass rate of 70% will earn the reader 3 CEUs. Administration of our CPD programme is managed by Medical Practice Consulting. To complete questionnaires and obtain certificates, please visit MRP Consulting

Manuscript preparation

Preparing an article for anonymous review

To ensure a fair and unbiased review process, all submissions are to include an anonymised version of the manuscript. The exceptions to this requirement are Correspondence, Book reviews and Obituary submissions.

Submitting a manuscript that needs additional blinding can slow down your review process, so please be sure to follow these simple guidelines as much as possible:

- An anonymous version should not contain any author, affiliation or particular institutional details that will enable identification.
- Please remove title page, acknowledgements, contact details, funding grants to a named person, and any running headers of author names.
- Mask self-citations by referring to your own work in third person.

General article format/layout

Submitted manuscripts that are not in the correct format specified in these guidelines will be returned to the author(s) for correction prior to being sent for review, which will delay publication.

General:

- Manuscripts must be written in UK English (this includes spelling).
- The manuscript must be in Microsoft Word or RTF document format. Text must be 1.5 line spaced, in 12-point Times New Roman font, and contain no unnecessary formatting (such as text in boxes). Pages and lines should be numbered consecutively.
- Please make your article concise, even if it is below the word limit.
- Qualifications, ***full*** affiliation (department, school/faculty, institution, city, country) and contact details of ALL authors must be provided in the manuscript and in the online submission process.
- Include sections on Acknowledgements, Conflict of Interest, Author Contributions and Funding sources. If none is applicable, please state ‘none’.
- Abbreviations should be spelt out when first used and thereafter used consistently, e.g. 'intravenous (IV)' or 'Department of Health (DoH)'.
- Numbers should be written as grouped per thousand-units, i.e. 4 000, 22 160.
- Quotes should be placed in single quotation marks: i.e. The respondent stated: '...'
- Round brackets (parentheses) should be used, as opposed to square brackets, which are reserved for denoting concentrations or insertions in direct quotes.

If you wish material to be in a box, simply indicate this in the text. You may use the table format –this is the *only* exception. Please DO NOT use fill, format lines and so on.

Preparation notes by article type

Research

Guideline word limit: 3 000 words (excluding abstract and bibliography)

Research articles describe the background, methods, results and conclusions of an original research study. The article should contain the following sections: introduction, methods, results, discussion and conclusion, and should include a structured abstract (see below). The introduction should be concise – no more than three paragraphs – on the background to the research question, and must include references to other relevant published studies that clearly lay out the rationale for conducting the study. Some common reasons for conducting a study are: to fill a gap in the literature, a logical extension of previous work, or to answer an important question. If other papers related to the same study have been published previously, please make sure to refer to them specifically. Describe the study methods in as much detail as possible so that others would be able to replicate the study should they need to. Where appropriate, sample size calculations should be included to demonstrate that the study is not underpowered. Results should describe the study sample as well as the findings from the study itself, but all interpretation of findings must be kept in the discussion section. The conclusion should briefly summarise the main message of the paper and provide recommendations for further study.

- May include up to 6 illustrations or tables.
- A max of 20 - 25 references

Structured abstract

- This should be no more than 250 words, with the following recommended headings:
    - **Background:** why the study is being done and how it relates to other published work.
    - **Objectives:** what the study intends to find out
    - **Methods:** must include study design, number of participants, description of the research tools/instruments, any specific analyses that were done on the data.
    - **Results:** first sentence must be brief population and sample description; outline the results according to the methods described. Primary outcomes must be described first, even if they are not the most significant findings of the study.

- **Conclusion:** must be supported by the data, include recommendations for further study/actions.
- Please ensure that the structured abstract is complete, accurate and clear and has been approved by all authors. It should be able to be intelligible to the reader without referral to the main body of the article.
- Do not include any references in the abstracts.

Here is an example of a good abstract.

***Scientific letters*/short reports**

These are shorter length, scholarly research articles of no more than 1500 words. Single-institution, and/or studies with sample sizes <100 are better submitted as short reports.

Guideline word limit: 1500 words

- Abstract: Structured, of about 250 words, with the following recommended headings: Background, Objectives, Methods, Results, and Conclusion.
- May include only one illustration or table
- A maximum of 8 references

Forum articles

Are personal opinion pieces that address an area in health professions education that would be of interest to the readership. Forum pieces while reflecting the authors personal views, should be scholarly, and arguments well-supported.

- They should not exceed 1000 words
- Up to 5 references are allowed.

Short communications

Are very brief articles that share work in progress, lessons learnt or innovations in medical education.

