# GP Supervisor Guide

## Incorporating ReCEnT research findings into your approach to teaching and supervision

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GP Supervisor Guide

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We acknowledge the Traditional Custodians of the lands and seas on which we work and live, and pay our respects to Elders, past, present and future.

***This guide is not designed to be read end-to-end*. Rather, it is intended as a comprehensive coverage of ReCEnT and, especially, it's areas of utility for supervisors. Relevant sections can be consulted when appropriate. It's anticipated that the various sections related to how ReCEnT findings might influence your approach to teaching and supervision will be of most relevance.**

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# The Registrar Clinical Encounters in Training project – an overview

The Registrar Clinical Encounters in Training (ReCEnT) project is an educational/research program that has been running since 2010. It is currently conducted by the RACGP GP Training research team in consultation/conjunction with the education team.

This guide provides supervisors with a background to ReCEnT (its purposes and methodology, and its strengths and limitations) and an overview of the research findings from the project. We also provide suggestions as to how these findings might be of practical importance to in-practice GP vocational training and make some suggestions for supervisors in considering how particular ReCEnT findings may be incorporated in their in-practice teaching and supervision.

Australian specialist GP vocational training operates within an apprenticeship-like model wherein most registrar education occurs in the practice. This is of great utility in preparing registrars for independent practice post-fellowship – registrars rating practice-based experiential learning somewhat more so than their centrally-delivered education.

Within the apprenticeship-like model, consulting with patients is registrars' predominant learning activity. The 'curriculum walks in the door'.

Thanks to ReCEnT, we now know a great deal of what registrars see and do. These findings (and the associations of those experiences and clinical behaviours) provides valuable evidence for supervisors in approaching their teaching and supervision tasks.

ReCEnT findings, as outlined in this Guide, also go beyond this 'mapping' of registrar experience and behaviour to illuminate a number of other aspects of registrars' clinical and educational experience. For example, we now have evidence that our educational actions and interventions *can* influence registrars' clinical behaviour – and we have some intriguing insights as to how that education best operates within our training structures. This has practical

implications for how supervisors can approach facilitating registrars' in-practice and in-consultation learning.

A number of journal articles reporting ReCEnT findings are cited in this document. If you would like access to any of them, please contact us.

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# What is the Registrar Clinical Encounters in Training (ReCEnT) project?

## Background

GP vocational training in Australia operates within an apprenticeship-like model. Most of a registrar's education and training occurs within the practice environment and is experiential – being derived from real-world patient consultations with oversight and mentoring by experienced GP clinical supervisors. Our research outside of ReCEnT suggests that this experiential apprenticeship-like training is of great utility in preparing registrars for independent post-fellowship practice – being rated by AGPT alumni in independent practice as somewhat more useful than their out-of-practice-delivered education (though noting that these educational elements are complementary and synergistic).[1]

With experiential, apprenticeship-like training, the 'curriculum walks through the door'. Until the advent of ReCEnT we didn't know just what 'walked in the door', nor what registrars did within the consulting room – registrars' consultations were characterized as a 'black box'.[2] ReCEnT has opened that black box and we now know a great deal of what registrars see and do.

It is a long-established educational and research project conducted within the Australian general practice specialist vocational training program. The program was originally conducted by then Regional Training Provider (RTP) General Practice Training Valley to Coast (GPTVTC). In the period prior to the reorganization of Australian general practice vocational training in 2016, GPTVTC collaborated with four other RTPs – General Practice Training Tasmania, Adelaide to Outback, the Victorian Metropolitan Alliance, and Tropical Medicine Training in conducting ReCEnT. From 2016 to 2022 ReCEnT was conducted by the Regional Training Organisation (RTO) GP Synergy in collaboration with other RTOs, General Practice Training Tasmania (GPTT) and Eastern Victoria General Practice Training (EVGPT). Since 2023 it has been conducted by the RACGP, with a phased roll-out to all regions of Australia planned (expanding from the 2022 footprint of NSW, ACT, Tasmania, and eastern Victoria).

The ReCEnT project arose from observations of registrars' practice and learning during External Clinical Teaching Visits (ECTVs) by GPTVTC Medical Educators (MEs) Simon Morgan and Parker Magin. The project commenced with a pilot study in 2009. The project proper has been running continuously since 2010. In 2020 data recording changed from hardcopy to electronic via the 'ReCEnT Online' platform.

## Educational aspects

ReCEnT is first and foremost an educational program which focusses on registrar reflection on practice and learning and quality improvement. From an educational point of view, it is a Patient Encounter Tracking and Learning tool (PETAL).[3] Registrars in training terms 1,2, and 3 record the clinical and educational content of 60 consecutive consultations at approximately the mid-point of their (six-month full-time equivalent) training term.

The ReCEnT data documenting what registrars see and do provide a powerful substrate for registrars' reflection on practice.[4,5] The data collected by registrars are processed and returned to them (within two-three weeks) in a detailed report[6] in which their data are compared to that of their registrar peers, to that of their previous GP terms (if they are in later GP Terms, 2 or 3), and to established GPs (for variables where there are comparable published findings from the BEACH study of Australian GPs' practice[7]).

While it is vital to understand that ReCEnT is a reflective exercise, not a benchmarking exercise, and the main role of supervisors and MEs in ReCEnT is to facilitate registrars' reflection, the ReCEnT report also provides valuable evidence for supervisors and MEs in approaching their teaching, supervisory, and mentorship tasks with individual registrars.

The report is also a substrate for Supervisors and MEs to foster registrars' skills in reflective practice. See Appendix 1 for a deidentified composite example of a registrar report and Interpreting the Registrar Feedback Report – A guide for supervisors and medical educators for further details of how supervisors can best use ReCEnT registrar reports for reflective education and training purposes.

ReCEnT data are also analysed for use internally by the training program for educational purposes – for example, to inform content of educational programs, including choice of topics for inclusion in educational programs, and to provide contextual data for use in individual educational presentations, and to provide understanding of temporal changes in registrar in-consultation clinical and educational experience/behaviours (which was of particular utility during the course of the COVID-19 pandemic).

## Research aspects

ReCEnT incorporates a strong research component. Registrars may choose to provide informed consent for their data to also be used for research purposes.

The educational and research elements are closely integrated and inform each other.[8] From a research point of view, ReCEnT is an inception cohort study. Interested supervisors can read the detailed methodology in the published protocol: 'The Registrar Clinical Encounters in Training (ReCEnT) cohort study: updated protocol'.[9]

This guide outlines the research components of ReCEnT including how you as a supervisor can use these findings to help you with the education and supervision of your registrars.

The research aspects of ReCEnT have Human Research Ethics Committee approval from the University of Newcastle, 2009-2023 (Approval H-2009-0323) and from the RACGP National Research and Evaluation Ethics Committee, 2023-present (Approval NREEC 23-161).

## Funding

From 2016 to 2019, ReCEnT was funded by a commissioned research grant from the Australian Department of Health. During the rest of the course of the project it has been funded successively by the participating RTPs, RTOs, and RACGP GP Training, all of which are funded by the Australian Department of Health.

## What are the ReCEnT research aspects and aims?

The most basic aim of ReCEnT is to open the 'black box' of registrar experiences and actions. This is 'mapping the territory' of registrars' experiences and actions. But we have a range of other aims and objectives within the research aspects of ReCEnT. The project's research aims can be characterized as:

- 'Mapping' analyses
- Exploratory analyses
- Mapping' and exploratory analyses of registrars' educational actions
- Mapping' and exploratory analyses of other outcomes
- Longitudinal 'within-registrar' analyses
- Longitudinal 'within-program' analyses
- Triangulation of 'within-registrar' and 'within-program' findings
- Testing efficacy of educational interventions
- The 'educational-research loop' model
- Combination of ReCEnT data with data from other sources

### 'Mapping' analyses

'Clinical content mapping drives innovation in the experiential curriculum, enables comparison across practice sites, and lays the groundwork to test associations between individual clinical exposure and competency-based outcomes'.[10] With ReCEnT, we have attempted to 'map' what GP registrars see and do. To do this we document the characteristics of registrars' patients by demographic features and patients' problems/diagnoses. This facilitates establishing the prevalence of particular conditions (problems/diagnoses) or patient demographics. It is educationally useful to compare these findings with those of established GPs (usually the comparison is with findings published from the BEACH study).[11]

We are also able to 'map' registrars' clinical behaviours (prescribing (and deprescribing), test-ordering, procedures, referrals, organization of follow-up, etc).

## Exploratory analyses

Exploratory analyses using multivariable analyses allow us to establish associations of a wide range of registrar clinical exposures (for example, of patient demographics and problems/diagnoses) and registrar actions (for example, prescribing, referral, and test-ordering). While a large proportion of our analyses are exploratory (for example, 'what are the prevalence and associations of registrars performing telehealth'[12]), some are conducted with a specific hypothesis: for example, that rural registrars are more likely to contribute to their practice's after-hours roster.[13]

## 'Mapping' and exploratory analyses of registrars' educational actions

While our analyses of clinical outcomes are certainly of relevance to GP training, some analyses have specifically educational outcomes. Examples are the sources of in-consultation information, advice, and assistance that registrars have recourse to (we are especially interested in seeking advice from their supervisor, but also elicit data on registrars' recourse to hard-copy and electronic information sources, and advice from other clinicians), and the learning goals registrars generate during the consultation.[14,15]

## 'Mapping' and exploratory analyses of other outcomes

The outcomes we explore can sometimes be of less-straightforward constructs – examples being doctor-patient gender concordance in consultations[16] and continuity of care provided by registrars.[17]

## Longitudinal 'within-registrar' analyses

We can use ReCEnT data to examine individual registrar change as they progress from Term 1 to Term 2 and, thence, to Term 3. We have done this for antibiotic[18] and benzodiazepine prescribing,[19] and for pathology test-ordering.[20]

## Longitudinal 'within-program' analyses

We have studied temporal trends at the level of the training program (i.e. at the level of all registrars, by year, from 2010 to the year of analysis). We have, as with 'within-registrar' analyses, done this for benzodiazepines prescribing[19] and for antibiotic prescribing.[21,22] We have also done this for diabetes medicines prescribing,[23] using point of care electronic information sources, and asthma preventer medicine prescribing.

## Triangulation of 'within-registrar' and 'within-program' findings

We can triangulate findings of 'within-registrar' and 'within-program' analyses to provide insight into how learning, and adoption of clinical behaviours, operate in the Australian apprenticeship-like training model.

## Testing efficacy of educational interventions

As we record data six-monthly, we can test the efficacy of educational innovations when they were introduced by participating RTOs or, since transition of training, by RACGP training regions. By comparing pre- and post-innovation data and data from RTOs/regions which adopted, and did not adopt, the educational innovation, we can analyse whether the education changed registrars' behaviour. These are not randomized controlled trials (RCTs) – RTOs/regions decide on their educational programs rather than researchers assigning groups of registrars to receive, or not to receive, the education. But because of the large number of variables recorded by registrars in ReCEnT we can adjust quite robustly for non-random allocation with statistical modelling techniques.

This process has been followed for antibiotic prescribing for URTI and acute bronchitis,[18] opioid prescribing,[24] pathology test-ordering, benzodiazepine prescribing, and deprescribing of inappropriate medicines in older patients.[25]

We can also triangulate these findings of change in registrars' behaviour with change in registrars' knowledge (assessed by pre- and post-innovation questionnaires).[24,26]

## The 'educational-research loop' model

This completes the circle of an educational model whereby we use ReCEnT data to identify a problematic aspect of registrars' practice (and assess the extent of the problem to help prioritize the topic for space in crowded out-of-practice educational release sessions). The fine-grained findings of associations of the target behaviour help inform the educational innovation's content. Finally, ReCEnT can test the efficacy of the educational innovation (does it change registrar behaviour?).

