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Original Article

Impact of short-term locum doctor employments on the transition from medical student to residency

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ABSTRACT

INTRODUCTION. The transition from medical student to resident is often stressful and challenging. Medical graduates' sense of preparedness for residency increases as they spend more time in the clinic. In Denmark, temporary short-term locum doctor employment (LDE) may be an opportunity to increase preparedness for future residency and ease the expected and experienced stress of the transition. This study aimed to explore how medical students and first-year residents experience holding an LDE and the expected or experienced impact on the transition from medical student to residency.

METHODS. A qualitative design was chosen. Last-year medical students and first-year residents with LDE experience were included. A total of 23 participants were recruited and interviewed. A semi-structured interview guide was used. Data were analysed using thematic analysis.

RESULTS. The analysis showed four main themes: 1) An opportunity to postpone and prepare for residency, 2) Negotiating uncertainty and responsibility, 3) Enhancing professional and personal competencies and 4) Impact on transition.

CONCLUSIONS. An LDE can offer medical students and first-year residents the opportunity to gain more clinical experience, postpone residency and enhance professional and personal competencies. Although uncertainty and insufficiency were common at the beginning of the LDE, adequate support and training may counterbalance these feelings. LDEs can contribute positively to the transition from medical student to residency.

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The transition from medical student to resident is often experienced as stressful and challenging [1-4]. Challenges include communication with colleagues, respect from patients, mastery of medical knowledge and feelings of 'culture shock' [5]. A physician's responsibilities seem overwhelming, with unpredictable work, dramatic situations and lack of supervision - contributing to a stressful transition [1]. Studies showed that 57% of residents with no clinical experience worried about starting residency [3], while more than every fourth young doctor reported having a high to very high degree of work-related stress [6].

Research suggests that medical graduate students' sense of preparedness for residency improves as they spend more time in the clinic with increasing responsibility and involvement in daily work [7, 8]. In Denmark, > 8th-semester medical students can apply for short-term, subordinate medical positions without medical

authorisation (locum doctors, in Danish 'lægevikar'). Locum doctor employments (LDE) can be in a hospital, and locum doctors are paid a contractual salary. Their tasks typically include ward rounds, preparation of admission records, etc. [9]. In 2018, temporary short-term positions corresponded to 205 full-time positions [10]. Such temporary short-term LDEs may be an opportunity to increase preparedness for future residency, easing the expected and perceived stress due to the transition to residency. To our knowledge, this has never previously been studied.

Therefore, this study aimed to explore how medical students and first-year residents experienced holding locum doctor positions and the expected or experienced impact on the transition from medical student to residency.

Methods

Design and participants

We chose a qualitative design [11]. To explore the expected and perceived impact of LDE on residency, we included both last-year medical students and first-year residents with LDE experience. We combined focus groups with individual interviews. Focus groups were chosen because they allow participants to react to each other, making otherwise unarticulated information available. Individual interviews provided in-depth knowledge of participants' perspectives. A total of 23 participants (**Table 1**) were recruited via Facebook and the authors' professional networks. Following a principle of convenience, they were selected for either a focus group (n = 14) or an individual interview (n = 9). None of the participants had personal relationships with the authors. The data consisted of interviews with 17 medical students and six residents. Before recruitment, they received study information, and verbal consent was obtained and recorded.

TABLE 1 Demographics.

Participants, n	
Students	17
Residents	6
Total	23
Gender, n	
Male	6
Female	17
Locum doctor employment, n	
Part time	6
Full time	17
Duration, mean, median (range) wks	20.3, 16 (4-60)
Department, n	
Surgery	6
Cardiology	1
Ear, nose and throat	1
Emergency	4
General practice	1
Haematology	2
Neurology	6
Psychiatry	7
Respiratory medicine	1

A semi-structured interview guide was used. Interviews were conducted by the first, second and fourth authors with one main interviewer and one co-interviewer. Interviews were conducted on Zoom, video-recorded and transcribed verbatim. Minor adjustments were made to the interview guide to ensure that both positive and negative experiences were elicited. Participants were offered to read transcriptions, but none had corrections.

Data analysis

Data were analysed using thematic analysis [12]. The analytical process is described in **Table 2**.

