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Lack of Supervision and Independent Clinical Decision Making in Postgraduate Pediatric training in Australia

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Objective: Evaluation of postgraduate pediatric training is a complex yet critical task. We aimed to review pediatric trainees' attitudes to clinical decision-making, levels of supervision and end of life issues in a tertiary pediatric teaching hospital in Sydney, Australia.

Method: A questionnaire was devised and distributed to all trainees at Sydney Children's Hospital, Randwick. All responses were anonymous. Results were independently analyzed using SPSS statistical software.

Results: Forty percent of trainees spent three hours or less per week face to face with more senior colleagues and 14% spent greater than 10 hours per week with more senior colleagues. Seventy-five percent of trainees spent three hours or less on the phone with more senior colleagues while 10% spent five hours or more on the phone with more senior colleagues. There was no association (or correlation) ($p>0.05$) between seniority of trainee and the number of times a trainee met face to face or phoned a more senior colleague to discuss a management plan. One in three trainees felt that they made less than 10% of clinical decisions on their own and 54% felt that they made less than half of decisions on their own. There was a statistically significant difference between seniority of training and the percentage of important clinical decisions made ($p<0.01$). Nearly half the trainees (47.7%) have not had the occasion to inform families of the death or impending death of a child. There was a statistically significant difference between seniority of training and the opportunity of informing families of a death of a child ($p<0.01$).Greater than two thirds of trainees feel that they have not received formal training in clinical decision-making. At the completion of four years of pediatric training only half the trainees considered themselves to be making the majority of clinical decisions.

Conclusion: There is a need for closer supervision of pediatric trainees by senior colleagues, who themselves, may require additional ongoing training to supervise appropriately. There should be a balanced environment where trainees can make safe, independent decisions. The perceived absence of clinical decision making training suggests a deficiency in the training program.

Evaluation of pediatric training is a complex and multifaceted task. There has been much criticism of the training programmers, both locally and internationally, most notably by young Paediatricians.[1] Universities, Medical Colleges, Health Services and most importantly the consumers, children and their families, are all- important stakeholders in the postgraduate pediatric education process.

In Australia, the Royal Australasian College of Physicians (RACP) has recently embarked on a major overhaul of its education strategy. This is largely an attempt to identify and address perceived weaknesses in the training program.[2] There is also a strong emphasis on training and supervision guidelines and curriculum development. Training is a balance of appropriate directed supervision and reasonable safe independent decision-making.[3-7]

The Sydney Children's Hospital, Randwick (SCH) is a tertiary training facility attached to the University of New South Wales. It is one of three pediatric training centers in New South Wales, Australia. SCH is accredited with the RACP for pediatric

basic and advanced training. In the Australian context, this includes pediatric residents, registrars and fellows. Currently, SCH employs ninety pediatric trainees and a further twenty junior staff in related pediatric surgical disciplines. A significant proportion of these trainees will rotate through district level services during their training period.

Post- graduate pediatric training in Australia consists of a minimum of six years training. Some trainees may spend up to eight years training particularly if undergoing complex sub-specialist training. After completing an internship a doctor may enter the training program although most only enter the program in their third postgraduate year. The six year program is divided into basic and advanced components and these are separated by a comprehensive written and clinical exam which is sat after 36 months of training. The first three years of basic training focus on generic training whereas in advanced training trainees may train in a sub-specialty. We have used three years of pediatric training (and probable success in the examinations) to separate our respondents into basic and advanced training cohorts. Trainees may work in the emergency department (ED) from their first year of training. Trainees working in the Intensive care Unit (ICU) are generally in advanced training although this is not always the case. In the Australian context it is expected that all trainees would be supervised by a consultant pediatrician to whom the trainees are responsible. In our hospital the ED and ICU senior staff is always available for discussion and support. Elsewhere in the hospital immediate supervision and support is more variable depending on the unit. Hospitals must maintain adequate levels of supervision to remain accredited postgraduate teaching hospitals with RACP. The working week for all trainees is set at forty hours per week. Trainees typically work in shifts of 8-10 hours duration and these are a mix of day, evening and night shifts.

We decided to review our trainees' attitudes towards clinical decision-making and supervision. We planned to investigate what factors are responsible for trainees assuming responsibilities for clinical decision-making and to review levels of supervision of trainees. We also wanted to assess what factors limit trainees achieving confidence in clinical decision making and graded responsibility during their training. Independence in clinical decision-making is critical to maturing pediatric trainees. Currently, there is a paucity of literature on this vital educational process.

