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Abstract

Background: Australasian vocational training traditionally occurs within the public hospital domain. Early studies and a Commonwealth funded program, suggested private sector training as a feasible option with implementation across multiple specialties. This is the first Australian study that examines the vocational trainees' experience in private hospital rotations, focusing on procedural exposure and predictors of an effective learning experience.
Methods: General surgical trainees were surveyed. Trainees that had completed at least six months were eligible. A 15 item questionnaire was used to assess five domains: operative, clinical teaching, trainees' recommendations: clinic and on-call exposure.
Results: Nine private hospitals with accredited rotations provided 95 eligible trainees, with 45 respondents (response rate 47%). 22% performed major procedures as the primary proceduralist and 13% performed any endoscopy. Over half of respondents rated the teaching in private hospitals as 'average' or below, whilst the majority (58%) were not satisfied with the overall training experience and would not recommend it to their peers.
Conclusion: Whilst private sector training has been implemented by 13 specialist colleges, our survey suggests a gap remains between private and public vocational training. Limited trainee primary procedure exposure and difficulties with access to private outpatient clinics are major criteria that require review.

I BACKGROUND

The pressure on vocational training positions for doctors in Australia continues to be an issue relevant to all medical specialties. Over the last 20 years the Australian government undertook an overdue but poorly planned expansion of medical schools resulting in 18 universities accredited nationwide to produce medical graduates. As a result, the number of new medical graduates started to increase from 2007 (Scott, 2012). Unfortunately, given logistical issues, this increase has not necessarily been replicated with training positions for junior doctors. For the first time in 2015, Australian medical graduates were not guaranteed internship positions in Australian hospitals (Rollins, 2015). A further bottleneck in the career trajectory for junior doctors occurs during their second postgraduate year when applying for vocational training schemes. A suggested solution has been to expand the scope of vocational training opportunities to include private hospitals (APHA, 2017).

In 2016-17 of 11 million hospital admissions, approximately 40% were undertaken in a private hospital with the average patient being admitted for over five days (AIHW, 2018). This equates toto an expansive potential for exposure to new pathology and learning opportunities for junior doctors. In recognition of the influx of new graduates, the Commonwealth Government has made funding available in attempts to address the deficit of vocational training positions through the development of the specialist training program (STP). The program aims to improve the quality of the future specialist workforce by providing registrars with exposure to a broader range of healthcare settings. All major specialist colleges in Australia have affiliated themselves with the STP in order to access this funding and expand their training schemes to include private hospitals. This is not surprising as, conceptually, private training positions are appealing to both consultants and hospital administrators. (APHA, 2017)

A useful approach is to explore what parameters are being used to monitor this expansion. Although on paper the benefits seem plausible, less than one third of the 932 vocational registrar positions funded by the STP are currently provided in private hospitals. (Figure 1, printed with permission from APHA) As such, the current data does not accurately reflect the full scope of potential. The question then remains: is there research to support continued investment in the STP and further expansion of vocational training positions in private hospitals? In Australia, there is limited information published on training and experience in the private hospital setting. Current publications focus on the experience of consultants having trainees in the private, patients' perception of surgical training in private hospitals, and assessing the feasibility of registrars performing primary surgical procedures. (Huynh, 2011; Koirala, 2012; Manolidis, 2001; Renwick, 2005) Although there are approximately 282 current full-time trainees across all specialty disciplines in the private hospital sector (Figure 1), there is limited research to identify the trainee's perspective regarding these positions. As with any training secondment, each specialty college has specific requirements to accredit the training position and evaluate the registrar's performance. The authors, having completed a 6-month private hospital general surgery training term, and experiencing a number of associated drawbacks, decided to examine the overall experiences of general surgical trainees in private hospital rotations. Using a survey-based questionnaire, trainees were asked to anonymously report their overall operative case load, operator rates, and to reflect on the factors that promoted or hindered an effective learning experience. The survey was performed in 2016, during that period the surgical education and training (SET) program for general surgery in Australia was a five year program. Subsequently the program was changed to a four year program in 2017. This resulted in a reduction in the number of private hospitals offering training positions. The surgical training program has yet again undergone a revision with the program reverting back to a five year program. The General surgical and education training (GSET) program was to commence in 2021, but as a result of the uncertainty surrounding the COVID pandemic, this has now been delayed to 2022. There have been a number of private hospitals who have reapplied for accreditation to facilitate the training of registrars. This report is the first to highlight the trainees' experience of private hospital vocational registrar training in Australia.

