

What are we teaching?

Lessons from integration and tracking across the curricula

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Introduction

Central to GP training is the RACGP Domains of general practice and associated curriculum statements, and since 2008 the ACRRM Domains of generalist practice and associated curriculum statements.

Western Australian General Practice Education and Training (WAGPET) has implemented an integrated Learning Management System (LMS) to support general practice vocational training (WAGPET elearning). With this implementation there was an opportunity to devise an online process to map training across each College's domains and curriculum statements. The aim was to provide an immediate online 'map' of curriculum coverage for the individual GP registrar and individual practices. In addition the online data would provide a ready source of information for Regional Advisory Committees (RACs) and WAGPET itself about program coverage and gaps.

Methodology

Phase 1 of the development of the online mapping system included:

- Ability to assign RACGP and ACRRM domains and curriculum statements to all central and regional workshops entered onto the LMS
- Ability to link curriculum statements of each College where this was appropriate
- Ability to add additional 'topics' where these were not identified in either Colleges' curriculum
- Development of an online in-practice teaching log which included curriculum mapping as part of data entry
- Links to the College curricula were added to each log entry, along with example of teaching techniques
- Development of a visual curriculum matrix for each College:
 - for in-practice teaching
 - individualised Personal Education Matrix which covered the whole of program training
- Ability for Supervisors, staff and Supervisors to be able to access individual GP Registrar matrices.

From 2007 all central and regional workshops were assigned RACGP and ACRRM domains and curriculum statements by WAGPET staff. Individual practice accounts were uploaded online and practices and registrars 'enrolled' in the in-practice teaching log module. All paper records of in-practice teaching from 2006.2, 2007.1 and 2007.2 were manually entered into each practice's in-practice teaching log by WAGPET staff.

During 2007 GP registrars were encouraged to use the in-practice teaching log but from 2008 the current cohort of Registrars are now expected to complete these logs while in general practice terms. At the Induction day at the beginning of training and then again in the first week of their Basic GP term orientation workshop GP Registrars are introduced to WAGPET elearning (including the in-practice teaching log) in an interactive, hands on small group session.

Early in 2008.1 WAGPET analysed the online data and managers and educators visited each practice and demonstrated WAGPET elearning and in particular the in-practice teaching log module. At these visits each practice was shown their in-practice teaching log data online and in hard copy for each semester. Discussions revolved around curriculum coverage, teaching techniques used, who did most of the teaching, use of learning plans and skills logs. A small number of practices agreed to pilot the log in 2008.1 and to make suggestions for change. For 2008.1 WAGPET staff continued to enter paper records for other practices.

Each RAC has been provided with in-practice teaching log data from their region for the last 18 months.

From 2008.2 all practices are required to submit their in-practice teaching online. At this stage WAGPET has continued to separate the practice and individual GP Registrar entry of in-practice teaching data, that is two sets of in-practice data are currently being logged.

Findings

Currently over 80% of the current cohort of Basic Registrars are logging their in-practice teaching and Registrars are being encouraged to use this and their personal Education matrix to identify gaps in curriculum coverage for their learning plans.

At the practice visits the in-practice teaching log was enthusiastically received as a valuable tool for reflecting on their teaching, identifying coverage of the curricula and streamlining administration. In the pilot practices completion of the in-practice teaching log has been undertaken directly by Supervisors but also by practice managers using written data from the Supervisors.

The actual log entry form itself acts as a reminder to both Supervisor and GP Registrar of the numerous 'topics' and domains to be covered, the various teaching techniques that can be used, and other sources of 'teachers'.

An example of an in-practice teaching log (figure 1) shows the data entry for a rural practice. Using this data discussion at the practice focused on the:

- value of including other practice staff and health professionals in teaching
- process of reviewing learning plans and skills logs
- variety of teaching techniques that were being used
- spread of teaching across the curriculum statements

