The Master's Apprentice: How do Australian medical interns learn?

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Abstract

Introduction: The 2015 *Review of Medical Intern Training Discussion Paper* (Australian Health Ministers' Advisory Council, 2015) questions the purpose and effectiveness of the current model of internship. However, there is limited literature describing how the medical internship functioned when first established in Australia, or how the educational model has changed over the years.

Methods: A study with the aim of determining how interns currently learn and the degree to which learning still follows an apprenticeship model was conducted over a 2-year period in a large Australian regional hospital. Sixty interns entered learning reflections into a 4-step online survey. A descriptive analysis was undertaken on the extracted data using Microsoft Excel.

Results: Results of the study indicate that interns still learn via the apprenticeship relationship they have with their supervisors (registrars and/or consultants) more than they do via self-directed means. Findings from this study suggest that learning in medicine is an iterative process; interns will learn via modelling from their supervisors, on the one hand, but will use self-directed learning when and where necessary. Interns indicated learning more content than they do tasks related to administration or professional identity. There are varying emphases of learning in each of the core terms of medicine, surgery and emergency medicine, which suggests that it is important for interns to continue to have learning opportunities in a variety of settings and disciplines.

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Conclusions: This study provides some insights into how and what interns learn, which should be considered when decisions are made about future models of medical intern training.

Keywords: medical education; internship; learning.

Introduction

The Australian medical internship was first introduced by individual state and territory medical registration boards between the 1930s and the 1970s (Geffen, 2014). The intention of this internship was to provide medical graduates with an apprenticeship-style (fully supervised) model of learning in the workplace. This model enables junior doctors to learn while they develop clinically, with their supervisor supporting them in their application of the theoretical knowledge gained in their medical degree to real clinical cases, i.e., developing their expertise from "knowing" to "doing" (Geffen, 2014).

The content of the modern Australian medical internship is in many ways similar to the models being used in New Zealand (Medical Council of New Zealand, 2011) and the UK (The UK Foundation Programme Office, 2015), however both of these models entail a 2-year internship. The current 1-year Australian medical internship has multiple purposes: providing interns with appropriate clinical experience to enable them to gain general registration through the Medical Board of Australia; providing exposure to a broad range of experiences to expand clinical expertise and inform career choices (Medical Board of Australia, 2016); and providing essential clinical services.

The landscape of medicine in Australia has changed greatly over the past generation. Exponential growth in the development and use of technology in medical sciences means that knowledge of diseases, coupled with how patients are diagnosed and treated, is vastly different. Patients admitted to hospital in 2016 are much sicker, on average, with more comorbidities, and have a much shorter stay than they did when medical internships were first introduced. This puts greater pressure on today's junior doctors to manage patients in a way that is both timely and cost-effective. It therefore stands to reason that the learning that occurs in the medical apprenticeship may also have changed.

Additionally, questions are now being asked about the purpose and effectiveness of the medical internship. The *2015 Review of Medical Intern Training Discussion Paper* (Australian Health Ministers' Advisory Council, 2015) highlights that little is known about the Australian internship, with a paucity of research and limited policy documents that describe how the medical internship worked when first established in the various states and territories of Australia. Equally, there has been little research over the ensuing years to describe how the internship might have changed. It is timely, then, to document what actually does happen in terms of learning during internship. Without this understanding, it is not possible to review the current model of internship and make informed decisions on future models of learning for medical graduates. This paper describes a study that explored how interns learn and the degree to which learning follows an apprenticeship model. The study was conducted over a 2-year period in a large Australian regional hospital.

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Methods

Ethics approval was granted by the Hospital and Health Service's Human Research Ethics Committee (HREC/12/QYHS/115) and James Cook University's Human Research Ethics Committee (H4827) for a mixed-methods study. This manuscript presents the quantitative findings from this study that might usefully inform the review of the Australia medical internship.

An online 4-step survey was designed to investigate what and how interns learn. The first step of the survey collected data about the type of rotation; the second step enabled interns to report individual items learnt while managing the first case of each day during the first week of each rotation; the third step asked for the interns to identify features of individual learning experiences, e.g., the source of the learning and what, how and where the learning occurred; the fourth step was an optional journal entry for interns to elaborate on their learning reflections (qualitative data). This paper focuses on data from the first three steps.