TABLE 2 Overview of steps in the data analysis.

Step	Process of the study
Familiarisation with data	All authors read the interviews and reflected on initial patterns to obtain a sense of the whole of the medical and residents' experiences with the temporary short-term position
Generating initial codes	Each member of the author group re-read and coded 3-4 of the interviews individually Subsequently, the group compared the initial codes
Searching for themes	All authors discussed patterns and defined themes and subthemes describing the data in relation to the study objective
Reviewing themes	The first author coded the resident interviews The fifth author coded the student interviews using Nvivo To ensure the reliability of the coding, the first, second and fifth authors reviewed the themes and discussed cases of doubt until a consensus had been reached Ultimately, the final themes and subthemes were agreed on and validated by all members
Defining themes	The final themes were defined by the first, second and third authors relating the analysis to the study objective
Writing analysis	The first, second and third authors wrote the final analysis, choosing illustrative quotes for each theme The selected quotes were checked and commented on by all authors

Ethical considerations

Participants received an e-mail with information about the project, were informed of voluntary participation and were assured confidentiality. We obtained verbal and video-recorded consent, and all participants were anonymised.

Trial registration: not relevant.

Results

Our analysis revealed four main themes: 1) Opportunity to postpone and prepare for residency, 2) Negotiating uncertainty and responsibility, 3) Enhancing professional and personal competencies, and 4) Impact on transition.

Opportunity to postpone and prepare for residency

The possibility of gaining more clinical experience and postponing the intimidating residency were the main motivations for applying for LDE (**Table 3**, Quote (Q) 1. A recurrent experience was the feeling of unpreparedness regarding the fulfilment of the role of a physician, using LDE as a safe environment without full medical responsibilities. Most participants sought general hospital experience, whereas a few targeted a specific specialty. For example, one participant had chosen psychiatry specifically to gain experience with – and counter a fearfulness towards – psychiatric patients and patient complaints (Table 3, Q2).

TABLE 3 Illustrative quotes representative of themes.

