2022 RACGP curriculum and syllabus for Australian general practice

Research in general practice

Rationale

Instructions

This section provides a summary of the area of practice for this unit and highlights the importance of this topic to general practice and the role of the GP.

General practice in the 21st century is an intellectual and clinical discipline which conscientiously, explicitly and judiciously integrates the best available evidence into decisions about the care of individual patients. All general practitioners (GPs) should aim to integrate current evidence into everything they do. GPs need to be research literate and research active, well informed and helpfully curious as they partner with patients to make the best possible healthcare decisions in the context of the whole person, including their values and social worlds. All GPs should also participate in regular clinical discussions with professional colleagues, during which clinical dilemmas are considered in the light of the best available research literature, clinical experience and local resources.

Research literacy encompasses a range of competencies, including the ability to critically interpret, and apply to one's own practice, research from a range of methodological approaches. It also includes being able to communicate research findings clearly to patients to assist in informed decision making. Useful clinical evidence can stem from both quantitative and qualitative traditions.[1] Research conducted in secondary and tertiary care settings may or may not be relevant to general practice patients; it is important, for example, to identify which patients were excluded from trials (perhaps due to advanced age or multimorbidity).[2] Research literacy also includes the ability to reflect critically on one's own clinical practice with a view to continuous improvement.

Research conducted in general practice settings, and by GPs, is crucial to building an evidence base which is relevant to optimising care for general practice patients and settings.[3-6] Priorities for Australian general practice research include a diverse range of conditions and aspects of healthcare.[6] The general practice context is different in many ways from secondary and tertiary hospital-based practice, with its broad scope of practice and prevalence of undifferentiated illness, medically unexplained symptoms, chronic, complex and multiple conditions and clinical uncertainty. Single disease research designs may have limited relevance. Symptoms which present in general practice often have a much lower pre-test probability of indicating serious illness than in typical hospital practice. General practice and primary healthcare also afford opportunities to prevent disease and interrupt disease progression, or further spread, by early detection and treatment. GPs are well positioned to avoid low value healthcare due to over-diagnosis, over-investigation and futile or otherwise inappropriate treatments.[7] It is important to build the general practice evidence base in all these vital areas. GPs can contribute to this research by identifying important research questions, leading and/or supporting research projects and using research findings.

General practitioner researchers play a crucial role in conducting and disseminating high quality general practice research in a range of fields which include clinical research, health systems research and medical education research. General practice research may also emphasise the translation of research evidence and the co-design and implementation of interventions in particular communities. This helps in reducing research waste and ensures that research reaches those communities most in need.[8]

Academic general practice also plays a key role in promoting and advocating for the profession of general practice, by highlighting its research and conceptual underpinnings. GPs in training who are interested in further engagement and participation in general practice research are encouraged to consider clinician researcher academic pathways, including academic posts and higher research degrees.[9] These involve additional training and participation in the design, delivery, analysis and dissemination of research, typically in collaboration with a broader research team. Nurturing the general practitioner academics and researchers of the future will stand the profession in good stead.

References

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5. Heal C, Banks J, Divakaran P, Buttner P. Building a bridge from the swamp to the ivory tower. Aust J Gen Pract 2018;47:153–57.
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9. The Royal Australian College of General Practitioners. Academic Posts. East Melbourne, Vic: RACGP, 2021 (http://www.racgp.org.au/education/registrars/fellowship-pathways/australian-general-practice-training-program-agpt/academic-posts) [Accessed 20 September 2021].

Competencies and learning outcomes

Instructions

This section lists the knowledge, skills and attitudes that are expected of a GP for this contextual unit. These are expressed as measurable learning outcomes, listed in the left column. These learning outcomes align to the core competency outcomes of the seven core units, which are listed in the column on the right.

Communication and the patient–doctor relationship	
Learning outcomes	Related core competency outcomes
The GP is able to:	
• discuss evidence for clinical decisions, including scientific and statistical information and the limitations of evidence, with colleagues	1.2.1
• apply principles of shared decision-making where applicable	1.2.1

Applied knowledge and skills	
Learning outcomes	Related core competency outcomes
The GP is able to:	
• access and interpret research updates, decision aids, guidelines and evidence summaries	2.2.1
• apply research findings to clinical decisions, considering patient preferences and beliefs, clinical judgement and current knowledge and practice	2.2.1
• appraise the utility of research, through critical appraisal and understanding of the aims and principles of quantitative and qualitative approaches	2.2.1