To build the survey, checklists of "learnt items" were developed using activity and task lists found in the literature (Dent et al., 2006; Derrick, Badger, Chandler, Nokes, & Winch, 2006; Eraut, 2004; Westbrook, Ampt, Kearney, & Rob, 2008; Zhu, Weiland, Taylor, & Dent, 2008) and some additional original items gleaned from discussions with working junior doctors. The Australian Curriculum Framework for Junior Doctors (Confederation of Postgraduate Medical Education Councils, 2008), which is an outcomes-based curriculum, is quite prescriptive in that it states specific competencies junior doctors are expected to be able to demonstrate. In order to provide a more flexible learning framework for the study, the learnt items identified for this study were arranged under the headings of "Content", "Administration" and "Professional Identity", which are referred to in this study as the domains of learning. These headings mirror Wilkinson and Sheehan's (2011) framework of "concrete tasks", "project management" and "identity formation" in their study about how New Zealand interns learn to be practitioners.

Draft checklists were first refined by a research assistant (an intern) and then by a reference group of interns (n = 18) using a modified Delphi technique (Fink, Kosecoff, Chassin, & Brook, 1984). Finally, the checklists of learnt items and 54 ways of learning, which were developed by the principal researcher with assistance from the research assistant, were translated into an online survey before being piloted by the reference group in Term 5 of 2012. Feedback from the reference group on the usability of the survey and analysis of the data informed the final version of the survey.

Interns attached to the regional referral hospital were invited to participate. As the principal investigator is the medical education officer at the hospital, it was important to ensure anonymity of the data. Interns were therefore asked to create a unique identifier. Slips of paper containing this information were submitted into a closed box. These unique identifiers were used to create access profiles for the online survey. If interns had any problems accessing the survey throughout the year, they could make an anonymous

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request via a third party to have their password reset to the default. Interns were given a manual to assist them to navigate the online survey.

Interns were asked to reflect on the learning they derived from managing the first case of each day during the first week of each new rotation (a total of four or five cases for each of the five rotations during internship). The rationale for this was the assumption that more learning would occur during the first week of each term than at any other period of the term; in addition to clinical work on the new rotation, interns are required to learn about new places, personnel and processes. Further, it was more likely that interns would remember this case with a fresh mind at the start of the day, and interns would be more likely to complete the management of this case than any other case during the day.

Only data from the interns' core (mandatory) terms of medicine, surgery and emergency medicine are included in this paper, as these are the focus of the *2015 Review of Medical Intern Training Discussion Paper* (Australian Health Ministers' Advisory Council, 2015).

The interns' learning reflection data were downloaded as comma-separated files or .csv files, which were converted to Excel files for analysis. Each learnt item checked by an intern generated a separate line of data (Figure 1).

Using Excel to manage the data, a descriptive analysis of the data was conducted, including whether the learning was via apprenticeship or self-directed learning methods and whether the learning came from consultants, registrars, nurses, allied health personnel, the patient or their family, peers (junior doctors), application of previous knowledge or by other means. For analysis purposes, "apprenticeship learning" was defined by the researchers as any learning that occurred as a result of the relationship the intern had with their nominated supervisors, i.e., consultant and/or registrar. All other types of learning were classified as self-directed learning.