This is illustrated by the right-hand side of the RACGP GP Training Research-Translation Loop.

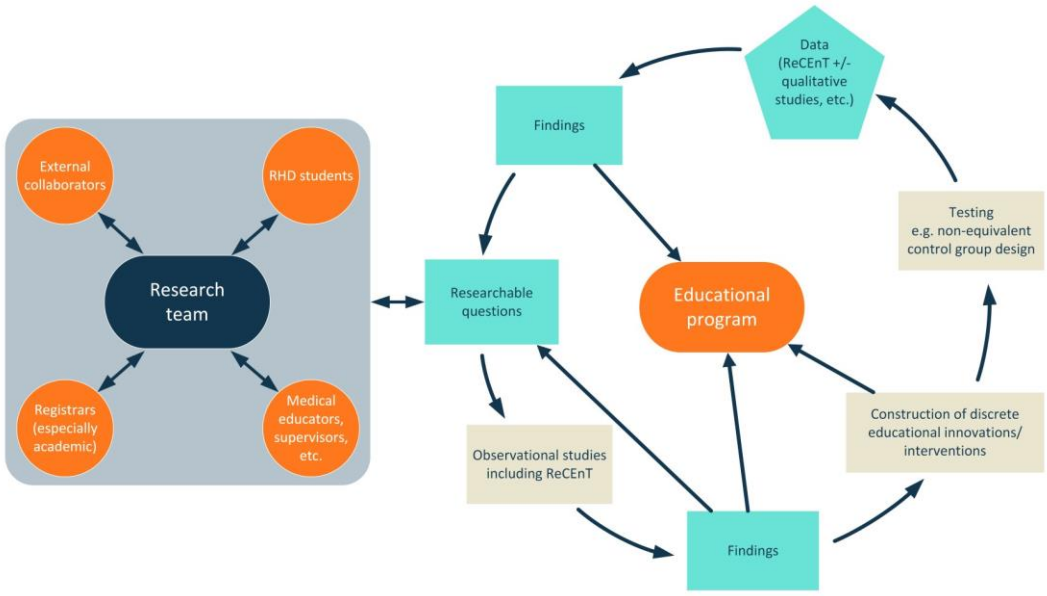


*Figure 1. The RACGP GP Training Research-Translation Loop (Note: RHD = Research higher degree).*

### Combination of ReCEnT data with data from other sources

There is potential to answer research questions utilizing ReCEnT data in combination with data from other sources.

For example, using the ReCEnT-derived QUestionable In-Training Clinical Activities index, (QUIT-CAI) [27,28] in combination with data on registrars' performance in ECTVs (using an instrument developed by GP Synergy (the Competency Assessment Grid[29])) and performance in summative examinations (the results of RACGP Fellowship examinations) to explore the nexus of observed clinical practice (ECTVs), unobserved clinical practice (QUIT-CAI), and summative examination performance (Fellowship examinations).[30]

## What are the ReCEnT data strengths and limitations?

The ReCEnT methodology (like that of the Primary Care Network Survey and the National Ambulatory Medical Care Survey (NAMCS)[31] in the United States, and the Bettering the Evaluation and Care of Health (BEACH) study[11] in Australia which use similar contemporaneous dedicated recording of consultation data) is much more reliable than eliciting clinician's estimations of experience and actions via questionnaires.

Comparisons can be made with extraction of data from Electronic Medical Records (EMRs). The strengths and limitations of ReCEnT/NAMCS/BEACH style methodologies tend to be the obverse of those methodologies using extraction of routinely collected EMR data. Thus, to some extent the two types of methodology may be complementary.

Strengths and limitations of the ReCEnT data should be considered when assessing our findings and can be summarized as:

*Table 1. Strengths and Limitations of the ReCEnT data*

| Strengths | Limitations |
|---|---|
| • A large number of variables recorded contemporaneously<br>  ○ provides a rich, nuanced context for consultation content<br>  ○ provides for fine-grained adjustment for confounding in statistical models | • A 'snap shot' of a consultation without contextual information – for example, we don't record patient medicines regimens (we only record medicines prescribed or recommended at the consultation) nor patients' past medical histories (we only record the problems/diagnoses dealt with in the index consultation) |
| • Data collected specifically for the purpose of ReCEnT (rather than, for example, extraction from EMRs of data recorded for clinical purposes)<br>• A short (approximately one week), focused period of data collection.<br>These factors facilitate data completeness and reliability | • A 'snap shot' of a consultation – ReCEnT is a longitudinal study of registrars (from Term 1 to Term 2 to Term 3), not of patients<br>• We don't know what happens at follow-up consultations, or the results of tests ordered in the consultation etc. |
| • Registrar 'action' variables - such as prescriptions, referrals, imaging and pathology testing – are directly linked to the problems/diagnoses that prompted the action | • For logistical reasons we only collect office-based consultation data – not home visits or aged care facility visits<br>• For educational reasons (ReCEnT is first and foremost an educational project) we don't record consultations in 'specialty' clinics (e.g. Flu immunization clinics, COVID-19 immunization clinics, childhood immunization clinics, cervical screening clinics) |
| • High response rate and large sample size (for research purposes) | • Only a sample (60) of an individual registrar's consultations – for the individual registrar's reflection on practice this may not be representative (for individual educational purposes) |

# What has ReCEnT Research uncovered, and how might this influence your approach to teaching and supervision?

Analyses have been done using ReCEnT data for a range of objectives, but the central research purpose is to inform practice in GP vocational training.

Supervisors (and practices) have a central role in integration of evidence from ReCEnT into educational practice. This may be in response to registrar feedback reports but can also be in response to research findings.

The material below offers summaries of some of the research findings from ReCEnT. Further information can be found on the RACGP ReCEnT website:

https://www.racgp.org.au/education/gp-training/gp-training/recent

## Which patients and conditions are registrars gaining limited exposure to?

One straightforward use of ReCEnT data is to gain insight into the demographics of patients seen by registrars, and also the prevalence of conditions/diseases seen. When considering these demographics and prevalence, comparisons are often made to those of established GPs. Here, the extensive published findings from the BEACH study of Australian GPs are the usual comparator.[7]

While the objective in GP vocational training is to ensure that registrars are exposed to the 'adequate database' of clinical cases and adequate 'patient mix' required to acquire the clinical skills of an independently practising GP, these metrics also have examination implications. The RACGP uses historical BEACH data to determine the allocation/weighting of questions in the summative Fellowship examinations in proportion for each of the 17 disease Chapters which BEACH (and ReCEnT) use in categorizing types of problems/diagnoses (for example, Cardiovascular, Neurological, Respiratory, Psychological).

## Older patients

Overall, registrars see a considerably smaller proportion of older patients (aged 65 and above) - 17.6%[32] versus 32.5%[7] for BEACH GPs. Thus, registrars generally have quite limited exposure to older patients – and to the attendant learning opportunities in chronic disease and multimorbidity. Consistent with the age distribution of their patients, registrars see less chronic disease (30%[33] versus 39%[7] for BEACH GPs) and less cardiovascular and endocrine disease (primarily diabetes), and multimorbidity.[34] Of even greater concern was the pattern of paradoxical associations of registrars' consultations with older patients (compared to consultations with younger patients): there was no increase in consultation length for older patients; registrars were less likely to seek information or advice from supervisors; and registrars were less likely to generate learning goals.[32] The associations suggest less clinical complexity than expected. An interpretation is that registrars, when they do see older patients, may often not be fully engaging with older patient care (and may be deferring that care to subsequent consultations with their supervisors/established GP colleagues).

***What can supervisors and practices do regarding registrars and older patients?***

Prompted by these findings, we have conducted workshops with MEs and supervisors and, in a qualitative study of supervisors led by our colleagues in Tasmania,[35] explored possible practicable, practice-level solutions.

Suggested approaches to facilitate registrars seeing more older patients and engaging meaningfully in their care (including continuity of care) were: enlisting practice nurses to work with registrars in chronic disease management; encouraging registrars to participate in nursing home care; having registrars manage supervisors' older patients under the close supervision of the supervisor (including co-supervision models); receptionists purposively scheduling older patient appointments with registrars, including during absences of the supervisor; and having 'registrar patients' – older patients handed over from registrar to registrar at term end (with oversight by the supervisor).

*Possible activity*

Review a one-to-two-week sample of your patient bookings. Which of the above approaches could be used to enhance your registrar seeing older patients?

## How does a registrar's gender influence patient encounters and experience?

### Patient gender

Approximately two-thirds of registrars are female. The training experience of male and female registrars can be very different. A basic disparity is in the patients they see. Sixty-three percent of registrar consultations are gender-concordant (73.5% female-female, 26.5% male-male) and 37.1% are gender-discordant (47% male physician-female patient, 53% female physician-male patient).[16] The result is that female registrars' practice entails a far greater proportion of female patients (68%) than does male registrars' practice (49%).[34] Registrar gender classification in ReCEnT includes non-binary, but there is insufficient data as yet to provide comparative findings on the experience of registrars who identify as non-binary.

### Problems/diagnoses managed, by registrar gender

When the registrar experience is considered by registrar gender,[34] further disparities become apparent. We have listed some of these disparities in the following Table, and invite supervisors to think about ways they, and their practices, might address these disparities in delivering training and education to their registrars.

*Table 2: Problems/diagnoses managed, by registrar gender and how these differences may be addressed*

| **Female Registrars** | **How might this influence the way you teach your female registrars or influence their appointment scheduling?** |
|---|---|
| Considerably more exposure to problems relating to female genital problems/diagnoses | |
| More than double the exposure to family planning and pregnancy problems/diagnoses | |
| Negligible exposure to issues relating to male genital problems/diagnoses | |

| | |
|---|---|
| Modestly more exposure to psychological problems/diagnoses | |
| Marginally less exposure to respiratory problems/diagnoses | |
| Considerably more exposure to procedures related to female reproductive health | |

| **Male Registrars** | **How might this influence the way you teach your male registrars or influence their appointment scheduling?** |
|---|---|
| Considerably less exposure to problems relating to female genital problems/diagnoses female counterparts | |
| less than half the exposure to family planning and pregnancy problems/diagnoses | |
| modestly less exposure to psychological problems/diagnoses | |
| marginally more exposure to respiratory problems/diagnoses | |
| Modestly more exposure to musculoskeletal problems/diagnoses | |
| Considerably less exposure to procedures related to female reproductive health | |

## How can supervisors/practices respond to gender-related disparities in registrar experience?

As with all aspects of registrar training, the educational needs of the registrar must be considered in the context of service delivery needs. But supervisors and practices may have scope to influence the patient mix of individual registrars. A common scenario is the gender-patient mix of a female registrar not being balanced in terms of range of patient experience. If the mean percentage of female patients for female registrars is 68%, the patient mix of those female registrars with higher-than-average proportions of female patients can be quite limited educationally. Especially if the preponderance of female patients is associated with a high

proportion of pregnancy care[36,37] or gynaecological diagnoses/problems.[38] Conversely, male registrars' patient mixes may not have enough pregnancy-related and gynaecological content for optimal experiential learning.