Theme	Quote #	Quote (occupation, identifier, gender)
An opportunity to postpone and prepare for residency	1	"When I think back on the past 5 years, I think; I can´t do anything. You know, I can´t pull anything out where I think I just have this under control. And then I thought, well this is a perfect opportunity to try it in a safe and controlled environment where you get a lot of supervision" (student, 1A, female) "I´ve thought a lot about, can I handle this, am I good enough, what is expected of me, what do I expect of myself? I really needed to have a lived experience of it" (student, 1B, female)
	2	"I ended up in psychiatry because I actually think psychiatry is interesting, but I´m a little afraid of all such patient complaints, so I wanted to get out there before I could be prosecuted for having done something wrong" (resident, M, female)
Negotiating uncertainty and responsibility	3	"I can clearly remember how I was nervous about it and thought, what if suddenly, I'm dealing with too many things and can't solve the problems? Yes, so it was probably the kind of feeling that many people have in residency that I just had a few years earlier, the one with catastrophic thoughts about what can go wrong, am I good enough? Can I figure out how to prioritise between tasks and can I figure out how to act on the things that are serious and need to be solved first?" (resident, H, female)
	4	"Sometimes it was difficult when you were with many people in a room and you had to say something,.Then I felt nervous and thought: 'Oh no what are they thinking about me, do they think: 'Oh, she's just the medical student who doesn't know what she's talking about'" (resident, I, female) "There´s a lot of thoughts about what the older doctors think. I´m never worried about what the patients think, or what the nurses or social workers think, because I see myself as a sweet and reasonable person, so they probably like me. But with the doctors, I'm like 'Oh what is the chief physician thinking!?'" (student, 1B, female)
	5	"In the beginning, it was frustrating. I took work home with me and thought: Did I do the right thing, did I make the right assessment in that suicide screening? Will I come in tomorrow to a patient who hanged himself during the night because I didn't pay attention? I think that haunted me, especially in the beginning ... But I think it got better as time passed by" (resident, I, female)
	6	"I think it has been very reassuring to know that if I feel insecure, or I'm unsure of how to do something, then I am not forced to deal with it alone. I always have a lifeline, as I always have someone to ask" (student, 1F, female) "From the start, they established that of course, I could just ask if I had any doubts. ... That made me feel less nervous about the minimal introduction and just being thrown into it, learning by doing, because there were no stupid questions, and you were more than welcome to ask" (resident, J, male)
	7	"... one of the reasons why I feel very safe in my work as a locum doctor is because I know that if I make a mistake, it isn´t my responsibility as I'm not a doctor. It´s well, who is it, I basically work under our chief physician, so it´s his responsibility if I do anything wrong" (student, 1F, female) "It [not having an authorisation] is something I have been thinking about ... I have a right to get someone to help me, to supervise me, yes, I have been thinking about that. Because now when I have started my residency, I am more aware of the fact that I might make a mistake which could come home to roost me" (resident, I, female)
	8	"If I have to compare with clinical rotations, I think that the big difference is that as a locum you get to work as a doctor, and in clinical rotations you get to see what a doctor does, and then if you a very lucky you get a chance to try something" (student, 1F, female)
	9	"Especially in the first weeks I felt a difference compared to clinical rotations. I was allowed to do more, had responsibilities and I was just included in the department to a much, much higher degree than ever before" (student, 1B, female)
Enhancing professional and personal competencies	10	"..you could just ask along the way, there was an atmosphere where it was okay to ask whether it was a chief physician or ward physician, professor, or just a young doctor" (resident, J, male)
	11	"I had a night shift some weeks ago, and my mid-career ... was called down to something acute, I don´t remember what, and then I just had to do it alone, i.e. nibble off some of the bone without her being there, because we didn´t have time to wait for her longer ... I thought: I'll give it a try. Luckily it went well! [Laughs]" (student, 2E, female)
	12	"Some of the little things you can´t read anywhere, that this is what you must do. There are no guidelines where it says, you must take this blood sample before calling the attending cardiologist. Things like that, you learn when having a temporary position" (resident, J, male)
	13	"I was actually very nervous about residency before. I though, wow it will be interesting to see if I can figure it out. But now it´s like, if this is what residency is like, then it will be really damn cool. Yes, now I'm just looking forward to residency and to graduating" (student, 1A, female) "Whom to call, how to get hold of them, what considerations to make before going to the attending ... to be able to dictate ... it´s just nice to be able to, so when you start residency, you can spend time learning the profession" (resident, J, male)
	14	"It´s of course nice sometimes if someone catches you when you don´t know what to say in a conversation with a patient, but you can also sometimes end up being completely run over and then you end up sitting in the background thinking: I just wasn't up to that task" (resident, I, female)
	15	"Having talked to a whole lot of patients with different personalities and different ways of communicating. I think that has been, yes, the biggest learning for me" (resident, I, female)
	16	"When I worked in psychiatry, I tried to try different things, i.e., different communication strategies, and sort of see what works and what doesn't. Which I've certainly been able to take with me now. Because it's just that, well, you're just in so many difficult situations, so it's just been nice to have some tools that I could just pull out from the backpack and just try my hand at when it gets difficult" (resident, I, female)
	17	"Especially stethoscopy, in clinical rotations you do it on maybe 1-2 patients a day. But now when you are at work, you listened to the heart and lungs of 6, 7, 8 patients a day ... many of them have something wrong with the heart, so I think it´s easier to recognise diagnoses. And ECG, when you get ten of them on your table each day you just acquire the skills much faster" (student, 1A, female)
	18	"I think what I can transfer the most is the self-confidence you get from being there. Really, that´s the thing about learning to be the one who is the one" (resident, M, female)
	19	"So, I´ve come to realise that I´m just going to have faith that I´m paving the way as I go along. And I can rest in that now, as I now have tried it before" (student, 1B, female) "That of sometimes standing and thinking, ooh, do I have a handle on this? Hmm. And then actually manage to get out of the situation just fine. I think that is something that has made me perhaps feel more comfortable when starting residency" (resident, L, female)
	20	"I think I have experienced mutual respect. I haven't heard things like, but you haven't graduated, or any such negative comments. I think I've been met by such a positive, what can I say, friendliness that "you're cool that you dare these things and dare to face this alone" (resident, H, female)

Continues >

TABLE 3 (CONTINUED) Illustrative quotes representative of themes.