	ESTIMATED PRIVATE HOSPITAL PROVISION		MTRP DATA	SPECIALIST TRAINING PROGRAM	
MEDICAL SPECIALTY	FTE	PROPORTION (%)	TRAINEES	PROPORTION (%)	POSTS
Physicians					391
Addiction medicine	1.0	0.4	22	0.1	
Adult medicine	53.0	18.8	4,398	23.0	
Occupational and environmental medicine	0.0	0.0	92	0.5	
Paediatrics	5.0	1.8	1,480	7.7	
Palliative medicine	2.0	0.7	28	0.1	
Rehabilitation medicine	17.3	6.1	202	1.1	
Public health medicine	0.0	0.0	81	0.4	
Sexual health medicine	0.0	0.0	13	0.1	
Anaesthesia	11.5	4.1	1,207	6.3	42
Anaesthesia – pain medicine	1.0	0.4	66	0.3	
Dermatology	12.3	4.4	99	0.5	30
Emergency medicine	18.0	6.4	2,111	11.0	2
General practice	0.0	0.0	4,486	23.4	
Intensive care	18.0	6.4	544	2.8	17
Medical administration	3.0	1.1	115	0.6	24
Obstetrics and gynaecology	4.0	1.4	541	2.8	32
Ophthalmology	1.8	0.6	144	0.8	12
Pathology	Unknown	Unknown	307	1.6	87
Pathology and Royal Australasian College of Physicians (jointly)	Unknown	Unknown	236	1.2	
Psychiatry	33.4	11.8	1,286	6.7	178
Radiology					40
Radiation oncology	Unknown	Unknown	117	0.6	40
Radiodiagnosis	5.0	1.8	410	2.1	
Sport and exercise medicine	0.0	0.0	41	0.2	4
Surgery	38.0	13.5	1,094	5.7	73
Oral and maxillofacial surgery	Unknown	Unknown	38	0.2	
Unknown (estimate)	57.7	20.5			
Total (estimate)	282.0	100.0	19,158	100.0	932

Sources: APHA/CHA education and training survey 2014–15; Department of Health 2015a; Department of Health 2015b.

Figure 1
Vocational registrar positions, by specialty (printed with permission from APHA)

II METHODS

An electronic survey was distributed through the Royal Australasian College of Surgeons (RACS) in June 2016. All Australian general surgical trainees that had completed at least six months (one rotation) of their training in a private hospital were invited to participate. They were asked to evaluate the quality of their experience in private hospitals by completing an online questionnaire with a total of 15 open and closed questions.

The survey aimed to assess five domains of interest during the six month rotation: 1) the degree of operative exposure as well as operating as primary surgeon; 2) the trainee's assessment of adequacy of bedside and clinical teaching; 3) the amount of public hospital on-call exposure; 4) the ability to participate in consultant-run private outpatient clinics; 5) the assessment as to whether private hospital rotations would be recommended as an adequate vocational training positions. Teaching by consultants during their rotations were rated as being in one of five categories: 'very poor', 'poor', 'average', 'good', and 'excellent'.

Predictors of outcomes were analysed using Chi-squared tests for categorical variables and t-test for continuous variables. A p-value <0.05 was considered to be statistically significant, using a 95% confidence interval (CI). Due to limitations of a small cohort, a multivariate analysis was not appropriate. The study conformed to the principles set by the Declaration of Helsinki, 2013. (JAMA, 2013) The Ethics Committee of RACS granted a waiver for formal ethical approval as study was deemed low risk, did not involve patients and data collection was blinded.