Figure 1 Sample from a rural Practice teaching log – towards end of term

Practice									
Total Hours: 91.75									
Date	Duration	Topic	Teaching technique	Trainer	Learning plans	Essential skills	Additional Comments	Edit Delete	
Jun 20, 2007	0.5	Aged care	direct observations reversed (GP Registrar observes Trainer)	GP Supervisor	Y	Y		Edit Delete	
Jun 19, 2007	1.5	Chronic conditions	direct observations reversed (GP Registrar observes Trainer)	GP Supervisor	Y	Y		Edit Delete	
Jun 19, 2007	1.5	Chronic conditions	Practice education meetings	GP Supervisor	Y	Y		Edit Delete	
Jun 12, 2007	1.5	Chronic conditions	Practice education meetings	GP Supervisor	Y	Y		Edit Delete	
Jun 8, 2007	1.5	Child and Adolescent Health Children's and young people's health Chronic conditions	tutorial	GP Supervisor	Y	Y		Edit Delete	
Jun 8, 2007	1.5	Child and Adolescent Health Children's and young people's health Chronic conditions	tutorial	GP Supervisor	Y	Y		Edit Delete	
Jun 5, 2007	1.5	Chronic conditions	case discussion	GP Supervisor	Y	Y		Edit Delete	
May 29, 2007	1.5	Chronic conditions	Practice education meetings	GP Supervisor	Y	Y		Edit Delete	
May 29, 2007	1.5	Chronic conditions	Practice education meetings	GP Supervisor	Y	Y		Edit Delete	
May 22, 2007	0.75	Chronic conditions	Practice education meetings	GP Supervisor	Y	Y		Edit Delete	
May 22, 2007	1.5	Chronic conditions	Practice education meetings	GP Supervisor	Y	Y		Edit Delete	

For the same rural practice RACGP curriculum coverage was more readily identified using the matrix view (figure 2) enabling a discussion about coverage across the domains and gaps across the curriculum statements.

Figure 2 RACGP matrix for rural practice

Curriculum Statements and Topics	RACGP Domains				
	Show ACRRM Domains				
	Communication	Knowledge & Skills	Population Health	Organisational & Legal	Professional & Ethical
Aboriginal and Torres Strait Islander health	1	1	1	1	
Acute serious illnesses and trauma	1	2	1	2	
Aged care	2	2	2	1	2
Children's and young people's health	2	3	3		
Chronic conditions	17	22	21	8	3
Critical thinking and research					
Dermatology	11	11	9	9	1
Disability (intellectual, developmental and physical)					
Doctor's health					
Drug and alcohol medicine					
Genetics					
Integrative medicine					
Men's health	2	4	4	4	1
Mental health	2	2	2	1	1
Multicultural health					
Occupational health and safety					
Oncology					
Pain management					
Palliative care					
Philosophy and foundation of general practice					
Population health					
Practice management	1	1		1	1
Rural general practice					
Sexual health	2	2	2	1	
Sports medicine					
Women's health	7	7	6	7	4

A comparison between each semester matrix of this practice readily identified an increase in teaching of dermatology– from 3 instances to 41 instances across all domains – which was identified as occurring following the introduction of a specialized skin clinic in the practice.

Other logs and matrices from different practices demonstrated other issues, including a lack of identification of teaching across domains, a focus on knowledge and skills, overuse of 'other' category rather than specific curriculum statements.

When considering RACGP curriculum coverage there appears to be good domain coverage with all inpractice teaching across all regions but there are obvious strengths and gaps. The top four areas covered in inpractice teaching are:

- Chronic conditions
- Women's health
- Dermatology
- Children's health

The gaps are highlighted visually in figure 4.

Figure 4 In-practice teaching across all regions for the RACGP curriculum highlighting areas not well covered.

Curriculum Statements and Topics - All regions in-practice teaching 2007	RACGP Domains				
	Communication and the patient-doctor relationship	Knowledge & Skills	Population Health	Organisational & Legal	Professional & Ethical
Aboriginal and Torres Strait Islander health	4	4	4	2	1
Acute serious illnesses and trauma	11	31	9	9	6
Aged care	24	35	18	16	16
Children's and young people's health	57	95	41	31	27
Chronic conditions	304	603	223	187	185
Critical thinking and research	1	1		1	1
Dermatology	70	153	57	54	42
Disability (intellectual, developmental and physical)		1	1	1	1
Doctor's health	1	5	3	4	4
Drug and alcohol medicine	19	34	12	15	18
Genetics	1	1	1	1	1
Integrative medicine		1			1
Men's health	24	57	22	15	10
Mental health	82	119	45	63	54
Multicultural health	1	2	1	1	2
Occupational health and safety	5	7	2	2	3
Oncology	8	14	11	5	9
Pain management	12	20	11	10	12
Palliative care	11	11	5	7	6
Philosophy and foundation of general practice	3	4	2	3	3
Population health	2	4	4	2	2
Practice management	25	50	8	29	33
Rural general practice	1	2	1	1	1
Sexual health	35	53	24	24	19
Sports medicine	1	3	1		2
Women's health	136	242	94	110	99

