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ORIGINAL RESEARCH

When a LIC came to town: the impact of longitudinal integrated clerkships on a rural community of healthcare practice

JN Hudson[1], B Thomson[2], KM Weston[3], PJ Knight-Billington[3]

[1]*University of Newcastle, Tamworth Education Centre, Tamworth, New South Wales, Australia*

[2]*Milton Medical Centre, Milton, New South Wales, Australia*

[3]*Graduate School of Medicine, University of Wollongong, Wollongong, New South Wales, Australia*

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Hudson JN, Thomson B, Weston KM, Knight-Billington PJ

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ABSTRACT

Introduction: Two small rural towns in Australia, where medical practitioners provide primary care to the population, including emergency, anaesthetic and obstetric services, were early adopters of an innovative year-long integrated clerkship (clinical placement) designed to foster medical student skill attainment and a commitment to underserved rural communities. Primary care vocational trainees had previously trained in the region. Engaging with the university to participate in the clerkship initiative for undergraduate medical education offered the local healthcare service an opportunity to really integrate education with service. This study sought perspectives from a multidisciplinary group of stakeholders on the impact of the longitudinal integrated clerkship (LIC) on the healthcare community.

Method: Three analysts independently analysed the transcripts arising from semi-structured interviews with a range of health care clinicians and managers (N=23). Themes were identified using inductive content analysis methodology.

Results: Four major themes emerged from the perspectives of a multi-professional group of participants from both towns: transforming a community of practice, realising the potential of the health service, investment in rural return, and sustainability.

Conclusions: There was significant clinical exposure, skill and teaching capacity in these previously unrecognised rural placements but realising the potential of the health service needs careful management to sustain this resource. Early engagement and initial enthusiasm have produced many positive outcomes for the healthcare community, but this alone is not sufficient to sustain an

increasing role for rural primary care in medical education. The study identified issues that need addressing for sustainability, namely validation, time and costs. Strategies to address these are key to continuation of LICs in small rural communities.

Key words: Australia, impact on healthcare community of practice, longitudinal clerkship, rural medical education, undergraduate.

Introduction

Two small rural towns on the south coast of the Australian state of New South Wales (NSW), where procedural general practitioners (GPs) provide primary care to the population, were early adopters of an innovative year-long integrated clerkship (clinical placement) designed to foster medical student skill attainment and a commitment to underserved rural communities. These towns, just 7 km apart, are 3 hours by road from Sydney, the capital city of the state. The GPs provide emergency, anaesthetic and obstetric services, supported by a range of health professionals and a 25-bed hospital. Medical specialist services are limited.

The essential and urgent need to provide equitable access to quality primary health services for Australian's rural communities has been highlighted by many authors, including Tham and colleagues[1]. Recruitment and retention of medical practitioners for the two towns in the present study was a challenge, with practices often making considerable financial investment in recruitment, with limited success. Clinical workload was especially high in the summer months given the coastal location of the towns and the attractiveness of local beaches to visitors. Engagement in postgraduate training of GPs was one strategy to encourage recruitment, and five of the GPs had been supervising vocational trainees for the past 10 years. Previously, they had only engaged intermittently and informally with undergraduate medical education. Clinicians in the region had no prior formal links with a university, no active involvement in undergraduate medical curriculum development or delivery, limited experience of medical student involvement in their community hospital service, little infrastructure for undergraduate teaching (eg extra consulting rooms for supervised student consulting), and student accommodation was limited.

In 2007, a new graduate-entry medical school with a shift in emphasis from teaching and learning in specialism to generalism[2] was launched in the region, just 2 hours north of these towns. The school's mission, namely an aspiration to address the shortage and maldistribution of the Australian medical workforce and to develop competent patient-centred graduates, was of considerable interest to those aiming to build generalist medical practice in their rural communities.

The local practices first supervised short-term placements (a fortnightly afternoon session) for junior medical students which the school established to contextualise the students' early theoretical learning in the real world of clinical practice. The preceptors (supervising doctors) were encouraged to note that local patients were willing participants in junior student medical education, and actually would have accepted more student involvement than occurred[3]. After considerable university engagement with a range of healthcare clinicians and managers, including information sessions and workshops on the longitudinal integrated clerkship (LIC) model, teaching, learning and assessment, a local 'champion' emerged to foster the participation of two local general practices, each hosting one or two LIC students (N=3), commencing in 2009. LIC students commenced this year-long placement from mid-way through the third year of their 4-year medical program, leaving 6 months for an elective and hospital-based student internship in preparation for the first graduate year.