We believe that this information is vital for trainees, supervisors and health planners to evaluate so that changes to postgraduate pediatric training can be targeted to weaknesses identified by trainees themselves.

Methods

We devised a questionnaire that was distributed to all pediatric trainees at SCH following local ethics approval. Trainees were asked to complete the questionnaire anonymously and to return it to the Chief Resident's Office. The data from the completed questionnaires was entered into an Excel spreadsheet by a single data enterer. Individual comments were also recorded. The data was then analyzed by a statistician. Two tailed Pearson Correlations were used to assess any relationship between length of pediatric training and other continuous variables. In this study a basic trainee was defined as a trainee with less than 36 months pediatric training and an advanced trainee one with greater than 36 months pediatric training. Pearson's chi-square was used to compare the basic and advanced trainee cohorts. Results were regarded to be statistically significant at p values less than 0.05.

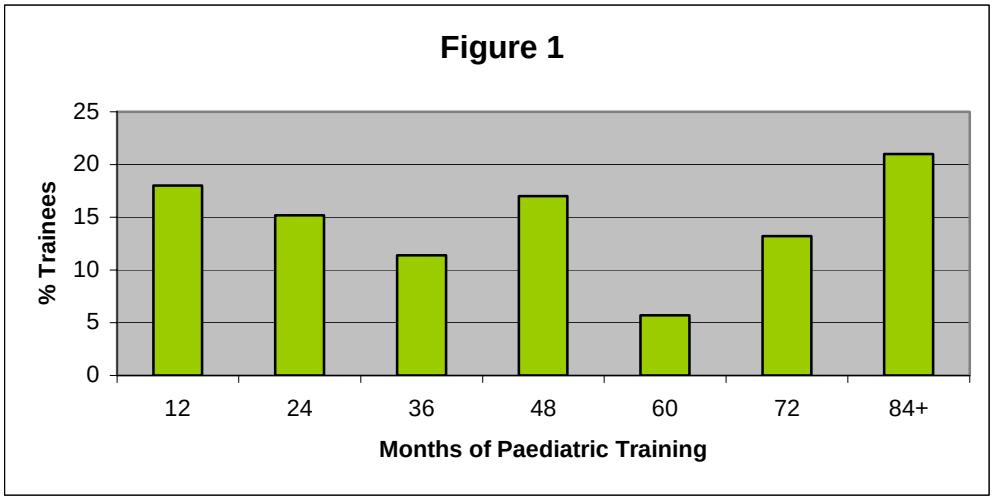
The questionnaire consisted of 35 multiple choice questions with space for comments. The questionnaire was piloted on 6 trainees and validated prior to the study commencing. The questions were divided into five broad categories: demographics, levels of supervision, clinical decision-making, competence with procedures and resuscitation attitudes. For the purposes of brevity this paper will only examine the first three categories. We hope to address the other categories in a second follow up paper. The questionnaire is available from the authors upon request.

For the purposes of this study we defined independent decision making as a decision made without the input or supervision of a more senior colleague. A more senior colleague was defined as a consultant pediatric specialist, sub-specialist or clinical fellow.

Results

Of our ninety trainees fifty-four completed the questionnaire (60%). Seventy-two percent of trainees received their undergraduate medical degree in Australia. Thirteen percent were New Zealand trained and 6% were South African undergraduate trained. Overall our trainees received their undergraduate training in 7 different countries.

Figure 1 illustrates months of pediatric training. Seventeen percent of respondents had 12 months of pediatric training or less. The cohort of basic trainees comprised 45.3% of respondents and the advanced



training cohort 54.7% of respondents. Nearly one in five (18.9%) trainees had greater than six years (72 months) of pediatric training. The percentages above closely approximate the composition all our pediatric trainees.

We surveyed trainees to find out when they felt comfortable admitting (or discharging) a patient from the Emergency Department. Twenty-nine of the 54 trainees (53.7%) responded that they were able to decide whether to admit a patient from the ED. Among these, 17.2% (5 trainees) felt comfortable admitting a patient in the first year of training. By the end of three years of pediatric training, this number had risen to 30%. Thirteen percent of these trainees still did not feel comfortable admitting a patient after six years of pediatric training. Nearly two-thirds of respondents felt comfortable discharging a patient from Emergency Department after three years of training and 85% felt comfortable discharging a patient after six years.