Supervisors and practices (including receptionists[39]) can address this issue with practice level policies to preferentially direct certain patient categories to particular registrars or, conversely, away from particular registrars and to other GPs in the practice. This is not a straightforward undertaking for training practices,[40] but some actions may be practicable. For instance, not having gender-concordance as a de facto default when receptionists make appointments (though, obviously, patients may still be offered this) and limiting the number of appointments for cervical screening for female registrars who have had heavy cervical screening workloads.

*Activity*

Discuss what gender concordance means with your reception and practice management team and explore how this can be addressed when booking patients.

## Which patient categories and conditions do registrars 'struggle' with?

We have indirect evidence for categories of patients and of problems/diagnoses which registrars find 'difficult' or feel less confident with. This evidence is largely from our data on which presentations registrars seek in-consultation information, advice, or assistance for, or for which they generate learning goals to be pursued post-consultation.

### 'Community' paediatrics

The mandatory requirements for paediatric experience prior to commencing general practice terms might be expected to result in child health not being an area for registrar 'struggle'. But by our measure, above, registrars find consultations with paediatric patients challenging.[41] Drilling down, very high referral rates for children with behavioural or mental health conditions, and functional bowel or bladder problems suggests that the deficit in registrar confidence may be with 'community' paediatrics.[42,43] Further work, prompted by our ReCEnT findings has

confirmed that registrars generally feel confident managing acute paediatric presentations.[44,45] But their predominantly hospital-based prevocational paediatric training, with limited exposure to managing behavioural, mental health and developmental issues leaves them much less confident in these areas.[44,45] The inference we can draw from these findings is that this relative deficit in experience must be addressed in the community setting. Supervisors and practices can be alert to the need to involve registrars in the care of children with 'community' problems/diagnoses and to registrars' need of the close support of their supervisor in acquiring competence in community paediatrics. It may be reasonable to consider whether there is a particular staff member in the practice (doctor or nurse) that the registrar can utilise, that has expertise in this area.

### Dermatology

Another prominent area of registrar learning need is in skin disease – not surprising given the relative lack of dermatology time in undergraduate curricula[46] and limited junior hospital doctor experience in skin disease.[47] There is evidence from ReCEnT of registrars having particular learning needs for skin conditions in general,[48] and for psoriasis[49] and atopic dermatitis[50,51] in particular. While out-of-practice release education programs often have a strong focus on dermatology, this is an intensely practical aspect of general practice and supervisors have a key role, including in providing support for acquisition of skin surgery skills.[52]

### Other areas with evidence for registrar 'difficulty'/learning needs

One way of assessing learning needs is to examine the broad topic areas for which registrars generate, in-consultation, learning goals to be pursued post-consultation.[15]

There are two main ways of analysing this. The first is to review the clinical presentation areas that registrars most frequently generate learning goals for. In Figure 2 below, this is reflected by the blue shaded area (with the cumulative total of the blue shaded area totalling 100%).

Figure 2 below details learning goals generated across clinical presentation groups (i.e. 'Chapters', classified using the International Classification for Primary Care 2). *General and unspecified*, *skin*, and *musculoskeletal* prompts the largest number of learning goals. Not only are these Chapters infrequently encountered in junior hospital experience, they are also very common in general practice.

The second way to assess learning needs is to assess the proportion of clinical presentations within each Chapter that resulted in a learning goal being generated. This is represented by the orange columns in Figure 2 below. This approach can reflect the relative 'degree of difficulty' of different clinical presentation areas experienced by registrars. Using this definition, *male genital*, *neurological,* and *eye* have the highest 'degree of difficulty'.

It is also informative to consider these two approaches in parallel. For example, *male genital* is relatively infrequently attended to in the clinic (less than 2% of consultations), but over 30% of those consultations for *male genital* result in a learning goal being generated. By comparison, *respiratory* is a common presentation, attended to in approximately 8.7% of consultations, but only 10% of those consultations result in a learning goal being generated.

Both these metrics of overall registrars' learning need (volume and degree-of-difficulty) are relevant context, taken together with their individual registrar's identified learning needs, for supervisors when they construct schedules for one-to-one in-practice teaching sessions for their Term 1 and Term 2 registrars.

Another measure of learning needs is the problems/diagnoses that prompt registrars to seek in-consultation information, advice, or assistance. Here, again, *dermatology* and *musculoskeletal* were the most common ICPC-2 chapters for information-seeking,[14] reflecting the mismatch of limited hospital-based training exposure but high general practice incidence of skin and musculoskeletal problems.

A highly important further finding from this analysis was that human information-sources (mainly supervisors) are preferentially sought for more complex problems, even by these early-career GPs who have trained in the 'internet era'.[14]

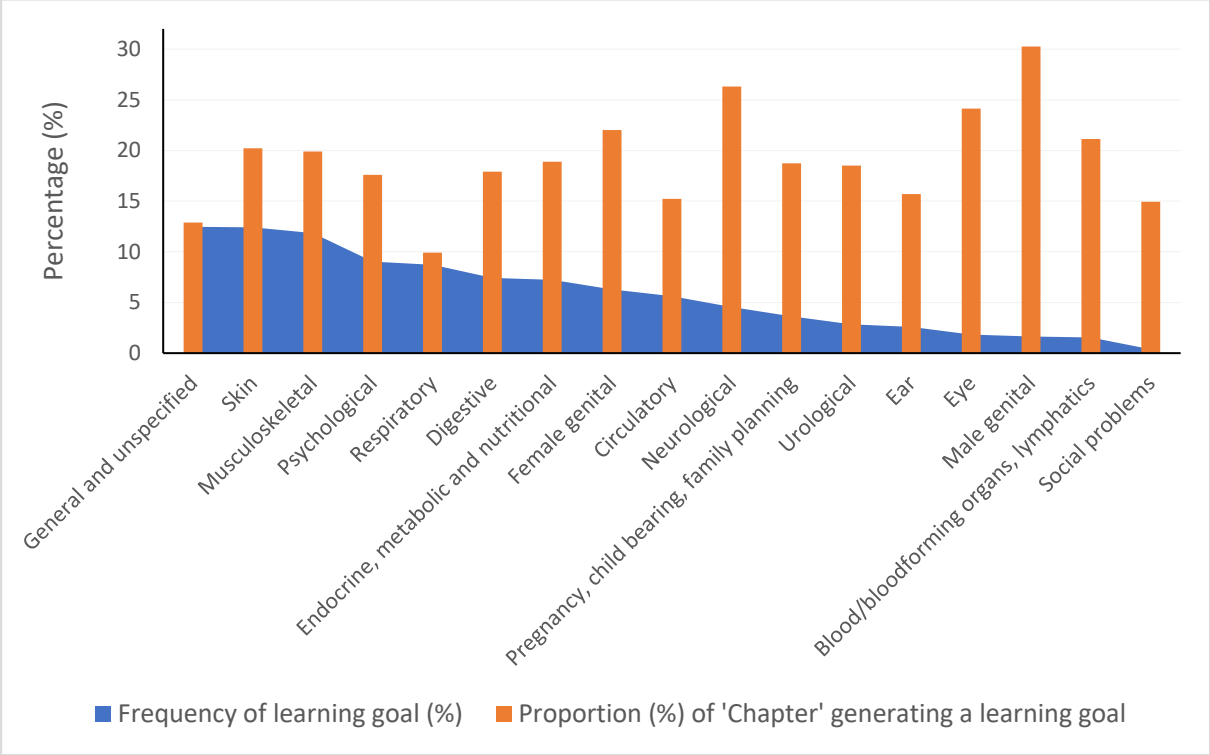


*Figure 2: Most common learning goals (%, blue) and 'degree of difficulty' (orange), by 'Chapter'. Chapters with a higher 'degree of difficulty' have learning goals generated for a greater proportion of consultations.*

The two main sources of in-consultation information for registrars are supervisors (or their delegate) and electronic point of care resources (ePOCR). See Figure 3 and Figure 4 below for the distribution of ICPC-2 chapters prompting supervisor and ePOCR use (for each, both frequency of in-consultation information seeking and proportion of chapter where resource was accessed, indicating 'degree of difficulty'). By supervisor use, *skin* was the most common 'Chapter' and *skin* and *eye* the most difficult, whereas by ePOCR use, *respiratory* was the most common, and *male genital* the most difficult.

It may be illustrative to consider these three graphical representations of registrars' learning needs. Do these accord with your observations of registrars you have supervised (and do you think these priorities are different to the learning areas of established GPs)?

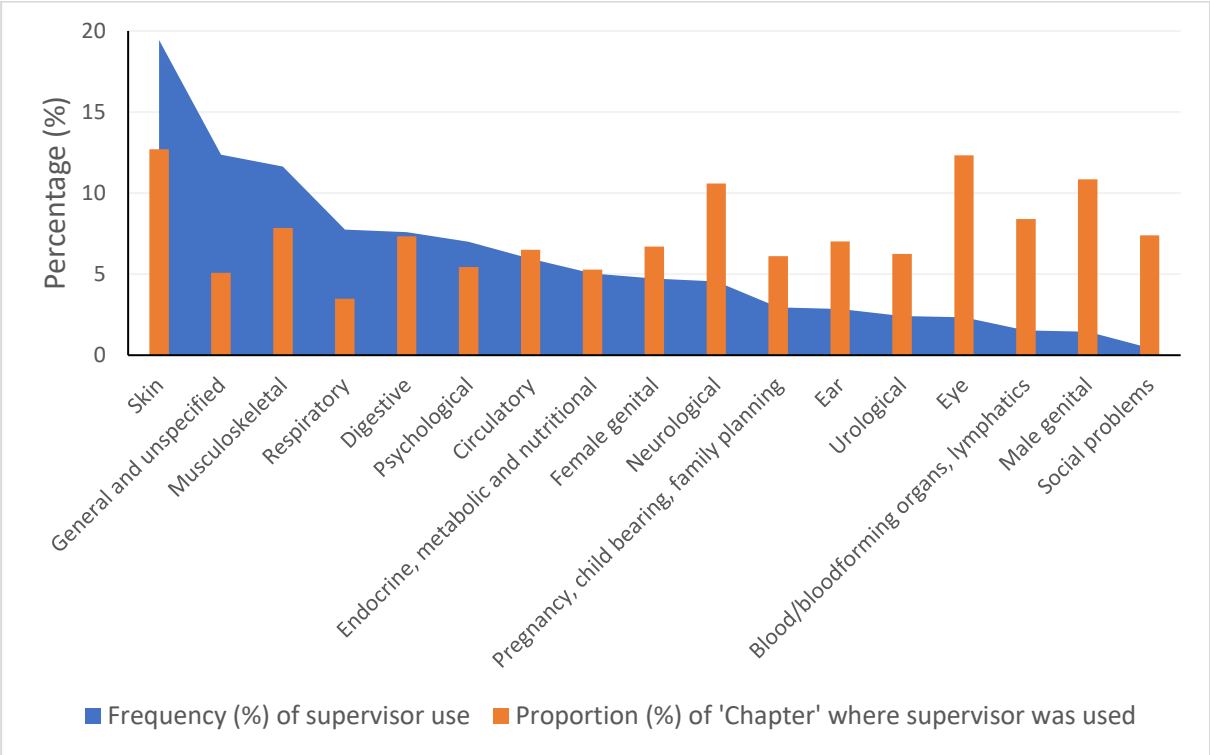


*Figure 3: Most common supervisor use (blue) and 'degree of difficulty' (orange) by 'Chapter.' Chapters with a higher 'degree of difficulty' have supervisor use for a greater proportion of consultations.*

