



Medical Graduate Competency Framework Stage 2 **Final Report**

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Report – Table of Contents

Executive Summary	3
Introduction.....	4
Section 1 - Background, Methodology and reporting against the project deliverables.....	5
Section 2 - Potential uses and next steps.....	15
Section 3 - Conclusion	17
List of Appendices.....	18

Executive Summary

In 2011, Health Workforce Australia provided funding to Medical Deans Australia and New Zealand Inc (Medical Deans) to identify the common diagnostic and procedural requirements for the medical graduate and specify the level of achievement of these requirements. These requirements build upon work already conducted by Medical Deans to establish a framework of competencies using the attributes required by the Australian Medical Council of a medical graduate as the anchor point. The competencies developed were identified as those competencies which were acquired in a clinical placement.

From February to December 2011, a number of consultations rounds were conducted with a wide range of stakeholders to identify, the common diagnostic and procedural skills required for the medical graduate. These skills have now been agreed upon by all medical schools in Australia. These skills have been placed in a matrix which shows the expected level of achievement.

Specifying of the level of achievement of these skills was a robust process developed in consultation with medical schools and based around the well known Dreyfus and Dreyfus model for adult skill acquisition. The end result, the matrixes reflect the process of skill acquisition for medical graduates in a clinical training environment.

The diagnostic and procedural skills for the medical graduate were then mapped to the relevant sections of the Australian Curriculum Framework for Junior Doctors to aid vertical integration and to improve transparency in clinical education. The two frameworks show a high level of congruence which is encouraging for skill acquisition along the medical education continuum.

An electronic framework has also been developed which provides an interactive dynamic platform for which to view the outputs from Stage 1 and Stage 2 Competencies Project. The Framework of Competencies including the common diagnostic and procedural requirements for the medical graduate will be made available to medical schools and key stakeholder organisations through the Medical Deans' website.

The Framework of Competencies which now identifies the common diagnostic and procedural requirements for the medical graduate will be a valuable resource for medical schools to evaluate and plan their curriculum and for health service departments to benchmark academic standards of medical graduates.

These potential benefits of the work undertaken through this project to educators in both medical schools and jurisdictional health settings has recently been recognised at an international level with the acceptance of an abstract for presentation at the Ottawa Conference on the Assessment of Competence in Medicine and other the Healthcare Professions in Kuala Lumpur, Malaysia in early 2012.

Introduction

In early 2011, Medical Deans received funding from Health Workforce Australia (HWA) to fund a continuation of the Competencies Project to identify the common diagnostic and procedural requirements for the medical graduate, specifying the associated level of achievement.

The aims of the project were:

- a) to further work already commenced in the Original Project to identify diagnostic and procedural skills for medical graduates, including mapping to the skills and procedures components of the Australian Curriculum Framework for Junior Doctors '(ACFJD)' and;
- b) to refine components of the Competencies Framework to improve its functional use.

The project deliverables were as follows:

1. Identify the common diagnostic skills required of a medical student at graduation and specify the expected associated level of competency.
2. Identify the common procedural skills required of a medical student at graduation and specify the expected associated level of competency.
3. Map the identified diagnostic and procedural requirements to the Framework of Competencies which rely on clinical placements.
4. Map the diagnostic and procedural requirements for medical students at graduation to the skills and procedures section of the Australian Curriculum Framework for Junior Doctors (ACFJD) to improve transparency and vertical integration of these skills.
5. Additional work to improve the original Competencies Framework through:
 - The development of a glossary of terms
 - Integration of the outcomes from the diagnostic and procedural requirements into the Competencies Framework
 - Further refinement of the diagnostic and procedural competencies in relation to the development of skills necessary to work safely as an intern as specified in the National Patient Safety Education Framework
 - Mind mapping software to aid electronic delivery of the Competencies Framework
 - Identification of IT resources as they relate to attribute 25

The Final Report provides a comprehensive account of the project's achievements.

The report is divided into three sections: Methodology and Reporting against the project deliverables, future use and next steps, and Conclusion. There are also a number of Appendices attached.

A copy of the electronic framework is included as a PDF attachment with this report.

Section 1 - Background, Methodology and reporting against the project deliverables

Background

The Medical Deans' Competencies Project grew out of the 2007 - 2008 Medical Deans' National Clinical Training Review which identified the need for sufficient and quality clinical placements in medical education. It was felt that by developing a Framework of Competencies which rely on clinical placements, a level of clarity and precision around the training that occurs in a clinical environment could be devised.

In 2010, the Australian Government's Department of Health and Ageing provided funding to Medical Deans to delineate the Australian Medical Council's (AMC) graduate attributes into Student Learning Outcomes and then competencies which rely on clinical placements. The project was a resounding success with thirty out of the forty AMC graduate attributes delineated into Student Learning Outcomes and then competencies to form the Framework of Medical Graduate Outcomes.

During the course of this project (now known as Stage 1 of the Competencies Project), it became apparent that key stakeholders in medical education would welcome further work being conducted on the identification of the common diagnostic and procedural requirements for the medical graduate with the level of achievement of these skills specified. The primary aim was to gain an understanding on a national level of the skills required by a medical graduate in order to work as a competent intern and to look at how medical schools were providing this experience to their students.

Through its Workforce Innovation and Reform Program, HWA provided funding to Medical Deans in early 2011 to identify the common diagnostic and procedural requirements for the medical graduate. Medical Deans was able to capitalise on the success from Stage 1 of the project and continue with strong stakeholder support into a second stage of the Competencies Project.

Methodology and reporting against the project deliverables

As Stage 2 of the Competencies Project was a continuation of existing work, the expertise of the already established Writing Group and Reference Group was able to be retained. These Groups were integral to achieving the project deliverables. A full list of membership is included in Appendix A.

Deliverable 1 &2

Identify the common diagnostic and procedural skills required of a medical student at graduation and specify the expected levels of competency.

The initial activities for identifying the common diagnostic and procedural skills for the medical graduate involved collating and analysing the significant amount of feedback received from the Consensus Conference of key stakeholders in medical education which was held in November, 2010 as part of Stage 1.

The Consensus Conference participants provided feedback on the draft list of diagnostic and procedural skills proposed in November 2010. The incorporation of this feedback into draft documents formed the basis of the draft diagnostic and procedural skills documents which were circulated for the first round of consultations with medical schools. This ensured that key stakeholders engaged in Stage 1 continued to be involved in the development of the draft documents.

A modified Delphi technique was conducted during three rounds of consultations with Australian and New Zealand medical schools to identify the common diagnostic and procedural skills for the medical graduate. Directors of Clinical Training were also consulted to provide comment on the diagnostic and procedural skills identified and also commented on the feasibility of medical students being exposed to these clinical experiences. The first two rounds of consultations were conducted as semi structured interviews. The interviews were with medical school staff, identified through the Deans, who have a direct role in clinical teaching. The first round of consultations had excellent participation rates with 19 medical schools interviewed. 17 medical schools participated in the second round of consultations.

The consultation rounds sought feedback on the following:

- What are the common diagnostic skills expected of a new graduate?
- What are the expected levels of interpretation of raw data from diagnostic investigations?
- What are the common procedural skills for the medical graduate?
- To what level do we expect medical students will be able to perform these procedural skills?
- Is the acquisition of these skills feasible given the opportunistic nature of clinical education?

It was the role of the Writing Group to consider these questions and to develop a document that would address the above considerations. The Writing Group met on two occasions to discuss the feedback received from the consultations. The group drew on their expertise as medical educators, clinicians, Doctors in Training and newly graduated medical students to develop documents that would be a useful resource for medical schools.

The final draft documents were circulated for a third and final round of consultation to each medical school staff member involved in the earlier interviews, the Dean and the Faculty Manager. This consultation round was conducted electronically. Medical Schools were invited to make comment on the draft documents and for their endorsement.

Significant stages in the development of the common diagnostic requirements for the medical graduate.

The diagnostic skills document had several key developmental stages which shaped the presentation of the final document. These stages included the incorporation of common conditions and anatomical regions, the development of four levels of achievement, the modification of the four levels of

achievement as each relates to different diagnostic investigation and the drafting of the clinical reasoning concept map.

Inclusion of common conditions and anatomical regions

From the outset of this project, the Writing Group felt that it was important to clearly state the types of diagnostic investigations that a medical graduate should understand and the conditions that the medical graduate will be able to identify from these investigations. The Writing Group did not want to develop broad sweeping statements about diagnostic skills which held little information. The Group also did not want to pursue a reductionist approach and list a myriad of conditions associated with different diagnostic investigations.

The result is that the common diagnostic skills document has listed a range of clinical conditions and anatomical regions that a medical graduate should be able to identify as 'normal' and 'abnormal' on the raw data from the diagnostic procedure.

Development of the four levels of achievement for diagnostic requirements for the medical graduate.

When discussing the levels of achievement of diagnostic skills the feedback obtained from medical schools fell into four broad categories; Observed, Report Interpretation, Image Interpretation and General Comments

The Writing Group developed a four point matrix for specifying the level of achievement for medical graduates, as follows:

1. Selects appropriately
- 2A. Interprets specialist report
- 2B. Interprets results directly, recognise normal and abnormal
3. Responds appropriately

The important distinction is the ability of the medical graduate to interpret raw data from an image or trace and recognise normal from abnormal as opposed to having to wait for the specialist report. This is a different look at diagnostic skills as it identifies a medical graduate's ability to interpret raw data from diagnostic investigations.

The descriptors for the levels of achievement for the diagnostic requirements include examples for 2A and 2B which describe the difference between interprets specialist report compared to interprets raw data. The examples of Chest X-ray and Pathology results have been provided so that the reader can understand the distinctions between 2A and 2B for different diagnostic investigations.