Trainees felt less comfortable admitting patients to the Intensive Care Unit, particularly early in their training. Fifty percent of trainees felt comfortable admitting to ICU at the completion of three years

Figure 2
Time Spent by Junior Staff in Face-to-Face Meetings with more Senior Colleagues

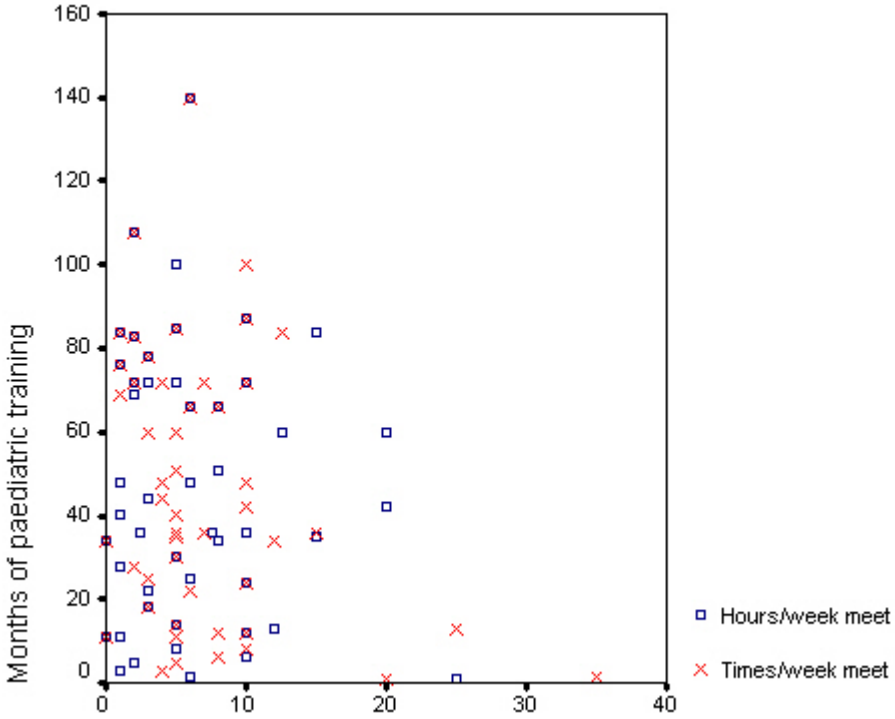
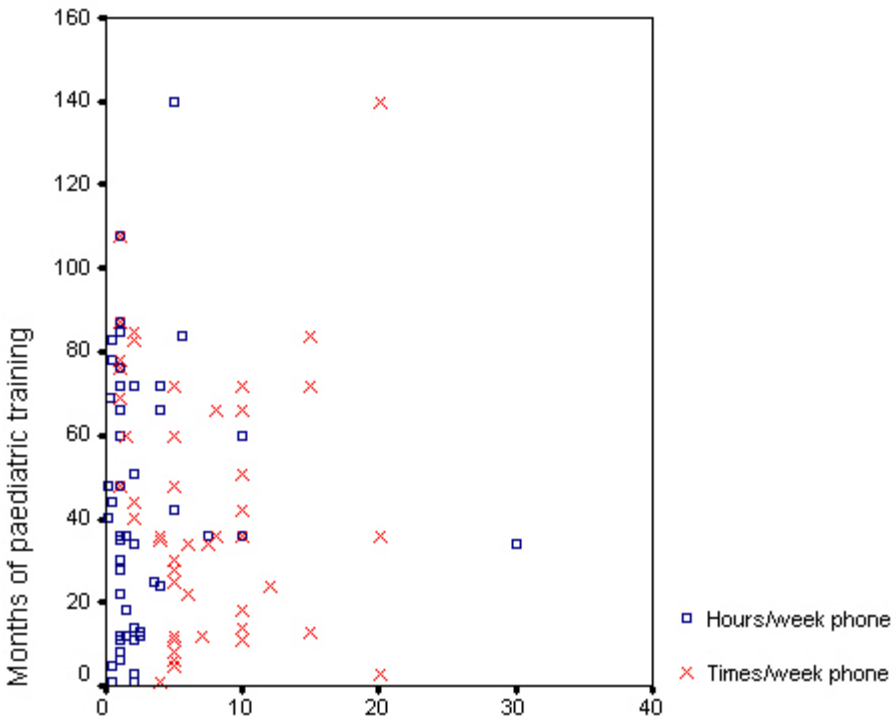


Figure 3
Time Spent by Junior Staff in Telephonic Meetings with more Senior Colleagues



training while some (14.3%) only achieved this comfort after seven years training.

