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Title:

A qualitative exploration of anesthesia trainees' experiences during transition to a children's hospital.

Date:

2017-03

Citation:

Howe, P. W. & Kumar, K. (2017). A qualitative exploration of anesthesia trainees' experiences during transition to a children's hospital.. Paediatr Anaesth, 27 (3), pp.263-270. <https://doi.org/10.1111/pan.13064>.

Persistent Link:

<https://hdl.handle.net/11343/292154>

Received Date : 24-May-2016

Revised Date : 10-Oct-2016

Accepted Date : 31-Oct-2016

Article type : Research Report

Handling Section Editor :- Dr. Joseph Cravero.

A qualitative exploration of anaesthesia trainee experiences during transition to a children's hospital.

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Running title:

Anaesthesia trainee transition experiences

Article category:

Research report: education and training

What is already known:

- Most anaesthesia trainees work shorter hours and are exposed to fewer cases than was the case a generation ago, emphasising the need to learn efficiently from the available caseload.
- Workplace transitions increase trainees' stress, decrease their ability to learn and are associated with actual or potential patient harm.

What this article adds:

This is the author manuscript accepted for publication and has undergone full peer review but has not been through the copyediting, typesetting, pagination and proofreading process, which may lead to differences between this version and the [Version of Record](#). Please cite this article as [doi: 10.1111/pan.13064](https://doi.org/10.1111/pan.13064)

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- This article identifies cognitive and emotional aspects of transition to a highly specialised environment that impair trainees' ability to learn and work effectively, and suggests strategies to decrease their impact.
- We emphasise the educational benefits of helping new trainees to develop appropriate performance expectations and become useful team members from the start of their rotation.

Abstract

Background. The stresses of starting a new job can make anyone feel tired and inefficient. In health care, this may impair the ability to learn at a time when there is most to learn, and increase the risk of error in a context where errors may lead to patient harm.

Aim. To understand issues that influence anaesthesia trainees' transition to a paediatric setting.

Methods. This qualitative study utilised in-depth semi-structured interviews to gather data from thirty-one anaesthesia trainees who had commenced work at a tertiary children's hospital between four and six weeks previously. Data were examined using thematic analysis.

Results. Two key themes were identified: feeling ineffective, which appeared to have both a **cognitive** component (feeling disoriented) and an emotional component (feeling useless), and feeling anxious or afraid. Trainees found the paediatric environment highly unfamiliar, which made them feel disoriented, inefficient and at times incompetent. Many experienced difficulty identifying a useful role in a highly specialised area of practice, leading to loss of identity as an expert clinician. **Many** described an ever-present fear of making an anaesthetic error or being unable to manage a rapidly evolving clinical situation. Some trainees developed a negative mindset, which was reinforced by subsequent perceived failures. Overall, these experiences impeded trainees' ability to concentrate and learn.

Conclusions. The **impact** of disorientation and anxiety on anaesthesia trainees as they adapt to a highly specialised clinical environment such as a children's hospital should not be underestimated. Study findings illustrate the importance of helping new trainees to feel less afraid, more useful and more realistic in assessing their own performance during the transition period.

Keywords: education; paediatric anaesthesia; qualitative research; trainee orientation

Learning on the job by working alongside experienced colleagues is an important part of training in many professions (1). This is particularly so in procedural medical specialities, where transfer of expertise relies on trainees engaging in supervised clinical practice (2). In anaesthesia, changing

work practices mean that annual trainee caseloads are falling, emphasising that the greatest possible benefit must be derived from the available clinical experience by ensuring that trainees are not only well taught and supervised (3), but that their working environment is conducive to learning (1).

Most trainees gain experience by rotating through different roles in different hospitals, but at a cost: the transition of trainee doctors to new working environments is stressful (4-7) and seems initially to impair their performance, as demonstrated by an association between periods of transition and actual or potential patient harm (8-11). The stresses of transition, and in particular the perception of being an ineffective team member, appear to impair a trainee's ability to learn (7, 12, 13). Transition may be even more stressful if the trainee is also preparing for career-defining examinations (14), or if the new job entails separation from established support networks, whether by distance or by time spent at work. Work performance and learning during transition are so closely linked to the ability to adapt to the peculiarities of a new workplace and develop effective relationships with new colleagues that some have renamed transition a 'critically intensive learning period' (9, 15).

