

What factors in rural and remote extended clinical placements may contribute to preparedness for practice, from the perspective of students and clinicians?

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What factors in rural and remote extended clinical placements may contribute to preparedness for practice, from the perspective of students and clinicians?

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Background: Community based rural education opportunities have expanded in Australia, attracting more medical students to placements in rural and remote settings.

Aim: To identify the factors in an integrated, community engaged rural placement that may contribute to preparedness for practice (P4P), from the perspective of students and clinicians

Methods: Forty two semi-structured interviews with medical students, supervisors and clinicians analysed thematically.

Results: Opportunities for clinical learning, personal and professional development and cultural awareness were reported by students and clinicians as key factors that contribute to preparedness for practice. Potential barriers in rural and remote settings included geographical and academic isolation, perceived educational risk and differing degrees of program engagement.

Conclusions: A longitudinal clinical placement in a rural setting may enable development of enhanced competencies leading to P4P. A rural setting can help provide a unique experience through hands-on learning, enhanced personal and professional development opportunities and observation of the cultural and contextual impact on health.

Practice Points

- Clinical experience in rural community settings can have a positive influence on perceptions of P4P.
- Longitudinal rural clinical placements can help better prepare medical students for internship through acquisition of clinical, professional and cross-cultural skills
- Students need to be well oriented and given strategies to maximise learning opportunities as they arise, and supported to be self motivated and pro-active during their placement.
- It is important to identify skilled supervisors who are willing to teach, and support them to develop their teaching and mentorship skills

Introduction

Preparedness for practice (P4P) is thought to be linked to increased feelings of self-efficacy and the acquisition of 'generic skills' including problem solving, critical thinking, and communication (Cantor et al., 1993, Murdoch-Eaton and Whittle, 2012). Medical student perceptions of P4P include being prepared for basic clinical tasks, and developing good communication skills to work effectively with patients and colleagues (Illing, 2008, Morrow et al., 2012). Clinical placements have been identified as enabling students to develop into effective and adaptable future doctors and are a vital aspect of the transition from medical student to practicing doctor (Brennan et al., 2010). A number of structural features of training programs and clinical workplace environments have been found to facilitate students' perceptions of feeling prepared for practice. These include close identification with role models, opportunities for shadowing seniors, and relevant workplace teaching and support (Cave et al., 2009, Brennan et al., 2010, Dean et al., 2003). Opportunities for active participation and 'acting up', where a student temporarily assumes an extended role (Johnsson and Boud, 2010, Hauer et al., 2012), have also been shown to impact positively on P4P. Despite this, newly qualified doctors commonly report that they do not feel adequately prepared for practice (Cave et al., 2007, Goldacre et al., 2003). In the UK, almost a third of graduates reported feeling unprepared for common clinical procedures most commonly due to insufficient prior 'hands-on' experience (Goldacre et al., 2010a). Directors of Clinical Training, who receive new medical graduates as interns into the hospital system, have highlighted several areas in which P4P appears to be lacking, such as in relation to self reflection, organisational skills, professionalism and knowledge (Lyss-Lerman et al., 2009).

As more medical students complete training programs, there is greater competition and fewer opportunities in hospitals for valuable clinical training time (Joyce et al., 2007). There is concern that this shortage of 'hands on' training may adversely impact on P4P (Burch et al., 2005). A particularly worrying aspect of poor P4P is that it is associated with high levels of individual stress (Paice et al., 2002) which can result in emotional exhaustion and psychological distress in the internship year (Willcock et al., 2004).

These observations highlight the need to explore alternative models of clinical training that can provide the essential components of P4P including these 'hands-on' opportunities to acquire the knowledge, skills, and professional behaviours required for practice as a doctor (Larsen and Perkins, 2006). One alternative model of clinical training involves student placements of varying duration and structure in primary and community care settings (Strasser and Hirsh, 2011, Lee et al., 2011, Roberts et al., 2012). These community-engaged placements immerse students in environments where learning and service provision are integrated (Worley et al., 2006). Such programs are now widely established in rural communities adding breadth and depth to student learning experiences and are associated with potential educational advantages and enhanced rural career intention (Walters et al., 2012, Birden and Wilson, 2012) (Roberts et al., 2012, Eley et al., 2009). Much of the P4P literature has been reported in the context of urban, tertiary setting perspectives (Morrow et al., 2012, Goldacre et al., 2010b), with little relating to rural, community-engaged educational settings.

