



ACCREDITATION STANDARDS

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The APC Accreditation Standards Version 1.0 July 2009 replaces the NAPSAC Accreditation Criteria Version 1.0 of November 2005.

The revised Accreditation Standards should be read in conjunction with the APC Guidelines and Procedures for Accreditation Version 1.0 July 2009 and the APC Accreditation Application Pro forma Version 1.0 July 2009 when making application for accreditation.

Note: previous versions of all documents were headed under the NAPSAC banner. For consistency and clarity all new versions of documents under the APC banner have reverted back to versions 1.0.

Pharmacy programs in Australia and New Zealand exist in several different ways such as programs run directly by faculties, schools or departments. In the interests of uniformity, all are referred to in this document as "Schools of Pharmacy" irrespective of differences that may exist within individual university organisational structures.

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Introduction

The Accreditation Standards are those standards used by the APC and its evaluators to assess whether a degree or graduate entry Masters program offered by a pharmacy school will produce graduates with the requisite knowledge, skills and attributes prior to entry into approved intern training programs (ITPs).

A school seeking accreditation must demonstrate that it satisfies, or is capable of satisfying, all of the accreditation standards. Where it does not satisfy a Standard, it must set out its plans to meet the Standard and may apply particularly to new and evolving schools. If it is of the view that it can achieve the requisite educational outcomes without satisfying a Standard, it must detail its approach and provide supporting argument.

Where a school meets indicative requirements set out in the notes accompanying the Standards, it can be reasonably confident that it will satisfy that Standards. Schools may elect to adopt a different approach but must demonstrate that their approach allows them to meet to the Standards.

The Accreditation Standards address the following pharmacy courses:

- a four year full time undergraduate program resulting in award of a Bachelor degree; and
- a three year full time (or equivalent) postgraduate program and/or articulated program resulting in award of a Masters degree, open to graduates possessing the pre-requisite knowledge, skills and attributes prescribed in the Accreditation Standards;
- The Accreditation Standards apply regardless of the status of accreditation sought, however, in cases where newly established schools cannot meet the full spectrum of accreditation requirements due to the evolving nature of programs it should be noted in the Pro-forma Application which will be duly considered during the evaluation phase.

A university or other education provider giving consideration to any other form of award or program for which it intends to seek recognition as a qualification for the purposes of eligibility to enter intern training programs in Australia and New Zealand must seek the approval of the Australian Pharmacy Council (APC) prior to commencement of formal planning. For NZ, CUAP approval will be regarded as sufficient evidence and basis for a program to be developed and implemented.

Please note that *any new pharmacy school or new pharmacy program within an established school **must not advertise** a pharmacy course or give the impression that it will lead to a qualification which entitles graduates to enter an intern training program (subsequent to becoming a Registered Pharmacist) until such a program has been granted Preliminary Approval by the APC.*

The APC's principal concern is to ensure that graduates of a pharmacy program intended as a qualification for eligibility to registration will have mastery of competencies after a prescribed period of intern training. The Accreditation Standards are therefore concerned with educational outcomes as much as inputs/processes. Outcomes are considered within the framework of two inter-related measures:

- a defined set of generic attributes; and
- a defined set of pharmacy-specific knowledge and skills. The Indicative Curriculum which is appended to these Accreditation Standards provides a checklist for curriculum developers and evaluators of the items which should appear in a curriculum if it is to achieve the expected educational outcomes.

Standard 1: Pharmacy School Mission

The pharmacy school has defined its program and objectives and has communicated these to all of its stakeholders. A statement of mission should allude to the educational and research aspects of the course and should be consistent with the overall mission of the university. In addition to mission statements the school should:

- provide a background or history on the development of the pharmacy program giving an overall impression of where and how the program has progressed
- outline the commitment to excellence in teaching and learning methods
- outline the research objectives and how teaching and research interact to produce acknowledged benefits for staff, students and the community
- outline the educational philosophy and how it supports or ensures that graduates will be prepared to practice as pharmacy professionals who embrace life-long learning
- outline the schools curriculum rigor and how this supports or ensures the capabilities of graduates (see Curriculum Mapping - Standard 5)
- for established schools provide a strategic plan which underpins the schools aims and objectives
- for newly planned and/or recently established program provide a comprehensive strategy outlining the planning, development and implementation phases of the program