The literature regarding transition within anaesthesia is sparse. One study explored the experiences of overseas-trained anaesthetists as they acclimatised to practice in the United Kingdom, and showed that the transition experience was stressful and challenged the doctors' sense of identity and status (16). *In Australia, anaesthesia training is a five-year postgraduate qualification, and most trainees rotate through several different hospitals during this period*, but there has been no research specifically investigating the transition experiences of anaesthetists in training. The primary aim of this study was to understand anaesthesia trainees' transition experiences in a paediatric setting; the secondary aim was to identify issues that influenced their ability to learn and work effectively.

Methods

Theoretical framework

In any research setting, the most appropriate method should be chosen to answer the question that has been posed (17, 18). Our aim was to understand a phenomenon by considering how and why it occurs. Rather than choosing a quantitative research method, where the questions we might ask would be restricted by our pre-existing knowledge, we chose a qualitative research method that would give us the best chance of gaining new knowledge (19). Qualitative methods are well suited to investigating complex human interactions in their natural setting, rather than in an experimental environment (17, 18, 20), and have been used to investigate aspects of anaesthesia practice, including medical education (2, 4, 9, 14, 19, 21), expertise (16, 22), communication (2, 23), workplace stress (7, 24, 25), performance appraisal (22, 26) and patient safety (27).

Qualitative studies typically involve relatively small numbers of participants, specifically recruited because of their involvement with the phenomenon of interest (17, 18). The participants' words are usually the data, and where possible the words are transcribed without interpretation. The research team then discuss and interpret the data and seek to identify common themes, drawing upon existing theoretical frameworks (18). The sample size may be unknown at the start of a study, which might continue until the researchers feel that no new ideas are being generated, a point referred to as 'thematic saturation' (17, 18, 28). In qualitative research, the interviewer has an active role in developing rapport with the participant to facilitate the description of events, rather than being an impartial observer (28). Researchers should recognise and acknowledge that their perspective may shape the conclusions that are drawn from the data (18, 29).

We chose to conduct individual interviews rather than focus groups, anticipating that issues arising might be sensitive. We decided that interviews should be semi-structured, where the researcher uses open questions to guide the participant through the topics of interest, and in-depth, where the researcher encourages the participant to describe their experiences in detail (17, 28). Data analysis and collection were to be concurrent, allowing the direction of interviews to evolve to allow participants to reflect on what we felt were emerging themes (18).

Setting and participants

In Australia, speciality trainees are commonly referred to as 'registrars'. The setting for the study was the Department of Anaesthesia in a tertiary children's hospital, where nine registrars rotate every four months. They are usually in their first or second year of advanced training, which equates to their third or fourth year of anaesthesia training, but it is usually their first paediatric rotation.

The preferred window for conducting interviews was when registrars had been working in the Department for between four and six weeks, a time when it was hoped that they had settled in, but the experiences of transition were still fresh. Every registrar working in the Department at the time of the study was invited to participate. None declined, but some were unavailable in the preferred window.

Data collection

The interviews took place between February 2013 and May 2014 in a private room in the Department of Anaesthesia. The interviewer was the principal researcher and first author (PH), an experienced anaesthetist working in the study setting, who had first-hand knowledge of the setting and the participants. The goals of the project and aspects of confidentiality were explained to each participant and informed consent was obtained. All interviews were audio recorded and transcribed verbatim by the first author, with the exception of names and other identifiers that might compromise privacy and confidentiality. Interviews ranged in duration from 17 to 42 minutes (median 34 minutes). All interviews began with the open question: "Many registrars find starting work at this hospital to be

different to starting other rotations. What has it been like for you?" Follow-up questions were revised and refined as the interviews progressed (see Table 1).

Insert Table 1 here

Interviews continued until the point of thematic saturation. At this stage, the participants recruited represented a balance of gender and experience, as summarised in Table 2, and data collection ceased. The recruitment period spanned four rotations, and 31 of a potential 36 participants were interviewed.

Insert Table 2 here

Data analysis

A thematic analysis of the data was conducted (18). This involved the first author reading and re-reading all the data and highlighting interesting, compelling, significant and contradictory issues reported by participants and allocating them a series of simple codes such as 'effectiveness', 'fear', 'fatigue', 'learning' and so on. Relationships between codes were then identified and explored, resulting in the development of potential themes and sub-themes (18). Emerging themes were discussed with senior colleagues within the anaesthetic department, and with the second author, who had no prior involvement in or knowledge of anaesthesia training. This arrangement allows input from insiders who understand how their colleagues think, but also anticipates that members of a culture are often too involved to interpret their culture impartially (26).

Results

Two key themes relating to the transition experience were identified in this study: feeling ineffective, which appeared to have both a cognitive component (feeling disoriented) and an emotional component (feeling useless), and feeling anxious or afraid. These themes are described in detail below and make use of participant quotes to illustrate key points.

