Chapter 2
Mission and Outcomes

All of the accreditation standards in use across the globe articulate the need for the medical education program to define its mission. The statement of the mission is an important way to express the educational philosophy and focus and a means to help the program differentiate itself from other medical education programs. For instance, the mission of a medical school should encapsulate what it is that the medical program wants to achieve now but also define the school's aspirations for the future. Making the medical program mission as succinct as possible such that it is capable of being shared and understood by faculty and students is an important consideration. Most accreditation teams will seek to ensure that the mission is carefully understood by individual members of staff. Mission statements for medical education programs typically describe excellence in teaching (such as innovation) and/or research (such as articulating key research themes or areas). Some medical schools point to course delivery methods such as problem-based or case-based learning and others to the specific context in which student learning will take place (such as rural and remote settings):

> Building on our heritage in surgery, we will enhance human health through endeavour, innovation and collaboration in education, research and service. [1]

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> As one of the Asia Pacific region's most highly rated education and research institutions, Sydney Medical Program offers unparalleled opportunities to study medicine in Australia… Our graduates play leading roles in health fields around the world and our research investigates diseases which affect millions of lives, including cancer, obesity, chronic disease and ageing, neurosciences and mental health, infectious diseases, and reproductive, maternal and child health. [2]

In some jurisdictions, the program's educational mission addresses indigenous peoples and their health. In all cases, the mission should be defined in consultation with a range of stakeholders such as academic staff and students, the university in which the medical education program sits, the medical profession, health service providers, postgraduate medical training bodies, consumer group representative, and the community.

In addition to the mission, the program must define the outcomes of the program and make these known to stakeholders. The WFME "basic" standard would be deemed to have been met if the medical education program has a clearly defined description of the outcomes and the educational process, leading to a competent doctor fit to practice at a basic level, that is, internship. The WFME "quality" standard would be deemed to have been met if the institutional objectives addressed specific aspects such as social responsibility, research skills, and community engagement and if these have been defined in consultation with relevant stakeholders. In accrediting medical schools in Australia, the Australian Medical Council (AMC) stipulates the need for the school to relate the defined graduate outcomes to the school's mission and to the AMC's goal for medical education, that is, to develop junior doctors who possess attributes that will ensure that they are competent to practice safely and effectively under supervision as interns in Australia or New Zealand. The AMC goes further to point out that the combination of knowledge, skills, and attitudes considered essential for further prevocational and vocational training for medical doctors is very complex and that these attributes cannot be defined simply as lists of factual knowledge, practical skills, or

competencies. Equally important attributes of the medical graduate include understanding, problem solving, and appropriate attitudes relevant to caring for individuals who are suffering [3].

The LCME expects senior academic leaders to be familiar with these stated objectives going further to state that the objectives must be stated in "outcome-based terms" that allow assessment of student progress. Outcome-based education has influenced many modern-day medical curricula as a means of making explicit to students what specific knowledge, attitudes, and skills they will acquire by the end of training and by the end of each unit of study [4]. Using an "outcomes-focused" approach ensures that the learning journey is signposted for students and staff. Students can more readily make links between the desired knowledge skills and attitudes and the teaching, learning, and assessment strategies used. The term used is "constructive alignment [4–7]." Accreditation teams will often seek evidence of this alignment between the stated mission and objectives and course delivery and assessment:

> In aligned teaching, there is maximum consistency throughout the system. The curriculum is stated in the form of clear objectives, which state the level of understanding required rather than simply a list of topics to be covered. The teaching methods are chosen that are likely to realise these objectives…the assessment tasks address the objectives… students are "entrapped" in this web of consistency. ([6], p. 27)

In defining curriculum outcomes (as with the school's mission), it is important that these are derived in consultation with relevant stakeholders [8] and that they are cognizant of the various health-care settings in which the school's graduates will work. These outcomes help define the end point of the learning process which is a critical part of the quality improvement process. Some medical schools use the exercise of regularly reviewing curriculum outcomes at annual faculty retreats to ensure the program remains consistent with the school's mission and up to date with advances in health-care practice. Regular review will identify the presence of necessary linkage between outcomes and assessment and help

identify possible duplication of teaching effort. There are many published international competency frameworks to inform this process, for example, CanMEDS [9], "Tomorrows Doctors" [10], and the Tuning Project [11],[1] upon which to base a review of the completeness of the stated outcomes of a medical school's curriculum. Many schools group the listed educational outcomes or the "profile" of the ideal medical graduate under "themes" or "domains" which provide a framework to organize the content and delivery of the curriculum as well as student assessment. The use of *themes* to group related curriculum objectives is often used as a means to encourage an important shift away from a traditional discipline-based program to a more integrated approach to medical education. Key champions can be selected from faculty to advocate for particular themes across all years of the program and ensure balance is maintained across the entire curriculum. In addition, the weighting of assessment across themes can be similarly monitored by theme champions. For example, the themes of the undergraduate medical program at the Royal College of Surgeons in Ireland are shown diagrammatically as five interwoven and intersecting strands in Fig. 2.1.