III RESULTS

Of 447 general surgical trainees invited, 45 trainees responded to our survey. According to the RACS administrative office, there were nine private hospitals with accredited vocational training rotations across Australia at the time. After consultation with RACS and General Surgeons Australia (GSA), the number of trainees that went through the private rotations was 95 (response rate 47%). Notably though, it is recognised that this number does not account for the rotations that were left unfilled, and trainees that did more than one private rotation.

Only 16 of the 45 trainees (22%) performed any major procedure as the primary operator during their rotation. Furthermore, for those 16 trainees the median number of primary operator cases they performed was only 26 (range 1 – 70). This is despite general surgery trainees requiring an overall rate of at least 30% (or 30 cases in a standard six-month term) as primary proceduralist to sufficiently complete their requirements for training. Although for a site to be accredited for training it must provide at least 100 major operations for the trainee to be involved in (as either the operator or assistant), 10 respondents (22%) outlined that they had not been involved with that number during their rotation. Only six trainees (13%) were able to perform any endoscopies during their rotation (Table 1).

Table 1. Summary statistics of trainees' case volume at private hospital rotations

Surgical trainee case volume	
>100 major cases	35 (75%)
Number of major cases 1-20 21-40 41-60 61-80 81-100 101-120 121-140 141-160 161-180 181-200	 2 3 2 3 4 9 4 9 1 8
Any primary operator? Yes No	 16 (36%) 29 (64%)
Number primary operator median ± SD (n = 16)	26 ± 19.0
Able to perform endoscopy? Yes No	 6 (13%) 39 (87%)

Twenty-five trainees (56%) participated in an on-call roster at a public hospital during their private hospital rotation, meaning 44% were not consulting and/or treating patients with emergency surgical issues for six months. Similarly, access to private outpatient clinics was not necessarily a requirement for the training position to be accredited with 47% having no experience with outpatients for the entirety of the term. The entire teaching experience was rated 'average' or below by more than half of participants (52%), whilst a similar number (58%) would not recommend a private rotation to their peers (Table 2).

Table 2. Trainee teaching and exposure at private hospital rotations

Trainee teaching and exposure	
Participated in public hospital on-call Yes No	 25 (56%) 20 (44%)
Participated in private outpatient clinics Yes No	 24 (53%) 21 (47%)
Quality of teaching Very poor Poor Average Good Excellent	 1 11 12 16 5
Would you recommend a private hospital term? Yes No	 19 (42%) 26 (58%)

Particular aspects of the surveyed trainee experience were correlated with overall satisfaction. Predictors of outcome, and univariate analysis, are summarised in Table 3. Among positive predictors of satisfaction were being involved in more than 120 major cases during the term (p=0.036, OR 4.1, 95% CI: 1.2 – 14.4); performing major cases as the primary

proceduralist (p=0.012, OR 5.8, 95% CI 1.5 – 21.9) and participating in consultant private outpatient clinics (p=0.034, OR 4.5, 95% CI 1.2 – 16.3). Among predictors that did not demonstrate a significant relationship with overall outcome included participation in public hospital on-call rosters and being able to perform endoscopies.

Table 3. Univariate analysis of predictors that trainees would recommend private hospital terms as a training position

Predictors of outcome	Would recommend to other trainees (n= 19)	Would not recommend to other trainees (n = 26)	Fisher exact test
121-200 major cases	13/19	9/26	*p=0.036*
Performed cases as primary operator	11/19	5/26	*p=0.012*
Performed endoscopy	3/19	3/26	*p=0.686*
Participated in public hospital on-call	11/19	14/26	*p=1.000*
Participated in private outpatient clinics	14/19	10/26	*p=0.034*
Perceived quality of teaching as good or excellent	16/19	5/26	*p=0.0001*

Qualitative responses were also reviewed for further feedback. Table 4 summarises feedback through open-ended comments based on a thematic analysis using the principles laid out by Thomas et al, 2006. Themes were subdivided according to whether trainees would recommend a private hospital rotation for surgical training or not. Among the themes, the primary issues reported among trainees adverse to private hospital rotations were a lack of primary operator experience (68%) and lack of exposure to emergency surgery cases and clinical decision making (41%). The minority of trainees supportive of private hospital rotations outlined a mixed rotation that involved both public and private hospital experiences was ideal as it provided the opportunity to observe an expert surgeon's operative technique that could then be applied through primary operative experience in the public setting (36%).