In a LIC placement, senior medical students spend one full academic year living and learning in a regional, rural or remote community in NSW[4]. The clerkship is an integrated placement, with students learning longitudinally and concurrently in both

community and hospital healthcare settings, rather than in the traditional model of a series of short-term speciality-based hospital rotations in urban centres[5]. Each student is based in a general practice where they consult with patients, in parallel with and under the supervision of GP preceptors. In addition, students participate in all healthcare activities in the GP-staffed hospital. This small rural hospital received a modest infrastructure grant to improve education facilities for staff and students. Each general practice hosting a student received a one-off infrastructure grant to modify the practice, or add an extra consulting room for the student, funded by a Commonwealth government initiative for rural undergraduate medical education. In addition, the practice was eligible for a government practice incentive payment (PIP) for teaching. This comprised A$100.00 per session that the student was supervised in the practice. While the Australian government has recently doubled the PIP teaching payment, it was modest at the time when the LIC was established. Preceptors' commitment to their community, their profession, and recognition that the university valued generalism as an educational philosophy for medical education, were some of the expressed motivations for engagement with the LIC model[4].

In 2011, when the practices in the town were hosting the second group of LIC students (N=5), it was apparent that something had happened after 'the LIC came to town'. Anecdotes from both the university and local community suggested that the initiative was having influence on more than student learning. This prompted a study seeking the perspectives of many stakeholders in local health care, with the following research question: What is the impact of the LIC medical education initiative on the healthcare community(s) of practice in two rural towns in NSW?

Methods

Semi-structured, face-to-face interviews were undertaken with 23 participants from a range of roles associated with the rural medical practices or local hospital: four in reception, three in business, five doctors (four GPs, one vocational trainee (GP registrar)), two immediate-past LIC medical students, eight in practice or hospital nursing or midwifery (including one emergency department specialist) and one in allied health. An independent interviewer travelled to the region and undertook all interviews, which were recorded and transcribed. Participants were recruited by convenience sampling due to their availability at the time that the interviewer was in the region. Because the healthcare community was small, a range of participants who were in the practice, or working in the hospital during the interviewer's visit, consented to interview. Questions probed the impact of the introduction of the LIC model of medical education on health service in the practice and community. Three researchers (JNH, KMW, PJK) independently analysed the data and organised emergent categories into themes using inductive content analysis[6]. Only one of these researchers was involved in the implementation of the LIC initiative.

Ethics approval

Informed consent was sought by the independent interviewer and ethics approval was obtained from the University of Wollongong Human Research Ethics Committee (HE09/244/10/080).

Results

Four major themes emerged from the interview data, with a range of participants contributing to the generation of each theme. Participant comments that illustrate the multidisciplinary perspectives in relation to each theme are quoted (Tables 1–4).

Theme 1. Transforming a community of practice

The community of practice delivering health care in the town was transformed by the introduction of a LIC. A teaching community was created, with impacts on individuals as well as healthcare teams. Morale and teamwork were improved by being valued as a community for medical education, with students contributing to the workload. There was enthusiasm for this teaching and learning role, and professionals and patients were enlivened by the opportunity to make a longitudinal contribution to the personal and professional

development of medical students. These benefits were reported by those who supported as well as those who actively taught the learners.

Relationships in established community teams were improved, and a culture of helping each other was established. Some participants saw it as an opportunity to enhance the culture of mutual respect between members of the healthcare teams. The community was empowered by the partnership with the university in medical education.

Theme 2. Realising the potential of the health service

While the health service had been providing health care to the community and surrounds, the LIC initiative allowed the service to realise what they had to offer for quality medical education and appreciate what the long-term students added to the service provided. While it was acknowledged that, due to their supervision needs, medical students can decrease patient access to health care, many recognised that students actually improved access to care for patients by acting as assistant physicians in the team.

Patients of a supervising doctor first saw the student, and then the doctor together with the student, and this ensured that patients, in this area with workforce shortage, maintained access to their own doctor. Doctors improved their standard of care, and student participation enhanced coordination of patient care. Students had 'fresh eyes' on patient presentations, became part of the healthcare team over time and their perspectives promoted reflection on clinician practice.