Feeling disoriented.

Although participants were accustomed to feeling somewhat disoriented at the start of any new rotation as they mastered the new physical environment and met new colleagues, they reported much more intense disorientation within the paediatric setting where almost everything was unfamiliar, including aspects of paediatric medicine and surgery and specific aspects of administering anaesthesia to children (see Table 3).

Insert Table 3 here

Many participants described needing to concentrate on every step of the anaesthesia process in the paediatric environment, unlike the growing sense of mastery of their profession they had experienced in previous adult rotations, where much of their work had become effortless and automatic.

Everything is so different, the children are so small – initially I was overwhelmed by the enormity of all these different things bombarding me. If it were just that the airway and the drips were harder, it wouldn't have been such a problem. But trying to distract children and interact with their parents while still being able to concentrate on what I was doing – I'm only starting to get a feel for that.

The constant need to concentrate was very tiring, made them feel inefficient and at times overwhelmed, and contributed to what many described as a 'loss of flow' in their work.

The annoying thing is that because every single thing is new and different, you lose that feeling of flow.

Feeling useless

Many participants were accustomed to feeling increasingly independent and knowledgeable with each rotation and year of training, whereas in the paediatric environment they found it difficult to identify a useful role and felt like a junior clinician again. This was keenly felt when they were unable to answer parents' questions or when they had difficulty performing routine procedures that they thought they had mastered earlier in their training. Some appeared to accept this situation and had pragmatic expectations.

You come here with less – the amount of knowledge of paediatrics I had coming here was way less than the amount of knowledge of adult anaesthesia I would have going to an adult hospital. So at the start you will need help, because you don't know anything.

For others, feeling ineffective appeared disheartening, and seemed to undermine their evolving identity as an expert clinician.

I'm used to being good at things. Things usually come quite easily. So this has been unsettling. I really had a step back in confidence. It was hard not having people know me and know what I'm actually capable of.

The configuration of the paediatric anaesthetic team, and in particular being assisted by a highly experienced anaesthesia technologist, served to further reinforce some participants' sense of inadequacy. In previous rotations, participants had often felt more experienced than their anaesthesia assistant and would sometimes engage in teaching their assistant; for many, the abrupt reversal of this dynamic was surprising and at times daunting.

One issue is working out what an anaesthetic tech can do compared to an anaesthetic nurse – it takes a while to realize how capable a tech is! They do a brilliant job, and they really help make it safer, considering how new the experience is for us registrars. But it is an extra thing, to work out your role within the operating theatre.

Some participants appeared despondent as they described their perceived loss of status from being a key member of a clinical team to a more junior member.

I don't think I've done a single case without someone sneaking around and checking this and hooking that up – it's like they're getting a little kid ready for school!

Some participants became critical not only of their performance, but also of themselves as people. There was a noticeable shift in language and demeanour from their relatively objective descriptions of the experience of being disoriented and new, to their emotionally laden descriptions of themselves as '*worse than everyone else*' or '*useless*'.

It feels like I'm starting all over again... I can't hold airways. I feel like I'm worse than everyone else. I'd forgotten what first year was like – you do a bit of helping while the consultant runs the anaesthetic. I should just wear a T-shirt that says 'I AM USELESS'!

Some trainees had such a low opinion of their performance during this period that they questioned their role as a paid member of staff.

In my first few weeks, I felt like I was going backwards... I felt useless, like a medical student, and humiliated... So I was actually worse than a medical student, because I was being PAID to be useless!

Feeling anxious or afraid

Many participants described fear of failure in their new role. Many feared being left alone in a challenging clinical situation that they could not manage, and that a child in their care might suffer harm as a result.

I had been really scared before coming here – just that awful feeling that something would go wrong and I couldn't fix it – especially with a small child with an obstructed airway in the middle of the night. In my head, I knew from others that you're well supported here, but I was still really anxious about it, especially leading up to my first on call shift.

This fear appeared more intense in a paediatric setting than an adult setting.

Kids are scary. You're desperate not to hurt them. Sure, I don't want to hurt adults either, but the stakes seem higher with kids. And I thought: Will I have this feeling every day for four months?

Some participants expressed fear of failing to live up to their own and others' expectations of them as relatively senior trainees.

I really was very stressed in the first week or two. A big part of it was my expectation that I was now in advanced training, and I should be getting this right. But I realize now that I had no automatic knowledge – I had to think about every step, afraid of getting something wrong.