Modification of the four levels of achievement as it relates to electrocardiograms, imaging, pathology and 'other diagnostic investigations'

One of the challenges with the development of the diagnostic skills document has been the 'one size fits all' approach to the specification of level of achievement. The levels of achievement were modified therefore according to the type of clinical investigation to address this problem. The level of achievement differs slightly for each of the diagnostic skills relating to electrocardiograms, imaging, pathology or 'other' diagnostic skills. This differentiation provides a clearer method for specifying the levels of achievement as they relate to different diagnostic skills.

Clinical reasoning concept map

A significant step in the development of the diagnostic skills document was the introduction of the clinical reasoning concept map. The feedback received from medical schools highlighted that the process of selecting an appropriate diagnostic investigation is a higher order cognitive decision and cannot be represented by a 'tick in a box'. The clinical reasoning concept map was developed to

demonstrate that the selection of a diagnostic investigation for a clinical scenario is a complex process dependant on many factors.

The common diagnostic requirements for the medical graduate, specifying the level of achievement is included as appendix B.

Significant stages in the development of the common procedural requirements for the medical graduate

The procedural skills document also had key stages in the development of the document which shaped the outcome of the final version. These stages included procedural requirements focussed on procedural skills rather than clinical skills and the development of the four levels of achievement.

Procedural requirements = procedural skills not clinical skills

An early scoping exercise determined that for the purposes of this project, the identification of procedural requirements would focus on procedural skills only and not clinical skills such as physical examination or history taking. The project does not discount the importance of the other clinical skills, it was merely an exercise to try to identify types of procedural skills a medical graduate will have acquired as result of their training and also determine a national level of achievement of these skills.

Development of the four levels of achievement based on the Dreyfuss & Dreyfuss Novice to Expert model for skill acquisition

When considering how to specify the levels of achievement for procedural skills the Writing Group drew on the Dreyfuss and Dreyfuss¹ model for skill acquisition. The Dreyfuss and Dreyfuss model was adapted to suit the procedural requirements for the medical graduate.

The levels of achievement for the common procedural requirements for the medical graduate developed by the Writing Group are:

1. Observes
2. Performs in a simulated environment (Novice)
3. Performs in the clinical environment under structured supervision (Competent)
4. Performs routinely in the clinical environment under minimal supervision (Proficient)

Descriptors for the levels of achievement for procedural requirements are included in the document so that the levels of achievement are clearly defined.

The most important distinction in the level of achievement matrix is whether a medical graduate has performed the procedural skill in a simulated setting or on an actual patient under structured supervision. Making this distinction will assist medical schools with curriculum planning for procedural skills, especially those which are expected to be performed on an actual patient. Whilst this may have been an aspect of the curriculum which was previously implied, the procedural skills document explicitly states which procedural skills are expected to be performed on an actual patient. This is an important outcome as medical schools have agreed on a national level the skills a medical graduate must have had exposure to performing on an actual patient – not in a simulated setting.

¹ Dreyfus, S. E. The Five-Stage Model of Adult Skill Acquisition *Bulletin of Science Technology & Society* 2004 24: 177

Points for consideration regarding the common procedural skills for the medical graduate

Catheterisation

During the consultation rounds there was significant discussion regarding male and female catheterisation and the expected level of achievement. After three rounds of consultation and much debate, it was decided that the level of achievement for male and female catheterisation would be Level 2: Novice – ‘Performs in a simulated environment’. This was due to the opportunistic nature of exposure to a catheterisation procedure and whether a medical student would be provided with the opportunity to perform catheterisation on an actual patient. Most medical schools could not guarantee that all their students would have performed catheterisation on an actual patient; let alone catheterisation on both male and female patients. Thus it was decided that the most realistic option was to have the level of achievement at Level 2 ‘Performs in a simulated setting’.

Performance above the levels indicated is encouraged

The identification of the common procedural skills and the level of achievement is a realistic analysis of the core procedural skills which medical graduates are required to commence work as an intern. The project work has been a study into the realistic clinical experiences available to medical students in clinical placements due to the dilution of clinical experiences as a result of the rise in student numbers. Not all medical graduates will have the opportunity to perform all the procedural skills identified on actual patients.

The levels of achievement specified in the procedural skills document are recommendations only: what a medical student will be able to achieve as a result of their clinical placements. However, performance above these levels is recommended and encouraged. For example, if a medical student has the opportunity to perform catheterisations on actual male and female patients during their time in clinical attachments then it is encouraged that they do so.

Performance of any of the skills above the levels mentioned in the document will enhance the student’s clinical experience and will ultimately better equip the student with the skills necessary for internship.

The common procedural requirements for the medical graduate, specifying the level of achievement, are included as Appendix C.

Outcomes from the identification of the common diagnostic and procedural requirements for the medical graduate specifying the level of achievement

Overall there has been excellent participation from key stakeholders in medical education to identify the common diagnostic and procedural requirements. There has also been a high level of endorsement achieved. This is an outstanding result for the benchmarking of medical graduate standards.

Medical schools have been keen to better understand the curriculum of other schools and to identify the level of achievement of these skills. The consultation process provided medical schools with the opportunity to comment on how they can supply medical students with these clinical experiences on actual patients.

The process of determining the level of achievement for a medical graduate regarding the interpretation of raw data from diagnostic investigations has stimulated debate among medical

schools. Most schools commented on the usefulness of this data for their curriculum planning and for understanding the level of interpretation of diagnostic investigations for their students.

Medical schools also noted that there are a number of diagnostic and procedural skills not covered in the common procedural and diagnostic skills identified which fall under the category of recommended observations. The observations of these skills are encouraged for the medical student as it will enhance their clinical experience. Most schools acknowledged that they could not guarantee that their medical students would all observe these skills but also did not want these important skills discounted.

A list of recommended observations of diagnostic and procedural skills is therefore included as Appendix D.

The common diagnostic and procedural requirements for the medical graduate specifying the level of achievement is not a curriculum for medical schools to implement. The documents are intended to be used as a resource for medical schools to assist with the benchmarking of academic standards and to assist with the evaluation of their curriculum.

The project working groups recognises that the documents are very hospital centric and do not capture the range of different clinical settings available for professional entry medical education. However, the documents will still be a valuable resource for medical schools to evaluate their clinical curriculum and can be adapted to suit the diversity in individual medical schools' clinical programs.

The common diagnostic and procedural skills identified will also be of interest to health service departments regarding the skill level of new interns as it is this environment in which the medical students will be exposed to these experiences. Health services will need to be involved in the planning and provision of these experiences to medical students if they expect new interns to be competent in these skills on actual patients.

An exciting development has been the acceptance of an abstract for a short presentation at the Ottawa Conference on the Assessment of Competence in Medicine and other Healthcare Professions in Kuala Lumpur, Malaysia in early 2012. The presentation '*Setting the standards for Australian and New Zealand medical graduates: From Novice to Proficient for diagnostic and procedural competencies*' will cover the work developed during this second stage of the project.

Endorsement of the common diagnostic and procedural requirements identified for the medical graduate, specifying the level of achievement

The process of identifying the core diagnostic and procedural skills has been extensive involving all medical schools, Directors of Clinical Training and key stakeholders in medical education. There has been a pleasing level of consensus reached regarding the common diagnostic and procedural requirements identified.

A project update was presented to all Deans at the Medical Deans' Annual Conference held in September, 2011. The Deans endorsed the general approach being considered by the Project governance group and were pleased with the findings presented. Overall, the stakeholder engagement has been positive with all medical schools welcoming the work and enthusiastic about the results. Most medical schools stated that the common diagnostic and procedural requirements identified aligned well with their curriculum which was encouraging for individual schools.

Deliverable 3

Map the identified diagnostic and procedural requirements to the Framework of Competencies which rely on clinical placements

The approach used for mapping the diagnostic and procedural skills back into the Competencies Framework (Stage 1) was to map the identified skills back to the AMC graduate attributes. Initial analysis of the common skills identified with the AMC graduate attributes has identified a number of attributes with concurrent themes concerning diagnostic and procedural skills. The mapping of the skills identified has been done on a global level to demonstrate the interrelatedness of these elements in medical education. This process is best shown in figure 1 which highlights that these common diagnostic and procedural requirements would be developed across a number of clinical placements.

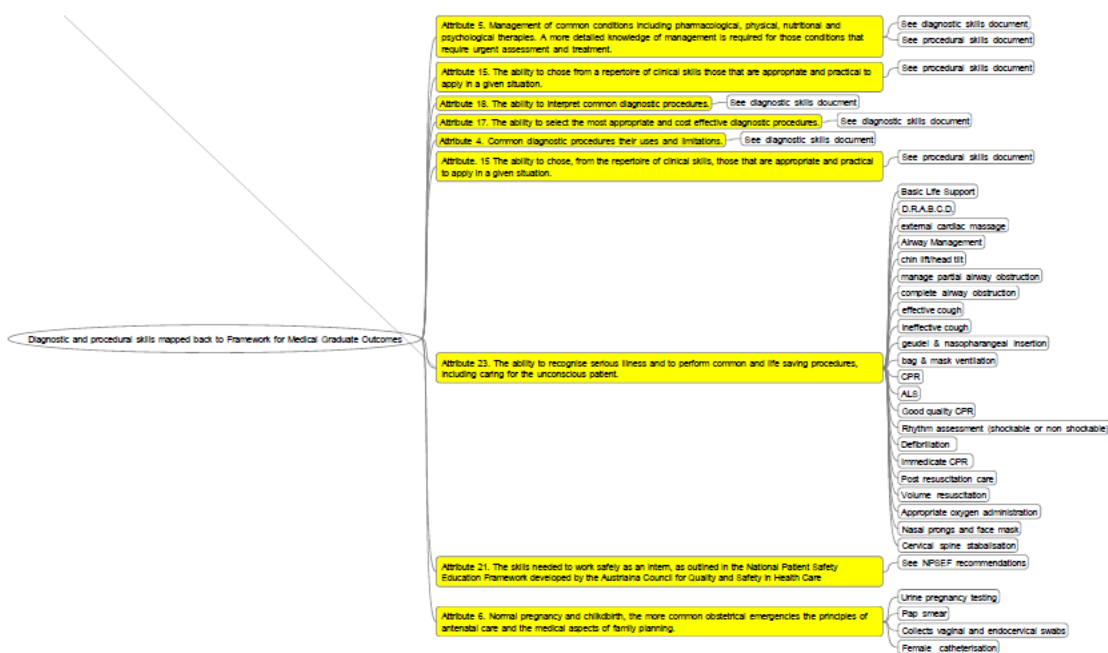


Figure 1: Diagnostic and procedural skills mapped back to the Competencies Framework (Stage 1)

A more detailed version of the mapping process is attached as Appendix E.