Theme 3. Investment in rural return

It was well recognised that rural communities need more doctors and the student was seen as potential for rural return. The practices had a commitment to the community and strategies for succession planning. The opportunity to engage with a long-term student was valued because both learner and educator could develop a greater appreciation of each other.

There were suggestions to extend the longitudinal model to nursing and allied health. Older doctors saw that the time costs were an investment in future rural workforce, and other participants reported that patients also saw the students as potential medical workforce in their area.

Theme 4. Sustainability

Participants advised that issues of time, resources and validation required ongoing attention to sustain the program. The teaching capacity of the community was finite and so needed monitoring. For the time cost, provider remuneration should be appropriate and value the teaching and mentoring contribution. The time cost of other practice professionals should also be acknowledged: they organised student parallel consulting, 'sold the student to the patient' and assisted the student with a range of tasks. Infrastructure was critical and the following were needed to sustain the program: extra practice rooms, financial incentives, improvement in hospital facilities, permanent student accommodation and reliable technology.

There was a recommendation to invest in good local leadership and leadership succession planning. A range of staff contributed to management and success of the initiative and they valued feedback from the institution on what they were doing well, and how to improve where needed.

Discussion

Previous studies of longitudinal integrated clerkships have reported benefits for students, preceptors and patients[7-9]. The present study has provided novel evidence on the impact of a LIC initiative on the healthcare community of practice in two adjacent small rural towns in south-eastern Australia, from the perspective of a multi-professional group. The group comprised local medical practitioners, a general practice trainee, hospital specialists and managers, nursing, hospital and practice managers, practice reception staff, student alumni and an allied health professional. When a LIC came to town, study participants believed that integrating this innovative model of medical education within the health service transformed the culture and quality of care.

Table 1: Participant quotes – theme 1

Participant quote	Role
It's great to have the medical students around … certainly while educating them it makes me think as well	GP registrar
I think it's good for your own professional development	Social worker
They are always there as an extra back up in a way … they can teach us stuff as well	Hospital nurse
I've been nursing for a long time, and years ago all this wasn't in place for the med students, the communities … [this has been set] up so well for the community and everybody is involved	Practice nurse 1
For the community … it's a bit of ownership as well … they're more aware that there's a campus [nearby] … for local students thinking that they may go and study	Medical student 2
The patients themselves will often take on some of an education sort of feeling	Medical practitioner 1
The rural community needs to think about how we grow our medical officer base. This is certainly a way to do it … you get a community that is more adaptive to health care … they're getting examined by a student … they know it's a student and they're quite willing and excited sometimes	Nurse unit manager
We are a teaching medical centre and people do embrace it. It's a benefit for the community. They [long-term students] really help in the hospital ED	Practice manager 1
The patients are more accepting because there are students everywhere now … if they go to the hospital … to the optometrist or mental health or whatever	Practice nurse 3
It's just incorporating more people into the team … they're becoming aware of our role … we're becoming aware of their role, and how we can accommodate each other, help each other out	ED specialist nurse 2
I think it's been good for team morale … having students working with you	Clinical nurse educator
We work with each other and we assist each other, and if you have an extra pair of hands … the teamwork and more input from someone else's idea is hugely valuable	Medical practitioner 1
Refreshing … I think the whole feeling of young people wanting to learn, starting off in their profession	Practice manager 2
I was very interested in looking at the culture as well as how we embrace them … it's actually trying to also get a recognition from them [medical students] that when working with nurses that a certain level of respect has to be mutual	Clinical nurse educator
I see the effect on the medical officers in the sense that they have to function differently when they've got their students … curb some of that bad behaviour … so that affects the site, and the team	Nurse unit manager
It's really nice to have a stronger affiliation with the university as a site	Clinical nurse educator
It's good that the university is pushing for more doctors and making this area progressive	Receptionist 3
There is a perception that we are amateurs … that doesn't mean we don't have something to contribute … that's the important thing in the philosophy of it … there is a lot that can be contributed that is relevant for their [student] final outcomes	Medical practitioner 1