A	B	C	D	E	F	G	H	I	J	K	L	M	N	O
Student	SurveyDate	Case	Term	Rotation	CategoryI	Category	LearntItemN	LearntItem	LocationIc	Location	MentorIc	Mentor	MethodIc	Method
50	4/09/2014	47 year old lady with syncope		4 Medicine	2	Administration	64	How to communicate v	2	Doctor's Room	2	Registrar	5	Demonstration
50	4/09/2014	47 year old lady with syncope		4 Medicine	2	Administration	64	How to communicate v	2	Doctor's Room	2	Registrar	6	Assisted me
50	4/09/2014	47 year old lady with syncope		4 Medicine	2	Administration	64	How to communicate v	2	Doctor's Room	6	Application of previous knowled	26	Uni knowledge
50	4/09/2014	47 year old lady with syncope		4 Medicine	2	Administration	64	How to communicate v	2	Doctor's Room	6	Application of previous knowled	27	Personal experience
50	4/09/2014	47 year old lady with syncope		4 Medicine	1	Content	1	Patient's History	1	Bedside	1	Consultant	1	Watching them
50	4/09/2014	47 year old lady with syncope		4 Medicine	1	Content	1	Patient's History	1	Bedside	6	Application of previous knowled	26	Uni knowledge
50	4/09/2014	47 year old lady with syncope		4 Medicine	1	Content	6	How to interpret investi	2	Doctor's Room	1	Consultant	3	Telling me
50	4/09/2014	47 year old lady with syncope		4 Medicine	1	Content	6	How to interpret investi	2	Doctor's Room	2	Registrar	6	Assisted me
50	4/09/2014	47 year old lady with syncope		4 Medicine	1	Content	6	How to interpret investi	2	Doctor's Room	6	Application of previous knowled	27	Personal experience
50	4/09/2014	47 year old lady with syncope		4 Medicine	1	Content	7	How to order investigat	2	Doctor's Room	1	Consultant	3	Telling me
50	4/09/2014	47 year old lady with syncope		4 Medicine	1	Content	7	How to order investigat	2	Doctor's Room	2	Registrar	6	Assisted me
50	4/09/2014	47 year old lady with syncope		4 Medicine	1	Content	7	How to order investigat	2	Doctor's Room	6	Application of previous knowled	26	Uni knowledge
50	4/09/2014	47 year old lady with syncope		4 Medicine	1	Content	7	How to order investigat	2	Doctor's Room	6	Application of previous knowled	27	Personal experience
50	4/09/2014	47 year old lady with syncope		4 Medicine	3	Professional Identit	33	How to work in a team	1	Bedside	1	Consultant	1	Watching them
50	4/09/2014	47 year old lady with syncope		4 Medicine	3	Professional Identit	33	How to work in a team	1	Bedside	1	Consultant	2	Listening to them
50	4/09/2014	47 year old lady with syncope		4 Medicine	3	Professional Identit	33	How to work in a team	1	Bedside	2	Registrar	1	Watching them
50	4/09/2014	47 year old lady with syncope		4 Medicine	3	Professional Identit	33	How to work in a team	1	Bedside	2	Registrar	2	Listening to them
50	4/09/2014	47 year old lady with syncope		4 Medicine	3	Professional Identit	33	How to work in a team	1	Bedside	6	Application of previous knowled	27	Personal experience
46	5/09/2014	68yo M post ileostomy		4 Surgery (i	2	Administration	21	How to discharge patie	2	Doctor's Room	4	Other resources	14	Formal education session
46	5/09/2014	68yo M post ileostomy		4 Surgery (i	2	Administration	21	How to discharge patie	2	Doctor's Room	5	Peers (Doctors)	28	Answer to my question/s
46	5/09/2014	68yo M post ileostomy		4 Surgery (i	2	Administration	21	How to discharge patie	2	Doctor's Room	6	Application of previous knowled	27	Personal experience
46	5/09/2014	68yo M post ileostomy		4 Surgery (i	2	Administration	57	What to prioritize	3	Nurse's Station	3	Nurses	8	Suggested to me
46	5/09/2014	68yo M post ileostomy		4 Surgery (i	3	Professional Identit	37	How to work more effic	3	Nurse's Station	5	Peers (Doctors)	32	Watching Peer
46	5/09/2014	68yo M post ileostomy		4 Surgery (i	3	Professional Identit	37	How to work more effic	3	Nurse's Station	6	Application of previous knowled	27	Personal experience
73	10/09/2014	Pyelonephritis in an elderly g		4 ED	2	Administration	20	How to organize suppo	3	Nurse's Station	1	Consultant	4	Feedback from them
73	10/09/2014	Pyelonephritis in an elderly g		4 ED	2	Administration	25	Where to find forms/pa	3	Nurse's Station	1	Consultant	1	Watching them
73	10/09/2014	Pyelonephritis in an elderly g		4 ED	2	Administration	60	How to manage time b	10	Other	6	Application of previous knowled	23	Hospital education session
73	10/09/2014	Pyelonephritis in an elderly g		4 ED	2	Administration	64	How to communicate v	10	Other	6	Application of previous knowled	27	Personal experience
73	10/09/2014	Pyelonephritis in an elderly g		4 ED	2	Administration	66	Who the appropriate p	3	Nurse's Station	1	Consultant	3	Telling me
73	10/09/2014	Pyelonephritis in an elderly g		4 ED	1	Content	1	Patient's History	1	Bedside	1	Consultant	1	Watching them
73	10/09/2014	Pyelonephritis in an elderly g		4 ED	1	Content	1	Patient's History	1	Bedside	7	Patient and/or Patient's Family	28	Answer to my question/s
73	10/09/2014	Pyelonephritis in an elderly g		4 ED	1	Content	1	Patient's History	1	Bedside	7	Patient and/or Patient's Family	30	Patient's notes / charts
73	10/09/2014	Pyelonephritis in an elderly g		4 ED	1	Content	2	How to examine patien	1	Bedside	1	Consultant	1	Watching them
73	10/09/2014	Pyelonephritis in an elderly g		4 ED	1	Content	8	Medication dosage	8	Corridor	1	Consultant	2	Listening to them
73	10/09/2014	Pyelonephritis in an elderly g		4 ED	1	Content	13	Clinical knowledge	10	Other	1	Consultant	2	Listening to them
73	10/09/2014	Pyelonephritis in an elderly g		4 ED	3	Professional Identit	4	What to say to sound p	10	Other	6	Application of previous knowled	27	Personal experience
73	10/09/2014	Pyelonephritis in an elderly g		4 ED	3	Professional Identit	37	How to work more effic	10	Other	6	Application of previous knowled	27	Personal experience