When considering ACRRM curriculum coverage a number of issues became apparent both at the individual practice level (figure 5) and also whole program level for inpractice teaching (figures 6). The domains emergency care, extended skills and remote and rural context are all elements of most rural in-practice teaching but have not been identified.

The top five areas covered in the ACRRM curriculum were:

- Obstetrics/women's health
- Dermatology
- Child/adolescent health
- Office based practice
- Musculoskeletal

Across practices the coverage of many curriculum statements is sparse. The absence of teaching across the domain relating to Aboriginal health coverage is also apparent. While this in part suggests the need for more education about the curricula for Supervisors, it also reflects that the original written data (based mainly on RACGP domains at that stage) was not well interpreted by WAGPET staff when manually entered. Due to these issues the remainder of discussion of findings for inpractice teaching will focus on RACGP domains as this data from 2007 is more robust.

Figure 5 ACRRM curriculum matrix rural practice

Curriculum Statements and Topics	ACRRM Domains						
	Show RACGP Domains						
	Core clinical knowledge and skills	Extended clinical practice	Emergency care	Population health	Aboriginal and Torres Strait Islander health	Professional and ethical practice	Rural and remote context
Aboriginal People and Torres Strait Islander Health	1			1	1		
Adult Internal Medicine							
Aged Care	2			2		2	
Anaesthetics							
Child and Adolescent Health	3			3			
Dermatology	11			9		2	
Emergency Medicine	2						
Information Technology and Information Management							
Management							
Musculoskeletal Health							
Obstetrics/Women's Health	7			6		4	
Office Based General Practice							
Ophthalmology							
Oral Health							
Palliative Medicine							
Population Health							
Principles of Rural and Remote General Practice							
Psychiatry/Mental Health	2			2		1	
Radiology							
Rehabilitation							
Research and Evidence Based Medicine							
Strategic Skills in Rural Medical Practice							
Surgery							

Figure 6 In-practice teaching across all rural regions for ACRRM

Curriculum Statements and Topics - in-practice teaching 2007 All rural regions	ACRRM Domains						
	Core clinical knowledge and skills	Extended clinical practice	Emergency care	Population health	Aboriginal and Torres Strait Islander health	Professional and ethical practice	Rural and remote context
Aboriginal People and Torres Strait Islander Health	4		1	2	3		1
Adult Internal Medicine	13		1	5	1	6	2
Aged Care	24			15		12	
Anaesthetics							
Child and Adolescent Health	56	1		24		19	1
Dermatology	74			35		25	
Emergency Medicine	16		3	4	1	4	1
Information Technology and Information Management	3						
Management	5	1		1		5	
Musculoskeletal Health	42		2	19	1	13	2
Obstetrics/Women's Health	116	1	1	53		45	1
Office Based General Practice	34		1	14		24	2
Ophthalmology	5			4		4	
Oral Health							
Palliative Medicine	7			3		6	
Population Health	1			1		1	
Principles of Rural and Remote General Practice	2			1		1	1
Psychiatry/Mental Health	48			23		26	
Radiology	3			2		1	
Rehabilitation							
Research and Evidence Based Medicine							
Strategic Skills in Rural Medical Practice	1						
Surgery	7			3		3	

Comparing total instances of inpractice teaching in the RACGP curriculum between all rural and all metropolitan practices there are important differences in some areas. (There are similar numbers of practices across both rural and metropolitan areas) There are more instances of teaching in rural practices in aged care, drug and alcohol, paediatrics, dermatology and oncology/palliative care. In metropolitan practices there are more instances of teaching in mental health and practice management. Identification of actual time spent may change these apparent differences and also highlight differences in areas where the instances are small eg disability, genetics, philosophy of general practice.