- They should be no more than 500 words in length

- A maximum of 3 references, and 1 table or figure.
- Short Communications should be structured under the following headings: Why was the idea necessary (Problem), What was tried (Approach) and What were the lessons learnt (Outcomes).

Correspondence (Letters to the Editor)

Guideline word limit: 400 words

Letters to the editor should relate either to a paper or article published by the AJHPE or to a topical issue of particular relevance to the journal's readership

- May include only one illustration or table
- Must include a correspondence address.

Obituaries

Guideline word limit: 400 words

Should be offered within the first year of the practitioner's death, and may be accompanied by a photograph.

Illustrations/photos/scans

- If illustrations submitted have been published elsewhere, the author(s) should provide evidence of consent to republication obtained from the copyright holder.
- Figures must be numbered in Arabic numerals and referred to in the text e.g. '(Fig. 1)'.
- Each figure must have a caption/legend: Fig. 1. Description (any abbreviations in full).
- All images must be of high enough resolution/quality for print.
- All illustrations (graphs, diagrams, charts, etc.) must be in PDF form.
- Ensure all graph axes are labelled appropriately, with a heading/description and units (as necessary) indicated. Do not include decimal places if not necessary e.g. 0; 1.0; 2.0; 3.0; 4.0 etc.
- Each image must be attached individually as a 'supplementary file' upon submission (not solely embedded in the accompanying manuscript) and named Fig. 1, Fig. 2, etc.

Tables

- Tables should be constructed carefully and simply for intelligible data representation. Unnecessarily complicated tables are strongly discouraged.
- Large tables will generally not be accepted for publication in their entirety. Please consider shortening and using the text to highlight specific important sections, or offer a large table as an addendum to the publication, but available in full on request from the author.
- Embed/include each table in the manuscript Word file - do not provide separately as supplementary files.
- Number each table in Arabic numerals (Table 1, Table 2, etc.) consecutively as they are referred to in the text.
- Tables must be cell-based (i.e. not constructed with text boxes or tabs) and editable.
- Ensure each table has a concise title and column headings, and include units where necessary.
- Footnotes must be indicated with consecutive use of the following symbols: * † ‡ § ¶ || then ** †† ‡‡ etc.

Do not: Use [Enter] within a row to make 'new rows':

Rather:

Each row of data must have its own proper row:

Do not: use separate columns for *n* and %:

Rather:

Combine into one column, *n* (%):

Do not: have overlapping categories, e.g.:

Rather:

Use <> symbols or numbers that don't overlap:

References

NB: *Only complete, correctly formatted reference lists in Vancouver style will be accepted. If reference manager software is used, the reference list and citations in text are to be unformatted to plain text before submitting..*

- Authors must verify references from original sources.
- Citations should be inserted in the text as superscript numbers between square brackets, e.g. These regulations are endorsed by the World Health Organization,[2] and others.[3,4-6]
- All references should be listed at the end of the article in numerical order of appearance in the Vancouver style (not alphabetical order).
- Approved abbreviations of journal titles must be used; see the List of Journals in Index Medicus.
- Names and initials of all authors should be given; if there are more than six authors, the first three names should be given followed by et al.
- Volume and issue numbers should be given.
- First and last page, in full, should be given e.g.: 1215-1217 **not** 1215-17.
- Wherever possible, references must be accompanied by a digital object identifier (DOI) link). Authors are encouraged to use the DOI lookup service offered by CrossRef:
    - On the Crossref homepage, paste the article title into the 'Metadata search' box.
    - Look for the correct, matching article in the list of results.
    - Click Actions > Cite
    - Alongside 'url =' copy the URL between { }.
    - Provide as follows, e.g.: https://doi.org/10.7196/07294.937.98x

Some examples:

- *Journal references:* Price NC, Jacobs NN, Roberts DA, et al. Importance of asking about glaucoma. Stat Med 1998;289(1):350-355. http://dx.doi.org/10.1000/hgjr.182
- *Book references:* Jeffcoate N. Principles of Gynaecology. 4th ed. London: Butterworth, 1975:96-101.

- *Chapter/section in a book:* Weinstein L, Swartz MN. Pathogenic Properties of Invading Microorganisms. In: Sodeman WA, Sodeman WA, eds. Pathologic Physiology: Mechanisms of Disease. Philadelphia: WB Saunders, 1974:457-472.
- *Internet references:* World Health Organization. The World Health Report 2002 - Reducing Risks, Promoting Healthy Life. Geneva: WHO, 2002. http://www.who.int/whr/2002 (accessed 16 January 2010).
- Legal references
- Government Gazettes:

National Department of Health, South Africa. National Policy for Health Act, 1990 (Act No. 116 of 1990). Free primary health care services. Government Gazette No. 17507:1514. 1996.