Figure 1. Example of data generated in the online survey.

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Results

A total of 60 interns participated in the study, 28/65 in 2013 (17 female, 11 male) and 32/70 in 2014 (21 female, 11 male). The gender imbalance in the subjects (63% are female) is representative of the entire intern population at this hospital. Interns' learning reflections were from a wide range of clinical settings, including the core terms of medicine, surgery and emergency medicine; other non-core hospital rotations; community-based rotations; small rural hospital settings; a private hospital; and general practice that was part of the now defunded Prevocational General Practice Placement Program (PGPPP) (Australian Government Department of Health, 2014). Although interns were asked to record their learning throughout their entire internship (five terms), as stated previously, data from the core rotations were isolated for the purposes of this paper.

Interns identified 7789 learnt items during the study (636 cases, average number of learnt items per case = 12). Of these, 5436 learnt items were identified in the core terms of medicine (1816), surgery (2085) and emergency medicine (1535).

How interns learn

Overall, interns reported that 49.9% of their learning occurred via an apprenticeship relationship with their supervisors (consultants = 19.5%, registrars = 30.3%). The category was unspecified for 1.7% of the recorded learnt items.

Of the 54 listed ways that interns could learn, the most common form identified was via application of previous knowledge (23.8%), mainly by calling on previous personal experience (13.0%). The other top four methods of learning were registrars telling them (8.9%), listening to the registrar (7.2%), getting feedback from the registrar (5.46%) and the consultant telling them what to do (5.4%).

Comparison of how interns learn in the core rotations

There were differences in the learning that occurred in each of the three core terms: medicine was 56.1% via apprenticeship learning, 42.5% via self-directed means; surgery was 40.4% via apprenticeship learning, 56.0% via self-directed means; emergency medicine was 50.7% via apprenticeship learning and 49.0% was via self-directed means. The most common forms of learning identified in medicine were application of previous knowledge in the form of personal experiences (13.0%) followed by the registrar telling them what to do (11.4%), listening to the registrar (10.8%), getting feedback from the registrar (7.3%) and watching the registrar (5.9%). In surgery, the most common form of learning identified was also application of previous knowledge in the form of personal experiences (12.3%) followed by the registrar telling them what to do (9.0%) or listening to them (6.3%), peers providing answers to questions (5.0%) and listening to their consultant (4.4%). The profile of learning in emergency medicine was different again. The top two reported forms of learning were application of previous knowledge via personal experiences (13.5%) and university knowledge (8.2%). Other common forms of learning identified in emergency medicine included learning from

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consultants telling intern what to do (9.6%), providing feedback to intern (7.6%), intern listening to them (6.1%), and the registrar telling the intern what to do (6.1%).

What interns learn

Interns reported 56.8% of their learning in the content domain, 24.5% in the administration domain and 18.9 % in the professional development domain. The most commonly reported learnt items overall were the patient's history (7.9%), how to examine a patient (4.9%), how to interpret investigation results (4.3%), clinical knowledge (4.3%) and correct medication to prescribe (3.7%). When looking at the content domain alone, these same learnt items were also the most commonly reported (14.0%, 8.7%, 7.6%, 7.5% and 6.5% of content, respectively). The most commonly reported administration learnt items overall were what to write in patient notes (10.3%), how to write up patient charts/notes (9.9%), how to communicate with other health professionals (8.9%), where to find forms/paperwork (8.5%) and how to refer patients (6.2%). The most commonly reported learnt items in the professional identity domain overall were how to work in a team (14.9%), how to reason out differentials (8.6%), what to say to sound professional (7.8%), scope of practice (7.4%) and limitations (6.0%).