There is also an electronic version of the mapping of the diagnostic and procedural requirements back into the Framework of Competencies accompanying this report.

Deliverable 4

Map the diagnostic and procedural requirements for medical students at graduation to the skills and procedures section of the Australian Curriculum Framework for Junior Doctors (ACFJD) to improve transparency and vertical integration of these skills.

The diagnostic and procedural requirements identified for the medical graduate were mapped to the Australian Curriculum Framework for Junior Doctors (ACFJD) in consultation with the ACFJD National Project Coordinator, Ms Deb Paltridge and the Project Director, Dr Greg Keogh.

The decision was made to map the diagnostic and procedural skills for the medical graduate to the entire ACFJD, not just the skills and procedures section. This was to illustrate that the skills identified for the medical graduate mapped to various sections of the ACFJD. These sections included; Interpretation of Results, Clinical problems and conditions, Clinical Management and the Skills and Procedures sections.

The mapping exercise demonstrated a level of congruence between the two frameworks and shows that there is vertical integration of these skills between the undergraduate and postgraduate medical curriculum.

A useful future body of work would be the specification of the level of achievement of the procedural skills identified after the PGY1 and PGY2 years. This would involve aligning the ACFJD with the Medical Deans' Competencies Project levels of achievement specifications. This study would be useful for determining how intern skills levels have improved after two years of training. This work would involve liaising with the ACFJD working party and the Medical Deans' Competencies Project Writing Group. There is significant overlap of membership between both groups so the collaboration would ensure that both projects were well represented in the process.

The mapping of the medical graduate diagnostic skills to the ACFJD is included as Appendix F.

The mapping of the medical graduate procedural skills to the ACFJD is included as Appendix G.

Deliverable 5

Additional work to improve the original Competencies Framework through:

The development of a glossary of terms

The development of a glossary of terms has helped improve the original competencies framework by defining the verbs used at the beginning of each competency. This has assisted making the competencies more explicit and measurable.

The glossary of terms has also helped to define the descriptors and the level of achievement of the common diagnostic and procedural skills. The project has drawn on the definitions used by Health Workforce Australia for clinical placements and clinical supervision.

A copy of the glossary of terms is included as Appendix H.

Integration of the outcomes from the diagnostic and procedural requirements into the Competencies Framework

The integration of the outcomes from the diagnostic and procedural requirements into the Competencies Framework has been covered under deliverable 3.

As mentioned previously, the diagnostic and procedural requirements for the medical graduate map back to multiple AMC graduate attributes. This demonstrates the interrelatedness of medical education curriculum. Medical students will be exposed to clinical skills in a range of settings and these skills will be developed across numerous clinical placements.

Further refinement of the diagnostic and procedural competencies in relation to the development of skills necessary to work safely as an intern as specified in the National Patient Safety Education Framework

The project Reference Group and Writing Group considered how to incorporate the NPSEF into the current body of work. The recommendation was made by both groups that the sections of the NPSEF which are not covered by the Competencies Project be linked to the Education Sector via developing assessment for how these practices occur in the healthcare sector.

The NPSEF is a substantive document with large variations in the learning objectives for the different categories of health care workers. Many of the learning objectives are above the level of the medical graduate and are more suitable for the postgraduate level.

Category 2 of the NPSEF was identified as the most relevant category for the medical graduate. Category 2 is defined as: *Health care workers who provide direct clinical care to patients and work under supervision.*

The performance elements of the NPSEF are the most relevant to the Competencies Project as these elements relate to the observable abilities of a health care worker; this aligns with demonstrated ability in the workplace – what the doctor can actually do. These are the types of skills which translate easily to a Competencies Framework.

The approach taken was to align patient safety with the educational and healthcare sector by making recommendations on how to assess the performance elements of the NPSEF in a medical school setting.

The recommendations for assessment of the NPSEF as it relates to the Competencies Project are included as Appendix I.

A useful piece of follow up work would be to liaise with the NPSEF Project Director to discuss strategies for how the NPSEF could be better integrated into medical school’s curriculum as it relates to AMC Attribute 21 ‘*The skills needed to work safely as an intern as outlined in the National Patient Safety Education Framework developed by the Australian Council for Quality and Safety in Health Care.*’

Mind mapping software to aid electronic delivery of the Competencies Framework

Stage 1 of the Competencies Project saw the introduction of the mind mapping concept to present the Framework of Competencies. The use of an electronic format to present the framework provides the user with an interactive and dynamic to view the framework.

The mind mapped framework allows the user to map the competencies back to the AMC graduate attributes and to the associated clinical placements. Figure 2 below outlines the concept of the mind mapped framework.

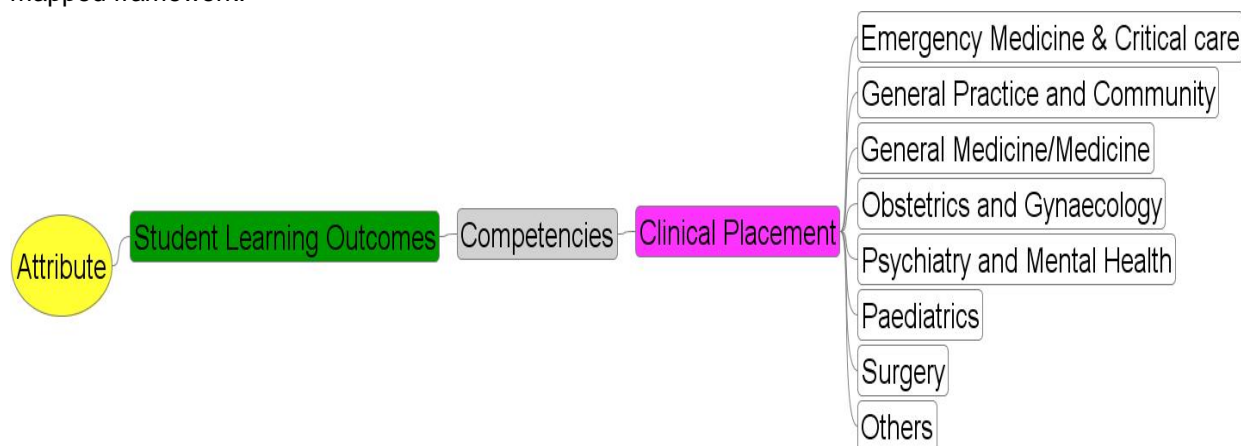


Figure 2: Framework of competencies mind mapped

An electronic copy of the Framework of Competencies mind mapped accompanies this report. A link will be provided via the Medical Deans' website to medical schools and to key stakeholders in medical education who are interested in downloading a copy of the Competencies Framework mind mapped.

Identification of IT resources as they relate to attribute 25

The Writing Group determined that the identification of Information Technology (IT) resources as they relate to attribute 25 falls into two broad categories:

- IT skills (common)
- Hospital IT skills (generic programs/non hospital specific)

A list of these skills is included in the mind mapped framework under attribute 25.

Section 2 - Potential uses and next steps

The Framework of Competencies which now includes the common diagnostic and procedural competencies for the medical graduate will be a valuable resource for medical schools to benchmark standards, as a resource for curriculum planners in providing actual patients or simulated learning environments for procedural skills practice, and as a resource for the allocation of simulation equipment.

The common diagnostic and procedural requirements for the medical graduate will provide medical schools with a resource which benchmarks the academic standards of medical graduates on a national level. Medical schools will be able to cross reference their current curriculum with the common diagnostic and procedural skills identified for the medical graduate.

The use of the levels of achievement for these skills will assist curriculum planners with clinical placement allocation to ensure that medical students have the opportunity to perform procedural skills on an actual patient.

The use of 'Level 2 – Performs in a simulated environment' for procedural skills will assist medical schools in the allocation and provision of simulation equipment. Medical schools will be able to audit their simulation equipment against the common procedural skills document to ensure that they have the correct equipment for the recommended simulated scenarios.

Next steps

There are a number of initiatives that could be undertaken as an important follow on to the outputs from this project, including:

Liaison with the ACFJD working party to comprehensively align the two frameworks by specifying the level of achievement acquired for the procedural skills after the post graduate years of training. This should:

1. State the level of achievement of procedural skills after PGY1 & PGY2
2. Provide an understanding of the individual junior doctor's progression of skill level from the level achieved at the end of their undergraduate training
3. Align the two frameworks comprehensively to assist vertical integration
4. Assist curriculum coordinators develop assessment for the correct level of competence

Liaison with the NPSEF Project Coordinator to discuss how the two frameworks can articulate to assist in curriculum delivery whilst maintaining patient safety. This would ensure that related projects are communicating and not working in isolation.

Liaison with the health service departments to present the project findings. This would ensure that health service departments are aware of the benchmarking of diagnostic and procedural requirements for the medical graduate developed by Medical Deans. Health service departments are responsible for providing the clinical experiences to medical students covered in the common diagnostic and procedural requirements. Further involvement of the jurisdictions in discussing the provision of the clinical experiences to medical students and the capabilities of new medical graduates will ensure that the health services and the education sector are communicating to improve clinical education in health care settings.