Population health and the context of general practice

Population health and the context of general practice	
Learning outcomes	Related core competency outcomes
The GP is able to:	
• apply relevant epidemiological information to clinical decisions	3.1.1, 3.2.2, 3.2.4
• identify when research projects in specific populations, and evaluating complex interventions, may require particular research designs, including co-design and strengths-based approaches	3.1.1

Professional and ethical role	
Learning outcomes	Related core competency outcomes
The GP is able to:	
• advocate for and/or contribute to ethical research in general practice which addresses patient needs and health gaps	4.2.1, 4.2.2, AH4.3.1

Organisational and legal dimensions	
Learning outcomes	Related core competency outcomes
The GP is able to:	
• use data, including clinical audits, to drive quality improvements in practice, and understand the principles of ethical patient enrolment and data extraction	5.2.4, 5.2.5

Words of wisdom

Instructions

This section includes tips related to this unit from experienced GPs. This list is in no way exhaustive but gives you tips to consider applying to your practice.

Extension exercise: Speak to your study group or colleagues to see if they have further tips to add to the list.

1. Learning evidence-based practice takes time. A single learning session needs to be reinforced, like any other skill or knowledge. Try attending and contributing at a journal club. They're great for learning and sharing thoughts and ideas with like-minded doctors. If you are interested in upskilling further, consider applying for an Academic Post for extended skills research training with a university department of general practice or rural clinical school. Talk to your medical educators and potential university supervisors about undertaking a Masters or PhD. A PhD is a key steppingstone for an academic or clinician researcher career.

2. Research may appear to be written for researchers and not clinicians. The vocabulary can be unfamiliar and off-putting at first (eg 'quasi-randomised clustered RCT nested within a cohort' or 'SMD 0.6 95% CI 0.3-0.7 I^2 = 23%'). You are not expected to intuitively understand this. It's helpful to ask a colleague who is a clinician researcher, academic or who has an interest in evidence-based medicine, and you will improve over time. If you don't have easy access to a colleague, be aware that most GPs in research or academia would be happy to put you in touch with someone appropriate. Ask your supervisor or medical educator, or check online for contact details for a rural clinical school or department of general practice in your state/territory. Statistical data become easier to interpret when you understand that there are statistics for effect size (eg Cohen's d, Hazard Ratio, Absolute risk) and others for hypothesis testing (eg p value, confidence interval). There are some great online resources to help, written by and for GPs (see learning resources section).

3. When reading a research paper to answer your clinical question, try asking yourself 'What is the research question the researchers are trying to answer?', and then 'How did they go about doing this?'. Were the patient participants similar to your patient? Also, pay attention to the outcomes. Are they relevant to your patient?

4. When you are thinking about your own research, spend time reading through existing literature before deciding on your research questions. Your questions may have been answered already! If they have been partly answered, you should focus on the gaps and plan to expand on existing knowledge. You will also get a sense of how papers in your area of interest are written.

5. Identify your research question carefully. Base it on your clinical practice. A research question should address a knowledge gap that is causing a practical problem. Being clear about your question allows you to design your research accordingly.

6. Two (or more) heads are better than one! Get advice from experienced colleagues before you finalise your research project design. Most researchers work in teams, with people with different skillsets and experience, from the earliest stages of a project through to the final publication and dissemination of findings. It's disappointing to spend time and energy in a project and realise that your findings would have been more useful with a better, more robust research design. Not that you'll ever get it perfect. During the analysis stage you can get 'bogged down' and fresh input and assistance from others can be very helpful here too.

7. Ethical research is about asking the right questions the right way and being able to answer them carefully and usefully. Avoid research waste where possible. Remember to get approval from an ethics committee before you start collecting data. This is the stage where you carefully think through every aspect of your research design, thinking of every possible eventuality; try to get it right the first time to avoid unnecessary delays. It is often helpful to look at a previously approved submission for a similar project to model some of your own documents on (such as consent forms and participant information). The approval process can take several months.

8. Don't underestimate the sophistication of qualitative research (including the importance of theoretical perspectives, conceptual frameworks and differences from quantitative approaches) and evaluation methodologies. Make sure you have an expert on your team.

Case consultation example

Instructions

1. Read this example of a common case consultation for this unit in general practice.
2. Thinking about the case example, reflect on and answer the questions in the table below.

You can do this either on your own or with a study partner or supervisor.

The questions in the table below are ordered according to the RACGP clinical exam assessment areas (https://www.racgp.org.au/getmedia/f93428f5-c902-44f2-b98a-e56d9680e8ab/Clinical-Competency-Rubric.pdf.aspx) and domains, to prompt you to think about different aspects of the case example.

Note that these are examples only of questions that may be asked in your assessments.