ED, emergency department. GP, general practitioner

Table 2: Participant quotes – theme 2

Participant quote	Role
The first thing they get here they have to communicate with patients, and visitors, and relatives and they get support for that … they get literally from cradle to grave … they are exposed to every form of case that is available in its first form … go and diagnose a case without a CT scan … go back to talking and examining the patient	Nurse unit manager
It's so diverse in the population, it's got a range of pathologies … also got a vast array of really talented, dedicated doctors that have I think just been waiting for an opportunity to sink their teeth into education … opportunities were limitless … the more effort you put in, the more you reaped	Medical student 2
We had good access to clinicians and if there were any visiting specialists … you've got more personal contact	Medical student 1
They [students] are seeing how our resources are lacking … and how everyone has to pull together to be able to get the work done	ED specialist nurse 1
I think it's just better for the community because you're going to get in quicker … they're getting the best of both worlds because they're seeing a student as well as a doctor	Nurse 1
I think it particularly assists the doctors because they've already gone in to see the patient … sometimes when we are waiting for a doctor to come … our medical student has been getting on and seeing the patients … she can relay any of the information to us while we're busy running around … that is pretty useful	Hospital nurse
Because they're here for 12 months they can get regular patients … they can follow through on things that they're seeing	Practice nurse 2
The third phase being toward the back end of their time and they're impacting on patient care in a very positive way because they're seen as very much as part of the health team … their opinion is listened to … they bring questions we haven't considered for some time … it make you reflect on self-practice … you actually get a better patient outcome	Nurse unit manager

ED, emergency department

Table 3: Participant quotes – theme 3

Participant quote	Role
The community obviously needs doctors and nursing and healthcare … we're on a shortage of doctors and have been for quite some time	Receptionist 3
It should have happened a while ago … patients that come in, it's good for them to see an initiative that's happening down here … that we are trying to improve more doctors down this way	ED specialist nurse 1
Unless you've experienced it I don't think that they will have an idea of what it is like … if they start in the big hospital straight off … that give them a bit of tunnel vision and that's all they see … they just think this is where all the experience is, why would I want to live in the country	ED specialist nurse 2
Think it's our long term strategy … because we have a lot of doctors here nearing retirement age … we see education being one way of getting them to know our practice … hopefully they will be part of our succession plan	Practice manager 1
The good points are really that there's succession training … we'd advertise, no-one would respond and it's kind of like no-one really knows what it's about … we are putting thousands of dollars-worth of ads in the journals and papers … but with registrars and students – that's our future	Practice manager 2
The benefits of long term would have to be you learn about the person … that gives you opportunity to think about ways that you can better support, educate, train, develop that person … you develop an understanding of their abilities and my confidence level in them … also if they trust you, then they're willing to go into the deep far more often	Nurse unit manager
After seeing the students get so well looked after, I wonder why one discipline gets so much when another doesn't. It's very slack from a nursing perspective that we haven't done more for our own, looking at how the doctors look after their own	Clinical nurse educator
From our clinic point of view, all our patients, it's really good. I think they see potentially it will come around and we will get more doctors in the area	Receptionist 1

ED, emergency department

Table 4: Participant quotes – theme 4

Participant quote	Role
Theoretically … there may be a burden on the hospital … it depends on the student more than anything else	Medical student 2
We try and get a lot of the patients involved with the medical student first … so then the medical student has got patients all day so they're learning while they're here. We just sort of control that	Receptionist 3
It takes time away from your practice and your patients and little reward for doing it	Medical practitioner 2
If they [GPs] are teaching that student, it's slowing the process … I think financially if you offer them a little bit more incentive then I'm sure they will take it on board more	Practice manager 1
They take a lot of time: it is extra people to house, find rooms for … you need two rooms available close by one another and all the logistics of having extra people around	Practice manager 2
It just takes a bit more time … that's the main issue because time is the most valuable commodity. The cash injection to fit out the rooms was helpful but necessary	Medical practitioner 1
We knew we get some funding to build new capital works but we had to use it for that … we don't get any funding through the university … all our funding is through PIP	Practice manager 1
For it to be sustainable … I guess if there was more permanent available accommodation	Medical student 2
[Would be enhanced] if we have more information from the university of how all these courses are structured and sometimes a more clear role from the university … I think a little bit of feedback from the students or the university would be helpful too	GP registrar
Just a bit of feedback about how our students have gone … how our students have found our practice … what we can do to make it a little better for them	Medical practitioner 2
Well it's definitely sustainable as long as we don't burn them [GPs] out, make it refreshing, assist them in some way, guide them, give them feedback …	Medical student 2

GP, general practitioner. PIP, practice incentive payment

A teaching community was created by this expansion of primary care-based medical education in their region. There were positive impacts on individuals as well as local healthcare teams. Participants were enlivened and empowered by the opportunity to be integral to the personal and professional development of students. There was a sense of individual and collective ownership in the initiative. Team morale, mutual respect between members and relationships were enhanced. Van der Weyden[10] suggested that doctors in teaching hospitals 'benefit from a profound professional advantage which flows from the academic ambience and collegiality of their workplace; their ability to shape the learning and interest of young minds' (p. 66). The perspectives of participants in the study suggested that the LIC initiative gave rural general practitioners, as well as their colleagues, opportunity to enjoy the same benefits in community practice.