Standard 2: University Structure, Organisational and External Relationships

The place of a pharmacy degree program in the university's organisational structure and system of academic and administrative responsibility and accountability must be clearly defined. The structure and systems must facilitate:

- the development and maintenance of the profession of pharmacy within a broader framework of inter professional health sciences education;
- The school should have significant input into allocation of resources related to the delivery of the pharmacy course(s). It would be desirable for heads of schools to have budget delegation
- principal responsibility of pharmacy academic staff for curriculum development and delivery
- appropriate representation of staff responsible for the pharmacy school on decision-making committees
- appropriate reporting relationships of committees at the school, faculty and university wide level
- other external relationships or collaborations with the pharmacy profession which fosters overall teaching, learning and research capabilities

Standard 3: Resources and Facilities

A pharmacy program must be supported by sufficient human resources, accommodation, library, computer systems, laboratory equipment and other infrastructure to ensure effective delivery.

- The school should have adequate financial resources to support the delivery of its program (in application include the potential for non-grant income such as FFP students, research funds, government, other collaborations, private trusts etc)
- The school should have sufficient staffing resources to support faculty operations and academics (administration assistants, lab techs, IT and library staff etc)

- The school should provide teaching facilities including general and specialised laboratories which should be sufficient in number and adequate in size to accommodate student enrolments
- As a minimum, the organisational unit responsible for the pharmacy program should have the following facilities dedicated to the teaching: a model dispensary/pharmacy, a laboratory for formulation and extemporaneous preparation and adequate laboratory resources with respect to equipment and consumables which supports the delivery of the practical components
- Where external facilities are used for delivery of practical and other non-clinical elements the university must demonstrate that the timing, nature of use and the personnel employed, provide a teaching and learning environment of equal quality to that of specialised in-house facilities.
- The school should ensure that IT infrastructure and library resources are sufficient to meet teaching and learning and research objectives
- Contingency plans should be developed and documented that would cover deficiencies in infrastructure, IT and/or personnel (eg. disaster recovery plans – damage, infection control, data loss, power outages etc)
- Newly planned schools must provide a budget that covers the financial commitments for the duration of the program with regards to the initial cohort of students i.e. two years for MPharms and 4 years for BPharms
- The school should provide a Placements Officer to facilitate and support its clinical placement obligations

Standard 4: Academic Staff

A school responsible for the development and delivery of a registrable course must have continuing¹ academic staff appropriately qualified and expert in contemporary pharmaceutical sciences and pharmacy practice.

- A school must have a core of not less than three continuing appointments in pharmacy whom between them have expertise in the pharmaceutical sciences and pharmacy practice commensurate with the scope of the indicative curriculum. At least one of those staff must be a registered pharmacist. If a school has less pharmacy appointments, it must provide detailed information on the means by which it assures/intends to assure expert input into the development and delivery of the curriculum as a whole or as individual units of study, and provision of pharmacy leadership and role models.
- At least one pharmacy staff member should have appointment at a senior academic level to provide professional leadership of junior staff and have the authority necessary for effective advocacy of pharmacy within the university. Developing pharmacy schools should be academically resourced commensurate with expansion, increasing complexities and research capabilities. This should be acknowledged and articulated in strategic plans as performance indicators
- Academic staff should be provided with the resources, support and academic environment, which allows them to maintain their knowledge at the leading edge of pharmaceutical science and practice. This should be encouraged through research and scholarly activities, through access to scholarly publications, through professional development programs and attendance at

¹ By 'continuing' staff member, APC means a person holding a teaching and research academic staff appointment other than a casual/sessional appointment or a non-continuing fixed term appointment. APC does not seek to dictate the nature of the employment relationship but does require assurance that there is sufficient staff continuity to allow adequate curriculum development, delivery and review.

conferences, and through engagement with the profession in terms of practice, educational activities and professional service.

- The school should have or have access to programs for development of teaching skills for FT and PT academic staff, adjunct staff and teacher-practitioners (whether in honorary or paid capacity).
- APC encourages the use of teacher-practitioner² appointments to provide expertise in specialised areas and to assist in maintenance of the nexus between teaching and practice.
- Academic staff numbers³ in the enabling basic sciences and the pharmacy disciplines should be sufficient to allow interaction with individual students and small groups, and for staff to maintain a necessary range of academic activity.