In some instances, fear and anxiety contributed to an uneasy, hyper-vigilant state that disrupted participants' normal thought patterns and capacity to perform.

I feel that my skills are all right, but even so, things change so quickly in small babies – it creates an extra level of anxiety, just knowing that I wouldn't have time to draw anything up or look anything up if something went wrong. I just stand there worrying, even though I'm with a consultant.

Fear and anxiety led some participants to adopt a passive approach to their learning in the operating theatre.

Early on I was struggling with a toddler's airway and he went dusky so quickly! I was with a consultant and everything was all right, but it made me want to stand back rather than try again.

Many participants reported that the intensity of their fear eased after about two weeks, once they had managed paediatric airways under supervision and become more familiar with the new work environment. Nevertheless, many described an ongoing level of anxiety that they felt hindered rather than improved their performance.

Discussion

This study demonstrates that the transition to an unfamiliar environment presents trainees with many challenges. The study findings suggest that this may be explained by the cognitive challenges of working in a new environment, the importance of feeling valued and genuinely useful and the effects that anxiety and fear may have on learning and performance. Understanding these factors and their causes may highlight areas where improvements might be made.

Cognitive challenges of transition

Many participants described needing to concentrate on aspects of their work that had become automatic in previous rotations. This not only made them feel tired and inefficient, but also made it difficult to pay attention to anything other than the immediate task at hand, including engaging with their patient, listening to a supervisor who might be trying to teach them or responding to a subtle change in their patient's condition.

Being new appears to have an impact on patient safety. The simultaneous changeover of large cohorts of trainees in teaching hospitals at the start of an academic year reduces both the overall level of clinical experience and the overall level of familiarity with the hospital environment, and is associated with increased patient mortality (10). A study of care provided by anaesthesia trainees found that the rate of undesirable events was increased at the start of the academic year irrespective of the clinical experience of the trainee, suggesting that unfamiliarity with the new workplace was a significant factor (11). These issues are likely to be particularly relevant to a highly unfamiliar workplace, such as a children's hospital.

The amount of new information in a new workplace can be overwhelming until a trainee learns to identify the issues that most significantly influence decisions, sometimes referred to as 'heuristics' (30). Teaching new trainees to function effectively is likely to hasten this process and transform a transition from a threat to a learning opportunity (31). Current trainees may be a ready source of heuristic suggestions (4), as a novice often struggles with aspects of a workplace that an expert no longer considers unusual (32). Programs to teach junior doctors about their new workplace, including a period of shadowing the outgoing doctor, have become mandatory in the United Kingdom (33). Graduates of such programs have reported fewer critical incidents during their first months of practice, although objective evidence of improved performance is lacking (6, 31, 34).

Emotional challenges of transition

Feeling useful seems to help trainees in any discipline to learn effectively (13, 35). Many participants in this study commented that they had become accustomed to feeling useful and practising anaesthesia with increasing independence, whereas in the paediatric environment they needed assistance in almost every aspect of their work, which made them feel redundant. Many commented that they felt like junior trainees again, and rarely if ever experienced the feelings of expertise that had been part of their evolving identity as a medical specialist.

Participants appeared to respond to this change in a variety of ways. Some seemed to accept this as an understandable aspect of transition, but others felt frustrated and disheartened that for the first time in their career, they were not performing well. Some adopted low expectations for themselves, describing their role as an assistant or an observer rather than as a clinician taking responsibility for patient care. Others became highly self-critical, describing themselves as 'useless' or 'worse than useless' and citing difficulties with clinical skills as evidence of their uselessness. Some appeared preoccupied with their perceived failure to perform a certain skill, consistent with the observation in social psychology that individuals who experience failure in a task that defines their professional identity tend to remain preoccupied with the failure until they succeed at it or another identity-defining task (36). Once a negative mindset was entrenched, it seemed difficult to transcend.

Participants who felt useless also described losing confidence. Studies of sporting performance suggest that confidence is not a global personality trait; rather, it describes an attitude to a specific task, derived from interpretation of past experiences with the task, its perceived difficulty, the degree of assistance required and observations of others attempting the same task (37). Supervisors might help trainees to gain confidence by encouraging them to discuss their experiences with their peers, adopt realistic goals and interpret their performance less critically. Designing a workplace curriculum that gives new trainees responsibility for small but important tasks and builds their role throughout the term is likely to help them gain confidence, learn effectively and avoid the trap of feeling useless (1, 35).

