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# Determining the outcomes for clinicians completing a postgraduate diploma in transfusion medicine



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#### ABSTRACT

*Background:* Much is known about outcomes and content of training programs in blood banking, but only a limited amount of formal research has been done on the outcomes required for a postgraduate training program aimed at medical doctors working in clinical practice.

Study design and methods: A formal qualitative and semi-quantitative research approach was followed to determine and test the factors considered important in determining the outcomes for clinicians completing a postgraduate diploma in transfusion medicine, and consisted of a literature survey, followed by semi-structured interviews and a Delphi survey. Results: After a series of semi-structured interviews, based on an extensive literature survey, 42 factors were identified. These factors were categorized into eight groups and tested in a Delphi survey to determine which of these would be essential outcomes of a postgraduate training program in transfusion medicine. After three rounds of the Delphi survey, consensus was reached on 27 factors and stability on 14 factors. On one factor, neither consensus nor stability could be reached. Twenty-six factors were identified as essential outcomes.

*Conclusion:* This research provides support for the essential outcomes to be considered in any postgraduate training program in transfusion medicine aimed at clinicians.

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#### 1. Introduction

Modern education paradigms require a scientific and careful planning approach to the development of curricula with clear content mapping, determination of outcomes, and aligning these outcomes with assessment that is deemed authentic and appropriate to the needs of the student and the field of study. There is no reason why this should not be true for transfusion medicine as well [1,2]. The realities that we face include (i) the limited time spent on transfusion medicine education in undergraduate medical curricula; (ii) the timing of teaching transfusion medicine (i.e. in preclinical versus clinical years); (iii) the lack of emphasis on dedicated transfusion medicine training by medical schools in curricula and assessment [3-5]; and (iv) a resulting lack of knowledge on blood transfusion among practicing doctors [6–10]. A potential consequence of this is the inappropriate use of a costly resource that has the potential for serious complications as has been shown in a number of studies [11-13].

Recommendations have been made in the past with regard to the content of transfusion medicine curricula [14,15]. Despite this, the teaching of transfusion medicine is not always recognized as a "fundamental topic for minimum competency standards" [1,16–18].

Arguments have been advanced for and against outcomes-based education (OBE) as an approach to addressing the needs of a medical curriculum. Those in favor argue inter alia that it "promotes high expectations and greater learning from students"; that students are better prepared for life and work in the 21st century; that more authentic forms of assessment are fostered; and that it "encourages decision-making regarding curriculum, teaching methods, school structure and management" [19].

Arguments against OBE include that OBE may conflict with university admission requirements and practices; that "some outcomes focus too much on feelings, values, attitudes and beliefs, and not enough on the attainment of factual knowledge"; that it "relies on subjective evaluation, rather than objective tests and measurements"; and that it "undermines local control" [19].

Whether one decides to adopt a purely outcomes-based program or a blend of OBE, problem-based learning (PBL) and other systems, OBE is likely to form an important component of a modern learning program. The organizing principles of OBE as identified by Spady [20], who first proposed OBE in 1988, include clarity of focus, designing backwards (i.e. starting with the end in mind), having high expectations of students, and the provision of expanded opportunities that allow for the achievement of outcomes in a variety of ways.

It has been argued [21] that clarity of focus "can enhance the coherence of what is actually taught to students"; that "a commitment to common outcomes" can enhance equity; that OBE supports "an accountability that respects collective professional judgment and decision-making in schools"; and that "the decision to specify outcomes needs not compromise the exercise of responsibility by teachers about how to achieve outcomes". It is further stated that OBE supports a "shared responsibility for achievement of established

outcomes" and acknowledges the importance of "aligning learning, teaching and assessment".

At the XLVIII National Meeting of the Mexican Association of Medical Schools in 2005, 120 deans and staff members from a variety of medical schools attempted to define the outcomes of medical education in Mexico [22].

The selected outcomes were divided into nine categories, namely: (i) clinical skills; (ii) communication skills; (iii) public health and health systems; (iv) knowledge of the scientific basis of medicine; (v) information management; (vi) critical thinking and research; (vii) teaching skills, which include the teaching of peers, patients and families; (viii) administrative and legal skills in medical practice; and (ix) values, attitudes, ethics and professionalism [22].

Developing outcomes for a postgraduate diploma in transfusion medicine can thus be likened to reverse-engineering the future. A specified end-result should be determined, based on an in-depth study of the needs, challenges (current and anticipated), roles, skills, tasks and functions required of the clinician practicing transfusion medicine, while at the same time taking into account the varying realities and environments within which different clinicians practice.

Starting with this predetermined end in mind, the developers of a postgraduate teaching program in transfusion medicine can carefully plan the curriculum, program content, its practical implementation, and also the management of such a course while focusing on the final goal that needs to be achieved.

Similarly, students participating in such a program will know what the intended end-result is and what knowledge, skills, competences and attitudes will be required of them. This should enable them to focus their studies in a useful manner and systematically bridge the divide between their initial knowledge, skills and attitudes, and the outcomes required at the end. Finally, clear outcomes will form the basis of assessment planning, which needs to be aligned as closely as possible with the predetermined outcomes.

This study is an attempt to delineate the outcomes for a postgraduate training program leading to a university-level diploma in transfusion medicine, which should enable clinicians to practice transfusion medicine as part of their day-to-day responsibilities in both resource-limited and resource-rich settings. For the purposes of the study, a postgraduate diploma is defined as a part-time, 2-year training course at the South African National Qualifications Framework (NQF) Level 7, which will earn a student 120 credits (equivalent to 1200 notional learning hours). The aim of such a program is not to provide specialist or subspecialist certification, but to provide a strong foundation in the principles of transfusion medicine practice for the general practitioner who transfuses patients on an intermittent basis.

#### 2. Methods

The outcomes for clinicians completing a postgraduate diploma in transfusion medicine were determined and described by means of a literature survey, which was followed

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