Table 1 Differences between rural and metro inpractice teaching (RACGP curriculum)

	Metro	Rural
Aboriginal and Torres Strait Islander health	4	11
Acute serious illnesses and trauma	28	38
Aged care	23	86
Children's and young people's health	98	153
Chronic conditions	714	788
Critical thinking and research	4	0
Dermatology	163	213
Disability (intellectual, developmental and physical)		4
Doctor's health	4	13
Drug and alcohol medicine	36	62
Genetics		5
GP as teacher and mentor		0
Integrative medicine	2	0
Men's health	54	74
Mental health	214	149
Multicultural health	7	0
Occupational health and safety	7	12
Oncology	12	35
Pain management	30	35
Palliative care	12	28
Philosophy and foundation of general practice	12	3
Population health	9	5
Practice management	91	54
Rural general practice		6
Sexual health	65	90
Sports medicine	2	5
Women's health	360	321

Whilst almost 50% of teaching occurs in the practices it is not expected that all areas are to be covered in inpractice teaching. There are a mandatory 138 hours of regional and central education workshops provided to each registrar. The online curriculum mapping allows WAGPET to map each region's education as well as central education.

At a regional level RACs can identify what is being taught across the practices in the region and highlight gaps that they could fill through regional education. In one rural region an obvious gap in curriculum coverage reinforced the RACs desire to develop an occupational health education program as one of their education sessions. This

region now includes a rotation process over three terms covering occupational health issues in gold mining, fisheries and farming. (see figure 7)

Figure 7 Rural region collated inpractice teaching in the RACGP inpractice teaching matrix

Curriculum Statements and Topics - region in-practice teaching 2007	RACGP Domains				
	Communication and the patient-doctor relationship	Knowledge & Skills	Population Health	Organisational & Legal	Professional & Ethical
Aboriginal and Torres Strait Islander health					
Acute serious illnesses and trauma					
Aged care	1	1	1	1	1
Children's and young people's health	3	7	2	4	2
Chronic conditions	26	43	18	25	22
Critical thinking and research					
Dermatology	10	13	8	12	8
Disability (intellectual, developmental and physical)					
Doctor's health					
Drug and alcohol medicine	3	4	3	2	3
Genetics					
Integrative medicine					
Men's health	2	6	2	1	2
Mental health	7	8	3	7	7
Multicultural health					
Occupational health and safety					
Oncology	1	1	2	1	2
Pain management	1	1		1	
Palliative care					
Philosophy and foundation of general practice					
Population health	1	1	1	1	1
Practice management	1		1	1	1
Rural general practice					
Sexual health	3	5	1	2	2
Sports medicine					
Women's health	11	13	7	10	9

In 2006 and 2007 there was a difference in the regional education model between metropolitan and rural regions – rural regions had group sizes of 3-8 registrars, the metropolitan area had 15-20 in a group. Comparing the curriculum data identified significant differences. Rural regions covered most RACGP domains whilst the metropolitan region only covered communication and knowledge and skills domains.

Comparing RACGP curriculum statement data across rural and metropolitan regions (table 2) identified similar teaching gaps in – disability, genetics, integrative medicine, pain management and philosophy of general practice.

Between regions there were similarities in teaching topics. The top four areas were:

- Chronic conditions
- Women's health
- Mental health
- Paediatrics

Table 2 RACGP curriculum statement regional education coverage- metropolitan versus rural*

	Metro	Rural
Aboriginal and Torres Strait Islander health		4
Acute serious illnesses and trauma	3	2
Aged care	2	1
Children's and young people's health	4	3
Chronic conditions	4	7
Critical thinking and research	4	
Dermatology	2	2
Disability (intellectual, developmental and physical)		
Doctor's health		
Drug and alcohol medicine	2	1
Genetics		

Integrative medicine		
Men's health		1
Mental health	4	4
Multicultural health		
Occupational health and safety	1	2
Oncology		1
Pain management		
Palliative care		1
Philosophy and foundation of general practice		
Population health		4
Practice management	2	1
Rural general practice		1
Sexual health	2	1
Sports medicine	2	2
Women's health	3	4

* Note rural data has been reduced by the number of regions to offer a more accurate comparison

ACRRM curriculum coverage for all rural areas demonstrated low coverage of the domains emergency care, extended clinical care and rural and remote context. The teaching gaps across curriculum statements are highlighted in figure 8.