Comparison of what interns learn in the core rotations

As might be expected, there were differences in the learning that occurred in each of the three core terms (Table 1). Proportionally, more content was learnt in medicine (62.6%) than in surgery (55.4%) or emergency medicine (51.1%). Emergency medicine had a higher proportion of learnt administrative tasks than the other core terms (29.2%; medicine = 21.3%, surgery = 23.9%), and surgery had proportionally higher learning in the professional identity domain than the other core terms (20.7%; medicine = 16.2%, emergency medicine = 19.8%).

There were some commonalities in the learning that occurred in each domain within each of the core terms (Table 2).

Table 1
The Five Most Commonly Reported Learnt Items in Each Core Term

Medicine	% Overall	Surgery	% Overall	Emergency medicine	% Overall
C—Patient's history	6.52	C—Patient's history	6.19	C—Patient's history	11.01
C—How to interpret investigation results	4.84	C—Clinical knowledge	4.17	C—How to examine a patient	6.77
C—Clinical knowledge	4.65	C—How to examine a patient	3.84	C—How to interpret investigation results	4.68
C—Medication dosage	4.36	C—New procedural skill	3.58	C—Clinical knowledge	3.91
PI—How to work in a team	4.17	A—What to write in patient notes	2.61	C—What investigations to order	3.69

Key: C = content, A = administration, PI = professional identity

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Table 2
The Five Most Commonly Reported Learnt Items in Each Domain of Learning Within Each Core

Domain	Medicine	% of Domain	Surgery	% of Domain	Emergency medicine	% of Domain
Content	Patient's history	11.77	Patient's history	12.12	Patient's history	17.61
	How to interpret investigation results	8.74	Clinical knowledge	8.16	How to examine a patient	10.83
	Clinical knowledge	8.40	How to examine a patient	7.53	How to interpret investigation results	7.48
	Medication dosage	7.88	New procedural skill	7.02	Clinical knowledge	6.25
	How to examine a patient	7.27	Correct medication to prescribe	6.63	What investigations to order	5.90
Administration	What to write in patient notes	13.65	What to write in patient notes	8.93	How to refer patients	11.66
	Where to find forms/ paperwork & How to write up patient charts/notes	11.04	How to communicate with other health professionals	8.62	How to write up patient charts/notes	10.62
	How to communicate with other health professionals	9.04	How to write up patient charts/notes	8.26	How to communicate with other health professionals	9.59
	How to refer patients	4.82	How to discharge patient	6.92	What to write in patient notes	7.51
	How to organize information for handover	4.62	Where to find forms/paperwork	6.70	Where to find forms/paperwork	7.25
Professional Identity	How to work in a team	20.14	How to work in a team	11.55	How to reason out differentials	15.99
	My scope of practice	8.80	My limitations & When to ask for help	5.94	What to say to sound professional	11.56
	How to reason out differentials	7.41	My scope of practice & What to prioritise & What to say to sound professional	5.28	How to work in a team	10.54
	What to say to sound professional	6.94	How to work more efficiently	4.62	Who to talk to/not to talk to	8.50
	When to ask for help	6.48	How to prioritise	4.29	My scope of practice	7.48

Discussion

This study provides some insight into how the apprenticeship relationship is currently working and what interns learn as they work clinically. It is the first Australian study that provides empirical evidence to support perceptions that the mechanism by which the internship prepares graduates for independent practice might be evolving.

The apprenticeship model of learning is still the predominant form of learning for the interns in this study, slightly ahead of self-directed learning. This can perhaps be

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explained in two ways. Firstly, as suggested in the *Review of Medical Intern Training Discussion Paper* (Australian Health Ministers' Advisory Council, 2015), the drivers may be changes to the structure and profile of the Australian health system that force interns to work and, therefore, learn in this way. With patients admitted to hospital being much sicker and having a much shorter stay, interns must work quickly and efficiently to manage the patients' conditions and discharge them as soon as possible to free up beds. There is not the luxury of time to explore the propositional knowledge, the *posteriori* (inductive) and *priori* (deductive) scientific knowledge on each medical condition to build their professional craft knowledge, i.e., their procedural and cognitive skills (Higgs & Andresen, 2001). Instead, interns may have to draw on their personal knowledge to problem solve and understand the management of their patients.