²Where teacher-practitioners form a significant proportion of teaching resources the APC will give particular attention to their qualifications, their teaching skills and experience, and implications for student interaction and broader academic responsibilities such as curriculum development and review.

³ As an indicative level, the ratio of pharmacy students enrolled in degree programs to full time equivalent pharmacy academic staff (including other academic staff that teach within or into the pharmacy program such as sessional or contract lecturers etc) should be no more than 20:1.

Standard 5: The Curriculum

The curriculum must be delivered in a manner conducive to the educational outcomes specified in standard 8. A registrable pharmacy course must cover in adequate breadth and depth those items listed in the indicative curriculum at Appendix 1.

The APC has determined that a graduate entry Masters degree course leading to registration must be equivalent to the final three years of a four year Bachelor degree. This requirement seeks to ensure that the same breadth and depth of education in the pharmacy disciplines is included in a Masters as in a Bachelor. While the equivalence is not intended to be exact and APC does not wish to prescribe the means by which universities meet the requirement, a two year registrable Masters degree course which does not form part of an articulated pathway with a specialist preparatory undergraduate degree will necessarily be intensive.

APC has no interest *per se* in the conformity of a course at Masters degree level with the characteristics defined in the Higher Education Qualification Guidelines ratified by MCEETYA. However, the capacity of the course structure to accommodate in adequate breadth and depth both the teaching and learning requirements of the Indicative Curriculum and project work or research included in the curriculum in conformity with the Higher Education Qualification Guidelines will be taken into account.

The curriculum should:

- provide teaching and learning that is varied which may include some or all of the following: lectures, practical classes, tutorials, clinical placements, computer-assisted learning, self-directed learning, interactive small-group teaching, problem based learning, contemporary tools such as the use of 'virtual patients' and distance learning technology
- students must be given exposure to pharmacy practice from the first year in aiding socialization of students into the profession. Broad scope is encouraged, including aged care facilities and general practice.
- include placements which are embedded in the curriculum in a manner which integrates students' experiences and the study of pharmacy practice, therapeutics and pharmaceutical science.

- provide observational and practical structured clinical placements of adequate variety, duration and supervision with appropriate self-reflection and assessment
- help students to integrate, apply and reinforce skills and knowledge gained in the various areas of the curriculum
- provide within the curriculum opportunities for cultural education programs within the context of rural, remote and urban area health needs
- curriculums must provide a variety of assessment methods and mechanisms which measure cognitive learning, mastery of essential practice skills, ability to communicate, numeracy and use of data in problem solving
- students should have the opportunity to make representations on matters of curriculum, teaching and learning and other student initiatives or activities which help foster an environment of self-determination.

Schools that plan to develop distance education based curriculum components need to demonstrate that they are adequately resourced and funded and that students are motivated, committed and competent in the use of distance learning tools and technology.

It is expected that a significant component of the third and/or fourth years of a Bachelor will be for structured clinical placements. As there is no evidence-based information with regards to the number of hours required for students to obtain appropriate clinical skills during undergraduate education programs, the APC does not prescribe a benchmark figure for clinical placement hours. Rather schools should ensure that an appropriate mix of experiential sites such as hospital, community, rural, industrial and regulatory settings provide quality placements which support achievement of the outcomes specified in standard 8.

Standard 6: Quality Assurance

A university offering a pharmacy program and the organisational unit responsible for its delivery must have on-going and effective processes for quality assurance and improvement. Both the organisational unit and the program must be subject to regular review through these processes. In performing quality assurance activities the school or program should:

- use a variety of methods to evaluate the quality of their pharmacy graduate's, and the appropriateness of their courses. These may include surveys of graduate employers and other stakeholders to evaluate graduate competence and the performance of graduates in registration examinations.
- ensure that quality assurance processes have effective input from all academic staff, students, practicing pharmacists and the bodies which represent them, pharmacy registering authorities and other stakeholders.
- implement quality assurance processes that cover aspects related to admission, curriculum content, teaching and learning delivery, clinical placements, assessment and research
- have processes for the development and performance appraisal of academic and general support staff
- implement quality assurance process that take into account inventory and functional audits to inform plans on capital improvements or expansion of program prior to implementation
- have a mechanism for external review of examinations
- acknowledge outcomes of internal reviews and external reviews (such as AUQA and CUAP) which may potentially impact on the school or program to deliver program

Standard 7: The Students

Students must be provided with university wide and school or program support resources which assist in the successful progression of students throughout their studies. All relevant policies and procedures with regards to admission, orientation, assessment, remedial support, counseling and access to resources and equipment should be clearly articulated during student enrolment and applied without discrimination.