Figure 8 ACRRM curriculum coverage across all rural regional education

Curriculum Statements and Topics All rural regional education	ACRRM Domains						Professional and ethical practice	Rural and remote context
	Core clinical knowledge and skills	Extended clinical practice	Emergency care	Population health	Aboriginal and Torres Strait Islander health			
Aboriginal People and Torres Strait Islander Health	8			8	1	1		
Adult Internal Medicine	7			4		1	1	
Aged Care	1			1				
Anaesthetics								
Child and Adolescent Health	8			6				
Dermatology	7			2				
Emergency Medicine	3		1	1			1	
Information Technology and Information Management								
Management	3	1				2		
Musculoskeletal Health	6	1				1		
Obstetrics/Women's Health	9	1		7		1		
Office Based General Practice	1					1		
Ophthalmology	1			1				
Oral Health								
Palliative Medicine	1			1			1	
Population Health	8	1		8		2		
Principles of Rural and Remote General Practice	2	1	1	1			1	
Psychiatry/Mental Health	9	1		5		3		
Radiology	1			1				
Rehabilitation	1							
Research and Evidence Based Medicine								
Strategic Skills in Rural Medical Practice								
Surgery	1							

Between regions there were also some distinct differences because of issues specific to the region eg Aboriginal health in the Kimberley, Occupational health in the Goldfields and South West (mining and viticulture).

WAGPET can also identify the curriculum coverage for both Colleges that central workshops and online module completion is providing for Registrars at their different training levels.

From a WAGPET program perspective combining all the elements of the online mapping provides an overview of program education delivery across all components and identifies gaps in coverage.

Also importantly at an individual level, Registrars themselves, their Supervisors and Program Training Advisors have access to an instant view of their training through the Registrar's Personal Education Matrix as well as the in-practice matrix. This allows them to support the GP Registrar in identification of gaps and development of learning plans that focus attention on specific elements of the curriculum. (Figure 9,10 & 11)

Figure 9 All education for a General Pathway Registrar – RACGP curriculum

General Pathway Registrar example through Basic, Advanced, Subsequent training All workshops and in-practice teaching	RACGP Domains				
	Communication and the patient-doctor relationship	Knowledge & Skills	Population Health	Organisational & Legal	Professional & Ethical
Aboriginal and Torres Strait Islander health	3	1	3	1	1
Acute serious illnesses and trauma	1	7	1	3	1
Aged care	4	4	2	4	5
Children's and young people's health	7	9	5	4	4
Chronic conditions	24	37	24	13	7
Critical thinking and research		1			1
Dermatology	11	13	9	9	1
Disability (intellectual, developmental and physical)					
Doctor's health				1	2
Drug and alcohol medicine	1	1			
Genetics					
Integrative medicine					
Men's health	4	7	4	6	3
Mental health	6	10	2	5	4
Multicultural health	1			1	
Occupational health and safety					
Oncology		1	1		
Pain management					
Palliative care					
Philosophy and foundation of general practice	1		1		3
Population health	3	3	3	1	
Practice management	1	3		4	3
Rural general practice					
Sexual health	5	6	4	3	3
Sports medicine	3	3		2	2
Women's health	14	18	7	11	8

Figure 10 All education for a Rural Pathway Registrar – RACGP curriculum

Rural Pathway Registrar example through Basic, Advanced, Subsequent training All workshops and in-practice teaching	RACGP Domains				
	Communication and the patient-doctor relationship	Knowledge & Skills	Population Health	Organisational & Legal	Professional & Ethical
Aboriginal and Torres Strait Islander health	2		2		1
Acute serious illnesses and trauma		2			1
Aged care	1	2	2	2	2
Children's and young people's health	2	7	1	4	2
Chronic conditions	10	25	7	8	5
Critical thinking and research		1			1
Dermatology	3	9	1	5	1
Disability (intellectual, developmental and physical)					
Doctor's health				1	1
Drug and alcohol medicine	1	1	1	1	1
Genetics					
Integrative medicine					
Men's health	2	7	3	1	2
Mental health	4	6	1	4	2
Multicultural health	1			1	
Occupational health and safety		2	1	2	1
Oncology	1	1	2	1	2
Pain management	1	2		1	
Palliative care					
Philosophy and foundation of general practice	1		1		3
Population health	1	1	1		
Practice management	2	1	1	3	1
Rural general practice		1	1	1	
Sexual health	3	6	2	3	2
Sports medicine	1	1			
Women's health	5	5	4	4	3