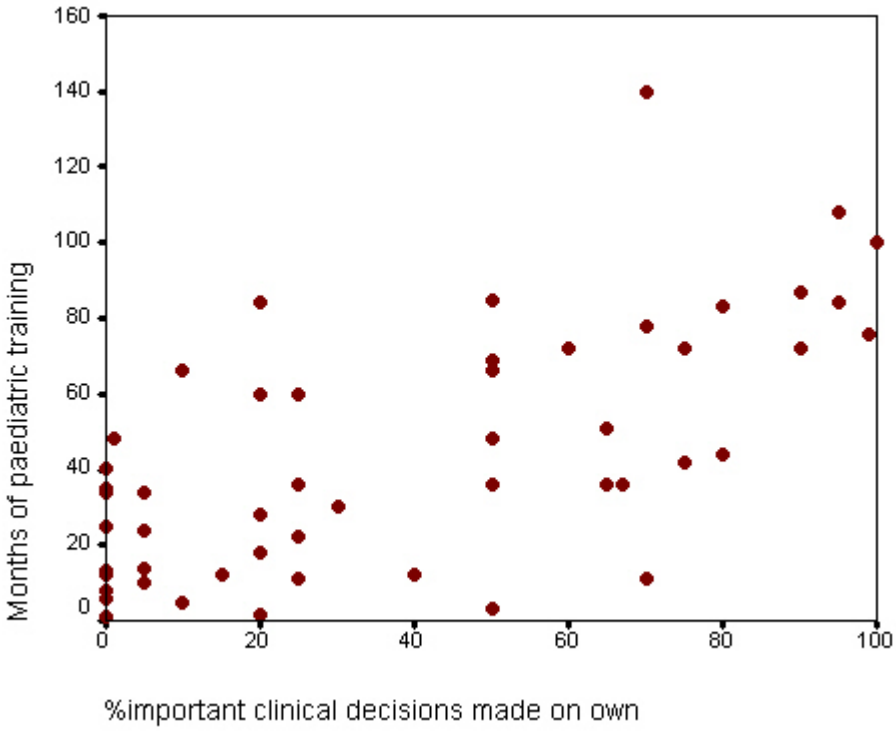
A critical aspect of training is supervision by senior colleagues. Nearly all respondents (92.6%) indicated the number of hours per week spent discussing management plans face to face with more senior colleagues. Forty percent (20/50) of trainees claimed they spent up to three hours per week discussing management plans face to face with more senior colleagues while 14% spent greater than ten hours per week face to face with more senior colleagues. On average trainees spent 6.5 (95% CI 5.0–8.1) hours/week face to face with more senior colleagues. Seventy-five percent of trainees spent three hours or less on the phone with more senior colleagues while 10% spent five hours or more on the phone with more senior colleagues. There was no correlation between months of pediatric training and the number of hours a trainee met face to face (r=-0.111) or phoned (r=0.017) a more senior colleague to discuss a management plan. (Figures 2 and 3)

Thirty two percent of respondents felt that they made fewer than 10% of clinical decisions on their own and 54.7% of respondents felt that they made fewer than half of all clinical decisions on their own. Overall trainees reported making 38.9% (95% CI 29.8%–48.0%) of all clinical decisions on their own. There is a statistically significant association between months of pediatric training and percentage of important clinical decisions (r=0.673, p<0.005) (Figure 4) such that as individuals move from basic to advanced training they reported making more clinical decisions.

Half (50.9%) of all trainees responded that they did not see any outpatients as part of their training. There was a statistically significant difference (p=0.008) between advanced (65.5%) and basic trainees (29.2%) with advanced trainees more than twice as likely to see outpatients compared with basic trainees. For those trainees who do see outpatients, the median number of newly referred outpatients was five per week (range 1-15), six per week for advanced trainees and three per week for basic trainees.

Although nearly half of all trainees (47.2%) have not had the occasion to inform families of the death or impending death of a child there was a statistically significant difference between the basic and advanced training cohorts in informing families of a death of a child (p=0.002). Nearly 3 in 4 (72.4%) advanced trainees had done so as opposed to 29.2% of basic trainees. Of the 52.8% who had obtained this experience, 42.9% replied that no senior colleague had been present on the first such occasion. There was, however, no statistical significance between level of training and the presence of a senior colleague (57.1% of

Figure 4
Decision Making by Junior Staff



basic trainees and 38.1% of advanced trainees had no senior colleague present).