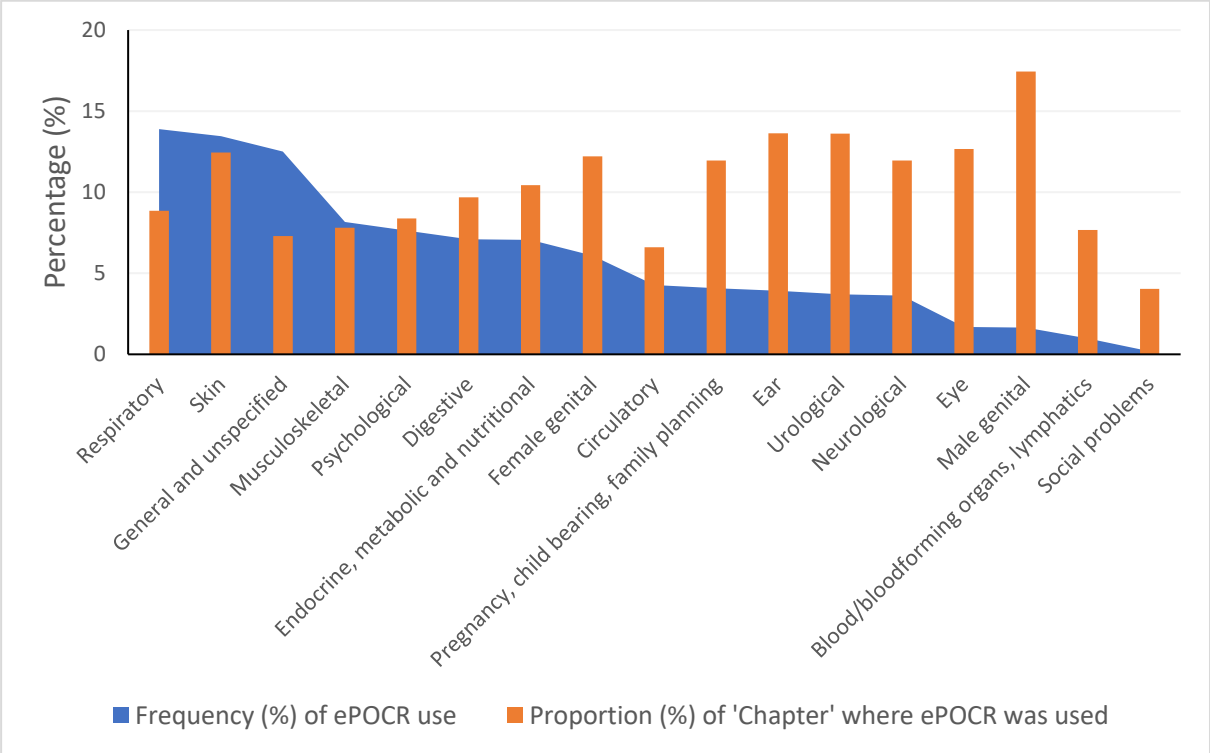


*Figure 4: Most common ePOCR use (blue) and 'degree of difficulty' (orange) by 'Chapter'. Chapters with a higher 'degree of difficulty' have ePOCR use for a greater proportion of consultations.*

## What role does practice location have in registrar experience? Practice rurality and socioeconomic status

There is quite a bit of ReCEnT evidence that practice in a lower socioeconomic status area[53] or, even more so, a rural area[54] provides a particularly rich learning environment. Associations of one or both include: seeing more older patients, more continuity of care, seeing more patients of Aboriginal and Torres Strait Islander background, seeing more patients from a non-English-speaking background, and more participation in practices' after-hours rosters.[53,54] Outer metropolitan areas provide another unique educational/learning setting (for many clinical and educational measures there is a gradient from major city to outer metropolitan to rural.[55]

Drilling down further, though, reveals complexity that supervisors and practices should be cognizant of. While registrars in rural practices see more older patients than registrars in urban practices, it appears that there are still issues with engagement of the registrar in comprehensive care of these patients and rural supervisors and practices should still consider the approaches covered in '*What can supervisors and practices do regarding registrars and older patients?',* above.

Also, while it is considerably more common for registrars in rural practices to participate in their practice's after-hours roster, in regional/remote practices 38% of registrars do not participate in after-hours rosters.[13] Some of these circumstances will represent lost opportunities for a rich learning experience. Supervisors and practices may be able to consider the particular circumstances and logistics of their practice and whether they can support registrars to participate in after-hours care.

## Are there areas of concern in registrars' in-consultation actions: evidence-practice gaps?

### Respiratory tract infections and antibiotics

Registrars have been found via ReCEnT analyses to be prescribing antibiotics in excess of evidence-based benchmarks for acute bronchitis,[56] acute sinusitis,[57] acute sore throat,[58] and acute otitis media.[57] There are, though, some positive aspects of registrars' clinical behaviours

in this area. Their prescribing is lower than that of established GPs. Their prescribing for acute upper respiratory tract infections (URTI)[56] is considerably lower than for these other self-limiting respiratory tract infections and within recommended Australian-validated benchmarks.[59,60] Also, rates of antibiotic prescribing for all these acute respiratory infections reduced significantly during the period 2010-2019[21,22] – with prescribing for URTI now within acceptable limits, though prescribing for the other conditions remains markedly above benchmarks.

Registrars also use delayed prescribing of antibiotics more often than European established GPs (the only GP group with comparable data).[61] They may use delayed prescribing to manage diagnostic uncertainty[62] (which ReCEnT has demonstrated to be a particular issue for GP registrars[63]).

The context for these findings is that our qualitative work, conducted in concert with ReCEnT analyses, demonstrates a very large influence of supervisors[64] (and, to some extent, other GPs in the practice[65]) antibiotic prescribing role modelling on registrars' behaviour – either a positive or a negative influence.

### Opioid and benzodiazepine prescribing

A ReCEnT analysis of registrars' opioid prescribing[66] suggested much prescribing may be non-evidence-based. Less than a third of prescriptions of opioids were for acute pain or palliative care. Sixty-three percent involved repeat prescriptions for pre-existing problems. Similarly, inconsistent with most guideline recommendations, we found that registrars prescribe anxiolytics/hypnotics (mostly benzodiazepines) mainly as maintenance therapy to older patients and to patients who are unfamiliar to them. Also, a large proportion of anxiolytic/hypnotic prescriptions was for off-label indications.[67] Encouragingly, though, overall registrars' prescribing of anxiolytics/hypnotics looks to be decreasing over time.[19]

### Other areas

GP registrars frequently order screening Vitamin D tests. Our findings of the patient demographics and associations of Vitamin D testing suggest that inappropriate Vitamin D testing (that is, non-compliance with current Vitamin D testing guidelines) may be relatively common.[68]This may be one manifestation of a wider issue with registrars' test-ordering. We have found that registrars' pathology test-ordering increased significantly from Term 1 to Term 2 to Term 3.[69] As we have also found that registrars, overall, order more tests than established general practitioners,[70] it may be that test-ordering may peak during late vocational training and early career practice. This is a time when registrars are taking on more autonomy and responsibility as they move toward independent post-Fellowship practice. Test-ordering may be a response to clinical uncertainty in the setting of increasing responsibility during this transition (recognizing that even senior registrars are still quite inexperienced in general practice medicine). Registrars need specific support from their supervisors during this difficult period in the development of their clinical practice patterns. One proposed exercise to promote rational test-ordering is for supervisors and registrars jointly to do 'test result audit and feedback (TRAFk)'[71] of registrars' ordered pathology tests (and similarly for imaging requests). Supervisors could consider doing a test audit or "inbox review" with your registrar: An outline of the TRAFk process is contained in the journal article: 'Test result audit and feedback (TRAFk) as a supervision method for rational test ordering in general practice training.' 'Box 2' in this linked article contains a framework for supervisors analysing their registrar's test ordering in partnership with the registrar.

## Do registrars' behaviours change over the course of their training? Has the past decade seen changes in registrar behaviour?

We have done a limited number of analyses examining whether registrars' test-ordering and prescribing behaviours change during training ('within-registrar' change, from Term 1 to Term 2 and to Term 3). For these analyses we have looked at areas identified by ReCEnT 'mapping' analyses as being areas of evidence-practice gaps. As above, we found that test-ordering

increases during training. Also, somewhat disappointingly, we found that registrars prescribing of antibiotics for acute bronchitis or URTIs[18] and of benzodiazepines[19] didn't change as they progressed from Term 1 to Term 2 and to Term 3. We have, however, found that 'within-program' prescribing of benzodiazepines[19] and of antibiotics for URTI, acute bronchitis, acute otitis media, acute sinusitis and acute sore throat *does* decrease significantly over time (from year to year).[18,21,22]

Our interpretation of these findings (along with other evidence, including our qualitative work) is that registrars' clinical behaviours are complex with many determinants. But primary drivers of registrars' behaviours in an apprenticeship model are supervisor instruction and role-modelling and, also, the wider practice milieu. There is much that supervisors and their practices can do to positively influence registrars' adoption of evidence-based practice. This is not to say that RTO-delivered education does not also have a vital role in shaping registrars' clinical practice. See below (*Can education change registrars' clinical behaviours (for the better)?* for a discussion of this issue).

## Can education influence registrars' clinical behaviours (for the better)?

The simple answer to this complex question is 'yes, but….'

We have designed (informed by ReCEnT findings) and delivered educational innovations aimed at reducing registrars' antibiotic prescribing for URTIs and acute bronchitis and at promoting rational test ordering. The test-ordering education session reduced overall test ordering (unpublished data, Morgan *et al*. 2015) and the antibiotic education session reduced antibiotic prescribing for acute bronchitis by 16% (absolute reduction).[72] This is a very large absolute reduction (compared to previous interventions of various types in many countries).

Other educational packages – for opioid prescribing,[24] benzodiazepine prescribing, antibiotic prescribing for URTIs,[72] and deprescribing of inappropriate medicines in older patients[25] – didn't produce statistically significant changes in registrar clinical behaviour. There are plausible reasons for this apparent lack of efficacy. For URTIs,[72] there was very likely a ceiling

effect as registrars' prescribing was already reducing and relatively parsimonious; for benzodiazepine prescribing and inappropriate medicines deprescribing, the analyses may have been underpowered – there was a moderate decrease of 8% in registrars' benzodiazepine prescribing after the intervention for registrars in the intervention RTO, but this decrease did not reach statistical significance (unpublished finding, Tait *et al*. 2024); for inappropriate medicines, there was a moderate increase in deprescribing of 29% (but with a wide confidence interval) for registrars in the intervention group, but this increase did not reach statistical significance.[25]

For opioids,[24] an obvious explanation is that it is far more difficult for a registrar to decline a script for an opioid that a patient is already taking than to manage a presentation of acute bronchitis without recourse to antibiotics (and, in fact, there was a clinically significant but statistically non-significant (p=0.19) reduction in *initiation* of opioids in the intervention group). There was, though, a feature of the educational package for opioids that we feel is relevant. The educational package, though comprehensive, was delivered only to registrars. Ideally, our educational packages are designed with elements for registrars (dedicated face-to-face or webinar sessions), supervisors (face-to-face or online), supervisor-registrar interactions (structured lesson plans for in-practice teaching), and practices (patient educational material, waiting room posters).