Table 4. Thematic analysis of open ended comments divided by whether trainee would recommend a term in private or not

Would recommend private hospital rotation (n = 14)	n (%)	Would not recommend private hospital rotation (n = 22)	n (%)
Mix of public and private exposure enhancing ability to gain technical skills	5 (36)	Mix of public and private exposure enhancing ability to gain technical skills	1 (5)
Lack of primary operator experience	3 (21)	Lack of primary operator experience	15 (68)
Minimal exposure to emergency operating and minimal clinical decision making	1 (7)	Minimal exposure to emergency operating and minimal clinical decision making	9 (41)
Beneficial One on one exposure to surgeon mentor	4 (29)	Beneficial One on one exposure to surgeon mentor	3 (14)
Variability in effectiveness consultant teaching	3 (21)	Variability in effectiveness consultant teaching	1 (5)
Broader spectrum of complex elective operating	4 (29)	Broader spectrum of complex elective operating	3 (14)
Exposure to public-private work demands of VMO	2 (14)	Exposure to public-private work demands of VMO	2 (9)
Difficult for junior SET trainees as skill acquisition through observation is harder	0 (0)	Difficult for junior SET trainees as skill acquisition through observation is harder	2 (9)
Lack of operative exposure due to being second assistant	0 (0)	Lack of operative exposure due to being second assistant	4 (18)
Difficult to balance public-private work balance	0 (0)	Difficult to balance public-private work balance	1 (5)
Private case mix not sufficiently complex	0 (0)	Private case mix not sufficiently complex	3 (14)

IV DISCUSSION

Our study reports the first-hand experience of postgraduate surgical trainees who have participated in rotations at private hospitals. To our knowledge, this is the first study within Australasia that has surveyed large numbers of vocational trainees.

A significant finding from our study was the limited experience as a primary proceduralist encountered by trainees. Having said this, primary proceduralist experience has been shown to be feasible within a private hospital setting, and encouragingly, surveys have consistently shown that the majority of patients (50-80%) are agreeable to trainees at private hospitals performing parts of their procedure. (Huyn, 2011; Koirala, 2012) A possible solution may be to introduce a formal information process, conducted by the specialty colleges or the individual private hospitals. This could ensure that patients are fully aware and informed of which parts of a procedure would be performed by the trainee. While concerns over throughput and efficiency may exist if this model is adopted, there is evidence from several studies that suggests outcomes of procedures performed by trainees under close supervision are equivocal to those performed primarily by a consultant. (Manolidi, 2001; Renwick, 2005) This challenge of how to best manage trainee-performed procedures is relevant across multiple specialties whether they be surgical, medical, or any other interventional-based discipline.

It was surmised from previous literature that one-on-one consultant lead teaching and close-hand observation of expert techniques, whether at the bed-side or procedural, might have been identified as positive components of private training. Unfortunately, this was not reflected in our study as most respondents found the teaching in a private setting as average (or worse) compared to their public hospital rotations. Reasons for this might include over-booked private lists and clinics, where the consultant is remunerated per case rather than per hour, and

perhaps the consultant approaches their time in the private hospital as between themselves and the patient, rather than an opportune learning occasion for the registrar.

Interestingly, 36% of satisfied trainees explicitly stated that a combined rotation at both public and private hospitals was beneficial. Watters et al 2009. explored this model in two Victorian hospitals involving second year surgical registrars and noted their attainment of minimum training requirements. The authors cautioned this was only achievable due to lower primary operator requirements (at the time of their study) of junior trainees, and expressed hesitation as to the adequacy of the model for senior trainees. The trainees' opinions in this study are echoed in our findings (Table 3). Although teaching overall in the private setting was largely seen as average, trainee-perceived benefits to private training included:

- appreciation of private practice workload;
- opportunity to learn by observing expert consultants perform their craft; and
- exposure to a broader spectrum of pathology not commonly seen at public hospitals.