Students admitted to a Bachelor or Master program must have demonstrated scholastic ability, communication skills and grounding in areas of assumed knowledge sufficient to acquire the knowledge, skills and abilities and attitudes expected at the time of graduation.

- Must have a tertiary entrance score commensurate with the academic demands of the course, or be able to demonstrate equivalent scholastic ability such as transfer credits and demonstrate effective communication skills through objective and transparent measures.
- Must have a thorough grounding in chemistry, mathematics and English, achieved either by having studied those subjects at Higher School Certificate/NCEA Level 2/3 or equivalent secondary level, or by bridging study at tertiary level to achieve equivalent grounding.
- Must be able to demonstrate English proficiency through the Occupational English Test (OET) or the International English Language Testing System (IELTS) at a level necessary to allow effective learning and ability to communicate with members of the public and other health professionals over the duration of the course, particularly during external placements. Where entry requirements are lower, a pharmacy school should have an articulated process for development of English proficiencies at the APEC level prior to students undertaking major clinical placements. By graduation, students should have proficiency at the levels required by the Australian Pharmacy Council (IELTS 7.5 with minimum band scores of 7.0 or OET 8).
- Must have a higher education award at not less than Bachelor level for admission to a graduate entry Masters. In addition, they must have thorough, contemporary grounding in the basic biological and physical sciences, at not less than pharmacy Bachelor degree level.
- Must have the requisite knowledge, skills, abilities and competencies normally taught in the first two years of a pharmacy Bachelor course to allow entry into graduate Masters courses
- Must complete bridging studies to the pre-requisite level prior to commencement of the registrable Masters degree for those not meeting all pre-requisites at the time of application but accepted for admission
- During orientation, must be imparted or be provided with references to information regarding policies, procedures, processes, student obligations, university expectations and material specific to pharmacy program
- Must have access to all policy and procedural matters regarding assessment and progression through the program that would include matters such as minimum academic achievements, missed work, disciplinary matters, complaints and appeals processes etc
- Must have access to counseling regarding poor progress, learning difficulties, impairment and disability issues, health and social problems etc.
- Must have effective support mechanisms provided by the university particularly for English language support and support for indigenous and Maori students.
- Must have access to remedial support particularly with regards to learning and communication difficulties or technology illiteracy etc

To ensure recency of knowledge students must complete all courses/subjects within ten years of commencing Year 1 of pharmacy programs.

Standard 8: The Graduates

A pharmacy program must produce graduates with the knowledge, skills and attributes necessary to commence supervised practice in an intern training program and to master the recognised Competency Standards for practice of pharmacy in Australia and New Zealand during the period of that program.

8.1 The course must have content and be delivered in a manner which fosters graduates with the following generic attributes:

- communication: the ability to communicate information, arguments and analyses effectively;
- critical thinking: the ability to analyse issues logically, consider different options and viewpoints, and make informed decisions;
- cultural understanding: an understanding of cultural diversity, including indigenous issues (in the case of New Zealand students, within the framework of the Treaty of Waitangi) and multiculturalism; an ability to put aside assumptions and personal paradigms in their professional dealings with patients from culturally diverse backgrounds
- ethics: a knowledge of ethics, ethical standards, professionalism and social responsibility;
- information literacy: an understanding of information literacy and specific skills in acquiring, organizing and presenting information, including computer-based activity;
- inter-professional collaboration: intellectual openness and curiosity, and the awareness of the limits of current knowledge and of the links between health professions;
- lifelong learning: a commitment to lifelong learning, with the ability to acquire and apply knowledge, develop existing skills, adapt to a changing environment, and acquire new skills;
- numeracy: ability to understand basic mathematical relationships and perform calculations, order of magnitude awareness and estimations, correct use of units;
- recognition of limitations: ability to recognise the need to work within personal limitations and the scope of pharmaceutical practice;
- research: the ability to conduct research by recognising when information is needed and locating, retrieving, evaluating and using it effectively;
- scholarship: a commitment to the fundamental importance of the acquisition and development of knowledge and understanding;
- self-motivation: the capacity for self-directed activity and the ability to work independently;
- teamwork: the ability to work effectively as both a team leader and a team member;
- workplace-related skills: enterprise, self-confidence and a sense of personal responsibility endorsing the principles of work place diversity and anti-discrimination