Developing assessment for each of the competencies identified using Workplace Based Assessments. This work would greatly enhance Stage 1 & 2 of the Competencies Project. The assessment would provide a complete resource for medical schools to implement the framework should they choose to do so. The current work, without assessment, is limiting. Whilst it lends itself to medical schools reviewing the Framework of Competencies as a resource to help evaluate clinical placements and current curriculum, without the accompanying assessment for competencies the likelihood of schools adopting the Framework of Competencies is minimal. This is an unfortunate situation as the full investment of work into Stage 1 & 2 of the Competencies Project will not be realised.

Section 3 - Conclusion

Overall Stage 2, Competencies Project has been most successful with significant results being achieved in during 2011.

The common diagnostic and procedural requirements for the medical graduate, specifying the level of achievement have been identified and endorsed by all medical schools. The process has been comprehensive and robust and there has been a high rate of participation and involvement from medical schools.

It is hoped that the provision of the Framework of Competencies with the accompanying common diagnostic and procedural requirements will provide medical schools with a useful resource to evaluate their curriculum and to plan clinical placement allocation.

This project would not have been possible without the support of the Workforce Innovation and Reform Section of Health Workforce Australia. Medical Deans appreciates the support and looks forward to working with HWA on future collaborations.

List of Appendices

- A. Reference Group and Writing Group Membership
- B. Common diagnostic requirements for the medical graduate specifying the level of achievement
- C. Common procedural requirements for the medical graduate specifying the level of achievement
- D. Recommended observations
- E. Common diagnostic and procedural requirements mapped back to the AMC graduate attributes
- F. Common diagnostic requirements for the medical graduate mapped to the Australian Curriculum Framework for Junior Doctors
- G. Common procedural requirements for the medical graduate mapped to the Australian Curriculum Framework for Junior Doctors
- H. Glossary of terms
- I. National Patient Safety Education Framework recommendations for aligning healthcare sector to the education sector
- J. Consultation Record

Reference Group

Member

Professor Richard Hays (Chair)
Professor Allan Carmichael
Professor Nicholas Glasgow (Deputy Chair)
Dr Andrew Singer
Ms Deborah Paltridge

Dr Gregory Keogh

Professor David Prideaux
Professor Fiona Lake
Dr Michael O'Sullivan

Mr Sam Whitehouse
Dr Morton Rawlin
Dr Geoff Copland
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Representing

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Medical Deans
Medical Deans and Australian Medical Council
Department of Health and Ageing
Confederation of Post Graduate Medical Education
Councils
Confederation of Post Graduate Medical Education
Councils/Clinical Education and Training
Medical Educators/Flinders University
Medical Educators/ University of Western Australia
Australian Medical Association Council Doctors in
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Australian Medical Students' Association
Committee of Presidents of Medical Colleges
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Health Workforce Australia
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Writing Group

Member

Professor Richard Hays (Chair)
Professor Allan Carmichael
Professor Nicholas Glasgow (Deputy Chair)
Professor David Prideaux
Ms Deborah Paltridge

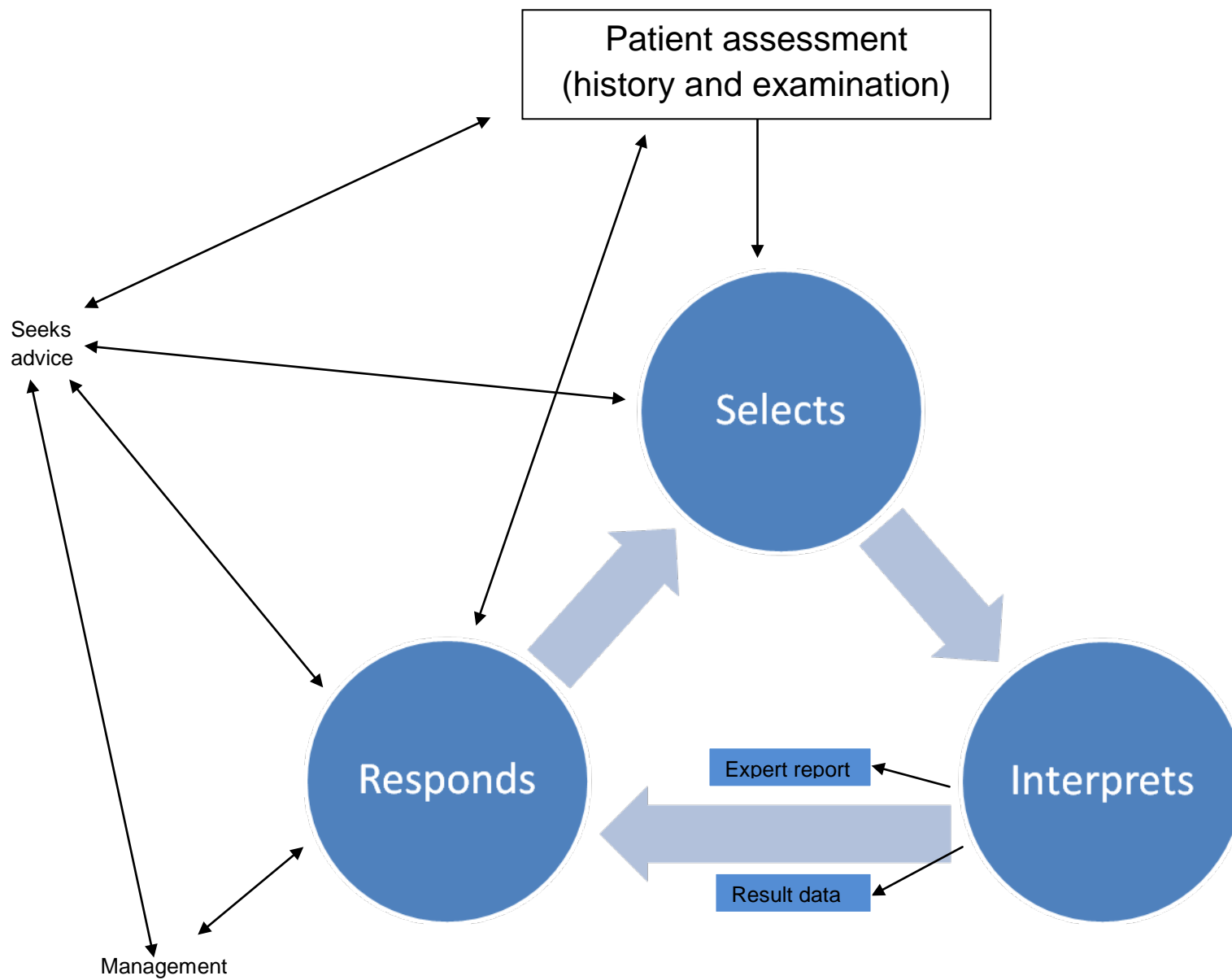
Professor Fiona Lake
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Medical Deans
Medical Deans
Medical Deans and Australian Medical Council
Medical Educators/Flinders University
Confederation of Postgraduate Medical Education
Councils
Medical Educators/University of Western Australia
Australian Medical Association Council Doctors in
Training
Australian Medical Students' Association
Medical Deans

Clinical reasoning process when a clinical investigation is required



Common diagnostic skills for the medical graduate and associated level of achievement

Appendix B

1. Selects appropriately:

Understands the theory underpinning the diagnostic procedure, the rationale for use and the clinical indications; can select the most appropriate diagnostic procedure for the clinical situation and can organise procedures or samples/specimens for diagnostic testing.

2A. Interprets specialist report:

***See below**

Understands and deciphers results in specialist report, relating to the diagnostic procedure which has been selected to enhance patient assessment.

2B. Interprets results directly, recognise normal and abnormal:

***See below**

Understands and can explain the results arising from the diagnostic procedure without having to wait for the specialist report: correctly identifies normal from abnormal.

3. Responds appropriately:

Knows the next step to assist with patient assessment and the use of clinical investigations including seeking further advice, selecting and arranging further investigations and overall patient management.

**Explanation of 2A Interprets specialist report:*

Example for Chest X-ray

A doctor orders chest X-ray for a patient who has decreased air sounds on the left side of the chest. The Chest X-ray shows multiple opaque shadows in the lung fields. The doctor is unable to decide on further investigations or management until the radiologist report is received.

**Explanation of 2B Interpret results directly, recognises normal and abnormal*

Example for Chest X-ray

A doctor orders chest X-rays for a patient who has decreased air entry on the left side of the chest. The doctor receives the chest X-ray without the report. The doctor can determine whether there is a chest infection, cardiac failure, pleural effusion or pneumothorax and can initiate further management.

**Explanation of 2A Interprets specialist report*

Example for Full Blood Count

A patient has right upper quadrant pain, nausea and fatigue. The doctor orders blood to be taken to assess liver function. The initial report indicates a moderately elevated Gamma – glutamyltransferase (GGT) and elevated liver enzymes (transaminases). The doctor feels they should await the pathologists report before they chose to investigate for hepatitis.

Explanation of 2B Interprets results directly, recognises normal and abnormal

Example for 2B Full Blood Count

The same patient mentioned above has a blood test which shows only a moderately elevated level of GGT. The doctor feels confident in combining the clinical information with the results of the blood test to order an ultrasound of the gall bladder as the appropriate next step.