While the lack of primary procedure experience at the private was a noted negative, the shared rotation with the public appeared to compensate for this. We believe that extrapolation of these results to other medical disciplines could see registrars able to observe larger numbers of procedures, such as coronary angiogram, and specific reservation of 'simple' procedures for the trainee to perform as the primary proceduralist.

In our study, frequent one-to-one contact with mentors was a recognised strength of private training, while teaching and participation in consultant outpatient clinics significantly correlated with a positive experience. It was disappointing that a large proportion of trainees (47%) did not have access to this vital component of registrar training throughout their term. Positive comments regarding outpatient clinics frequently cited extremely motivated specialist educators as a main factor, supporting the concept that combining mentors' immediate feedback with targeted practice results in improved skills acquisition and maintenance (Hashimoto et al 2014). These comments contrast with the remotely supervised fellow-dominant public hospital training environment (Watters 2017). These findings support the idea that motivated educators are essential in producing a positive training experience for registrars in a private hospital setting. We believe that outpatient clinics across varied medical disciplines all have a potential role for vocational education in a private setting. Furthermore, improved access to consultant advice, as reported by trainees in our study, may result in improved trainee knowledge, acquisition and retention. Another perceived strength noted from our open-ended feedback was the presence of a broader spectrum of elective work. In Australia, the public sector is perceived to house more medically-complex patients in terms of comorbidity and stage of disease. (AIHW, 2018; Watters, 2017) The private sector tends to have a wider spectrum of elective surgery and access to the latest innovations in medicine due to a lack of budgetary restraints present within the public sector. (AIHW, 2018; APHA, 2017) Highlighting this aspect to trainees, coupled with a better pro forma on what the trainee can expect to be allowed to complete procedure wise, has the potential to change the current paradigm for private hospital rotations.

A drawback of our study is the lack of respondents from the other 12 specialist colleges involved with private hospital vocational training. Although we believe much of our results can be extrapolated to other disciplines, especially those with a procedural element, it is the authors' belief that non-procedural specialties might report notably different results given the primary proceduralist issue would inherently not be as significant a problem for those specialties. Other limitations of our study include the small sample size and lack of data on the level of seniority of trainees. Furthermore, a lack of demographics information with regards to private hospital size was due to the blinded low-risk design of the study.

V CONCLUSION

With an ever-expanding private sector and ongoing increase in training requirements (Scott 2014), the private sector rotations seem to offer an attractive addition to vocational training; our

study however would indicate that the current experience is not adequate. Despite some surveyed components being viewed positively by trainees, a majority would not recommend the experience to their peers.

With that in mind, we propose the following recommendations as a pro forma for what private hospital rotations should seek to provide their trainees in order to offer the best training experience:

- Introduce a separate consent process for procedures being performed that might reasonably be primarily completed by the trainee. Mandate that this be completed by the consultant during patient consultation so that documentation exists on an individual patient level as to their wishes regarding trainee involvement in their specific surgery.
- Ensure that outpatient clinics are a mandatory component of private hospital training, either within the private institutions themselves, or within the consultants' private rooms.
- Ensure that the trainee is involved in emergency assessment in some capacity. This may require on-call commitments with their alma mater public hospital to continue, or for new arrangements within the private institution to be developed that allows for trainees to assess higher acuity patients. This would be possible with the understanding that decision-making following acute patient assessment would need to be attended to by the relevant on-call consultant.
- Utilise the 'points of difference' model regarding procedures and technologies available to the private sector and not in the public hospital as an incentive to pique interest in private hospital rotations. This would be best undertaken by engaging in dialogue with the specific stakeholders to ensure that those consultants undertaking more advanced or experimental approaches are given the chance to teach private hospital trainees.

Further in-depth discussion between the individual specialist colleges, the government, and hospital administrators are required in order to take on these suggestions to create effective private hospital training positions. In the present form, however, clearly a gap between private and public vocational training positions exists.

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