The use of themes provides a framework for the entire program including assessment. Students and trainees typically must demonstrate satisfactory performance in all theme areas in order to graduate.

Once formulated, educational outcomes can be circulated for comment to principal stakeholders. The feedback process should ideally include current students through class representatives, faculty, alumni including recent graduates, patient advocacy groups, and employers of medical graduates. Quality

[1]The Tuning Project is the most recent higher education sector-wide initiative to develop learning outcomes/competences for degree qualifications in Europe. Specifically linked to the qualifications framework of the Bologna process, through the MEDINE Thematic Network, a task force led by the University of Edinburgh has developed a framework of learning outcomes for primary medical degree qualifications in Europe (see Cumming and Ross [11]).

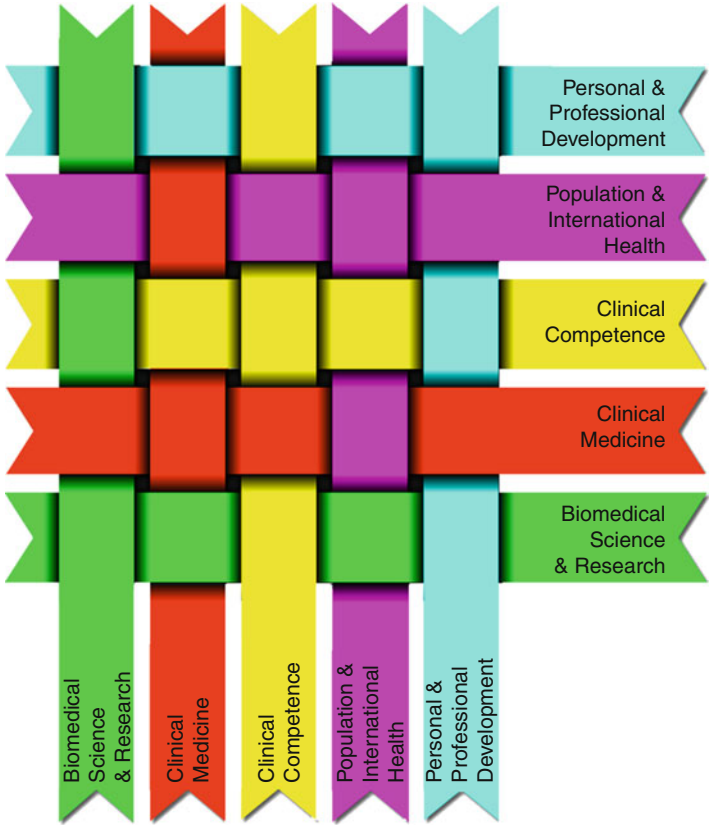

FIGURE 2.1 The five themes of the Medical Program of the Royal College of Surgeons in Ireland

assurance teams are particularly keen to see tangible evidence of a comprehensive consultation process as it attests to the extent to which the program values and is prepared to respond to stakeholder input and concerns. Opportunities for meetings with external stakeholders to discuss the school's missions and outcomes should therefore be carefully recorded and documented. Valuable feedback is often obtained through careful stakeholder consultation, which can assist the program not only in maintaining program outcomes which are

current but also in establishing or strengthening important relationships with stakeholders. Recent graduates and alumni are also a rich source of valuable feedback about the adequacy of the stated curriculum outcomes in preparing graduates for internship and beyond.

Documenting Outcomes

As part of the quality assurance process, the program will likely be asked to present examples of learning outcomes. Outcomes are explicit statements of what we want our students and trainees to know, to understand, or to be able to do as a result of completing our courses/training. It is important that faculty understands how to record this information accurately. Learning outcomes are not simply a "wish list" of what we would like students to be capable of doing on completion of the learning activity; rather, they must also be capable of being validly assessed. Accrediting teams will specifically seek evidence of linkage between stated learning outcomes and assessment. Bloom's taxonomy [12] is a very useful aid to writing learning outcomes. The taxonomy consists of a hierarchy of increasingly complex processes which we want our students to acquire. It is vital that learning outcomes are clearly written so that they are understood by students, staff, clinical teachers, and external examiners. When writing learning outcomes, it is helpful to focus on what we expect students to be able to demonstrate upon completion of the module or program. There are several useful resources available on how to write learning outcomes for the medical education setting [13].

