



MALAYSIAN MEDICAL COUNCIL

SPECIALTY-SPECIFIC REQUIREMENTS (SSR)

(CHEMICAL PATHOLOGY)

Prepared By:

Specialty Education Subcommittee (SEC)
of the Medical Education Committee (MEC),
Malaysian Medical Council

Approved by the Malaysian Medical Council:

23rd July 2025

Preface

1. The Specialty-Specific Requirements (SSR) pertain to requirements within each specialty and specify the minimum requirements pertaining to the training curriculum, trainers, educational resources and head of programme.
2. The Specialty-Specific Requirements (SSR) are intricately linked to the MMC Malaysian Standards for Medical Specialist Training 2019, and the Standards and SSR must be read and applied together.

Specialty-Specific Minimum Requirements for Training Curriculum (Based on Area 1.2.4 of Malaysian Standards for Medical Specialist Training) - Chemical Pathology													
Specialty-Specific Requirements (Reference Standard)	Criteria												
1) Minimum entry requirements for postgraduate training (Standard 3.1.)	1. Fully registered with the Malaysian Medical Council with a current annual practicing certificate. 2. Successful entry evaluation into the programme.												
2) Minimum duration of training programme (Standard 1.2.4 - Table 2)	Completion of a minimum of 48 months of specialised training in the specialty programme.												
3) Structure of training (rotation/modules) Training overview Training rotation/modules and case mix (Standard 1.2.4 - Table 3 & Table 4)	The programme should have a clear pathway encompassing phases of training which shall include the basic and advanced components in Chemical Pathology. <table border="1"> <thead> <tr> <th>Areas</th><th>Minimum Duration (weeks)</th></tr> </thead> <tbody> <tr> <td>General Chemical Pathology</td><td>75</td></tr> <tr> <td>Endocrinology</td><td>45</td></tr> <tr> <td>Protein Biochemistry</td><td>30</td></tr> <tr> <td>Toxicology / Therapeutic Drug Monitoring</td><td>15</td></tr> <tr> <td>Quality Management</td><td>15</td></tr> </tbody> </table> *Duration of training per year is 48 weeks	Areas	Minimum Duration (weeks)	General Chemical Pathology	75	Endocrinology	45	Protein Biochemistry	30	Toxicology / Therapeutic Drug Monitoring	15	Quality Management	15
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4) Assessments (Standard 2.2.1)	Assessments should i. Employ appropriate methods and levels that are well-aligned with learning outcomes. These include a variety of methods and tools such as written assessments, clinical assessments, supervisor's report, logbook, attendance, training attended, practice diary, research report, communication skills including methods appropriate to assess ethics and professionalism. ii. Include formative and summative assessments throughout each rotation, semester, or year of study. iii. Include clear criteria for progression to next year of study. iv. Include an exit evaluation/assessment.												

5) Additional requirements for completion of training (Standard 1.2.4)	i. Completion of graduate-level research or clinical audit project.
6) List of competencies to be acquired upon completion of training (Standard 1.1.4)	<u>Generic competencies</u> Able to: i. Diagnose, investigate and manage common chemical pathology cases whilst considering social, health economics and preventive aspects ii. Work independently and in teams competently and professionally iii. Practise good ethical conduct iv. Practise good and effective communication skills v. Perform critical review, plan and conduct scientific research vi. Exemplify self-advancement through continuous academic and/or professional development including digital health vii. Apply evidence-based medicine in the field of chemical pathology viii. Demonstrate exemplary leadership qualities in the multi-disciplinary team management of chemical pathology cases ix. Demonstrate an entrepreneurial mindset, creative problem-solving and resilience <u>Specific specialty competencies</u> i. Interpret and report Chemical Pathology tests. ii. Perform laboratory techniques in Chemical Pathology. iii. Monitor and ensure effective laboratory processes are in place, including Laboratory Information System (LIS). iv. Perform method verification. v. Critically evaluate and discuss diagnostic Chemical Pathology findings with healthcare providers involved in patient care. vi. Conduct clinical audit and oversee quality assurance activities to improve Chemical Pathology laboratory services. vii. Identify occupational health hazards and safety requirements for the safe provision of Chemical Pathology laboratory services.