## Influencing clinical real-world behaviour versus knowledge or attitude

Though we found no change in actual prescribing of opioids following delivery of our educational package,[24] we did document a change in registrars' responses to paper-based clinical vignettes – there were improvements in registrars' hypothetical prescribing.[26] An interpretation is that knowledge is 'necessary but not sufficient' for influencing registrars' actual clinical behaviours.

## Influencing registrars' clinical behaviours requires a behavioural approach

In ReCEnT, we measure registrars' in-consultation clinical exposures and clinical behaviours. Educational innovations informed by ReCEnT data and evaluated for efficacy with ReCEnT data are, thus, directed at registrar clinical behaviours (rather than other constructs like clinical reasoning which require a different approach).

Our approach is therefore informed by behaviour change theory. Specifically, by Michie's Behaviour Change Wheel[73] in which behaviour is predicated on capability, opportunity, and motivation (the 'COM-B system').[73] A number of 'Interventions' and 'Policies' populate the further, outer two layers of the behaviour change wheel. We see a number of these 'interventions' as being relevant to clinical behaviour change in the Australian general practice vocational training program. Mainly these are the preserve of the supervisor/practice rather than the vocational training program. Though there is an important role for the RACGP GP Training organization in the 'education' component of an intervention.

Antibiotic stewardship has been identified as a priority area for Australian general practice with much practical action possible.[74,75] Including, in the context of vocational training. So, using the example of influencing registrar antibiotic stewardship with behaviour change 'interventions', Table 3 offers some examples of potential supervisor and practice initiatives:

*Table 3: Interventions and examples of supervisor and training practice initiatives to influence registrars clinical behaviours*

| **Intervention Type[73]** | **Examples of Supervisor and Training Practice Initiatives** |
|---|---|
| Environmental restructuring | Placing of posters related to antibiotic stewardship in surgery waiting rooms. Provision of patient education brochures explaining antibiotic stewardship. |
| Modelling | Supervisors (and other GPs in the practice) should model evidence-based prescribing of antibiotics. The practice developing standard protocols for common presentations (including infections) may help here. |
| Enablement | 'Licensing' registrars to decline to provide antibiotic scripts when this is appropriate. |

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| Training | Including case presentations of management of infective disease presentations in practice clinical meetings. |
| Coercion | This is inappropriate. |
| Incentivisation | This would probably be difficult to operationalize. |
| Persuasion | Hopefully, persuasion (beyond education and role-modelling) won't be required. |
| Education | This is the 'Intervention' where the training program has important contributions to make (especially where specialized knowledge and expertise will value-add), but in-practice education is still central, especially in the quarantined teaching time for Term 1 and Term 2 registrars. |
| Restrictions | Restrictions in general won't be a preferred intervention. But there may be some scope – for example, if a practice protocol exists, registrars (especially more junior registrars) could be required to check with their supervisor before practising contrary to the protocol. |

## What are the implications for supervisors and practices?

The underlying message is that, within an apprenticeship-like model, there is primacy of in-practice experiential learning but that 'external' (training program-delivered) focussed education is also vital. We have demonstrated this in some of our non-ReCEnT research.[1] Optimally, the two elements should work in concert. Training organization education delivery to registrars may, for selected topics (especially topics with rapidly changing or contentious evidence or widely prevalent non-evidence-based practice), be supplemented with parallel (or combined) education for supervisors. Training regions could provide local supervisors with detailed schedules of education topics so that supervisors can provide concurrent in-practice education on application of the registrars' newly acquired knowledge to the real-world setting of their practice. The training organization may facilitate this educational synergy, for selected topics, by providing supervisors with teaching session frameworks to be used, at the supervisor's discretion, during in-practice teaching sessions.

Supervisors should also look beyond the immediate supervisor-registrar relationship to the wider practice environment to create an optimal learning (and practice) space for registrars as they traverse the steep learning curve of GP training.

## What are the implications of ReCEnT-derived data on prediction of FRACGP Fellowship examination performance?

Our previous non-ReCEnT work has demonstrated that 'exam-style' assessments prior to the commencement of GP Term 1 are quite strongly predictive of FRACGP Fellowship examination performance.[76] We have also shown that a structured assessment of observed performance during ECTVs[29] is predictive of FRACGP Fellowship examination performance.[77]

These are important findings, but don't necessarily mean that Fellowship examination performance reflects clinical performance. Even the ECTV findings may be subject to a 'Hawthorne effect'.

But, using a measure of 'low value' care (derived from the recommendations of Australia's peak clinical medicine bodies (including the RACGP) collated in the National Prescribing Service 'Choosing Wisely' program)[27] and applied to ReCEnT data, we have found that practising 'low value, non-evidence-based care' is robustly predictive of poorer Fellowship examination performance and increased risk of exam failure.[30] That is, unobserved actual practice is predictive of examination performance. It's not unreasonable to cite this to registrars as evidence that working hard to become the best clinician they can is the route to subsequent exam success.

## Can I participate in the ReCEnT research as a practice/ supervisor/ registrar?

Registrars and practices make ReCEnT possible with their contribution to data collection. Future registrars (and the vocational training program) benefit from the subsequent learnings, and the contribution is much appreciated.

There is also scope for registrars and supervisors to participate further by collaboration with our ReCEnT team. Registrars (mainly, but not always, academic registrars) have collaborated extensively with us, as have medical students. While one supervisor has worked with us a great deal and MEs have regularly contributed, there is scope for greater engagement –

supervisors are well placed to bring their content expertise and, especially, their relevant clinical/educational questions that may be answerable with ReCEnT analyses.

If you would like to discuss your ideas, contact Parker Magin

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# Glossary

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|---|---|
| BEACH | Bettering the Evaluation And Care of Health. A landmark study (1988-2016) conducted by the BEACH team from the University of Sydney and documenting the clinical content of Australian general practice consultations. |
| PETAL | Patient Encounter Tracking and Learning tool. An instrument for recording the clinical experience and clinical behaviours of general practice trainees. |
| AGPT | Australian General Practice Training is the Australian government-funded GP training program for medical graduates wishing to pursue a career in general practice in Australia, leading to Fellowship of the Royal Australian College of General Practitioners and/or Australian College of Rural and Remote Medicine. |
| Competency based outcomes | A learning structure which permits learners to progress based on their achieving a skill or competency. |
| Prevalence | The proportion of individuals in a population who have a particular disease or attribute or characteristic (for example a risk factor) at a certain point in time or over a specified period of time. |
| Multivariable analyses | Statistical methods for determining the relative contributions of multiple factors to a single outcome. |
| Qualitative methodologies | A methodology involving the collection and analysis of non-numeric data (as opposed to numeric data in quantitative research). The data can be from a number of sources e.g. recorded speech/discussion (audio or video), text, or observation of behaviour. |
| Term 1/2/3 | AGPT training is delivered as 6-month full-time equivalent ‘terms’. There are three mandatory general practice terms in RACGP training. In ReCEnT, these are referred to as Terms 1, 2 and 3. In ReCEnT these also refer to the first three community general practice terms undertaken by |

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| | ACRRM registrars in their core generalist training. |
| Gender concordant | Concordance of registrar-patient gender. i.e. male-male or female-female, as opposed to female-male or male-female. |
| Underpowered | A study which doesn't have the power to detect significant differences in the outcome. Power is the ability to detect a difference if a difference exists. Power is determined by a number of factors, including the sample size of the study. |
| Statistical significance | Statistical significance is the likelihood that a research finding occurred by chance. Significance is often expressed as a p-value. A p-value expresses the probability that the result (or one more extreme) would occur by chance. |

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# Appendix 1 – Registrar Feedback Report

ReCEnT
Registrar Clinical Encounters in Training

RACGP
Royal Australian College of General Practitioners

## *Registrar Feedback Report*

**ReCEnT Registrar Identifier:**
**Registrar Term: Term 3**
**Encounter Period:**

### Introduction

Thank you for your participation in the ReCEnT project. This feedback report gives you information on your individual clinical encounters in comparison to

- aggregated registrar data,
- national GP clinical activity data, and your previous terms (as applicable).

Data collected from previous rounds of the ReCEnT project (2010 - 2023.1) have been aggregated as a comparison group, comprised of approximately 744,000 unique clinical encounters. National GP clinical activity data is derived from the BEACH (Bettering the Evaluation and Care of Health) program from their 2015-16 report. The BEACH program was co-ordinated by the Family Medicine Research Centre at the University of Sydney.

### Using ReCEnT to Inform Learning

The clinical encounters of a general practitioner are a great catalyst for learning. The information contained within this report allows for reflection to aid continuous improvement of your clinical practice. There are a number of ways that you can use this information.

**Self Reflection**

The report gives you a current snapshot of your general practice consultation and management profile.
Is your feedback consistent with what you expected? If not, *why might this be?*

Comparisons throughout your report allow you to compare your results with other similar registrars, Australian GPs and your previous training terms (where relevant).

What can you learn from these comparisons? ReCEnT is a reflective exercise, prompting self-reflection on your practice. It is not a benchmarking exercise. There is no 'correct' level of any variable in this report.
There are further questions throughout the report to prompt your reflection.

**Discussion with your Supervisor**

We strongly recommend that you discuss this report with your supervisor at a teaching session. For example, are your results similar or different from their own practice? Why might this be the case?

**Critical Appraisal**

Interpretation of this report requires consideration of a number of factors which may impact upon the results. For example, were these 60 encounters typical of your usual practice? If not, in what way? How might this affect your results? If your results are different to those of your peers, how much might be due to the 60 cases being unrepresentative? How much might be due to your practice demographics? How much might be due to your personal style or methods of practice? Thus, you need to critically appraise your results.

**Actions**

After self-reflection on these results, and discussion with your supervisor, you may have identified gaps in clinical experience or a need to refine some aspects of your practice. These should be documented on your learning plan.





Printed on: 20/11/2023

## Results

### 1. The Registrars

In comparison to the national GP population, the registrar participants in ReCEnT have very different demographics - just over a third of the registrars were male (40.7%), compared to 53.0% of established GPs. Over nine in ten were aged under 45 (93.6%) compared to 36.0% of the GP population.

### 2. The Patients

Overall, about 59.6% of patients seen by all registrars were female, compared to 56.6% in the national GP dataset. However, registrars saw a younger patient population - 30.5% of patients were under 25 (compared to BEACH 19.3%) and only 18.9% of patients were 65 and over (compared to BEACH 30.7%).

The mean age of your patients was 31.1 years and 43.3% of your patients were female.
For **all male** registrars, the mean patient age was 41.4 years and 50.4% of patients were female.

Figure 1 refers to the age-gender distribution of **your patients in your current term, compared to the distribution of patients for registrars of your gender in previous cohorts.** The lines represent the age and gender distribution of patients for the registrar group (green is female and navy is male) and your patients are represented by the bars.