Extension exercise: Create your own questions or develop a new case to further your learning.

Jane brings her five-year-old daughter, Lily, who has Down's syndrome, to see you. Lily has trouble with constipation and eczema. Jane has been trialling Lily on probiotics for the eczema, but they are expensive, and it is difficult to get Lily to take them. She isn't sure if they are working and asks you if she should continue.

Jane also wonders if Lily could have coeliac disease, like her father. She asks when Lily should be tested. You are aware that the family are second-generation Chinese Australians.

Jane has a number of long-standing medically unexplained physical symptoms, including chronic fatigue, and may be mildly gluten-intolerant, but does not have coeliac disease. She tells you that she has been looking on the internet for answers to these symptoms. She asks you to order investigations for a list of rare diseases which do not appear to be clinically indicated. You wonder if Jane's symptoms have something to do with the challenges of caring for a child with a significant disability.

Questions for you to consider		Domains

Questions for you to consider		Domains
How could you explain to Jane the limitations and risks of ordering investigations for rare diseases? Include the concept that rates of false positives and negatives depend on the pre-test probability of a disease. How can you discuss the risks and benefits of health information available on the internet? Can you explain the rationale for randomised, double blind controlled trials in a way that a patient could understand? Can you explain why a placebo or other comparator is useful? How would your explanations change if your patient had lower levels of scientific literacy or English language fluency?	1. Communication and consultation skills	1,2,5
Can you find the sensitivity and specificity of different tests for coeliac disease? How does Lily's family history and ethnicity affect the positive predictive value? Can you search the Cochrane Library or PubMed for a systematic review of probiotics for atopic dermatitis? Can you interpret the summary of findings table? Forest plots? Clinical significance (effect size) versus statistical significance? Relative risk versus absolute risk? Number needed to treat or harm?	2. Clinical information gathering and interpretation	2
Can you explain the principles of shared decision-making in this context? What are the consequences of a diagnosis of coeliac disease for this family? Can you design a decision tool to help GPs understand screening options for families of a person with coeliac disease? (The RACGP Risks and benefits of PSA screening tool (http://www.racgp.org.au/clinical-resources/clinical-guidelines/key-racgp-guidelines/view-all-racgp-guidelines/prostate-cancer-screening)may be helpful.)	3. Making a diagnosis, decision making and reasoning	2
Can you think of any research strategies to help Jane identify whether probiotics are effective for Lily's eczema? What are 'n-of-1', or 'single patient' trials?	4. Clinical management and therapeutic reasoning	2
How would you evaluate the usefulness of regular preventive health checks in general practice for children with a significant disability? How would you evaluate if these checks are completed?	5. Preventive and population health	1,2,3

Questions for you to consider		Domains
Your colleague has developed a new plant-based topical cream for eczema. She is keen to trial this in your practice, and your practice is keen to support research. How would you ensure this research is ethical? What sort of research design would be most useful? You would like to develop a professional 'community of practice' network of colleagues who have a specific interest in this area. How could you organise a successful monthly journal club for your new community of practice? Are there any differences between metropolitan, regional and rural/remote contexts which you should consider? Your practice is part of a practice-based research network, and you have been invited to submit research topics. What sort of research might be useful to help in situations like the ones in this case example? Can you find if this research has already been done? How could your clinical audit inform a research project on this topic?	6. Professionalism	4
How would you determine if your practice is missing diagnoses of coeliac disease in your adult patients? Are there any risks of increasing your screening rates for coeliac disease?	7. General practice systems and regulatory requirement	5
N/A	8. Procedural skills	2
How do you manage your own uncertainty and concern about the unknown cause of Jane's symptoms? What would change if your patient was an Aboriginal or Torres Strait Islander? Or an elderly frail patient?	9. Managing uncertainty	2
N/A	10. Identifying and managing the significantly ill patient	2

Learning strategies

Instructions

This section has some suggestions for how you can learn this unit. These learning suggestions will help you apply your knowledge to your clinical practice and build your skills and confidence in all of the broader competencies required of a GP.

There are suggestions for activities to do:

- on your own
- with a supervisor or other colleague
- in a small group
- with a non-medical person, such as a friend or family member.

Within each learning strategy is a hint about how to self-evaluate your learning in this core unit.

On your own

Choose a condition that you commonly see in your practice (eg obesity). Write a list of the types of research that would be useful to help you manage a person with that condition. Consider basic science research, and research which evaluates the effectiveness and/or implementation of interventions. Include qualitative approaches exploring the perspectives and experience of patients, and how this might change your approach to providing care.