Figure 11 All education for a Rural Pathway Registrar – ACRRM curriculum

Rural pathway registrar example through Basic, Advanced, Subsequent training All workshops and in-practice teaching	ACRRM Domains						Professional and ethical practice	Rural and remote context
	Core clinical knowledge and skills	Extended clinical practice	Emergency care	Population health	Aboriginal and Torres Strait Islander health			
Aboriginal People and Torres Strait Islander Health	2			2	2		1	
Adult Internal Medicine	30			7			11	
Aged Care	3						4	
Anaesthetics								
Child and Adolescent Health	10						5	
Dermatology	7							
Emergency Medicine	1		2				1	1
Information Technology and Information Management	3						3	
Management	1						2	
Musculoskeletal Health	10						3	
Obstetrics/Women's Health	8			3			7	
Office Based General Practice	13			5			13	
Ophthalmology								
Oral Health								
Palliative Medicine								
Population Health	1			1				
Principles of Rural and Remote General Practice								
Psychiatry/Mental Health	8						6	
Radiology								
Rehabilitation								
Research and Evidence Based Medicine	1						1	
Strategic Skills in Rural Medical Practice								
Surgery	1							

Discussion

WAGPET has been encouraged by the enthusiastic uptake from practices of the inpractice teaching log and the good uptake by Registrars.

The ability to identify data visually at an individual registrar and practice level has provided a valuable education tool for feedback and learning planning. At a regional level the data is also beginning to inform regional education development.

Following the practice pilot and WAGPET's own experience of reviewing the mapping process and collating the online data a number of changes to the online system are being implemented:

- Change of the curriculum matrix to progress in hours – not purely 'instances' of teaching
- Ability to assign % of domains and curriculum coverage for central and regional workshops
- Development of a process to allow for input of registrar data where there was more than 1 registrar in the practice
- A semi-automated process to link College Domains where appropriate and therefore reduce the input required by the Supervisor or Registrar and aid better data collection
- Addition of links to each College's curriculum statements
- Additional entry options for identifying topics within each curriculum statement and for additional comments
- Ability to complete the Registrar in-practice teaching logs from either the practice log in or the Supervisor log in

From a program level WAGPET can be more confident that the majority of curriculum areas are being covered appropriately, especially for the RACGP. With improved data collection the ACRRM data will also be more robust from 2008.2.

From an education perspective, for both College curricula, poor coverage for some curriculum domains and statements can be explained by a combination of factors including:

1. Coding issues
 - understanding curriculum statements and being able to distinguish between or recognise overlapping areas. A number of practices used the term 'other' rather than a specific curriculum statement.
 - failure to recognise focus on rural context which occurs in much regional and practice teaching implicitly
 - rural practices needing to learning to code extended practice
2. Limited resources to cover some areas e.g. radiology
3. Regional differences e.g. Aboriginal health
4. Low interest e.g. disability, oral health

The metropolitan / rural differences in regional education will be interesting to monitor as WAGPET has introduced a regional model in the metropolitan area in 2008.2.

If one focuses on the areas where minimal or no teaching appears to be occurring WAGPET needs to consider how to offer curriculum coverage especially in

RACGP

Disability
Genetics
Integrative medicine
Palliative care

ACRRM

Anaesthetics
Ophthalmology (in train online)
Oral health
Palliative care
Radiology
Rehabilitation
Strategic skills in rural medical practice

With the current findings from the curriculum mapping data WAGPET education strategies will include:

- further education provision about the curriculum domains/statements,
- further encouragement and training to fill in 'gaps' at program, regional and practice level as appropriate,
- development of online modules in areas where there is low interest or limited resources or region specific expertise eg marine bites and stings, occupational health and safety
- exploration of opportunities for linking to other education options (e.g. gplearning, RRMEQ, Divisions etc).

Conclusion

These online tools are proving valuable across the whole program. They allow the registrar and the GP Supervisors and regional educators to dynamically view curricula coverage, identify education gaps, and plan learning. They also provide WAGPET with a dynamic view of in-practice teaching delivery, whole program delivery and identify program gaps, which informs future development. In addition the inpractice teaching log is streamlining administration for both practices and the program.