Note: These criteria represent the minimum standards. Each educational programme provider may exercise their autonomy to state criteria above and beyond these minimum standards.

Specialty-Specific Minimum Requirements for Training Centres and Head of Programme (Based on Areas 3-6 of Malaysian Standards for Medical Specialist Training) - Chemical Pathology															
Item No	Specialty-Specific Requirements (Reference Standard)	Criteria													
4	Trainer-to-trainee ratio (Standard 3.1.3)	1 : 4													
5	Minimum qualifications and experience of trainers (Standard 4.1.2)	i. Registered with National Specialist Register. ii. Completed training-of-trainer course/equivalent													
6	Minimum requirements for educational resource (Standard 5.1.1)	The diagnostic facilities and equipment requirement of the programme training centres must collectively be able to accommodate the following minimum requirement: i. Physical facilities: <table><tr><th>Physical facilities</th></tr><tr><td>Seminar/ tutorial rooms</td></tr><tr><td>Trainee workspace</td></tr><tr><td>Computer room with internet facilities</td></tr><tr><td>Library of reference books or journals (physical and/or virtual).</td></tr></table> ii. Service areas: The laboratory(ies) must be accepted or approved by relevant body(ies)* for diagnostic chemical pathology laboratory or equivalent services. <table><tr><th>Services</th></tr><tr><td>Routine chemistry</td></tr><tr><td>Blood gas</td></tr><tr><td>Osmolality</td></tr><tr><td>Urinalysis</td></tr><tr><td>Hormone assay</td></tr><tr><td>Glycated haemoglobin (HbA1c)</td></tr><tr><td>Endocrine dynamic testing</td></tr></table>	Physical facilities	Seminar/ tutorial rooms	Trainee workspace	Computer room with internet facilities	Library of reference books or journals (physical and/or virtual).	Services	Routine chemistry	Blood gas	Osmolality	Urinalysis	Hormone assay	Glycated haemoglobin (HbA1c)	Endocrine dynamic testing
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		Tumour markers	
		Specific proteins	
		Protein electrophoresis	
		Catecholamines/biogenic amines	
		Therapeutic drug monitoring (TDM)	
		Clinical toxicology	
		Testing of inherited metabolic diseases	
		iii. Equipment:	
		Equipment	
		Electronic balance	
		Thermometers / temperature loggers	
		Centrifuge	
		Microscope for urine microscopy	
		Automated chemistry analyser / ion- selective electrode (ISE)	
		Automated immunoassay analyser	
		Blood gas analyser	
		Osmometer	
		Electrophoresis system	
		Chromatography system	
		Turbidimetry / nephelometry	
		liquid / gas chromatography with mass spectrometry (LC-MS / GC-MS) or tandem mass spectrometry (LC-MS-MS / GC-MS-MS)	
		iv. Case load:	
		The case load of the programme training centres must collectively be able to accommodate the following minimum requirements:	

		<table><tr><th>Areas</th><th>Minimum Quantity (tests/trainee/year)</th></tr><tr><td>Biochemical tests</td><td>5000</td></tr></table>	Areas	Minimum Quantity (tests/trainee/year)	Biochemical tests	5000								
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		v. Case mix:												
		<table><tr><th>Areas</th><th>Tests (trainee/year)</th></tr><tr><td>General Chemical Pathology</td><td>2500</td></tr><tr><td>Endocrinology</td><td>1900</td></tr><tr><td>Protein Biochemistry</td><td>400</td></tr><tr><td>Toxicology / Therapeutic Drug Monitoring</td><td>100</td></tr><tr><td>Quality Management</td><td>100</td></tr></table>	Areas	Tests (trainee/year)	General Chemical Pathology	2500	Endocrinology	1900	Protein Biochemistry	400	Toxicology / Therapeutic Drug Monitoring	100	Quality Management	100
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Quality Management	100													
7	Minimum qualifications and experience of Head of Programme (Standard 6.2.2)	i. 5 years or more of working experience after national specialist registration. ii. Experience in administration and/or academic management.												

Note: These criteria represent the minimum standards. Each educational programme provider may exercise their autonomy to state criteria above and beyond these minimum standards.

Glossary for Lab Based

*Relevant body(ies) refers to Department of Standards Malaysia, SIRIM and etc.

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