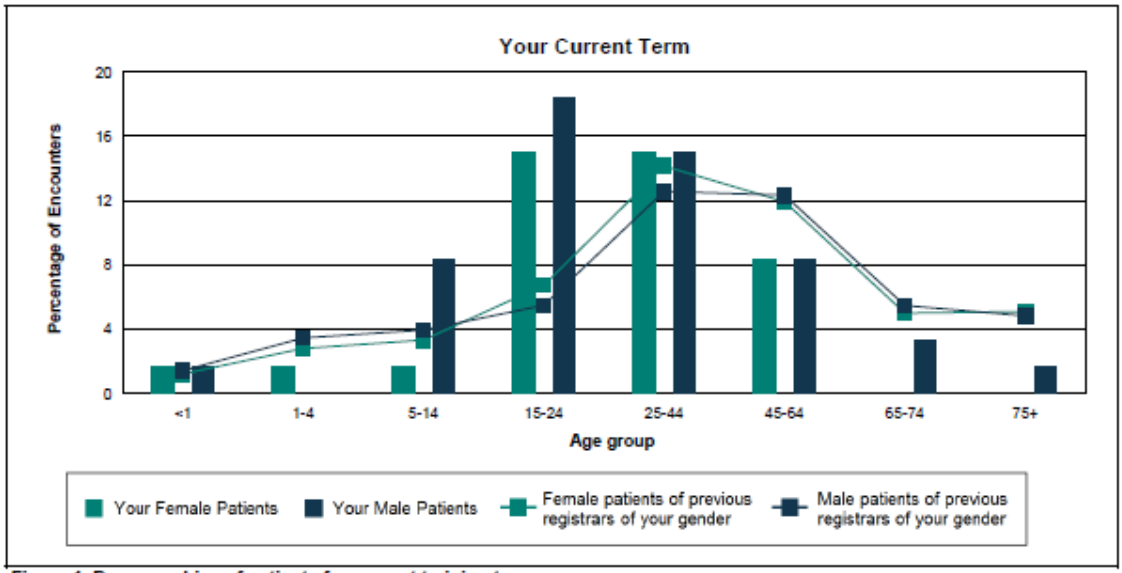


**Figure 1. Demographics of patients for current training term**

***Reflective Questions***
*Did your patient demographics differ from your peers?*
*If so, why might this be? How might this affect your clinical exposure?*

**Aboriginal and/or Torres Strait Islander Patients**

You saw 1 patient who identified as Aboriginal and/or Torres Strait Islander.

***Reflective Questions***
*If you saw a patient who identified as Aboriginal and/or Torres Strait Islander:*
*Do you recall the patient and the presentation? Did the patient's Aboriginal and/or Torres Strait Islander status influence your management?*

**Patients from a non-English speaking background (NESB)**

You saw 17 patients from a non-English speaking background.

***Reflective Questions***
*If you saw patients from a NESB, can you recall any of the circumstances? If so, did the patient's NESB status affect your clinical management, or your learning from the consultation?*

**Consultations conducted in another language**

You saw 3 patients where you consulted in another language.

***Reflective Questions***
*If you consulted in another language, can you recall the circumstances? If so, did the consultation being conducted in a language other than English influence the dynamics of the consultation, your clinical management, or your learning from the consultation?*

Figure 2 refers to the age-gender distribution of **your patients in all terms for which you have completed ReCEnT, compared to the distribution of patients for registrars of your gender in previous cohorts.**

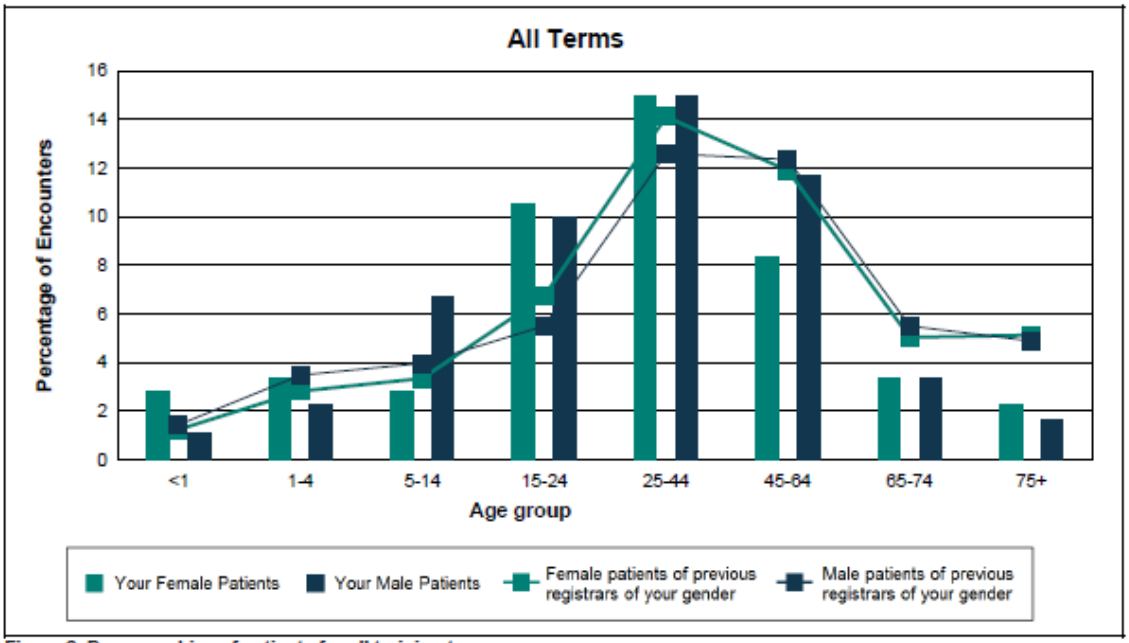


**Figure 2. Demographics of patients for all training terms**

## 3. The Encounters

### 3.1. Duration of Consultation

The mean duration for your consultations was 16.2 minutes. The mean duration for all GPT3/PRR3 Registrars was 16.7 minutes.

Figure 3 refers to the duration of **your consultations compared to the duration of consultations of all registrars in the same term as you in previous cohorts.** The background shading represents the frequency of different consultation durations for the registrar group. Your consultations are represented by the bars.

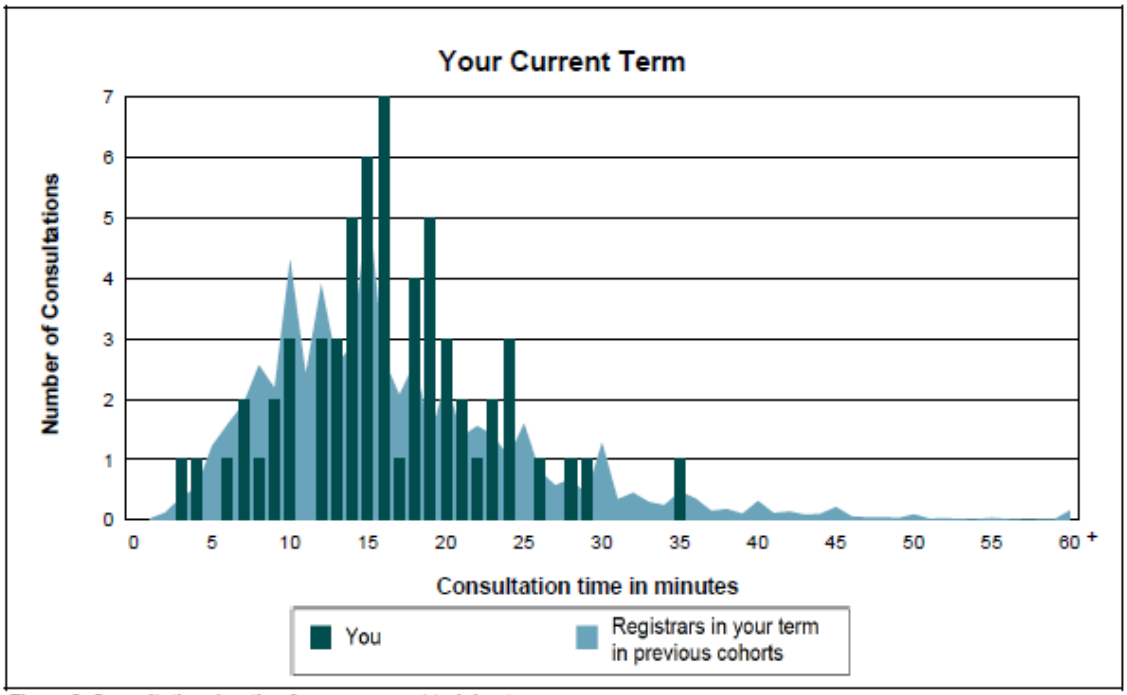


**Figure 3. Consultation duration for your current training term**

Figure 4 below compares **your mean duration of consultation with the mean duration of consultation for GP registrars by stage of training, and for GPs in the BEACH study.**

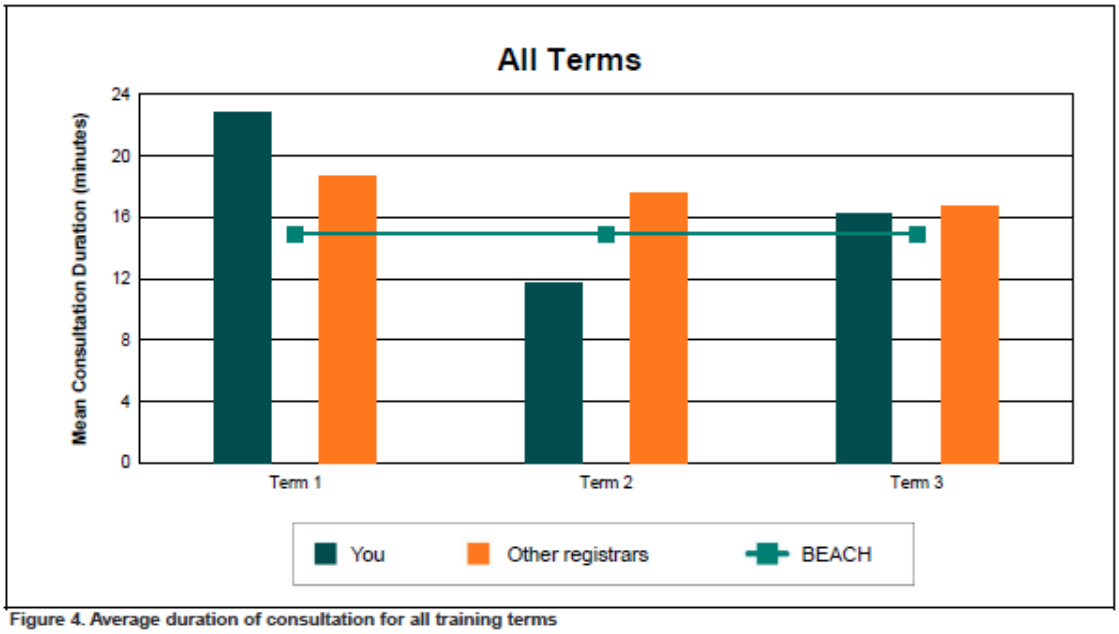


**Figure 4. Average duration of consultation for all training terms**

***Reflective Questions***
*Does your mean consultation duration, and spread of individual durations differ from your peers?*
*Has your mean duration of consultation changed with increased experience?*

## 3.2. Continuity of Care

Continuity of care has been found to be closely related to patient and doctor satisfaction. Two aspects of continuity of care that the ReCEnT study captures are the proportion of new patients, and the percentage of encounters where follow-up was scheduled.

The proportion of patients that were new to you was 48.3%, compared to 57.5% for all registrars.

You scheduled patient follow-up with yourself in 21.7% of your encounters. The mean percentage of encounters for which all registrars scheduled patient follow-up with themselves was 43.6%.

***Reflective Questions***
*What may be the implications of your continuity of care figures for your education and training?*

## 3.3. Problems Managed

**Number of Problems**

Overall, registrars managed 150 problems per 100 encounters, or about 1.5 problems per consultation on average. This is almost exactly the same as BEACH data (154.3 problems per 100 encounters).

You managed 118.3 problems per 100 encounters.