- *Could you design a research study exploring the experience of people with obesity? Or of parents of a child with significant disability? What type of research did you consider?*
- *Can you identify how different types of research help address different types of research questions?*
- *Can you identify any gaps in the literature? How could you undertake a literature review? Are you aware that you can request the librarians at the RACGP John Murtagh Library (https://www.racgp.org.au/clinical-resources/john-murtagh-library) to do a literature search?*
- *Who could help you design your study? What is a co-design approach?*

Study a textbook chapter or module covering basic principles of evidenced-based medicine (see learning resources section).

- *Make a list of common statistical terms, such as p-values, confidence intervals, effect sizes, odds ratios and mean differences. How well do you understand these terms? Who can you ask to explain them to you?*
- *Could you make a short video that would teach a colleague how to understand these terms?*

Identify point-of-care evidenced-based resources for finding pre-appraised information during your consultations. Try a few different resources and note the pros and cons of each.

- *Are you using a point-of-care evidence summary resource (eg DynaMed (https://www.dynamed.com/)) in your clinical work?*
- *Could you use such a resource to answer some of the questions in the case example?*

Find and attend a webinar or online training module on evidenced-based practice.

- *Research findings may not be applicable to your patient. Can you identify situations in which a particular research finding, or even an evidence-based guideline, might not be useful for a patient?*
- *How can you still offer high quality care?*

With a supervisor

With your supervisor (or another member of your practice who has research experience), choose a clinical question about the effectiveness of an intervention which is relevant to one of your patients. Find a systematic review of the evidence. Explain your search to your supervisor, your appraisal of the findings and how you might apply this to practice.

- *Discuss important information such as the quality of the evidence, risk of bias and number needed to treat or harm.*
- *Are the findings relevant to your patient?*

Work with your supervisor to discuss an aspect of practice where a clinical audit would be useful.

- *Which conditions or aspects of practice are most suitable for a clinical audit? What are you trying to achieve with an audit?*
- *Conduct the clinical audit and present the findings to the staff at your practice. Based on your data, are there any improvements to quality that can be put in place? Are there any barriers and enablers?*

Discuss a condition or problem relevant to your practice or population. Find a qualitative research article which investigates this topic. Discuss the merits of this work and how the findings can be used in your practice.

- *Can you explain to your supervisor how qualitative findings add to your understanding of the topic and the implications for patient management?*

In a small group

Choose a clinical guideline that includes evidence for both medication and non-medication interventions. Each participant takes a closer look at one recommendation from the guideline and checks the references for the recommendation. Access and read the (key) referenced studies that form the basis of the recommendation.

- *What level of evidence exists for your recommendation?*
- *What kind of study design exists for this evidence, and is this what you expected?*

Read and appraise a journal article together. Discuss the implications for your practice.

- *Can you agree on how this research paper fits into current knowledge and whether you should modify your current practice? What exactly would you plan to do differently?*
- *For a systematic review: can you teach a colleague how to interpret the summary of findings table, forest plots or other statistical information?*
- *For a qualitative paper: can you discuss the principles of qualitative approaches to research with a colleague? Include concepts of purposive sampling, reflexivity, power differential, descriptive coding, analysis and interpretation. What is inductive thematic analysis and are there other ways of analysing qualitative data? What is meant by theory in qualitative research, and why is it important? Which methods can be used in qualitative research? What is action research? Why is an observational component useful in qualitative research?*

Attend a journal club regularly to improve your knowledge and skills in accessing, reading and discussing research. Find specific interest groups online or contact the RACGP Specific Interests faculty to identify peers who share your interest areas.

- *How could you organise a successful monthly journal club for your new community of practice?*
- *Are there any differences between metropolitan, regional and rural/remote contexts which you should consider?*

With a friend or family member

Choose a Cochrane Review (or other systematic review) on a topic of interest to your friend or family member. Explain the information in the summary of findings table.

- *Can you explain how the GRADE of evidence helps us understand research quality?*

- *How does relative risk differ from absolute risk?*

Identify a clinical decision of interest to your friend or family member (eg whether to have an immunisation or screening test). Practise a conversation using shared decision-making.

- *How could you explain the limitations and risks of ordering investigations for rare diseases? Include the concept that rates of false positives and negatives depend on the pre-test probability of a disease.*

Guiding topics and content areas

Instructions

These are examples of topic areas for this unit that can be used to help guide your study.

Note that this is not a complete or exhaustive list, but rather a starting point for your learning.