In this example, 17507 is the Gazette Number. This is followed by :1514 - this is the notice number in this Gazette.

- Provincial Gazettes:

Gauteng Province, South Africa; Department of Agriculture, Conservation, Environment and Land Affairs. Publication of the Gauteng health care waste management draft regulations. Gauteng Provincial Gazette No. 373:3003, 2003.

- Acts:

South Africa. National Health Act No. 61 of 2003.

- Regulations to an Act:

South Africa. National Health Act of 2003. Regulations: Rendering of clinical forensic medicine services. Government Gazette No. 35099, 2012. (Published under Government Notice R176).

- Bills:

South Africa. Traditional Health Practitioners Bill, No. B66B-2003, 2006.

- Green/white papers:

South Africa. Department of Health Green Paper: National Health Insurance in South Africa. 2011.

- Case law:

Rex v Jopp and Another 1949 (4) SA 11 (N)

Rex v Jopp and Another: Name of the parties concerned

1949: Date of decision (or when the case was heard)

(4): Volume number

SA: SA Law Reports

11: Page or section number

(N): In this case Natal - where the case was heard. Similarly, (C) woud indicate Cape, (G) Gauteng, and so on.

NOTE: no . after the v

- *Other references (e.g. reports) should follow the same format:* Author(s). Title. Publisher place: Publisher name, year; pages.
- Cited manuscripts that have been accepted but not yet published can be included as references followed by '(in press)'.
- Unpublished observations and personal communications in the text must **not** appear in the reference list. The full name of the source person must be provided for personal communications e.g. '...(Prof. Michael Jones, personal communication)'.

From submission to acceptance

Submission and peer-review

To submit an article:

- Please ensure that you have prepared your manuscript in line with the AJHPE requirements.
- All submissions should be submitted via Editorial Manager
- The following are required for your submission to be complete:
    -
        - Anonymous manuscript (unless otherwise stated)
        - **Author Agreement form**
        - Manuscript
        - Any supple files: figures, datasets, patient consent form, permissions for published images, etc.
    - Once the submission has been successfully processed on Editorial Manager, it will undergo a technical check by the Editorial Office before it will be assigned to an editor who will handle the review process. If the author guidelines have not been appropriately followed, the manuscript may be sent back to the author for correcting.

Peer Review Process

All manuscripts are reviewed initially by the Editor-in-Chief and only those that meet the scientific and editorial standards of the journal, and fit within the aims and scope of the journal, will be sent for external peer review. Each manuscript is reviewed by two reviewers selected on the basis of their expertise in the field. A double blind review process is followed at AJHPE.

Authors are expected to receive feedback from reviewers and an editorial decision within approximately 6 weeks of submission. The time period of the entire review process may vary however depending upon the quality of the manuscript submitted, reviewers' responses and the time taken by the authors to submit the revised manuscript.

Manuscripts from review may be accepted, rejected or returned to the author for revision or resubmission for review. Authors will be directed to submit revised manuscripts within two months of receiving the editor's decision, and are requested to submit a point by point response to the reviewers' comments. Manuscripts which authors are requested to revise and resubmit will be sent for a second round of peer review, often to the original set of reviewers. All final decisions on a manuscript are at the Editor's discretion.

Production process

The following process should usually take between 4 - 6 weeks:

1. An accepted manuscript is passed to a Managing Editor to assign to a copyeditor (CE).
2. The CE copyedits in Word, working on house style, format, spelling/grammar/punctuation, sense and consistency, and preparation for typesetting.
3. If the CE has an author queries, he/she will contact the corresponding author and send them the copyedited Word doc, asking them to solve the queries by means of track changes or comment boxes.
4. The authors are typically asked to respond within 1-3 days. Any comments/changes must be clearly indicated e.g. by means of track changes. Do not work in the original manuscript - work in the copyedited file sent to you and make your changes clear.
5. The CE will finalise the article and then it will be typeset.
6. Once typeset, the CE will send a PDF of the file to the authors to complete their final check, while simultaneously sending to the 2nd-eye proofreader.
7. The authors are typically asked to complete their final check and sign-off within 1-2 days. No major additional changes can be accommodated at this point.
8. The CE implements the authors' and proofreader's mark-ups, finalises the file, and prepares it for the upcoming issue.

Changing contact details or authorship

Please notify the Editorial Department of any contact detail changes, including email, to facilitate communication