Broken Hill Extended Clinical Placement Program

The Broken Hill Extended Clinical Placement Program (BHECPP), located in a rural and remote desert scrub setting, 1300km west of Sydney, is a multi university partnership hosted by the University Department of Rural Health (UDRH). It uses an integrated curriculum, with concurrent learning blocks over a 6-12 month placement period, rather than the "silo learning" characteristic of urban tertiary education where discrete learning blocks (typically 6-8 weeks duration) are undertaken sequentially. The BHECPP structure has previously been reported (Roberts et al., 2012). There are

three distinct clinical practice communities: general practice; hospital; and remote community care, each characterised by different learning opportunities and experiences such as parallel consulting (Walters et al., 2009) in general practice and team collaboration in the hospital setting. The students are hosted by a general practice and spend two to four half-day sessions there each week, with the rest of the time spent in the base hospital, as well as four weeks on remote placement. See Box 1.

Insert Box 1 here

In our previous paper (Roberts et al., 2012), we identified factors associated with rural career intention and student learning in a community-engaged rural education program. In this paper we explore the views of students and clinicians regarding the factors that may contribute to P4P.

Method

Data collection

Forty-two face to face interviews (30 - 45 minutes) were conducted by four of the authors, with a broad sample of participants. Student participants were 24 Medical students on rural placement at Broken Hill University Department of Rural Health in 2010 (n=10), 2011 (n=6) and 2012 (n=8), and included 8 University of Sydney students - graduate medical program, 6 University of Adelaide students - undergraduate medical program, and 10 University of Wollongong students - graduate medical program). Participants also included eight general practitioners, four of whom were GP supervisors, and ten hospital clinicians from emergency medicine, internal medicine, paediatrics, psychiatry, surgery including 3 community health nurses. The interviews were semi-structured and explored perceptions and experiences of activities and interactions within and outside the clinical learning environment.

Data Analysis

Interviews were transcribed verbatim and analysed using framework analysis (Ritchie and Spencer, 1994). Familiarisation took place by immersion in the interview data. Two student and two clinical supervisor transcripts were selected for initial analysis by all research team members. Initial codes were identified from line by line coding of the text and a data driven coding frame developed to facilitate thematic analysis (Thomas and Harden, 2008, Ritchie and Spencer, 1994). This process enabled the researchers to find keywords within the dataset which were grouped into emergent categories as relationships between codes were identified. Qualitative data analysis software, NVivo 9 (QSR International, Doncaster, VIC, Australia), was used to identify categories and themes. The researchers had regular meetings to compare and contrast coding, clarify and negotiate variations in coding and shared understandings. The coding frame was repeatedly modified as more transcripts were analysed and sub-themes identified by one team member. Quotations were selected that best represented the ideas put forward by the participants and labeled S for students, GP for general practitioners and HC for hospital clinicians.

Results

Students and clinicians identified three key factors contributing to P4P. These included enhanced opportunity for: clinical learning; personal and professional development; and developing cultural skills. . These were often associated with educational advantages although some disadvantages were reported. There was broad agreement on the main themes between the students and clinicians but there were some differences associated with role. Students were not surprisingly

concerned about barrier exams at their home universities and clinicians were concerned with rural workforce supply and careers.

Opportunities for clinical learning

Students perceived that the increased opportunity for clinical learning within the integrated placement was an important factor contributing to their own P4P and feeling well prepared for internship. Participants contrasted the extent of opportunities available in the rural setting with those in large urban tertiary hospitals in that there was *“a lot of (clinical) opportunities that you probably wouldn’t get elsewhere, or especially in the big cities”*S06.

These clinical learning opportunities spanned a number of domains and activities including developing clinical and procedural skills, health service provision, taking responsibility for clinical care, and interacting with patients. As a result of these experiences, students reported enhanced confidence in their clinical capacity and skills.

given the responsibility we’re given has just made me so much more confident and I feel that next year when I’m an intern, it’s not as scary a thought at all S05Ext

Supervisors also reported that students had greater opportunity in the integrated placement for developing clinical skills necessary for internship including *“all sorts of minor procedures such as venous cannulation, catheterisation, anything at all”*HC09.

we’ve been able to practice our clinical skills in areas that we will most likely have to demonstrate when we are interns. I guess like our procedural skills and histories and examinations, handing over patient information between doctors...Things like the putting plastering on, suturing, organising bloods, ordering bloods from the computer, following up results and things from like CTs or x-rays that get performed. S20

There were repeated opportunities for undertaking these procedures and acquiring clinical skills within a supervised and safe environment.