Of all your problems managed, 9.9% were chronic disease. The mean for all registrars was 22.0%. This compares to 34.6% for established GPs.

**Clinical Type**

The top 5 most common specific ICPC-2 disease chapters managed by all registrars, by percent of total problems managed, were:
General & Unspecified (16.4%), Respiratory (15.0%), Skin (10.3%), Musculoskeletal (10.0%), Psychological (8.7%).

This compares to BEACH data (2015-16):
General & Unspecified (13.0%), Respiratory (12.7%), Musculoskeletal (11.7%), Skin (11.3%), Circulatory (9.8%).

**Observations and Examinations**

You performed an observation in 65.0% of your consultations. The median for all registrars was 45.0%.
You performed an examination in 61.7% of your consultations and the median for all registrars was 56.7%.

Please note that 11.7% of your consultations were telehealth compared to the median of 16.7% for all registrars. This may affect other parameters in this report, such as the average duration of consultation and the proportion of problems for which you performed an observation or examination. Take this into account while reflecting upon your expectation for the proportions of your consultations entailing observations/examinations.

Figure 5 refers to the **types of problems you managed in your current term, compared to registrars of your gender in previous cohorts.**

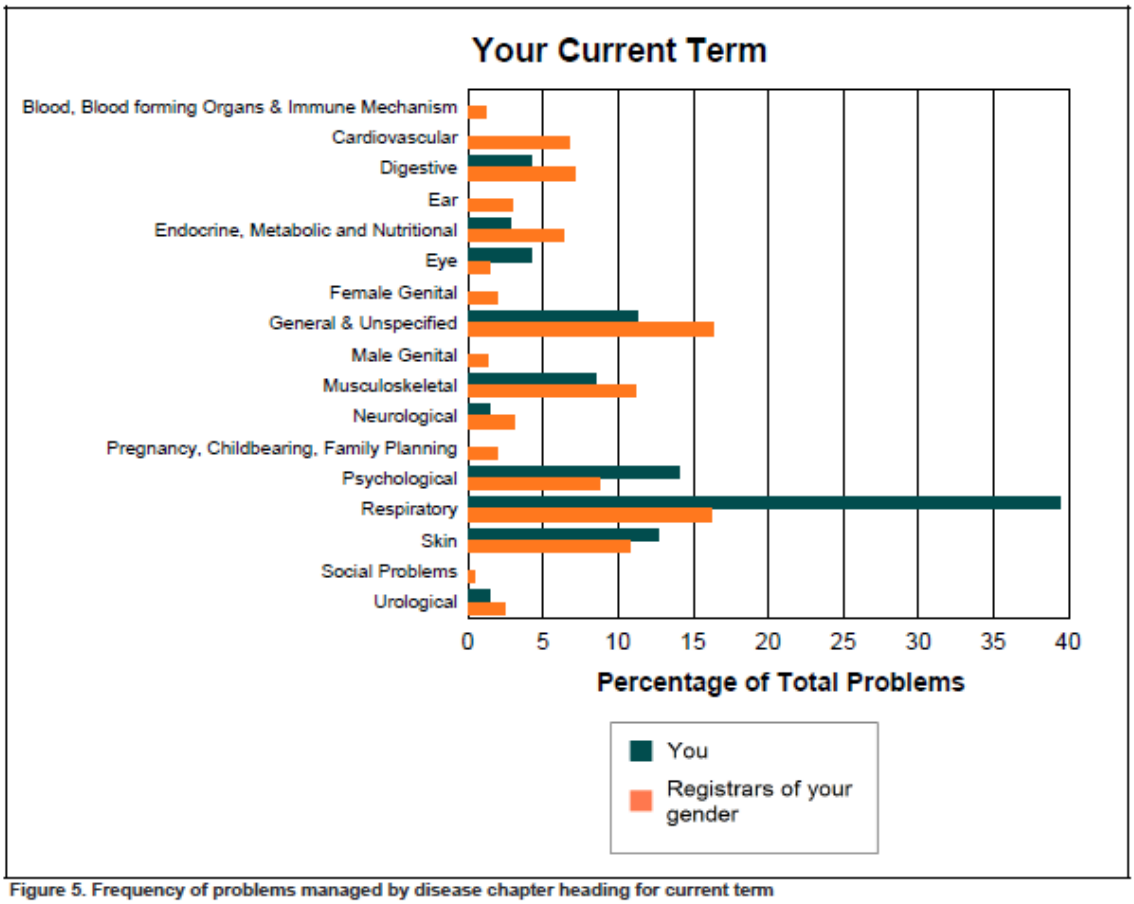


**Figure 5. Frequency of problems managed by disease chapter heading for current term**

Figure 6 refers to the **types of problems you managed in all terms for which you have completed ReCEnT, compared to registrars of your gender in previous cohorts.**

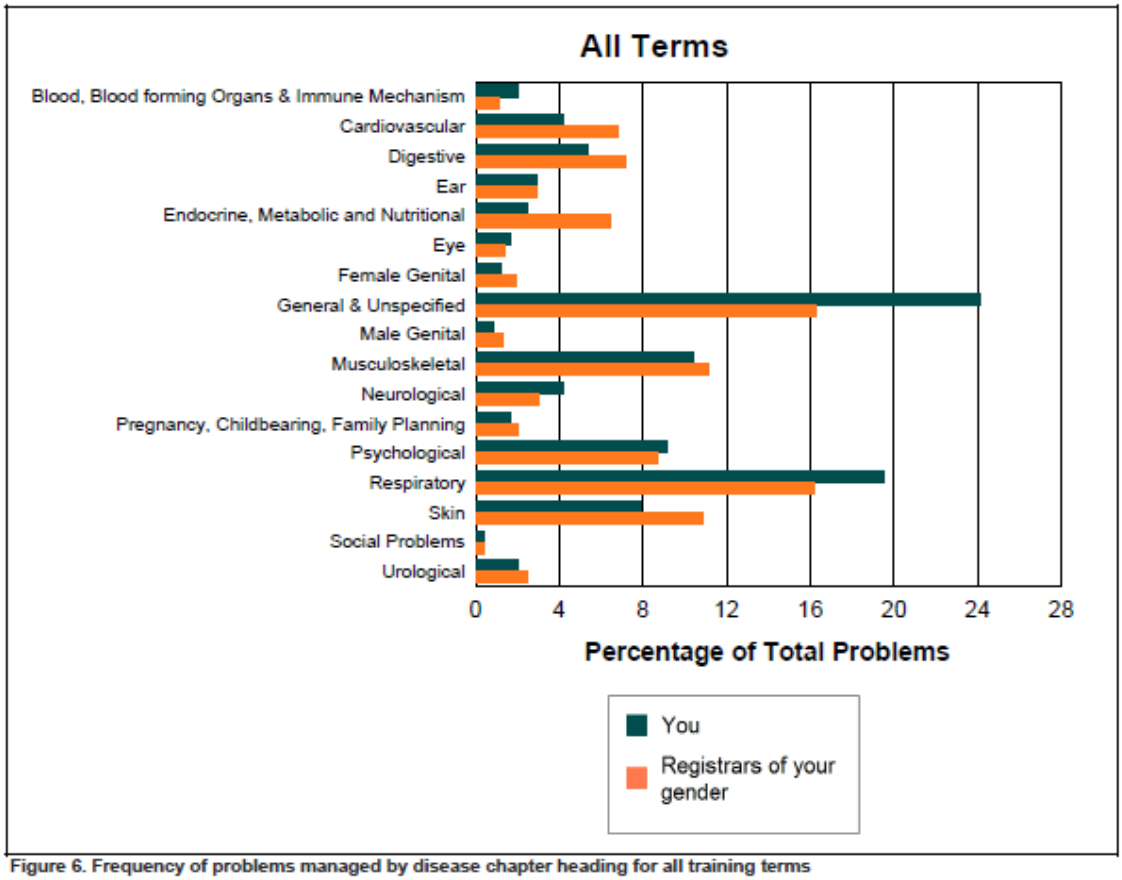


**Figure 6. Frequency of problems managed by disease chapter heading for all training terms**

**Specific Problems Managed**
Overall, the top ten problems managed by all registrars are below.

| Problems Managed |
| --- |
| 1. Upper respiratory tract infection |
| 2. Hypertension |
| 3. Influenza immunisation |
| 4. Depression |
| 5. Anxiety |
| 6. Prescription(s) |
| 7. Urinary tract infection |
| 8. Immunisation |
| 9. Asthma |
| 10. Test result(s) |

## 3.4. Investigations

At least one pathology test / battery of tests was ordered in 11.7% of your consultations, and at least one imaging test in 5.0%. This compares to 22.2% and 11.8% for all registrars and 18.4% and 9.4% in the BEACH data respectively.

Figures 7 and 8 refer to the **frequency of investigations (pathology and imaging) you ordered compared to all registrars and established GPs.** There is no significant change in test ordering across training terms, so only the group average has been reported.

**Please note that these graphs refer to rates per 100 encounters, not percentages i.e. the number of tests ordered per 100 encounters, not the number of encounters where a test is ordered.**

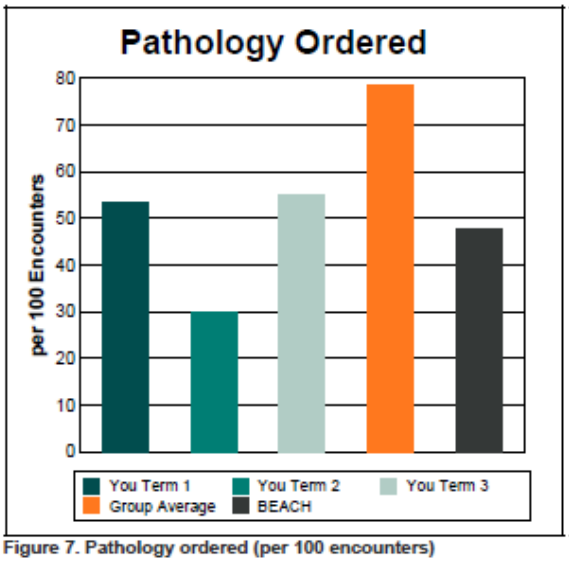


Figure 7. Pathology ordered (per 100 encounters)

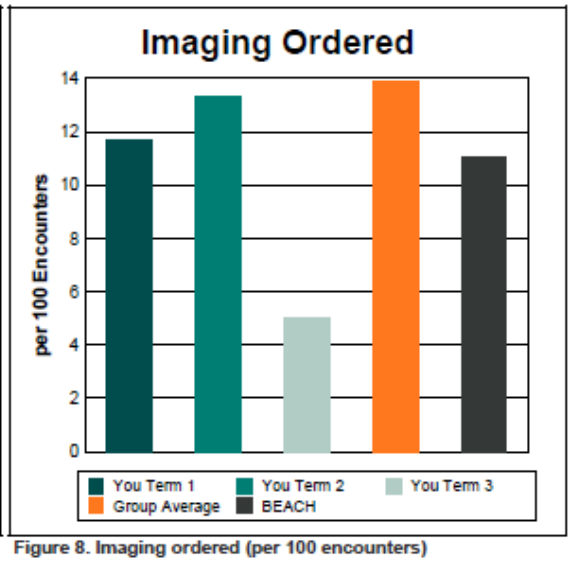


Figure 8. Imaging ordered (per 100 encounters)

The top ten pathology and imaging requests by all registrars are listed below.

| Pathology Requests |
|---|
| 1. Full blood count |
| 2. EUC test |
| 3. Liver function test |
| 4. Lipids profile test |
| 5. Urine MC&S test |
| 6. Iron studies test |
| 7. C reactive protein test |
| 8. TSH test |
| 9. Thyroid function test |
| 10. Fasting glucose test |

| Imaging Requests |
|---|
| 1. Chest X-ray |
| 2. Ultrasound of the pelvis |
| 3. Ultrasound of the abdomen |
| 4. Electrocardiogram |
| 5. Obstetric ultrasound |
| 6. X-ray of the knee |
| 7. Ultrasound of the breast |
| 8. X-ray of the foot or feet |
| 9. Ultrasound of the shoulder |
| 10. Mammography |

## 3.5 Management

GP registrars overall prescribed or recommended new medications at a rate of 45.6 per 100 encounters (and at least once in 36.2% of consultations). GP registrars made 11.9 specialist referrals per 100 encounters.