Secondly, the traditional concept of an apprenticeship is of a "master" and his/her "apprentice", the novice working alongside the expert. This study has identified that interns still learn via the consultant or registrar telling them what to do or getting feedback from them, and by listening or watching them practise. Data also indicate that learning in medicine is not a linear progression, that interns will learn via modelling from their supervisors on the one hand, but will put this knowledge into practice at other times through approximating and taking responsibility for part of their patients' care (Figure 1, Columns M & O). They will also use self-directed learning when and where necessary (Figure 1, Column M). For example, it takes a reasonable amount of self-direction for interns to ensure that they are in the right spot at the right time to glean "pearls of wisdom" from their supervisors and then go and read up on it afterwards. Likewise, an intern might self-direct their learning by reading up on the condition of one of their patients, but then "test" their knowledge through discussion with their registrar or consultant. Both types of learning may co-exist. This iterative progress through the medical apprenticeship may have always been the case from its first inception in Australia; alternatively, it may be the fallout from the "medical graduate tsunami phenomenon" (Joyce, Stoelwinder, McNeil, & Piterman, 2007), which has placed greater, unsustainable responsibility on consultants and registrars to supervise interns' clinical work and learning (Eley, Young, Wilkinson, Chater, & Baker, 2008; Sen Gupta, Murray, McDonell, Murphy, & Underhill, 2008), resulting in the interns having to take advantage of learning opportunities as and when they arise.

Interns in this study reported learning more content than they did administration or professional identity tasks/components, including the learning that occurred in the core terms. This is as it should be; learning about a patient's history, learning clinical knowledge, learning how to interpret investigation results and learning how to examine a patient are essential for the care of the patient. In general, learning content is still important for the expansion of the interns' professional craft knowledge, which they can apply to future clinical presentations. Knowledge of the administrative tasks is what makes the intern more efficient. Knowledge of the professional identity components adds to the intern's professional craft knowledge, including the tacit knowledge (both positive and negative) that is so difficult to teach (Higgs & Andresen, 2001).

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The main limitation of this study is that it was conducted with two intern cohorts who were employed by the one health service only. However, since all intern terms across Australia are accredited against the national standards set by the Australian Medical Council and the Medical Board of Australia (Australian Medical Council, 2013), it is reasonable to assume that there are similarities in interns' learning experiences from one Australian health facility to another. Additionally, as interns recorded their learning reflections from clinical experiences within a wide range of clinical settings, including a large tertiary hospital, a private hospital, community-based health settings, small rural hospitals and general practice settings, the data may provide some insights into interns' learning experiences throughout Australia. A second limitation is that this study assesses self-reported learning rather than actual learning; there is no way of knowing how close the learning reflections provided are to actual learning, however the data is an expression of the interns' reality. It is worth noting that some of the interns' learning occurred after they had left the patients' bedsides, including learning that occurred on reflection or with further research. The researchers did not want to limit the interns' reported reflections of learning about a case to that which only occurred whilst at work, therefore the term "how interns learn" may encompass both formal and informal learning that occurred around nominated "items learnt". A third limitation is that the definition of apprenticeship learning used for this study is an over simplification. In reality, things are not so neatly dichotomised. However, since this study focuses on the learning relationship interns have with their supervisors, the definition used provides data that is relevant to this concept.

Conclusion

The way in which medical interns work and learn in Australia may have changed since the medical apprenticeship was introduced; however, there is limited evidence of this. This study confirmed that the relationships medical interns have with their supervisors are still important to their self-reported learning. The *Review of Medical Intern Training Discussion Paper* asks whether or not all interns should do the core rotations (Australian Health Ministers' Advisory Council, 2015). Results of this study indicate that there are varying emphases of learning in each of the core terms. This would suggest that it is important for interns to have learning opportunities in a variety of settings and disciplines.

This study provides some insights into how and what interns learn in Australian clinical settings. An expanded study across multiple sites may provide greater definition of interns' learning. However, in the absence of any other evidence, the results of this study should be considered when decisions are being made about future models of medical intern training.

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Conflict of Interest

The principal investigator is the principal medical education officer (PMEO) in the hospital at which the interns in this study were employed. The role of the PMEO is to facilitate learning opportunities for interns and to monitor the standard of clinical bedside supervision and learning for the interns. The PMEO's role, therefore, is predominately one of advocacy for the interns, i.e., they have no influence over the assessment of an intern's performance. However, every effort has been made in providing interns with anonymity to avoid the perception of any conflict of interest; this has been described in the text of this paper.

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