The second time I sutured, I did the anaesthetics, I did the sterile environment and just did it myself. See one, do one, teach one. S17

The opportunity to be an active member of the clinical team helped students in developing knowledge outside of the formal taught curriculum, that was not only theoretical . This type of learning assisted students in making connections between book-based knowledge and practice, and helped them to feel more confident and better prepared.

here you’re actually an active member of the team and your view and your ideas is encouraged and I think that helps with gaining confidence and developing a base of knowledge outside of textbooks S03

When the students provided parallel consultations (Walters et al., 2009) in the general practice setting and in particular during their placement in remote communities, they were placed in a service-provision rather than observational role. A key finding was that this activity facilitated progression towards independent consulting and autonomous decision making.

we're just seeing patients come through the doors and if need be, consulting the RFDS over the phone and that's, we've had some great experiences with that. Some complex patients that we've had to figure out ourselves and it really puts enough pressure on you so you feel very well supported but you, it's a good amount of pressure on you to get your history and examination right, be prepared to present the patient. S07

These service learning (Seifer, 1998) activities involving the provision of service in the rural community, also facilitated quality patient interactions and provided more opportunities to follow-up with the patient.

you do have the continuity of care ... it's probably a lot more possible to have the same things you'd come back to the following week. I would try to do that here to get the patient to come back and see them (medical student) as much as possible and maybe get them working with the same doctor when the follow-ups are likely to have happened. GP02

Maley et al (Maley et al., 2009) have previously reported that opportunities to see the same patients on multiple occasions and perhaps in multiple settings (patient continuity) is a unique feature of rural and remote settings. Supervisors in this study reported that patient receptivity to medical students providing health services in rural and remote settings may improve the quality of future doctor-patient communication and interactions. These communication skills are considered essential for emerging junior doctors (CPMEC, 2006).

the population in the areas like ours welcome people much more than what they would in the urban areas and really are willing to sit down and talk and go through their problems... they [medical students] get the feeling that they belong a little bit more and therefore they – that builds their confidence and I think that they find that they can relate much more to people more easily after being in a rural area. GP07

Authentic opportunities to take on more complex roles e.g. adopting an 'almost doctor' role in the emergency department provided students with the chance to engage in teamwork and collaboration, and feel like a valued member of the clinical team particularly in the hospital network.

staff being willing and ready to identify the learning opportunities and treating you as an 'almost doctor', and so putting you in a situation of perhaps higher responsibility, and so it's really meant that for me I feel I've had the opportunity to, yes I'm learning and that's my primary aim, but I've had the opportunity to contribute back to the team by filling if you like a junior medical officer role. S09

As such, the remote extended placement provided many opportunities for students to 'act-up' (Johnsson and Boud, 2010) into a 'doctor-like' role (Hauer et al., 2012) and rehearse for their internship roles and in particular to adopt authentic clinical care responsibilities (Brennan et al., 2010).

Geographical and professional isolation occasionally led students to be concerned about their educational program. Compared to a tertiary teaching context, where several supervisors may be available, students were likely to depend on a small pool of clinicians. Difficulties could arise in services provided largely by locums.

Out here if your tutor doesn't teach you nobody else is going to do it because there's nobody else around... the value of the placement is very dependent on how enthusiastic your tutors are and your teachers and your supervisors. S04

I'm on surgical at the moment, I was on medicine before, and in that whole time, I haven't had a boss or a consultant that has been there for more than a week straight.S22

In addition, given the recognised constraints of assessment-led learning, some students facing upcoming barrier exams were concerned about their capacity to meet the assessment requirements of their home university. .

(the placement)it's probably going to make me a better junior doctor, but it's probably making it more difficult for exams in uni. Ultimately, being a better doctor is good, but in the short term?S22

In contrast, students from the graduate programs felt teaching was sufficient and self directed learning worked well. *students always want more teaching but I think there was actually enough S15*

Opportunities for Personal and Professional Development

Students reported enhanced opportunities for personal and professional development in both clinical and community settings. Personal and professional development included growth in professional identity and belonging, development of confidence and self efficacy, having access to positive role models, and developing work-life balance and wellbeing.