Common diagnostic skills for the medical graduate and associated level of achievement

Appendix B

Diagnostic Skill	1. Selects appropriately	2A. Interprets specialist report	2B. Interprets results directly, recognises normal and abnormal.	3. Responds appropriately
Electrocardiograms	✓	✓	✓	✓
Ventricular Tachycardia		✓	✓	✓
Atrial Fibrillation		✓	✓	✓
Ventricular Fibrillation		✓	✓	✓
A flutter		✓	✓	✓
Complete heart block		✓	✓	✓
SVT		✓	✓	✓
Ischaemia (acute)		✓	✓	✓
Artefact		✓	✓	✓
Bundle branch block (Left & Right)		✓	✓	✓
24 hour blood pressure monitoring	✓	✓		✓
Holter Monitor	✓	✓		✓

Common diagnostic skills for the medical graduate and associated level of achievement

Appendix B

Diagnostic Skill - Imaging	1. Selects appropriately	2A. Interprets specialists report	2B. Interprets image directly recognises normal and abnormal # = Major fractures and gross abnormalities	3. Responds appropriately
Plain X-rays (routine & urgent)	✓	✓		✓
Chest X-rays		✓	✓	✓
Abdominal		✓	✓	✓
Musculoskeletal (all limbs)		✓	✓ #	✓
Pelvis		✓	✓ #	✓
Cervical Spine		✓	✓ #	✓
Thoracic Spine		✓	✓ #	✓
Lumbar Spine		✓	✓ #	✓
Facial		✓	✓ #	✓
Skull		✓	✓ #	✓
CT scans (# = can detect major abnormalities including SOL or internal bleeding)	✓	✓	✓	✓
Head	✓	✓	✓ #	✓
Thoracic	✓	✓		✓
Abdominal	✓	✓		✓
MRI	✓	✓		✓
Ultrasound	✓	✓		✓
Echocardiogram	✓	✓		✓
Doppler and duplex – vascular	✓	✓		✓
Angiography	✓	✓		✓
Bone Densitometry	✓			✓

Common diagnostic skills for the medical graduate and associated level of achievement

Appendix B

Diagnostic Skill - Pathology	1. Selects appropriately	2.A Interprets specialists report	2.B Interpret pathology results	3. Responds appropriately
Pathology Reports	✓		✓	✓
Haematology				
Full blood counts	✓		✓	✓
Blood films	✓	✓		✓
Coagulation tests/studies	✓		✓	✓
D dimer	✓		✓	✓
Microbiology				
Blood culture	✓	✓		✓
HIV & hepatitis serology	✓	✓		✓
Urine microscopy and culture	✓	✓		✓
Faecal microscopy and culture	✓	✓		✓
CSF microscopy and culture	✓	✓		✓
Sputum microscopy and culture	✓	✓		✓
Wound swab microscopy and culture	✓	✓		✓
Pleural tap/Pleural effusion tests	✓	✓		✓
Biochemistry				
Liver function tests	✓	✓	✓	✓
Urinalysis (dipstick)	✓		✓	✓
Pregnancy testing	✓		✓	✓
Urea, creatinine, estimated GFR and electrolytes	✓	✓	✓	✓
Cardiac enzymes	✓	✓	✓	✓
Iron studies including B12 & folate	✓	✓	✓	✓
Urinary electrolytes	✓	✓	✓	✓
Glucose tests (random & fasting glucose, GTT &/or HBA1C)	✓	✓	✓	✓
Urinary protein analysis	✓	✓	✓	✓
Calcium levels	✓	✓	✓	✓

Common diagnostic skills for the medical graduate and associated level of achievement

Appendix B

Metabolic bone markers eg (vitamin D, phosphate, PTH)	✓	✓		✓
Pancreatic enzymes	✓	✓	✓	✓
Blood gas (arterial & venous)	✓	✓	✓	✓
Cholesterol/triglycerides	✓	✓	✓	✓
Acute phase reactants	✓	✓	✓	✓
Endocrine				
Thyroid functioning	✓	✓	✓	✓
Serum cortisol	✓	✓		✓
Serum parathyroid levels	✓	✓		✓
Follicle Stimulating Hormone	✓	✓		✓
Luteinizing Hormone	✓	✓		✓
Oestrogen	✓	✓		✓
Progesterone	✓	✓		✓
Testosterone	✓	✓		✓
Histopathology				
Cytology	✓	✓		✓
tissue biopsy (including fine needle aspiration)	✓	✓		✓
Diagnostic Skill - others	1. Selects appropriately	2A. Interprets specialists report	2B. Interprets results	Responds appropriately
Endoscopic procedures		✓		✓
upper GI	✓	✓		✓
colonoscopy	✓	✓		✓
Pulmonary function tests (Spirometry & peak flow meter)	✓	✓		✓

Common procedural skills for the medical graduate and associated level of achievement

Appendix C

Descriptors for 4 point matrix specifying level of achievement

1. **Observes:** Observes the procedural skill being done.
2. **Performs in a simulated environment:** Performs in a simulated learning environment on mannequins, mock patients or on a fellow student.
3. **Performs in the clinical environment under structured supervision:** Performs on a real patient, in real time under direct clinical supervision.
4. **Performs routinely in the clinical environment under minimal supervision:** Performs the procedure on real patients, in real time, competently and with minimal supervision or guidance in the clinical environment.



Procedural Skill	<div style="display: flex; justify-content: space-around; width: 100%;"> Novice Competent Proficient </div>			
	1. Observes	2. Performs in a simulated environment (Novice)	3. Performs in the clinical environment under structured supervision (Competent)	4. Performs routinely in the clinical environment under minimal supervision (Proficient)
EMERGENCY				
Basic First Aid (assumed entry requirement)	✓	✓	✓	✓
Basic Life Support (see ARC guideline)				
D.R.S.A.B.C.D.	✓	✓		
external cardiac massage	✓	✓		
Airway Management (see ARC guideline) including:	✓	✓		
chin lift/head tilt	✓	✓		
manage partial airway obstruction	✓	✓		
or complete airway obstruction	✓	✓		
effective cough	✓	✓		
ineffective cough	✓	✓		
guedel & nasopharyngeal insertion	✓	✓		
bag & mask ventilation	✓	✓		
CPR	✓	✓		

Procedural Skill	1. Observes	2. Performs in a simulated environment (Novice)	3. Performs in the clinical environment under structured supervision (Competent)	4. Performs routinely in the clinical environment under minimal supervision (Proficient)
Advanced Life Support (see ARC guidelines) including:	✓	✓		
Good quality CPR	✓	✓		
Rhythm assessment	✓	✓		
(shockable or non shockable)	✓	✓		
Defibrillation	✓	✓		
Immediate CPR	✓	✓		
Post resuscitation care	✓	✓		
Volume resuscitation	✓	✓		
Appropriate oxygen administration	✓	✓	✓	✓
Nasal prongs and face mask	✓	✓	✓	✓
Cervical spine stabilisation	✓	✓		
GENERAL DOCTOR & PATIENT				
Peak flow meter function testing	✓	✓	✓	✓
Spirometry	✓	✓		
ECG	✓	✓	✓	✓
Blood pressure measurement	✓	✓	✓	✓
Height ,weight/BMI adults and children	✓	✓	✓	✓
EYE, EAR, NOSE & THROAT				
Foreign body removal - ear & nose	✓	✓		
Eye foreign body removal including padding as appropriate	✓	✓		
Ophthalmoscopy	✓	✓	✓	
Slit lamp use	✓	✓		
Eyelid eversion	✓	✓	✓	

Procedural Skill	1. Observes	2. Performs in a simulated environment (Novice)	3. Performs in the clinical environment under structured supervision (Competent)	4. Performs routinely in the clinical environment under minimal supervision (Proficient)
Fluorescein - staining of cornea	✓	✓		
External auditory canal irrigation	✓			
External auditory canal ear wick insertion	✓			
GENERAL PROCEDURAL				
Nasogastric tube insertion	✓	✓		
IV cannulation (including set up and IV fluid administration)	✓	✓	✓	✓
Venepuncture for venous blood sample	✓	✓	✓	✓
Collection of arterial blood sample from the radial artery	✓	✓		
Measures blood glucose levels using finger prick testing	✓	✓	✓	✓
Collects blood culture specimens using aseptic techniques	✓	✓	✓	✓
Samples, analyses and reads urinary dipsticks	✓	✓	✓	✓
Lumbar puncture	✓	✓		
Simple swab using standard microbial collection	✓	✓	✓	✓
Preparation for sterile procedures including hand washing.	✓	✓	✓	✓
Sterile preparation techniques for operating theatres including scrub, glove and gown	✓	✓	✓	✓
Use of personal protective equipment	✓	✓	✓	✓
WOMEN'S HEALTH				
Urine pregnancy testing	✓	✓	✓	✓
Pap smear	✓	✓		
Collects vaginal and endocervical swabs	✓	✓		
Female catheterisation	✓	✓		

Procedural Skill	1. Observes	2. Performs in a simulated environment (Novice)	3. Performs in the clinical environment under structured supervision (Competent)	4. Performs routinely in the clinical environment under minimal supervision (Proficient)
MEN'S HEALTH				
Male catheterisation	✓	✓		
MUSCULOSKELETAL INJURY & ANAESTHESIA				
Simple wound repair including skin suture	✓	✓		
Plastering of the upper limb and lower limb	✓	✓		
Injection of a local anaesthetic	✓	✓	✓	
Subcutaneous injections	✓	✓	✓	
Intramuscular injections	✓	✓	✓	
Intravenous injections	✓	✓	✓	
Skin lesion excision	✓	✓		

Recommended observations of common diagnostic and procedural skills for the medical graduate to enhance clinical experience