- Apply epidemiology information, including prevalence, incidence, relative risk and hazards/odds ratios.
- Interpret measures of effectiveness or accuracy, including sensitivity, specificity and positive and negative predictive values.
- Understand quantitative and qualitative approaches to research.
- Design preliminary research plans that include a range of approaches and methods to answer clinical questions or enhance your understanding of clinical problems.
- Understand implementation and evaluation research, including action research.
- Perform evidence-based practice, including use of point-of-care resources and shared decision-making.
- Critically appraise research for relevance to clinical practice.
- Be able to conduct a practice audit.
- Recognise limitations in published research and guidelines and have strategies on how to practise quality care when the published evidence or guidelines are not relevant or useful to your patient.

Learning resources

Instructions

The following list of resources is provided as a starting point to help guide your learning only and is not an exhaustive list of all resources. It is your responsibility as an independent learner to identify further resources suited to your learning needs, and to ensure that you refer to the most up-to-date guidelines on a particular topic area, noting that any assessments will utilise current guidelines.

Journal articles

A good reference for understanding meta-analyses.

- Ried K. Interpreting and understanding meta-analysis graphs – a practical guide (https://digital.library.adelaide.edu.au/dspace/bitstream/2440/43554/1/hdl_43554.pdf). Aust Fam Physician 2006;35(8):635–38.

A good reference for understanding Cochrane Reviews.

- Spurling G, Mitchell B, van Driel ML. Unlocking the value of Cochrane reviews for general practitioners (https://www1.racgp.org.au/ajgp/2018/june/cochrane-reviews/). Aust J Gen Pract 2018;47(6):333–36.

A good reference for shared decision-making.

- Sathanapally H, Khunti K, Kadam U, Seidu S. Shared decision making in multimorbidity (https://www1.racgp.org.au/getattachment/af1c2aeb-cc6c-4a22-8450-f64ea84b7a28/Shared-decision-making-in-multimorbidity.aspx). Aust J Gen Pract 2018;47(6):397–98.

Learn about n-of-1 trials.

- Mirza RD, Punja S, Vohra S, Guyatt G. The history and development of N-of-1 trials (https://pubmed.ncbi.nlm.nih.gov/28776473/). J R Soc Med 2017;110(8):330–40.

Provides an example of a co-design approach.

- Hunter B, Biezen R, Alexander K, Lumsden N, Hallinan C, Wood A, et al. Future health today: Codesign of an electronic chronic disease quality improvement tool for use in general practice using a service design approach (https://pubmed.ncbi.nlm.nih.gov/33371024/). BMJ Open 2020;10(12):e040228-e.

An example of qualitative research with women transitioning from prison settings.

- Abbott P, Davison J, Hu W. Medical homelessness and candidacy: Women transiting between prison and community health care (https://equityhealthj.biomedcentral.com/articles/10.1186/s12939-017-0627-6). Int J Equity Health 2017;16(1).

An example of qualitative research with people with medically unexplained symptoms.

- Stone L. Managing the consultation with patients with medically unexplained symptoms: a grounded theory study of supervisors and registrars in general practice (https://pubmed.ncbi.nlm.nih.gov/25477194/). BMC Fam Pract 2014;15:192.

A guide to research ethics and approval.

- Liaw ST, Tam CW. Research ethics and approval process: A guide for new GP researchers (https://www.racgp.org.au/afp/2015/june/research-ethics-and-approval-process-a-guide-for-new-gp-researchers/). Aust Fam Physician 2015;44(6):419–22.

Tips for starting a journal club.

- Doust J, Del Mar CB, Montgomery BD, Heal C, Bidgood R, Jeacocke D, et al. EBM journal clubs in general practice (https://pubmed.ncbi.nlm.nih.gov/18239754/). Aust Fam Physician 2008;37(1-2):54–56.

Textbooks

A great, sweeping text by a famous British GP.

- Greenhalgh T. Primary Health Care: Theory and Practice. Chichester: John Wiley & Sons, 2007. (Available from the RACGP library.)

Online resources

National policy on the ethical conduct of human research.

- National Health and Medical Research Council. National statement on ethical conduct in human research (http://www.nhmrc.gov.au/research-policy/ethics/national-statement-ethical-conduct-human-research).

This toolkit gives tips for conducting a practice audit.

- The Royal Australian College of General Practitioners. General practice management toolkit: Clinical governance (http://www.racgp.org.au/FSDEDEV/media/documents/Running%20a%20practice/Practice%20resources/Management%20toolkit/Clinical-governance.pdf).

Learning activities

A Cochrane-backed website with succinct explanations on evidence-based medicine topics, including statistics.

- Students 4 Best Evidence (https://s4be.cochrane.org).