The effect of fear and anxiety on learning and performance

Fear describes a distressing response to danger; anxiety describes a similar response when no overt danger is present (38). Many participants described fear of failing to perform at the level expected of an advanced trainee, and some remained anxious and excessively vigilant throughout relatively simple cases. Educational research suggests that to learn optimally, a trainee should participate actively in complex experiences in a state of relaxed alertness, where they are emotionally engaged and ready for new challenges without becoming overly anxious and fearful (29, 39). A degree of fear might increase the motivation to learn, but intense fear and anxiety are thought to impede learning, particularly the ability to process complex tasks (39-41). For some participants in this study, the fear of getting something wrong was debilitating and led them to adopt a passive observational approach, rather than learn through participation in authentic clinical activities (1, 7, 35).

Research into the relationship between fear and athletic performance may provide further insights for supervisors of medical trainees. Fear of a stressful event does not simply dissipate with repetition, suggesting a role for supervisors in helping trainees to manage fear (42); yet no clear relationship exists between fear of failure and perceived competence (43), suggesting that supervisors may not reliably identify which trainees are the most fearful. Furthermore, the psychological and physiological arousal that precedes a challenging task is interpreted by some as fear that impairs their ability to execute a skill and by others as excited readiness that improves their performance (37, 40), suggesting that supervisors may find it difficult to predict which situations elicit fear in a particular trainee. If anxiety and fear are to be addressed, it seems wise to do so with all trainees.

Transformative Learning Theory ('TLT') provides a framework to help supervisors understand their trainees' transition experiences. TLT proposes that different people develop different belief systems about why things happen, which shape the way that subsequent events are interpreted (44). The starting point for transformative learning is a disruption to these belief systems. In this study, some participants appeared to believe that they should be mature, knowledgeable and capable, but instead found themselves feeling frustrated, inexperienced and less capable in the paediatric setting. This situation is described in TLT as a 'disorienting dilemma', and typically leads to self-criticism and low self-esteem until learners recognise that others are facing or have overcome similar difficulties, engage in critical reflection, move beyond their previous assumptions and explore other ways to approach their situation (44). TLT implies that supervisors can help trainees to resolve the various disorienting dilemmas they encounter during transition in a positive manner, improving their capacity to learn and work effectively.

Strengths and limitations

To our knowledge, this is the first study providing an in-depth view of anaesthetic trainees' experiences of transition. Although the study was limited to one clinical organisation in Australia, we believe the findings resonate broadly with transition experiences within anaesthesia, emergency

medicine and speciality surgical training, where individuals trained in aspects of adult medicine begin work in paediatric settings. In addition, the team approach to analysing data, involving those with insider and outsider positions relative to the setting, the participants and the phenomenon under exploration, has enhanced the analytical rigour and increased the credibility of the findings.

Choosing an interviewer known to the participants can be viewed as both a weakness and a strength of this study. The interviewer was not independent of the participants' training and supervision, and it is possible that this may have influenced the nature of the responses. It is also possible that the existing relationship between the interviewer and the participants enhanced the ability to explore emotionally sensitive issues in depth.

Future directions and implications for practice

In this study, we have identified themes relevant to new trainees' ability to learn and work effectively and made empirical suggestions that might improve their learning environment. Future studies might investigate possible associations between these themes and trainee factors, such as age and previous anaesthesia experience. Other studies might investigate whether implementing our suggestions can be shown to improve trainee learning and performance and further explore the relationship between trainee performance and patient safety.

Disclosures:

The Royal Children's Hospital ethics committee approved the study proposal (ref 33058A).

This research was carried out without funding.

No conflicts of interest declared.

The authors wish to thank Geoff Frawley (anaesthetist) and David Amor (geneticist) for reviewing the proposal, themes and manuscript.

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Table 1: Interview plan

Opening question: “Many registrars find starting work at RCH to be different to starting other rotations. What has it been like for you?”
Topics to be explored by follow-up questions:

- The physical environment, including hospital layout and systems
- The clinical environment, including age and co-morbidities of patient population
- Technical skills
- Working with anaesthesia technicians rather than anaesthetic nurses
- Emotional challenges of dealing with sick children and their families
- Perceived pressure to behave in a certain way or perform at a certain level.

Table 2: Participant details

Median age of participants (years)	29 (range 27-44)
Gender of participants	15 male, 16 female
Median year of anaesthetic training	Advanced Training year 1 (AT1 n=24, AT2 n=7)

Table 3: Unfamiliar aspects of the paediatric environment , as identified by participants

Aspects of paediatric medicine and surgery
• Interacting with children • Interacting with parents • Paediatric conditions and operations (especially those with eponymous names)