Forty-two percent of trainees have not had the opportunity to discuss end-of-life issues with families. When we subdivided the trainees into basic and advanced training cohorts we found a statistically significant difference ($p<0.0001$) with nearly triple the number of advanced trainees having taken part in these discussions (82.8% compared with 29.2%). Of the 58% of trainees who had participated in these discussions, nearly forty percent had done so without the presence of a more senior colleague. There was no statistical difference between seniority of training and the presence of a senior colleague at end-of-life discussions.

Two-thirds of trainees responded that they had not personally obtained consent for autopsies or post mortem specimens. There was a statistically significant difference between the advanced and basic training cohorts and responsibility for obtaining consent for autopsy, with 46.4% of advanced trainees being responsible for obtaining consent for autopsy compared to only 17.4% of basic trainees ($p=0.029$). Of the trainees who have taken responsibility for consent, 70% replied that a senior colleague was not present during this sensitive situation.

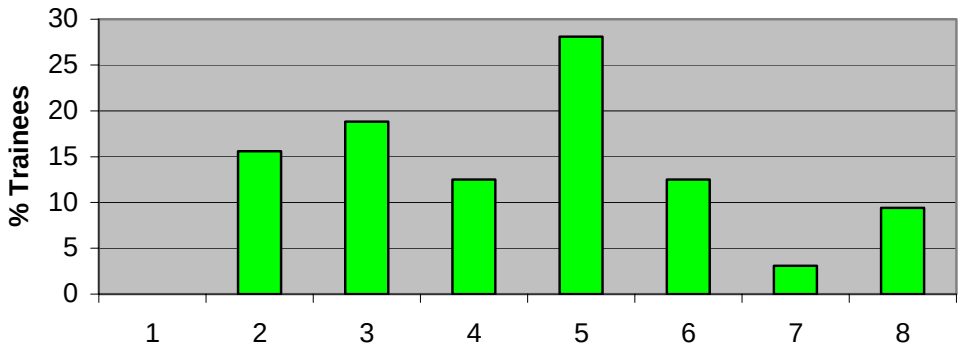
Eighty seven percent of trainees take responsibility for consent for physician based procedures (lumbar punctures, bone marrow biopsies etc). The vast majority (88%) replied that a more senior colleague was not present when consent for these procedures was obtained.

Seventy percent of trainees felt that they received no formal training in clinical decision-making. There was no statistical difference between advanced and basic trainees. Among all the respondents 32 (59.3%) were able to indicate the training year in which they believe they began making the majority of patient management decisions (Figure 5). At the conclusion of four years pediatric training in a typical six year training program only half (46.9%) of these trainees felt that they were making the majority of patient management decisions.

Discussion

The results of this questionnaire raise several interesting issues about pediatric training in a tertiary hospital in Australia. The most concerning issue is

Figure 5



that of supervision of junior staff by senior colleagues and training in clinical decision-making. The concept of clinical decision making is a difficult concept to define. To complicate matters supervisors and trainees may have very different ideas about training in clinical decision making and how competency in it is achieved. As supervisors we believe that clinical decision-making is the ability to weigh up all the factors in a child's case and make an independent, safe, sensible and appropriate decision[3-7]. It requires experience, understanding and forward planning. It is learnt through making ongoing decisions in a supported and supervised environment and is a continuous part of training. However it would appear that some trainees consider clinical decision making a discrete skill that requires attendance at a formal teaching program to achieve competency- much like one learns anatomy or physiology. There may be a place for a formal teaching program but training in clinical decision- making should occur at every interaction between trainee and supervisor allowing trainees to make safe decisions with appropriate directed supervision.

We were concerned that after six years of training 13% of our trainees did not feel comfortable admitting a patient to the Emergency Department. A similar number expressed unease about admitting patients to the Intensive Care Unit. Does this represent a normal variation in trainees' confidence and skill levels, or are we under performing in education and training opportunities for trainees? A trainee who has completed six years of our pediatric training should be on the brink of independent consultant practice and it is concerning that more than 10% of the cohort may not feel reasonably comfortable assessing and initially managing an acutely ill child or facilitating an intensive care admission. It also raises the important question as to why these trainees do not feel comfortable and how we as supervisors can target this area of trainee unease in our training program.

Forty percent of trainees responded that they spent on average three hours or less per week face to face with senior colleagues and fewer than 15% of trainees responded that they spent 10 or more hours face to face with more senior colleagues. Is it possible to train junior colleagues in the art and science of Paediatrics[1] if 40% of trainees respond that they spend less than three hours per week (minimum working week is 40 hours) discussing management plans with more senior colleagues? This level of supervision in the view of the authors would seem inadequate to train and educate pediatric trainees.