Theme	Quote #	Quote (occupation, identifier, gender)
The transition	21	"It´s no longer an unmanageable, unknown task, I actually know very well what I have to do, and I have the courage to do it. I´m not at all nervous about having to go up and take my first patient anymore" (student, 4E, female) "I can only say that I have been a locum, and I can figure that out, and therefore I might also be 2 inches straighter in the back when I start my residency than if I hadn´t had that experience" (resident, M, female)
	22	"Before my temporary position I thought 'fuck, I´m going to be a doctor in one and a half year, can I figure out how to do that, what does it even mean'. And now here on the other side I think 'I can do it'. I think it prepared me a lot for it" (student, 2D, female)
	23	"I think it has made it easier to put on the role where someone is looking at you and expecting you to do something. If I had only had my clinical rotations as experience, then I think I would have been far more lost" (student, 4D, female)
	24	"So here in the residency, I haven´t had to use that much energy on basic stuff that you normally would when you are a new resident. I had already learned those things so I could focus on something else instead" (resident, H, female)

Negotiating uncertainty and responsibility

A dominant pattern was participants' description of how not having graduated yet fuelled their feelings of uncertainty and insufficiency at the beginning of the LDE. Participants focused on what might go wrong, and some doubted their ability to prioritise and act quickly if needed (Table 3, Q3). Uncertainty also related to tasks they did not feel qualified to handle, e.g., solo night shifts, managing acute situations or assessing psychiatric patients. Lack of self-confidence was accentuated when patients questioned participants' abilities or asked questions they could not answer. Furthermore, the participants were concerned about their own mental capability of working in healthcare or being perceived as incompetent by their colleagues (Table 3, Q4).

The participants' confidence, however, increased when they experienced successes (Table 3, Q5). Feelings of uncertainty were counterbalanced when participants felt that assistance was accessible. In most cases, participants reported receiving adequate support, which made them feel more confident and resolute (Table 3, Q6).

Participants appreciated observing physicians perform specific procedures before taking on the responsibility themselves. They were satisfied with training, courses and introductions to functions they were expected to cover. This left participants with a feeling of safety and preparedness for physician responsibility. The LDEs were seen as a sandbox that allowed them to act as physicians without legal responsibilities that a medical authorisation entails (Table 3, Q7).

Participants emphasised the value of feeling responsible. They compared the LDE to clinical rotations (Table 3, Q8), feeling a much higher degree of responsibility in the LDE, e.g. when nurses consulted them about medicine, or when they interacted with patients' relatives, social workers and other collaborators. In contrast to clinical rotations, they felt a greater need to exert themselves because they received a salary. They did not leave early when their shifts ended, remained motivated to perform well and actively sought additional tasks.

Another experience was that the LDE allowed participants to become an integrated part of a department, an opportunity they did not have as medical students (Table 3, Q9). They felt that the department counted on them and they became more invested, adding to their feeling of responsibility.

Enhancing professional and personal competencies

Participants recurrently described working environments characterized by psychological safety and supervision, which promoted their learning (Table 3, Q10). However, few participants had also experienced that supervision was deficient or lacking, e.g., due to business or deprioritised supervision (Table 3, Q11). Even though participants occasionally felt that their main role was to serve as patches allowing shift schedules to come together, everyone described the LDEs as a steep learning curve. The analysis identified four learning opportunities: organisational knowledge, communicative skills, medical expertise and personal development.

Firstly, being involved in day-to-day ward business was experienced as yielding a deeper understanding of what to expect during residency, which was considered highly valuable. They had not achieved this deeper understanding during their short clinical rotations (Table 3, Q12). Participants appreciated learning practicalities (e.g., ordering X rays and blood tests and admitting patients) and the workflow of the ward (e.g. obtaining precise and fast answers from the attending physician or being instructed precisely what to prepare when calling the cardiologist (Table 3, Q13)). Overall, participants valued collegial collaboration and found nurses helpful and supportive, except for a few experiences of being overruled (Table 3, Q14). In this manner, they felt that they gained a deeper understanding of their future roles as physicians.