Curriculum Database

Finally, an analysis of a medical curriculum beginning with a review of the school's mission and objectives is ideally supported by a curriculum database. Electronic curriculum

databases, such as the one shown from the medical school of the University of Melbourne (reproduced with permission), are typically organized by theme and also searchable by topics and keywords (see Figs. 2.2 and 2.3). Documenting the curriculum in such a format will assist curriculum planners, faculty, and students.

Such a tool, if available, is often requested by accreditation teams to determine the extent to which material has been covered in the curriculum as well as the depth, breadth, and integration of specific themes or domains. CurrMIT© is one such a tool widely used in the United States of America and Canada which uses a relational database containing curriculum information such as outcomes, resources, content, educational methods, assessment methods, and educational sites. The University of New South Wales, Faculty of Medicine in Australia, has also developed its own curriculum management system called eMed©. This system not only manages graduate outcomes, content, and activities but also the results of program evaluation.

As most medical programs operate a distributed model of medical education, it is critical that all teaching sites are familiar with the learning outcomes, not only for their particular component of the program but also for that which is to follow. A well-designed curriculum management tool can assist by providing easy access to those parts of the curriculum that need to be viewed and managed centrally as well as those that need to be viewed and managed by staff and students at multiple sites. A key aspect of the curriculum database for quality assurance is that it demonstrates linkage between learning outcomes, assessment, and evaluation. The example Fig. 2.4 represented on a simple excel spread sheet links unit or module learning outcomes to the weekly learning objectives and to the relevant overarching theme/domain, as well as to the proposed assessment format.

MD CURRICULUM DATABASE

LOGGED IN: **STAFF** (LOGOUT)

Search database | Search

Change Year (Current view: Year 2012) Year 2 Forms and Clinical Skills Communication Modules

YEAR	BLOCK	WEEK	ACTIVITY
Year 1	Foundation	4. Atherosclerosis	Lecture 1. Drugs influencing heart rate and arrhythmias
Year 2	**Cardiovascular**	5. AMI	Lecture 2. Superior and posterior mediastinum
Year 3	Respiratory	**6. Complete heart block**	Lecture 3. Aetiology and risk factors for CVD
Year 4	Gastrointestinal	7. Valve problems	Lecture 4. Observational studies in CVD
	Renal		Lecture 5. Lungs and pleura
	Revision		Lecture 6. Introduction to pharmacokinetics
	Student conference		Lecture 7. Antibiotics 1: Classification, targets of action
	Neurosciences		Lecture 8. Antibiotics 2: Development and basis of resistance
	Endocrine		Lecture 9. Ischemic heart disease
	Metabolism		Lecture 10. Antibiotics 3: Choosing and using antibiotics
	Locomotor		Practical. Bacteraemia and septicaemia
	Exercise		PCP1 tutorial. Tutorial 6
	Reproduction		Clinical colloquium. Clinical colloquium
	Intersystem integration		Tutorial. Challenges for public health
	Skin		CSL tutorial (session 1). Eleanor fogarty
			CSL tutorial (session 2). Eleanor fogarty
			Practical. Blood pressure, genes and sodium (post-treatment data) (Week 5)

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FIGURE 2.2 Example of searchable curriculum database showing learning activities by week, block, and year (Reproduced with permission from University of Melbourne)

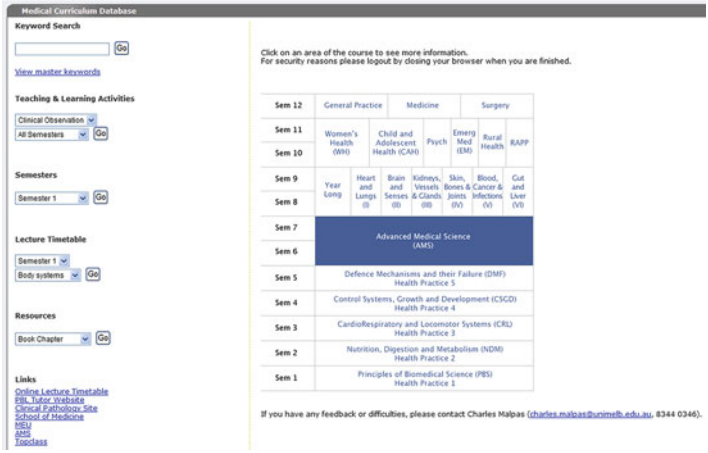

FIGURE 2.3 Most databases include a keyword search function, mapping all teaching and learning activities in the curriculum to specific learning outcomes