Reasons for this apparent inadequate personal interaction may be due to time constraints of busy senior staff. We may need to revisit the issue of how to train and supervise the supervisors themselves to more appropriately supervise junior staff. Perhaps part of the problem is the make up of the senior staff complement. A large number of the general pediatricians are Visiting Medical Officers who spend the majority of their practice in their private rooms and not at the hospital. A recent paper[3] has highlighted the important work that hospitalists perform in a general pediatric ward and they were rated significantly higher by house staff compared to visiting specialists. There is currently a college-based program for supervisors of advanced trainees however there is no program to train supervisors of basic trainees[2]. This deficiency needs to be addressed by the RACP so that supervisors of basic trainees understand the important needs of this group. The skills needed for teaching and supervision are not innate and depend in part on the

quality and availability of the teachers and organizational priorities for this task.[4-6]

We were surprised that some senior staff might spend so much time on the telephone (Figure 3). Nearly 25% of trainees spent more than three hours per week on the telephone and 10% responded that they spent more than five hours per week on the telephone with more senior colleagues. We had assumed that fewer decisions were made over the telephone and we believe this represents a lost opportunity for face- face contact between trainees and their supervisors.

We were concerned that nearly one third of trainees thought that they made fewer than 10% of clinical decisions and 55% of trainees thought they made less than half the clinical decisions on the ward. This was compounded by the fact that less than one third of trainees believed that they had received any formal tuition in clinical decision-making. We were however reassured to note the statistical difference between basic and advanced training in terms of the percentage of important clinical decisions made. This graded increase in responsibility is consistent with hospital and college policy to allow more senior trainees the opportunity to manage their patients at a level commensurate with their experience. The consolidation of long-term learning needs to be based on real experiences.[4] The experience cannot be real if trainees only make a small percentage of clinical decisions and are then suddenly faced with independent consultant practice. The surveyed trainees have highlighted that as a result of minimal supervision from senior staff, trainees do not have the confidence or clinical skills to make decisions until late in the training program.

We postulate that it is due to this imbalance that less than 50% of trainees who responded claim they attain full responsibility for patient management after four years of training. If this is the case, then 50% of our trainees on a typical six year training program will only be managing patients comprehensively for a two year period prior to independent practice; a situation that hardly seems ideal. Self acquired expertise empowers junior staff to help patients by using participatory decision making styles.[8] If they are too busy or "borrow" expertise from more senior colleagues this limits their ability to incorporate available evidence into their decision making.

The low overall number of trainees with experience in obtaining consent for an autopsy, discussing end of life issues and informing families of a child's death, is cause for further concern. We were surprised that informing families of a child's death and consent for autopsy were held in a teaching environment for the first time without a senior colleague on 40% and 70% of occasions respectively. We believe this is a major missed opportunity for trainees to observe the human transaction between experienced senior colleagues and families during a complex and sensitive period. Postgraduate pediatric programs need to specifically incorporate training in communication and interpersonal skills under constructive supervision.[1-3] The fact that trainees have to approach families for consent for autopsy and discuss sensitive end of life issues without senior supervision is unfair to the trainees and a disservice to families. Despite our concerns it was at least pleasing to note that advanced trainees were much more likely to obtain this experience than basic trainees and that hopefully as basic trainees gain more experience they too will participate in these crucial training activities.

The results of this study highlight the need for closer supervision of trainees by senior colleagues. Clinical skills may be enhanced by increased opportunities for interaction with more senior colleagues. Trainers, too, need ongoing training and education to create an environment where trainees feel comfortable making safe, independent decisions under appropriate supervision. An option may include the introduction of a formal program in clinical - decision-making. Areas for future research should include a more in depth investigation of the barriers impeding trainees attaining clinical competence at different stages of their training and investigating the validity of "OSCE" style clinical scenarios to simulate some clinical experiences so that trainees can enhance their decision making. There may also be some benefit in extending this survey to all pediatric trainees in Australia to discover if the concerns raised at our hospital are reflected nationally. The issues raised in this paper will have increasing importance as trainees now compared to previous generations spend far fewer total hours in the workplace in their 6 year programs. As safer working conditions are implemented universally the training of junior medical staff will need to be substantially overhauled or the concerns that are identified in these findings are likely to be compounded.

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