Secondly, the LDEs provided significant direct patient contact. Participants appreciated the opportunity to communicate with many patients (Table 3, Q15), and considered this highly transferable to all potential

specialisations. They valued gaining experience in managing consultations, expressing themselves clearly to patients, gathering necessary information and engaging in conversations about difficult topics (e.g., suicide or death). The LDEs provided an opportunity to try different communication strategies (Table 3, Q16), and develop specific communicative phrases, which made the participants feel more comfortable.

Thirdly, participants obtained valuable medical skills and expertise, e.g., in doing technical clinical procedures (Table 3, Q17), and although knowledge was limited to the specific medical speciality and no specific learning goals had been formulated, they were generally satisfied with their learning outcomes. Several participants described how the LDE provided an opportunity to expedite some of the learning young doctors usually acquire during residency.

Fourthly, gaining organisational knowledge, communicative skills and medical expertise made participants more confident in their ability to fill the role of a physician (Table 3, Q18). Many participants experienced challenging and stressful situations but learned to deal with them, trusting their capabilities as (future) physicians (Table 3, Q19). All experienced that they were seen as equals to post-graduate doctors. They participated in meetings and (some) in resident training and received positive feedback from colleagues (Table 3, Q20). Experiencing respect from colleagues, receiving positive feedback from senior physicians and achieving success in completing specific tasks were described as a considerable confidence boost, confirming their choice of profession.

Transition

Implicit professional development occurred throughout LDE, and although they felt challenged, LDE provided the participants with a feeling of being prepared for the forthcoming transition (Table 3, Q21). Students described how LDE had changed their perception of their future residency, demystifying it and making it less intimidating (Table 3, Q22). The LDE produced confidence that they could fulfil the role of a physician (Table 3, Q23).

Less frequently, it was described that the value of LDE was balanced out within a couple of months of residency, and some residents did not think that LDE had a critical impact on their feeling of preparedness for residency. The majority agreed that the expanded confidence was the most pivotal outcome, providing a mental surplus they used in residency (Table 3, Q24).

Discussion

Our study showed that medical students and residents found that LDE eases the challenging transition from being a student to becoming a physician. The LDE enabled participants to acquire medical skills and knowledge but also competencies relating to the seven roles of a doctor, e.g. communication and collaboration [13, 14]. Most important was the opportunity to practice the professional role as a physician. Other studies have identified learning to be a physician as a multidimensional transition involving the development of medical expert knowledge and professional identity [15]. Our results align with this, and the LDE seems unique as it makes multidimensional development possible. It involves more professional independence and responsibility than medical students can carry in a clinical rotation, but LDE comes without the legal responsibilities that residents face. Studies show that inadequate preparation during medical school and lack of support for residents as they enter clinical practice contribute to a stressful transition [5, 16]. We add to this knowledge by finding that LDE made the transition period less stressful, both before (students) and after (residents) actual transition.

Our results remind us that learning is more than an intellectual activity. Lave & Wenger's concept of 'situated learning' emphasises the social aspects of learning, where participants learn through engagement with 'communities of practice', e.g. the everyday life at a hospital department [17]. LDE creates a new type of position

for the medical student as a 'peripheral legitimate' participant in the community from where they learn formal and informal structures of the common repertoire in the community of practice.

Initiatives to reduce the challenges of transition have been explored, e.g. problem-based learning [18] and tailored support for newly graduated residents [19]. Given the positive outcomes of LDE, e.g. boosting personal and professional confidence, one could speculate if LDE should be offered to all medical students. However, the independent decision to seek new challenges via LDE may make this a positive, confidence-boosting experience. Thus, one might question if the positive experiences reported in our study indicate that a particular kind of challenge-seeking medical students benefit from it. Further studies are warranted to explore this.

Limitations

By using interviews, our study grasped how participants perceived LDE. Observation studies could have been used to shed light on actual practices. Our findings showed overwhelmingly positive experiences, which may indicate a bias. We became aware of this during the interview process and amended the interview guide to ensure that negative experiences were grasped. We achieved data saturation, which supports the validity of our results.

Conclusions

LDE is perceived to ease the transition from student to resident. Postponing a ‘real’ position as a doctor enabled the participants to ‘work as a doctor’ before ’being one’, creating a space for managing uncertainty and becoming confident by practising responsibility.

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