The region offered students a broad clinical exposure and the longitudinal placement allowed time for the student to achieve the competence required for an active supervised role in patient care. Then the student was able to impact positively on patient access to care. This confirmed the university's view that the generalist learning environment was valuable for longitudinal placements for medical students. The diversity of patient presentations in general practice has already been acknowledged as a rich curriculum of acute and chronic medicine[11], with rural preceptors reporting that they practise 'cradle-to-grave' medicine[4].

Small rural towns with procedural GPs, practice nurses and a community hospital provide health care to their community. However, many rural communities in Australia struggle to maintain viable healthcare services due to infrastructure and workforce shortages[1]. Longitudinal engagement with senior students was seen as a new strategy to address the ongoing challenge of recruiting and retaining medical practitioners. Despite identified time and cost constraints, there was an overwhelming view that this strategy was an investment in rural health succession planning.

Time and costs are critical issues that must be addressed for sustainability. It takes time to guide and enthusiastically mentor medical students, and preceptors can face burnout and financial cost from engagement with a LIC initiative. Practice staff reported playing an active role in managing the impact of students on patient throughput, while also ensuring that students had access to patients. A LIC student participant identified that students themselves play a critical role in maintaining preceptor involvement, by assisting with the workload, guiding them on educational needs and giving feedback to the preceptor. The university continues to advise students that 'what they put in, they will get out' as a strategy to ensure they are active participants in the doctor–patient–student learning triad.

The practice infrastructure grants helped to recruit practices, but there were infrastructure challenges relating to student accommodation, improvement in hospital facilities and educational technology. The financial impact on preceptors can be neutral or even positive[8] but most preceptors and some of their colleagues emphasised that reducing any negative financial impact was critical for sustainability. The doubling of the PIP for teaching and further rural general practice infrastructure funding in the 2014 Australian Commonwealth budget should make a positive contribution to the financial sustainability of the program[12].

A range of participants requested more information about the course, more feedback from students and the university about how their students have performed in final assessments. They expressed commitment to providing a quality learning experience but that required validation of their performance for quality improvement and to maintain the perspective that they were valued by the institution. The university has endeavoured to address this issue, and with greater maturity of the program both students and preceptors appear more confident with the model. Finally, succession planning was identified. In this case, the solution (more clinicians in rural general medical practice) aimed to address the problem.

The patients' perspective was conveyed in the data collected, but given that patients are the key stakeholder in healthcare education initiatives a separate study was conducted to obtain a perspective from patients themselves[7]. This subsequently demonstrated that patients from remote, regional and rural settings (including the region of the present study) valued the LIC learning environment as both patient- and learner-centred. Patients reported that their health care improved and they also felt part of the community of practice[7].

The qualitative data was analysed by three of the four authors of this article. Only one was involved in the development and implementation of the LIC initiative by the relevant university and this involvement facilitated understanding of the stated perspectives. The other two have subsequently been recruited by the university for academic roles that are separate to the LIC program but were not involved in the LIC when the data was collected. The second author was a preceptor in the region. He offered perspectives but was not involved in data collection or analysis. Use of an independent and separate interviewer enabled participants to provide anonymous comments. Some professions had limited representation in the sample, due to local workforce numbers and availability when the interviewer visited the town. While a convenience sample can limit the ability to generalise the findings, the population from which the sample was derived was small and the sample was representative of most of those interacting with the students. The health service work roster determined to some extent who was available for interview, reducing sample bias to some degree. The sample was diverse and the quotes illustrate that participants all raised similar issues such that data saturation was reached.

Conclusions

Medical workforce shortage is an important factor in the reduced access to health care experienced by many rural communities in Australia. The LIC initiative has enhanced the integration of education with health care in two small towns in rural NSW. The culture it has promoted will potentially have benefits for health care in the region, but also for the recruitment of LIC graduates to rural postgraduate education or service.

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