8.2 The course must have content and be delivered in a manner which fosters graduates with the following pharmacy-specific knowledge and skills:

- knowledge and critical understanding of essential facts, concepts, principles and theories relating to the items in the Indicative Curriculum at Appendix 1;
- ability to apply knowledge and understanding towards meeting public health needs, the needs of patients and other health care professionals;

- ability to apply in a clear and correct manner generic skills in communication, critical thinking, information literacy and research to pharmaceutical, clinical and laboratory information;
- ability to calculate medicine doses and dosage regimes accurately;
- ability to prepare extemporaneously non-sterile pharmaceutical products in a safe and legal manner;
- ability to obtain, interpret and evaluate patient and clinical data;
- ability to assess prescriptions and other orders for medicines, and to dispense medicines safely and legally;
- ability to advise patients and other health professionals on medicines and their use. Graduates must have an understanding of medication safety and the ability to recognise, prevent and manage adverse events;
- ability to safely and legally handle chemical and pharmaceutical materials; and
- understanding of standard laboratory procedures and the operation of standard pharmaceutical instrumentation, and ability to select appropriate techniques and procedures.

8.3 Successful achievement of the above outcomes should provide graduates with the knowledge, skills and attributes underpinning the competencies set out in the *Competency Standards for Pharmacy in Australia 2003* and the Pharmacy Council of New Zealand's *Competence Standards*. However, pharmacy schools should self-evaluate their curricula against the specification of knowledge, skills and attributes in notes 8.1 and 8.2 above and the Competency/Competence Standards of the relevant country.

APPENDIX I: Indicative Curriculum

1. Curriculum content

The indicative curriculum adopted here is the Indicative Syllabus for UK pharmacy degrees, as developed and published by the Royal Pharmaceutical Society of Great Britain (RPSGB), with minor variations to reflect systems and concerns specific to Australia and New Zealand. The UK syllabus is adopted with the permission of the RPSGB. The curriculum will be subject to periodic review to reflect developments in the profession and educational needs arising from matters unique to Australian or New Zealand pharmacy practice, and/or health and educational systems.

While the curriculum items are grouped to give prominence to the patient and avoid traditional categorisations, this format is not intended to be imposed on schools' curricula.

The Patient

The patient is the main focus in the degree course. The items grouped under this heading address the biological, environmental, psychological and some of the social foundations of treatment with medicines. The curriculum should address specific patient needs in diverse multicultural populations, particularly Indigenous people in Australia and New Zealand. These are:

1. The unique role of the pharmacist in ensuring that the patient benefits from pharmaceutical intervention
2. Principles and methodologies of the social sciences relevant to pharmacy
3. Health and illness: definitions and perceptions
4. Theory and practice of personal and inter-personal skills, including written and oral communication skills, and study skills
5. The ideas and approaches of compliance or concordance in health care provision, particularly as they apply to medicines administration
6. The pharmacist's contribution to the promotion of good health and disease prevention.
7. Normal and abnormal bodily function: biochemistry, genetics, microbiology, nutrition, immunology, physiology, pathology, pathophysiology and infective processes.
8. Aetiology and epidemiology of major diseases and the principles of their drug treatment.
9. Symptoms recognition and management, the principles of differential diagnosis, important diagnostic methods and tests, and medical terminology.
10. Disease management and care planning, including application of clinical guidelines, prescribing guidelines and medication review.
11. Complementary therapies.
12. Drug and substance misuse, and physiological and psychological dependence. Clinical toxicology associated with drug overdose, drug or substance misuse or accidental exposure.