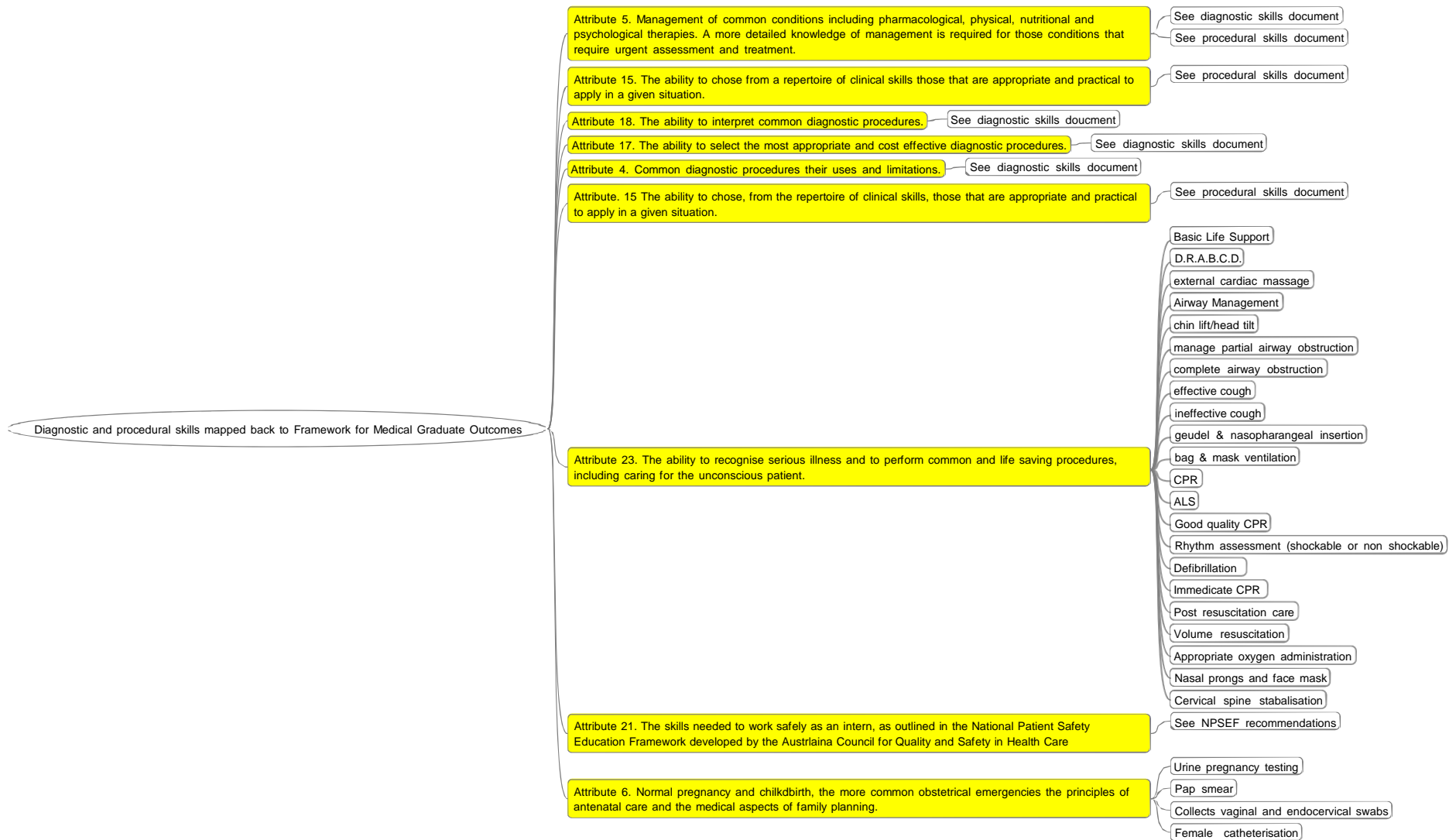
Appendix D

Recommended observations of Diagnostic skills

- Bone Density scans.
- VQ scans
- PETS Scans
- Bone scans
- Gallium scans

Recommended observations of Procedural skills

- Abdominal paracentesis
- Insertion of a central venous line
- Chest tube insertion
- Proctoscopy
- Drainage of an abscess
- Complex wound suturing
- Pressure haemostasis
- Joint aspiration
- Joint relocation
- Aspiration of a pneumothorax
- Sigmoidoscopy
- Sigmoidoscopy
- Haematolysis



Common diagnostic requirements for the medical graduate mapped to the Australian Curriculum Framework for Junior Doctors

Appendix F

Diagnostic Skill	1. Select Appropriately	2A. Interprets Expert report	2B. Interprets results directly, recognises normal and abnormal.	3. Responds appropriately	Maps to ACFJD
Electrocardiograms	✓	✓	✓	✓	Interpretation of results Cardiopulmonary - 12 lead electrocardiogram recording and interpretation
Ventricular Tachycardia		✓	✓	✓	
Atrial Fibrillation		✓	✓	✓	
Ventricular Fibrillation		✓	✓	✓	
A flutter		✓	✓	✓	
Complete heart block		✓	✓	✓	
SVT		✓	✓	✓	
Ischaemia (acute)		✓	✓	✓	
Artefact		✓	✓	✓	
Bundle branch block (Left & Right)		✓	✓	✓	
24 hour blood pressure monitoring	✓	✓		✓	Blood pressure monitoring
Holter Monitor	✓	✓		✓	Clinical Problems and Conditions - Arrhythmias

Diagnostic Skill - Imaging	1. Select & Arrange	2A. Interprets expert report	2B. Interprets image directly recognises normal and abnormal # = Major fractures and gross abnormalities	3. Responds appropriately	
Plain X-rays (routine & urgent)	✓	✓		✓	Interpretation of results - radiology
Chest X-rays		✓	✓	✓	
Abdominal		✓	✓	✓	
Musculoskeletal (all limbs)		✓	✓ #	✓	
Pelvis		✓	✓ #	✓	
Cervical Spine		✓	✓ #	✓	
Thoracic Spine		✓	✓ #	✓	
Lumbar Spine		✓	✓ #	✓	
Facial		✓	✓ #	✓	
Skull		✓	✓ #	✓	
CT scans	✓	✓	✓	✓	Interpretation of results - radiology
(# = can detect major abnormalities including SOL or internal bleeding)					
Head	✓	✓	✓ #	✓	
Thoracic	✓	✓		✓	
Abdominal	✓	✓		✓	
MRI	✓	✓		✓	Interpretation of results - radiology
Ultrasound	✓	✓		✓	Clinical Management - Investigations
Echocardiogram	✓	✓		✓	
Doppler and duplex – vascular	✓	✓		✓	
Angiography	✓	✓		✓	
Bone Densitometry	✓			✓	Interpretation of results - nuclear medicine

Diagnostic Skill - Pathology	1. Select & Arrange	2.A Interprets expert report	2.B Interpret pathology results	3. Responds appropriately	
Pathology Reports	✓		✓	✓	Interpretation of results - pathology
Haematology					
Full blood counts	✓		✓	✓	Diagnostic - (blood culture)
Blood films	✓	✓		✓	
Coagulation tests/studies	✓		✓	✓	Diagnostic (blood culture) and Therapeutics - anticoagulant
D dimer	✓		✓	✓	Diagnostic - (blood culture)
Microbiology					
Blood culture	✓	✓		✓	Diagnostic - (blood culture)
HIV & hepatitis serology	✓	✓		✓	Interpretation of results - pathology
Urine microscopy and culture	✓	✓		✓	Interpretation of results - pathology
Faecal microscopy and culture	✓	✓		✓	Interpretation of results - pathology
CSF microscopy and culture	✓	✓		✓	Interpretation of results - pathology
Sputum microscopy and culture	✓	✓		✓	Interpretation of results - pathology
Wound swab microscopy and culture	✓	✓		✓	Diagnostic - Wound culture and Interpretation of pathology
Pleural tap/Pleural effusion tests	✓	✓		✓	Interpretation of results - pathology
Biochemistry					
Liver function tests	✓	✓	✓	✓	Interpretation of results - pathology
Urinalysis (dipstick)	✓		✓	✓	Urogenital - urine dipstick
Pregnancy testing	✓		✓	✓	Interpretation of results - pathology
Urea, creatinine, estimated GFR and electrolytes	✓	✓	✓	✓	Interpretation of results - pathology
Cardiac enzymes	✓	✓	✓	✓	Interpretation of results - pathology
Iron studies including B12 & folate	✓	✓	✓	✓	Interpretation of results - pathology
Urinary electrolytes	✓	✓	✓	✓	Interpretation of results - pathology
Glucose tests (random & fasting glucose, GTT &/or HBA1C)	✓	✓	✓	✓	Diagnostic - Blood sugar testing, Therapeutics - Insulin and interpretation of results - pathology

Urinary protein analysis	✓	✓	✓	✓	Interpretation of results - pathology and urogenital - urine dipstick
Calcium levels	✓	✓	✓	✓	Interpretation of results - pathology
Metabolic bone markers eg (vitamin D, phosphate, PTH)	✓	✓		✓	Interpretation of results - pathology
Pancreatic enzymes	✓	✓	✓	✓	Interpretation of results - pathology
Blood gas (arterial & venous)	✓	✓	✓	✓	Cardiopulmonary - ABG sampling & interpretation
Cholesterol/triglycerides	✓	✓	✓	✓	Interpretation of results - pathology
Acute phase reactants	✓	✓	✓	✓	Interpretation of results - pathology
Endocrine					Interpretation of results - pathology
Thyroid functioning	✓	✓	✓	✓	Interpretation of results - pathology
Serum cortisol	✓	✓		✓	Interpretation of results - pathology
Serum parathyroid levels	✓	✓		✓	Interpretation of results - pathology
Follicle Stimulating Hormone	✓	✓		✓	Interpretation of results - pathology
Luteinizing Hormone	✓	✓		✓	Interpretation of results - pathology
Oestrogen	✓	✓		✓	Interpretation of results - pathology
Progesterone	✓	✓		✓	Interpretation of results - pathology
Testosterone	✓	✓		✓	Interpretation of results - pathology
Histopathology					Interpretation of results - pathology
Cytology	✓	✓		✓	Interpretation of results - pathology
tissue biopsy (including fine needle aspiration)	✓	✓		✓	Interpretation of results - pathology

Diagnostic Skill	1. Select & Arrange	2. A Interprets expert report	2. B Interprets results	Responds appropriately	
Endoscopic procedures		✓		✓	Clinical Management - investigations
upper GI	✓	✓		✓	
colonoscopy	✓	✓		✓	
Pulmonary function tests (Spirometry & peak flow meter)	✓	✓		✓	Cardiopulmonary - peak flow and spirometry