Unit Learning Outcome No.	Unit Learning Outcome	Theme No.	Weekly Learning Objective Nos.	Sub Outcome No. (MGP No.)	Suggested Assessment
U101.11	Describe the structure and function of a cell.	1	101.2.11; 101.3.13; 101.3.14	S1.1, S1.2	MCQs; EMQs; SAQs
			101.3.15; 101.3.16; 101.4.13		
			101.4.14; 101.5.12; 101.5.14		
			101.5.15; 101.5.16; 101.7.13		
			101.8.15; 101.9.13; 101.9.14		
			101.9.15; 101.10.14; 101.11.11		
			101.11.12; 101.11.13; 101.11.14		
			101.12.15		
U101.12	Describe the structure and explain the function of the	1	101.1.11; 101.1.12; 101.1.16	S1.1, S1.2	MCQs; EMQs; SAQs
	tissue types.		101.1.17; 101.1.18; 101.1.19		WebCT
			101.2.18; 101.3.16; 101.5.11		
			101.6.13; 101.6.14; 101.7.11		
			101.7.12; 101.8.13; 101.8.14		
			101.8.16; 101.8.17; 101.9.11		
			101.9.12; 101.9.14; 101.9.15		
			101.10.11; 101.10.12; 101.10.13		
			101.10.14; 101.10.15; 101.11.14		
			101.11.15		
U101.13	Describe the structure and explain the function of the	1	101.2.12; 101.2.17; 101.3.11	S1.1, S1.2; S1.3	MCQs; EMQs; SAQs
	skin and its derivatives.		101.3.12; 101.4.11; 101.4.12		IPEs
			101.5.13; 101.7.12; 101.7.14		
			101.10.16; 101.12.12		
U101.14	Explain the principles of inflammation, tissue injury and	1	101.2.17; 101.3.17; 101.4.12	S1.3	MCQs; EMQs; SAQs
	repair.		101.4.15; 101.6.15; 101.8.16		
			101.8.110; 101.9.18; 101.10.16		
			101.11.16; 101.11.17; 101.12.11		
			101.12.12; 101.12.15		
U101.15	Describe the structure and function of biomolecules	1	101.2.13; 101.2.14; 101.2.14	S1.1; S2.1	MCQs; EMQs; SAQs
	associated with the life process.		101.2.16; 101.3.16; 101.5.15		
			101.8.18; 101.8.19; 101.8.111		
			101.9.16		
U101.16	Explain the physiological principles of homeostasis.	1	101.1.13; 101.1.14; 101.1.15	S1.1; S2.1	MCQs; EMQs; SAQs
			101.6.11; 101.6.11; 101.6.12		
			101.7.14; 101.9.16; 101.9.17		
U101.17	Describe at an introductory level the basic principles of	1	101.5.16; 101.11.18; 101.12.13	S2.1	MCQs; EMQs; SAQs
	microbiology.		101.12.14		
U101.18	Apply basic First-Aid principles in a simulated	1	101.2.31; 101.6.15; 101.7.31	S4.2; S5.1; S6.1	MCQs; EMQs; SAQs
	environment.		101.8.110		
U101.21	Describe principles of interpersonal communication and	2	101.2.21; 101.2.23; 101.3.25	S8.1	EMQs; WebCT
	apply generic communication skills.		101.4.21; 101.5.21; 101.6.21		
			101.7.21; 101.8.21; 101.9.21		
			101.10.21; 101.11.21; 101.12.21		
U101.22	Discuss the importance of communication in medical	2	101.5.21; 101.6.21; 101.7.21	S8.1	EMQs; WebCT; TR
	practice.		101.8.21; 101.11.21; 101.12.21		
U101.23	Describe the theoretical principles that underpin	2	101.2.24; 101.2.32; 101.2.41	S9.1	EMQs; WebCT
	collaborative teamwork.		101.3.21; 101.3.22; 101.3.23		
			101.4.41; 101.7.31; 101.11.21		
			101.12.21		

FIGURE 2.4 A simple excel spread can be used to demonstrate linkage between overarching theme learning outcomes, unit learning outcomes, and weekly learning objectives as well as to the planned assessment strategies

Summary Points

- Statements of the medical program mission are an important way to express a medical schools' educational philosophy and focus and a means to help the program differentiate itself from other programs.
- Defining the end point of the learning process is a critical first step in the quality improvement process. The medical school's mission and objectives will inform all subsequent aspects of the quality assurance process.
- The medical program objectives should be developed in close consultation with all stakeholders and need to be cognizant of the various health-care settings in which the medical graduates will work.
- There are several published international competency frameworks, which can inform the process of defining curriculum outcomes.
- A careful examination of the school's curriculum using a searchable database can yield important information about the necessary linkages between stated objectives, delivery methods, and assessment as well as help to identify possible duplication of teaching effort.

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