The number and diversity of encounters between students, their supervisors, patients and local communities provided many opportunities for developing awareness about their future role and the importance of engaging with the local community.

coming out here on this extended placement has been a chance, I guess, having the broader experience of having time to engage with the community inside and outside of medicine, it does give you a feel for your future role as a professional in a community. S20

Students reported “starting to become part of the medical scape” S11, thus alluding to a sense of social inclusion and belonging in the clinical and local communities (Warhurst, 2006, Sweitzer and King, 2009). This sense of belonging and enhanced professional identity appeared to boost student confidence to “act-up” as a future intern(Dalton, 2008).

being able to see patients on my own and just developing confidence in my own assessment and developing treatment plans and that thing, just getting more confident with that and then that spreads out into other things.S10

Students also reported that whilst on their remote placement (in outlying community settings) there were opportunities for exercising initiative and building resilience, whilst recognising boundaries and limitation in their own capacity, knowledge and skills.

you were the only doctor there and you're just expected to do all this stuff and practice everything that you've learnt and then stuff that you haven't learnt and have to do it. S05

The extended placement setting thus enabled students to achieve feelings of enhanced self-efficacy beliefs (Zimmerman 2000) which is associated with P4P(Cave et al., 2009).

Informal learning experiences outside of the formal learning environment and clinical settings also contributed to students developing an increased understanding of medical professionalism and this was accentuated by good access to role models. Participants noted that interactions with role models were important in informing P4P and understanding better how medical practice can be a well rounded experience.

we've got all these amazing role models who love their medicine and are passionate about their medicine but also have a great cultural and social life. HC02

once a week we would have a session where we read for 10 minutes or half an hour or we talked about something, not medical. So he'd give me a little lecture on aspects of his personal life, how to say, keep your mind active and healthy and enjoy life outside of medicine. S07

This resonates with literature showing strong links between professionalism and wellbeing (West and Shanafelt, 2007).

However it was also clear that there were differences in student receptiveness to informal learning and that this impacted the extent of their personal and professional development during the placement. Some engaged in all of the varied non-curricular opportunities that were available during the BHECPP placement.... *I just made the most of situations as they arose, there was just so much going on S24.* Others were less proactive in pursuing these opportunities and these poorly engaged students reported less fulfilling experiences compared to their better engaged peers.

there was definitely more opportunity if I wanted to take it up, and I took out a certain amount but looking back I probably still could have done more.S14

Being self motivated and receptive to learning opportunities has been reported as key to the success of clinical placements (Gallagher et al., 2012).

Opportunities for Developing Cultural Skills

Cultural awareness has been described as an “understanding of how a person's culture may inform their values, behaviour, beliefs and basic assumptions”(PICAC)2013. In the Australian rural and remote setting cultural awareness encompassed developing broad insight into social and cultural determinants of health particularly in the Indigenous context, having authentic and meaningful interactions with Indigenous communities, developing cross cultural communication and interaction skills, and building awareness of health system and resource issues in rural and remote Australia.

Students reported that broadening their social and cultural understandings, whether from an indigenous or rural perspective, was an important contributor to their P4P.

They have a much more wider and a broader range of things 'cause some of the people have come from a fairly sheltered background. They may not have even lived in or met indigenous community people and that previously so this way it gives them a much broader view of the world. HC06

In particular it provided opportunities for cross-cultural care from an indigenous perspective, an awareness of rural health challenges in general as well as overarching socio-demographic

perspectives. Exposure to these challenges over an extended period helped students understand how people 'live'

...[here] you just get to see a lot more of what goes on in people's lives outside of their contact with the health system. S12

This confirms the importance of 'witnessing' the social determinants that affect peoples' lives "by observing and acquiring firsthand knowledge" (Dharamsi et al., 2010).

These authentic and direct experiences of indigenous health and culture may have helped some students with learning styles that prioritise experience over lectures and theory, although for others the experience might work to confirm or extend their theoretical learning.

the lectures that we had at Uni was – were pretty disengaging. You just didn't really want to know. Everyone knows that Aboriginals have worse health and die 15 years younger or whatever so whereas I found coming out here, and experiencing a lot more, you get a better feel for it. S06

Students had opportunities to experience why indigenous patient health outcomes were poorer compared to the non indigenous population.