Medicines: drug action

The focus here is on drugs. The first three items in this list are large in scale and high in importance.

1. Molecular basis of drug action and the actions of drugs within living systems; molecular, cellular, biological and physical aspects.

2. Clinical therapeutic uses of drugs and medicines in man, including contraindications for, adverse reactions to, and interactions of drugs and their relevance to treatment.
3. Drug absorption, distribution, metabolism and excretion and influences thereon, including formulation, route of administration, dosage regimen, ageing and disease.
4. Clinical evaluation of new and existing drugs and medicines, and post-marketing surveillance. Good clinical practice.
5. Prospects for new approaches in therapeutics.

Medicines: the drug substance

For patient safety and often for the quality and efficacy of treatment, it is important that the pharmacy graduate, uniquely among the team of health professionals, has an appreciation and understanding of the sources and properties of drugs which form the biologically active and therapeutic components of medicines.

1. Sources and purification of substances of biotechnological, chemical synthetic, immunological, mineral and plant origin used in medicine.
2. Physico-chemical aspects of drugs and biological systems, including thermodynamics and chemical kinetics.
3. Specifications of substances used in medicine, including physical and chemical tests.
4. Analytical methods: principles, design, development, validation and application.
5. Prediction of drug properties, including chemical compatibilities, from molecular structure.
6. Drug design and discovery: principles, approaches and future prospects.
7. Cell and molecular biology, including genomics, proteomics and gene therapy, relevant to pharmacy.
8. Biological methods of measuring drug activity and biological standards.
9. Biotechnology and biotechnological processes.

Medicines: the medicinal product

The formulation and compounding of medicines, taking the pure drug substance and producing a dosage form for administration to the patient, are at the heart of pharmaceutical science. For the safety, quality, efficacy and economy of treatment with medicines, all pharmacy graduates need knowledge, understanding and capability in this area.

1. Sale and supply of medicines, including evaluation and management of risk and provision of advice.
2. Medicines: schedules of medicines and controlled substances; PBS (Australia) and Pharmac scheduling (NZ); consumer protection, including product liability and unapproved medicines.
3. Materials used in formulations and devices for the delivery of drugs, their biological, chemical and physical properties, and the development and application of standards.
4. Biopharmaceutics, developmental pharmaceutics, pre-formulation and formulation studies; design and standardization of medicines for administration to the body by different routes and for delivery to specific target sites.
5. The influence of manufacture and distribution on product quality with respect to biological safety, bioavailability (including bioequivalence), dosage uniformity and stability.
6. Packaging and labeling; purpose, design and evaluation.
7. Quality assurance of pharmaceutical products and processes, including Good Laboratory Practice and Good Manufacturing Practice.

8. Microbiological contamination: sources, determination, consequences and control.
9. Sterilisation procedures and aseptic procedures in the preparation of pharmaceutical products and medical devices; monitoring of sterilisation processes.
10. Environmental control in manufacturing facilities and in the supply chain.
11. Degradation of medicines; evaluation and control of biological, chemical and physical degradation.
12. Immunological, biotechnological and radiopharmaceutical products.
13. Dressings and other wound management products.
14. Medical devices: their types, regulation and, particularly, their use for the measurement and maintenance of physiological function or medicine delivery.
15. Statutes and regulations related to medicines, poisons and controlled substances.

Health care systems and the roles of professionals

For pharmacy graduates to be able to practice effectively, efficiently and confidently they need to know about, understand and have some of the skills to operate within health care systems, alongside and together with other health professionals and other scientists.

1. Health care systems in Australia or New Zealand (as applicable) including roles of pharmacists and other health care professionals in primary, secondary and tertiary health care. Rural and remote health care systems, including Aboriginal Health Services.
2. The duty of care to the patient and the wider public: concept, scope and application of professional ethics.
3. Professional standards and guidelines for practice. Self-audit, continuing professional development and maintenance of competency.
4. Clinical governance: clinical audit and risk management. Quality assurance and improvement. Managing and learning from errors.
5. Use of information technology in pharmacy and more widely in health care.

The wider context

The pharmacy graduate needs a realistic and well-informed view of how health care, and pharmacy fits within and operates in the wider world.