Figure 9 refers to **your rate of prescribing new medications per 100 encounters compared to all registrars.**
Figure 10 refers to **your rate of specialist referrals per 100 encounters compared to all registrars and established GPs.**

**Please note that these graphs also refer to rates per 100 encounters, not percentages.**

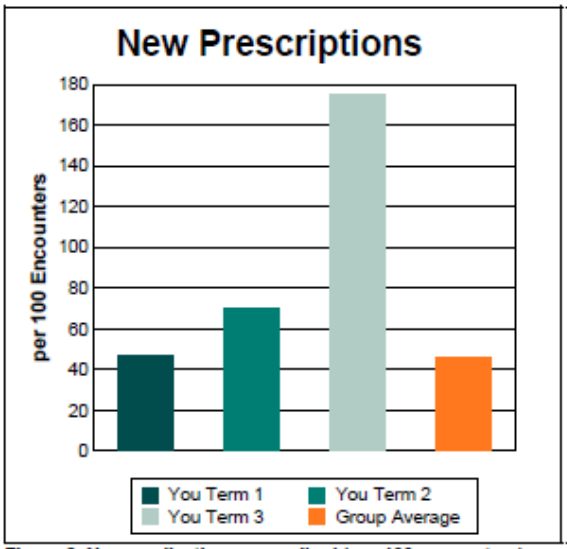


**Figure 9. New medications prescribed (per 100 encounters)**

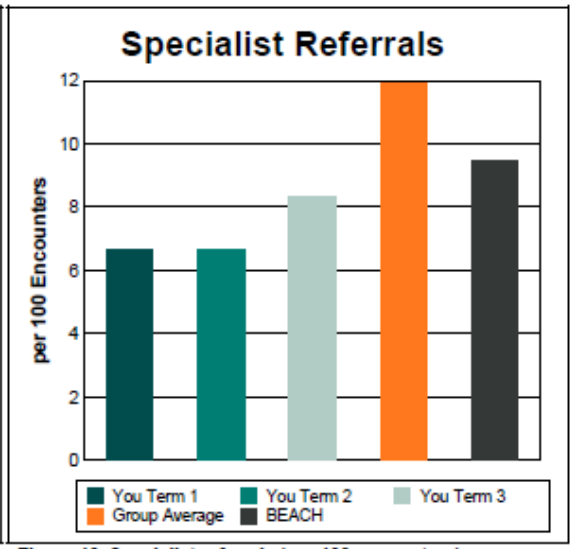


**Figure 10. Specialist referrals (per 100 encounters)**

***Reflective Questions***
*Are your clinical exposure, investigation rate, and management different to your peers?*
*If so, what personal, practice and training factors might contribute to this?*
*How could this information inform your future training plans?*
*Has your pattern of prescribing and of referral changed with experience during training?*
*If so, how?*

**Hospital Referrals**

You sent 1 patient to hospital during the data collection period.

***Reflective Questions***
*If you referred a patient/s to hospital:*
*Do you recall the presentation/s?*
*Did you follow up on the outcome/s?*

The top ten medications newly prescribed by all GP registrars are listed below.

| Medications Newly Prescribed |
|---|
| 1. Paracetamol |
| 2. Influenza, inactivated, split virus or surface antigen |
| 3. Amoxicillin |
| 4. Cefalexin |
| 5. Ibuprofen |
| 6. Prednisolone |
| 7. Flucloxacillin |
| 8. Hydrocortisone |
| 9. Codeine and paracetamol |
| 10. Doxycycline |

**Rational De-prescribing**

Like rational prescribing, rational de-prescribing of medicines no longer appropriate for a particular patient is an important task of the general practitioner.

In this period *you de-prescribed 0 medications* that the patient had been using for 3 months or more.

The top ten long term (greater than 3 months duration) medications de-prescribed by all GP registrars are listed below.

| Medications De-prescribed |
|---|
| 1. Levonorgestrel and ethinylestradiol |
| 2. Perindopril |
| 3. Esomeprazole |
| 4. Escitalopram |
| 5. Sertraline |
| 6. Amlodipine |
| 7. Atorvastatin |
| 8. Meloxicam |
| 9. Metformin |
| 10. Pregabalin |

## 3.6 Sources of Information

Registrars sought some kind of assistance with patient care in 22.6% of consultations overall. This comprised consulting with supervisors 8.8%, other specialists 1.2%, other health professionals 0.8%, electronic resources 12.9%, hardcopy resources 0.8% and other resources 1.1%. Supervisors were consulted in 13.6%, 7.6% and 4.1% of term 1, 2 and 3 consultations respectively.

Figure 11 refers to the **frequency you sought information in your current term, compared to all registrars in the same term as you in previous cohorts.** Please note, an absence of any bars reflects that no corresponding data was recorded during the term.

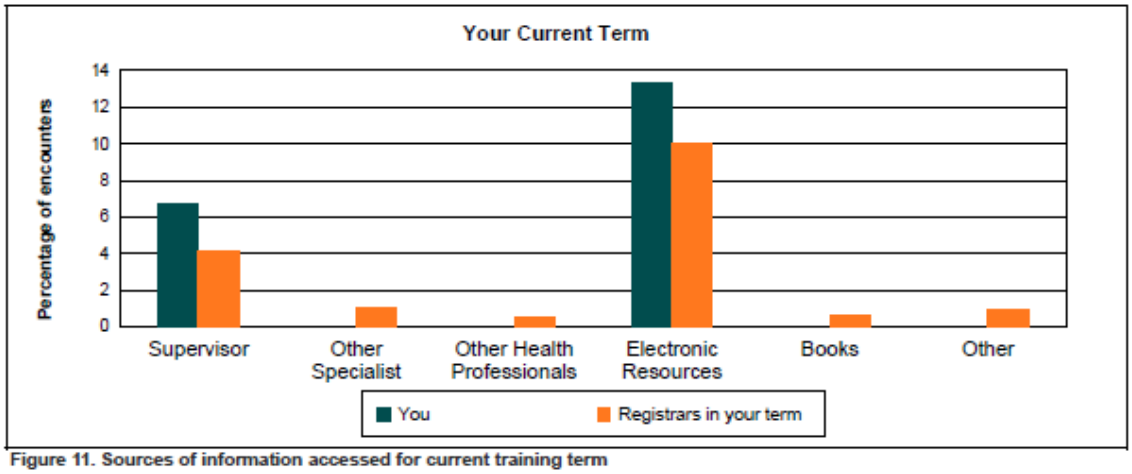


**Figure 11. Sources of information accessed for current training term**

Figure 12 refers to the **frequency you sought information in all terms in which you have completed ReCEnT compared to all registrars in previous cohorts.**

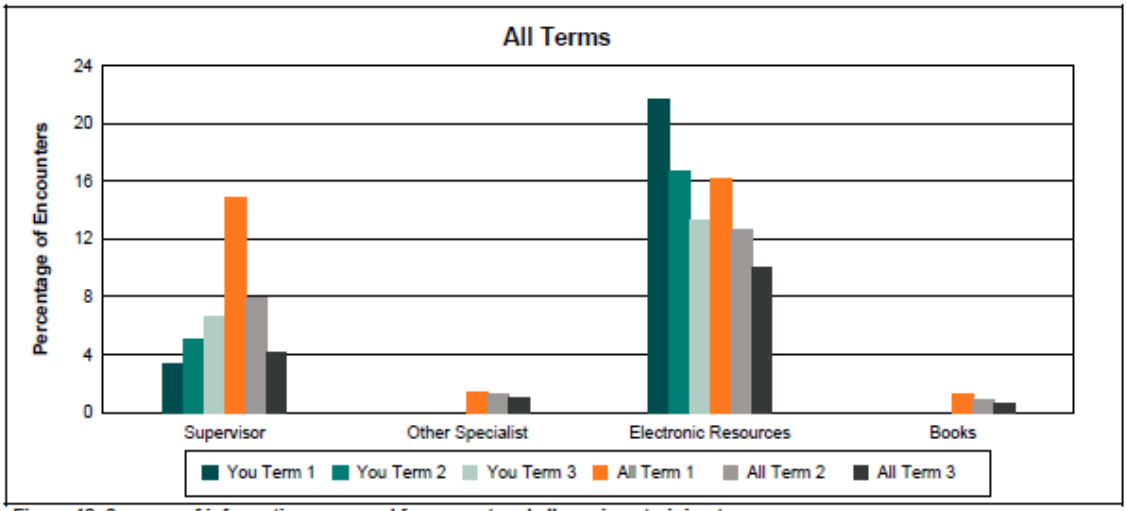


**Figure 12. Sources of information accessed for current and all previous training terms**

***Reflective Questions***
*Did your rate of seeking information and sources differ from your peers? If so, why might this be?*

The top ten sources of information sought by all registrars are listed below.

| Sources Of Information |
|---|
| 1. Therapeutic Guidelines |
| 2. AMH |
| 3. Health Pathways |
| 4. UpToDate |
| 5. RCH |
| 6. Murtagh's |
| 7. DermNet |
| 8. Immunisation Handbook |
| 9. MIMS |
| 10. RACGP Guidelines |

## 3.7. Procedures

The top ten procedures performed by all GP registrars are listed below.

| Procedures Performed |
|---|
| 1. Intramuscular injection |
| 2. Pap smear |
| 3. Cryotherapy |
| 4. Application of wound dressings |
| 5. Syringe external auditory canal |
| 6. Set up and record 12 lead ECG |
| 7. Excision of superficial skin lesions |
| 8. Punch biopsy of skin lesion |
| 9. Venepuncture |
| 10. Subcutaneous injection |

## 3.8. Learning Goals

You generated learning goals for 14.1% of your problems. This compares to 10.1% of all problems for registrars in your term.

**The learning goals you generated and the top 10 learning goals by all registrars are listed below.** Please note that an absence of any individual learning goals listed reflects that no learning goals were generated.

***Reflective Questions***
*Did you follow-up on your learning goals?*
*If so, do you think the information gained will influence your future practice?*

| Your Learning Goals |
|---|
| Allergic rhinitis |
| Anxiety |
| Attention deficit hyperactivity disorder |
| Back pain |
| Depression |
| Eczema |
| Generalised rash |
| Preconceptual check-up |
| Rectal bleeding |
| Tobacco smoking problem |

| All Registrar Learning Goals - Top 10 |
|---|
| 1. Hypertension |
| 2. Depression |
| 3. Anxiety |
| 4. Asthma |
| 5. Upper respiratory tract infection |
| 6. Type 2 diabetes |
| 7. Immunisation |
| 8. Abdominal pain |
| 9. Urinary tract infection |
| 10. Headache |