Relevant section of the Australian Curriculum Framework for Junior Doctors



Interpretation of results



Clinical Problems and conditions



Clinical Management

Common procedural skills for the medical graduate mapped to the Australian Curriculum framework for Junior Doctors

Appendix G

Procedural Skill	1. Observes	2. Performs in a simulated environment (Novice)	3. Performs in the clinical environment under structured supervision (Competent)	4. Performs routinely in the clinical environment under minimal supervision (Proficient)	Maps to ACFJD
EMERGENCY					
Basic First Aid (assumed entry requirement)	✓	✓	✓	✓	
Basic Life Support (see ARC guideline)					Clinical Management - BLS
D.R.S.A.B.C.D.	✓	✓			Clinical Management - BLS
external cardiac massage	✓	✓			Clinical Management - BLS
Airway Management (see ARC guideline) including:	✓	✓			Skills & Procedures - respiratory
chin lift/head tilt	✓	✓			Clinical Management - BLS
manage partial airway obstruction	✓	✓			Clinical Management - BLS
or complete airway obstruction	✓	✓			Clinical Management - BLS, Skills & Procedures respiratory
effective cough	✓	✓			Clinical Management - BLS
ineffective cough	✓	✓			Clinical Management - BLS
geudel & nasopharyngeal insertion	✓	✓			Skills & Procedures - respiratory
bag & mask ventilation	✓	✓			Skills & Procedures respiratory - Bag & Mask ventilation
CPR	✓	✓			Clinical Management - CPR
Advanced Life Support (see ARC guidelines) including:	✓	✓			Clinical Management - ALS
Good quality CPR	✓	✓			
Rhythm assessment	✓	✓			
(shockable or non shockable)	✓	✓			
Defibrillation	✓	✓			

Immediate CPR	✓	✓			
Post resuscitation care	✓	✓			
Volume resuscitation	✓	✓			Trauma - volume resuscitation, Clinical Management - ALS
Appropriate oxygen administration	✓	✓	✓	✓	Skills & Procedures respiratory - Oxygen therapy
Nasal prongs and face mask	✓	✓	✓	✓	Skills & Procedures - respiratory bag & mask ventilation
Cervical spine stabilisation	✓	✓			Trauma - in - line immobilisation of cervical spine, cervical collar application
GENERAL DOCTOR & PATIENT					
Peak flow meter function testing	✓	✓	✓	✓	Skills & Procedures Cardiopulmonary - peak flow measurement
Spirometry	✓	✓			Skills & Procedures Cardiopulmonary - Spirometry
ECG	✓	✓	✓	✓	Skills & Procedures Cardiopulmonary - 12 lead ECG recording and interpretation
Blood pressure measurement	✓	✓	✓	✓	Skills & Procedures Measurement - Blood pressure
Height ,weight/BMI adults and children	✓	✓	✓	✓	Clinical problems & conditions - Nutrition Metabolic
EYE, EAR, NOSE & THROAT					
Foreign body removal - ear & nose	✓	✓			Skills & procedures - Ear, nose & throat
Eye foreign body removal including padding as appropriate	✓	✓			Skills & Procedures Ophthalmic - Eye bandage application
Ophthalmoscopy	✓	✓	✓		Skills & Procedures Ophthalmic - Direct

					ophthalmoscopy
Slit lamp use	✓	✓	<input type="checkbox"/>		Skills & Procedures Ophthalmic - Slit lamp examination (adv)
Eyelid eversion	✓	✓	✓		Skills & Procedures Ophthalmic - eyelid eversion
Fluorescein - staining of cornea	✓	✓			Skills & Procedures Ophthalmic - Slit lamp examination (adv)
External auditory canal irrigation	✓				Skills & Procedures Ear, Nose & Throat - external auditory canal irrigation
External auditory canal ear wick insertion	✓				Skills & Procedures Ear, Nose & Throat - external auditory canal ear wick insertion
GENERAL PROCEDURAL					
Nasogastric tube insertion	✓	✓			Skills & Procedures Gastrointestinal - nasogastric tube insertion
IV cannulation (including set up and IV fluid administration)	✓	✓	✓	✓	Skills & Procedures Intravenous cannulation, intravenous infusion set up, intravenous fluid therapy
Venepuncture for venous blood sample	✓	✓	✓	✓	Skills & Procedures Venepuncture
Collection of arterial blood sample from the radial artery	✓	✓			Skills & Procedures Cardiopulmonary - arterial blood gas sampling & interpretation
Measures blood glucose levels using finger prick testing	✓	✓	✓	✓	Skills & Procedures Diagnostic - blood sugar testing
Collects blood culture specimens using aseptic techniques	✓	✓	✓	✓	Skills & Procedures Diagnostic - blood culture
Samples, analyses and reads urinary dipsticks	✓	✓	✓	✓	Skills & Procedures Urogenital
Lumbar puncture	✓	✓			Skills & Procedures Lumbar puncture (adv)

Simple swab using standard microbial collection	✓	✓	✓	✓	Skills & Procedures Diagnostic - wound swab
Preparation for sterile procedures including hand washing.	✓	✓	✓	✓	Clinical management - infection control
Sterile preparation techniques for operating theatres including scrub, glove and gown	✓	✓	✓	✓	Skills & Procedures Surgical - scrub, glove and gown
Use of personal protective equipment	✓	✓	✓	✓	Clinical management - infection control
WOMEN'S HEALTH					
Urine pregnancy testing	✓	✓	✓	✓	Skills & Procedures Women's health - Urine pregnancy testing
Pap smear	✓	✓			Skills & Procedures Women's health - PAP smear
Collects vaginal and endocervical swabs	✓	✓			Skills & Procedures Women's health - endocervical swab
Female catheterisation	✓	✓			Skills & Procedures Urogenital - Bladder catheterisation (W)
MEN'S HEALTH					
Male catheterisation	✓	✓			Skills & Procedures Urogenital - Bladder catheterisation (M)
MUSCULOSKELETAL INJURY & ANAESTHESIA					
Simple wound repair including skin suture	✓	✓			Skills & Procedures Surgical - simple wound repair
Plastering of the upper limb and lower limb	✓	✓			Skills & Procedures Trauma - plaster cast/splint immobilisation
Injection of a local anaesthetic	✓	✓	✓		Skills & Procedures Surgical - local anaesthesia
Subcutaneous injections	✓	✓	✓		Skills & Procedures Injections - subcutaneous
Intramuscular injections	✓	✓	✓		Skills & Procedures Injections - Intramuscular

Intravenous injections	✓	✓	✓		Skills & Procedures - Intravenous drug administration
Skin lesion excision	✓	✓			Skills & Procedures Surgical - simple skin lesion excision

Relevant sections of the Australian Curriculum framework for Junior Doctors



Skills and Procedures



Clinical management

Glossary of terms	
Ability	Competence in an activity or occupation because of one's skill, training, or other qualification.
Abnormal	Not normal, average, typical, or usual; deviates from a standard.
Accurately	Free from error or defect; consistent with a standard, rule, or model; precise; exact.
Acknowledges	To show or express recognition or realization of.
Advanced beginner	Limited situational perception, all aspects of work treated separately with equal importance.
Analyses	The separating of any material or abstract entity into its constituent elements, this process as a method of studying the nature of something or of determining its essential features and their relations.
Applies	To make use of as relevant, suitable, or pertinent, to apply a theory to a problem, to put to use, especially for a particular purpose, to bring into action.
Appreciates	To be fully conscious of; be aware of; detect.
Appropriately	To set apart, authorize, or legislate for some specific purpose or use.
Arrange	To place in proper, desired, or convenient order; adjust properly, to come to an agreement or understanding regarding, to prepare or plan.
Clinical	Healthcare setting which involves the direct observation and treatment of patients.
Clinical environment	Situations directly involving, patients and their problems in the context of professional practice.
Clinical placement	For the purposes of this project, clinical placement refers to those placements which occur in the second half of a medical degree when the medical student is full time in their clinical attachments. Clinical placements provide opportunities in a relevant professional setting for the education and training of health sector students for the purposes of: <ul style="list-style-type: none"> • integrating theory into practice • familiarising the student with the practice environment • building the knowledge, skills and attributes essential for professional practice, as identified by the education institution and/or external accrediting/licensing body. During clinical placements the provision of safe, high-quality patient care is always the primary consideration.
Clinical skill	For the purposes of this project clinical skills refers to those skills which are psychomotor skills or procedural skills.
Communicates	To impart knowledge of; make known.
Competence	The array of abilities across multiple domains or aspects of physician performance in a certain context. Competence is multidimensional, dynamic and changes with time, experience, and setting. (ICBMECG 2010)
Competency	An observable ability of a health professional, integrating multiple components such as knowledge, skills, values, and attitudes. Since competencies are observable, they can be measured and assessed to ensure acquisition by a professional. Competencies can be assembled like building blocks to facilitate progressive development. (ICBMECG 2010)
Competent	Possessing the required abilities in all domains in a certain context at a defined stage of medical education or practice. (ICBMECG 2010)
Conducts	To direct in action or course; manage; carry on: to conduct a meeting; to conduct a test, to direct.
Considers	To think carefully about, especially in order to make a decision; contemplate; reflect on.
Consults	To seek advice or information from; ask guidance from.
Contributes	To be an important factor in.
Demonstrates	To make evident or establish by arguments or reasoning; prove, to describe, explain, or illustrate by examples or performance.
Diagnostic procedure	A procedure followed to make a medical diagnosis.
Displays	To show or exhibit.
Documents	To furnish with references, citations, in support of statements made.