1. The political and legal framework, requirements and processes relevant to pharmacy.
2. Health policy and economics, particularly pharmacoeconomics.
3. Scientific, clinical, health services and social services research; methods and results relevant to pharmacy.
4. Occupational and environmental health and safety.

2. Student load

APC recognises that a diversity of approaches and emphases in teaching and learning during the course of a pharmacy degree program to ensure graduates are being equipped with the necessary knowledge, skills and attributes. For this reason, it does not prescribe hours which must be taught in the traditional disciplinary areas of pharmaceutical science, pharmacy practice and the basic disciplines underpinning them.

However, hours and mode of teaching, by year of course and by general subject area, in Australian and New Zealand Bachelor of Pharmacy degree courses² are included in the indicative curriculum as a benchmark. APC expects institutions to compare their hours of teaching, for both Bachelor and Master level registrable degree courses, to the benchmarks and to make comment where they vary significantly from the mean.

The general subject area of pharmacy practice includes communication, complementary medicines, counseling, disease mechanisms, dispensing, epidemiology, forensic, ethics, human behaviour, management, pharmaceutical care, pharmacoeconomics, pharmacy history, pharmacy in the health care system (including rural where appropriate), practical experience (clinical placements etc), professional standards, therapeutics (pharmacotherapy), etc.

It is noted that the CHPSANZ Pharmacy Courses Benchmarking Project of 2002 study contained the following *caveat*:

Some areas are beginning to teach in an integrated way rather than in the more traditional subject areas, that is, a particular subject, say on a body system, will include lectures on the appropriate chemistry, biology, pharmacology, pharmaceuticals and practice aspects involved. Where this has occurred, the whole subject has been allocated to the Pharmacy Practice subject area. It has not been possible to 'unpack' these subjects to make an allocation of the subject areas chosen, so these schools will show a larger allocation to this subject area and a correspondingly lesser to the other areas.

The benchmarks for 2002 are shown at Table 1. This data will be updated in the future

² The data are for BPharm courses, as taught in 2002, at the following universities: Auckland, Charles Sturt, Curtin, James Cook, La Trobe, Monash, Otago, Queensland, South Australia, Sydney and Tasmania. They are taken from A Lloyd, *Pharmacy Courses Benchmarking Project*, December 2002, Report to the Committee of Heads of Pharmacy Schools of Australia and New Zealand.

Table 1. Average Number of Hours for all BPharm Degree Courses 2002

STUDENT LOAD BY YEAR OF COURSE BY GENERAL SUBJECT AREA BY TEACHING MODE

Year	Mathematics & IT					Chemistry & Med chem					Pharmaceutics					Pharmacy Practice				
	lectures	practicals	tut/w/shop/etc	placement	total	lectures	practicals	tut/w/shop/etc	placement	total	lectures	practicals	tut/w/shop/etc	placement	total	lectures	practicals	tut/w/shop/etc	placement	total
1	37	6	17	0	60	76	59	23	0	159	29	31	14	0	74	49	14	44	4	111
2	4	4	1	0	8	68	42	27	0	137	52	55	18	0	124	43	20	25	4	92
3	0	0	0	0	0	34	27	17	0	77	38	35	4	0	77	101	33	65	104	303
4	0	0	0	0	0	0	0	0	0	0	22	12	13	0	47	127	31	104	316	576
Course total	41	10	18	0	68	178	128	67	0	373	141	133	49	0	322	320	98	238	428	1082

Year	Miscellaneous					Total teaching hours				
	lectures	practicals	tut/w/shop/etc	placement	total	lectures	practicals	tut/w/shop/etc	placement	total
1	0	0	0	0	0	284	188	112	4	589
2	0	0	0	0	0	295	182	94	5	576
3	0	0	0	0	0	263	139	103	114	619
4	5	0	27	0	32	162	43	150	316	671
Course total	5	0	22	0	32	1004	552	459	439	2455