Efficiently	Performing or functioning in the best possible manner with the least waste of time and effort; having and using requisite knowledge, skill, and industry; competent.
Elicits	To draw or bring out or forth; educe; evoke.
Empathises	To demonstrate empathy for a patient or their family.
Engages	To occupy the attention or efforts of person/persons.
Ensures	To secure or guarantee.
Evaluates	To judge or determine the significance, worth, or quality of, assess.
Expert	Transcends reliance on rules, guidelines, and maxims, intuitive grasp of situations based on deep, tacit understanding, has vision of what is possible uses analytical approaches in new situations or in case of problems.
Expert report	A study written by one or more specialists in the field that states findings and offers opinions.
Explains	To make plain or clear; render understandable or intelligible: to explain an obscure point, to make known in detail.
Identifies	To recognize or establish as being a particular person or thing.
Incorporates	To put or introduce into a body or mass as an integral part or parts.
Integrates	To bring together or incorporate (parts) into a whole, to make up, combine, or complete to produce a whole or a larger unit.
Interacts	To act one upon another.
Interprets	To give or provide the meaning of; explain; explicate; elucidate.
Knows	To have knowledge or clear and certain perception, as of fact or truth.
Level of achievement	Progression of skill acquisition from lowest order to highest order, incorporates the underpinning knowledge and understanding of the skill.
Listens	To pay attention.
Maintains	To keep in existence or continuance; preserve; retain.
Normal	Conforming to a type, standard, or regular pattern, occurring naturally and not because of disease, inoculation, or any experimental treatment.
Novice	Rigid adherence to taught rules or plans, no exercise of discretionary judgment.
Observes	To regard with attention, especially so as to see or learn.
Organises	To form as or into a whole consisting of interdependent or coordinated parts.
Participates	To take or have a part.
Pathology report	Expert report which accompanies the results of pathology collections/specimens.
Performs	What a doctor actually does in practice.
Performs routinely	To carry out; execute; do, to go through or execute in the proper, customary, or established manner in a regular, unvarying, habitual procedure.
Plans	A specific definite purpose.
Practices	Repeated performance or systematic process for the purpose of acquiring skill or proficiency.
Procedural skill	Relating to or comprising memory or knowledge concerned with how to accomplish a task, coming from one's knowledge, practice and aptitude.
Proficiency	Well advanced or competent in any art, science, or subject; skilled.
Proficient	Holistic view of situation, prioritizes importance of aspects, perceives deviations from the normal pattern, and employs maxims for guidance, with meanings that adapt to the situation at hand.
Provides	To make arrangements for supplying means of support.
Recognises	To identify from knowledge of appearance or characteristics.
Refers	To send or direct for diagnosis or treatment.
Relevant	Bearing upon or connected with the matter in hand; pertinent: a relevant remark.
Respect	Esteem for or a sense of the worth or excellence of a person, a personal quality or ability, or something considered as a manifestation of a personal quality or ability.

Responds appropriately	Knows the next step to assist with patient assessment and the use of clinical investigations including seeking further advice, selecting and arranging further investigations and overall patient management.
Seeks	To try to find or discover by searching or questioning: to seek the solution to a problem.
Selects	To choose in preference to another or others.
Shows	To explain or make clear; make known.
Simulated learning environment	Artificial reality used to imitate real time situations for educational purposes.
Standardised patient	A role playing patient or examiner who is subject to a clinical procedure/encounter by a candidate for the purpose of assessing competence.
Structured supervision	To assess, monitor and support medical students to develop professional competencies required for internship during a period of restricted practice whilst ensuring delivery of safe and effective services. This involves observing, approving and being responsible for the activities of a junior in a clinical setting. This requires direct oversight by a clinical supervisor of professional procedures and/or processes performed by a student or a group of students within a clinical placement for the purpose of guiding, providing feedback on, and assessing personal, professional and educational development in the context of each student's experience of providing safe, appropriate and high-quality patient care.
Tailors	To fit or apply to the given situation.
Treats	To care for or deal with medically.
Understands	To perceive the meaning of; grasp the idea of; comprehend, to be thoroughly familiar with; apprehend clearly the character, nature, or subtleties of, to assign a meaning to, to grasp the significance, implications, or importance.
Undertakes	To take upon oneself, as a task, performance, attempt, to promise, agree, or obligate oneself, to warrant or guarantee, to take in charge, and assume the duty of attending to.

**Alignment of Medical Deans' Competencies Project with the National Patient Safety Education Framework
Category 2 Performance elements and recommended assessment approaches**

Appendix I

Section of NPSEF	Performance Elements – Level 2	Recommended assessment in the workplace	Additional assessment (non workplace based)
<p>Communication skills regarding adverse events</p>	<ul style="list-style-type: none"> • Actively explain to patients and carers their role in care, decision-making and preventing adverse events. • Communicate risk information to patients and carers in an appropriate way and assist them to make informed decisions. • Use a range of risk communication tools to deliver information about the risks associated with the various treatment options including no treatment. • Reduce misunderstanding by using standardised 'vocabulary' to describe the probability of a risk occurring. 	<ul style="list-style-type: none"> • Mini – CEx • VIVA • role playing to test a medical students ability to communicate information to explain adverse events, communicate risk, enable decision making, explain a range of treatment options and the associated risks and using standardised vocabulary. 	<ul style="list-style-type: none"> • OSCE
<p>Communicating honestly with patients after an adverse event (open disclosure)</p>	<ul style="list-style-type: none"> • Respond to a patient suffering after an adverse event or near miss. • Notify a senior health care worker. • Complete appropriate documentation in the health care records, incident reports and records for investigation. • Show understanding to patients suffering after adverse events or near misses. • Provide patients and carers with information about communicating honestly after an adverse event (open disclosure). • Comply with standards for open and honest communication with patients. 	<ul style="list-style-type: none"> • Mini - CEx • Role playing • Most suitable assessment will be in a simulated learning environment as medical graduates will not be expected to communicate adverse events with actual patients 	<ul style="list-style-type: none"> • OSCE • Standardised patients

Section of the NPSEF	Performance Elements – Level 2	Recommended assessment in the workplace	Additional Assessment (non workplace based)
Recognising, reporting and managing adverse events and near misses	<ul style="list-style-type: none"> • Identify report and learn from errors and system failures, including supporting those making errors. • Share lessons from the analysis of system failures and patient safety incidents with co-workers. • Learn from near misses and adverse events and apply safety principles in the workplace. • Recognise the psychological precursors of error—attitude, inattention, distraction, preoccupation, forgetfulness, fatigue and stress. • Apply relevant procedures (policies) and technical means (security) to ensure that confidential information is appropriately protected. • Report adverse events including drug or device events appropriately. 	<ul style="list-style-type: none"> • Above the level of the medical graduate. This would probably be best assessed by getting interns and medical students to do presentations to their peers on how to recognise, report, manage adverse events and near misses. • The medical student could be given the scenario of an adverse event and develop a presentation focusing on the above mentioned elements for how to recognise, report and manage an adverse event. Perhaps could be taught as part of a Problem Based Learning exercise for the week focusing on the error or adverse event. 	<ul style="list-style-type: none"> • OSCE • OSCE
Preventing wrong site, wrong procedure and wrong patient treatment	<ul style="list-style-type: none"> • Follow verification procedures to ensure the correct patient receives the right treatment at the right time and place. • Follow patient verification procedures. • Communicate face to face in language the patient and carer understands. • Follow the organisation or department guidelines for avoiding patient misidentification. • Routinely use checklists and communicate with the treating team about the identity of the patient and the recommended treatment or procedures. 	<p>Suggested assessment</p> <ul style="list-style-type: none"> • Above the level of the medical graduate and more relevant to the post graduate years. However, there could be Workplace Based Assessments developed to address wrong site, wrong patient and wrong procedure scenarios. This could involve the intern following a patient from the ward to the operating theatre to observe exactly the mechanisms in place which try to prevent these types of adverse events. This experience would also provide the medical graduate with insight into the roles of other health care professional involved in patient care and patient safety. 	<ul style="list-style-type: none"> • OSCE

Section of NPSEF	Performance Elements- Level 2	Recommended workplace based assessment	Additional assessment (non workplace based)
Medicating safely	<ul style="list-style-type: none"> • Minimise the main errors and the risks associated with medications • Minimise medication errors through competent practice and appropriate engagement with patients. • Prescribe and administer medications safely. • Involve and educate patients about their medications • Double check and document all dose calculations. • Provide clear documentation of people with allergies. • Confirm and double check all prescribing, dispensing and administering of medications to patients. • Report all medication errors (prescribing, dispensing, administering) and near misses. • Write clearly and legibly. • Regularly update skills and knowledge required for medication safety. 	<ul style="list-style-type: none"> • This is an outcome not a process, could be assessed via Workplace Based Assessment. • This is an outcome not a process, best assessed via Workplace Based Assessment. • Workplace Based Assessment • Workplace Based Assessment • Workplace Based Assessment • Workplace Based Assessment • Workplace Based Assessment • Workplace Based Assessment Assessment via a clinical audit. Ask students to do a group project on the outcomes of a surgical program. Focus on sharing lessons learnt from the analysis of the program. Examples include Clinical Pathological Conference held regularly in academic teaching units. Conference which promotes critical reflection and quality assurance by reflecting on real cases and what the doctor could have differently to improve the outcome. Any scenario which promotes self-reflection and mechanisms to review how the doctor is performing would be relevant to regularly updating skills and knowledge in the workplace. 	<ul style="list-style-type: none"> • Assessed via OSCE station testing basic prescribing skills. • Assessed via OSCE station involving communicating with a standardised patient about their medications

University
Adelaide University
Auckland University
Australian National University
Bond University
Deakin University
Flinders University
Griffith University
James Cook University
Monash University
University of Melbourne
University of New South Wales
University of Newcastle
University of Notre Dame - Sydney
Notre Dame - Freemantle
University of Otago Dunedin
University of Queensland
University of Sydney
University of Tasmania
University of Western Australia
University of Western Sydney
University of Wollongong
Other Stakeholder Groups
Health Workforce Australia
Directors of Clinical Training Group
QMET/Queensland Health
Australian Learning & Teaching Council
Australian Curriculum Framework for Junior Doctors
Australian Medical Council