Table 1. Median for all BPharm Degree Courses 2002

Year	Mathematics & IT					Chemistry & Med chem					Biology & Pharmacology					Pharmaceutics				
	lectures	practicals	tut/w/shop/etc	placement	total	lectures	practicals	tut/w/shop/etc	placement	total	lectures	practicals	tut/w/shop/etc	placement	total	lectures	practicals	tut/w/shop/etc	placement	total
1	44	0	13	0	57	78	52	26	0	156	88	78	13	0	179	36	12	0	0	48
2	0	0	0	0	0	61	36	13	0	110	147	54	26	0	227	52	48	12	0	112
3	0	0	0	0	0	36	33	12	0	81	90	52	13	0	155	39	30	0	0	69
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	0	0	0	30
Course total	4448	0	13	0	57	175	121	21	0	347	325	184	52	0	561	157	90	12	0	259

Year	Pharmacy Practice					Miscellaneous					Total teaching hours				
	lectures	practicals	tut/w/shop/etc	placement	total	lectures	practicals	tut/w/shop/etc	placement	total	lectures	practicals	tut/w/shop/etc	placement	total
1	42	0	41	0	83	0	0	0	0	0	288	142	93	0	523
2	39	0	15	0	54	0	0	0	0	0	299	138	66	0	503
3	78	18	52	80	228	0	0	0	0	0	243	133	77	80	533
4	110	12	104	252	478	0	0	0	0	0	140	12	104	252	508
Course total	269	30	212	352	843	0	0	0	0	0	970	425	340	332	2067

Table 1. Highest Value for all BPharm Degree Courses 2002

Year	Mathematics & IT					Chemistry & Med chem					Biology & Pharmacology					Pharmaceutics				
	lectures	practicals	tut/w/shop/etc	placement	total	lectures	practicals	tut/w/shop/etc	placement	total	lectures	practicals	tut/w/shop/etc	placement	total	lectures	practicals	tut/w/shop/etc	placement	total
1	78	39	52	0	104	127	117	52	0	296	152	117	39	0	273	66	150	75	0	291
2	39	39	13	0	91	169	130	144	0	299	247	143	57	6	337	78	146	43	0	236
3	0	0	0	0	0	78	78	104	0	182	174	87	52	105	333	76	102	17	0	178
4	0	0	0	0	0	0	0	0	0	0	78	0	40	0	118	60	48	65	0	133
Course total	117	78	65	0	195	374	325	300	0	481	651	347	188	111	1061	280	446	200	0	838

Year	Pharmacy Practice					Miscellaneous					Total teaching hours				
	lectures	practicals	tut/w/shop/etc	placement	total	lectures	practicals	tut/w/shop/etc	placement	total	lectures	practicals	tut/w/shop/etc	placement	total
1	108	52	91	18	196	0	0	0	0	0	319	319	196	18	788
2	139	87	66	30	292	0	0	0	0	0	429	249	162	30	656
3	222	165	130	240	714	0	0	0	0	0	319	202	191	240	884
4	273	114	250	780	936	36	0	136	0	136	273	114	303	780	936
Course total	742	418	537	1068	2138	36	0	136	0	136	1340	884	852	1068	3264

Table 1. Lowest Value for all BPharm Degree Courses 2002

Year	Mathematics & IT					Chemistry & Med chem					Biology & Parmacology					Pharmaceutics			
	lectures	practicals	tut/w/shop/etc	placement	total	lectures	practicals	tut/w/shop/etc	placement	total	lectures	practicals	tut/w/shop/etc	placement	total	lectures	practicals	tut/w/shop/etc	placement
1	0	0	0	0	0	44	33	0	0	77	65	39	0	0	117	0	0	0	0
2	0	0	0	0	0	36	6	0	0	66	31	33	0	0	109	18	18	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Cours e total	0	0	0	0	0	80	39	0	0	143	96	72	0	0	226	18	18	0	0

Year	Pharmacy Practice					Miscellaneous					Total teaching hours				
	lectures	practicals	tut/w/shop/etc	placement	total	lectures	practicals	tut/w/shop/etc	placement	total	lectures	practicals	tut/w/shop/etc	placement	total
1	9	0	13	0	35	0	0	0	0	0	237	91	48	0	461
2	0	0	0	0	0	0	0	0	0	0	252	102	39	0	502
3	47	0	0	0	126	0	0	0	0	0	167	59	13	0	356
4	24	0	4	64	316	0	0	0	0	0	68	0	36	64	442
Course total	80	0	17	64	447	0	0	0	0	0	729	252	136	64	1761