The medicine out there as well, it's very different from what you would see in a typical regional hospital. So just in terms of the cases you'd get out there would be a lot more challenging to deal with because of the nature of the case itself, the nature of the (Aboriginal) patient, the nature of the setting and the whole cultural thing that comes with it S16

They discovered that indigenous health was closely associated with living conditions, late diagnosis as result of poor access to health services, cultural issues and beliefs.

I think because the living conditions and all that sort of stuff if you get conjunctivitis, probably six people a day come presenting with that, and skin infections, horrible skin infections. And just people a lot more along the path of sickness than you would in a normal – in the hospital they're a lot sicker when they come in, so and yeah that sort of thing but – and then also traumas and people who just aren't looking after themselves. S05

The students became aware of a range of health care practices and beliefs, discovering firsthand the existence of different health seeking thresholds (Betancourt et al., 2005, Berger, 1998). Acquiring cross-cultural care skills has been associated with "preparedness to care for diverse populations" (Lopez et al., 2008). However, students reported that cross-cultural interactions could be challenging and one reported continuing difficulty with patient consultations, due to unfamiliar communication styles. As a result of these interactions the student could reflect on a particular skill deficit.

I still have a bit of a problem to be able to communicate in a way that is more familiar to them, which is also getting their rapport. S24

An appreciation of rural health challenges was also evident. These were linked to a 'poor' resource environment both in physical (e.g. infrastructure, technology) and human resource terms (e.g. limited access to specialists and health workforce shortages) with ultimately poorer outcomes for the rural population.

They don't have any kind of service, it's an hour to the next health service and by the time – if you have a heart attack you're going to be screwed.S04

Being aware of another culture, whether Indigenous or rural, might better prepare students for internship in both rural and metropolitan settings

Discussion

According to students and clinicians, three key factors impacted on P4P; opportunities for clinical learning, personal and professional development and developing cultural skills. These are summarised in Figure 1.

Insert Figure 1 here

Much of the literature has examined P4P in an urban setting. We have endeavoured to illustrate opportunities and learning activities that may contribute to P4P, from the perspective of students and clinicians, including supervisors, in the context of a longitudinal rural and remote program. The results indicate that this program (Box1) may contain features that facilitate students' perception of preparation for clinical practice - close interaction with role models, shadowing seniors, relevant teaching and hands-on learning. This study confirms the benefits of longitudinal integrated placements previously reported in the literature, in particular the better opportunities to gain procedural skills (Kamien, 1996, Eley, 2010). It also confirms reported enhanced competence in patient care (O'Brien et al., 2012) and 'acting up' opportunities (Hauer et al., 2012).

Our findings are supported by published studies suggesting that well designed, longitudinal integrated rural placements can provide authentic opportunities for personal and professional development (Couper et al., 2011) and P4P. An increasing sense of professional identity has been found "central to the medical students' education" (Helmich and Dornan, 2012). Illing et al (Illing, 2008) found that preparedness to work as an intern was greatly improved by "prior experiential, work-based learning" in undergraduate training. The breadth of this type of placement provides an excellent opportunity to enhance the holistic skills required for internship and gradually increase responsibility levels, with students feeling that they are 'more than students' providing service to the community as well as just being taught.

As patient populations become more diverse it is particularly important new graduates have acquired knowledge about communities with different cultural and socioeconomic backgrounds so that they can consider their attitudes and behaviours (Dudas, 2012) and be "open to diversity" (Sweitzer and King, 2009). Development of cross-cultural skills is important and will help medical students address diversity and equity, and better appreciate, for example, the difference in indigenous life expectancy and morbidity compared with the Australian population (AIHW, 2012). This may have the added benefit of improving patient treatment adherence and increasing "access to quality care for all patient populations" (Betancourt et al., 2005). Cross cultural interactions may provide unique opportunities to help medical students become better prepared for, and sensitive to, the needs of a wide range of patients (Niu et al., 2012). Such opportunities, both formal and informal, should be actively encouraged within clinical placement programs.

Not all students are equally suited to this kind of program. Personality, attitudes and learning styles may all affect how students engage with learning opportunities. It is important to select students for the program who are more proactive, flexible and seek out experiences (Zink et al., 2008). Some students prefer a more structured learning environment. An increased openness to learning

opportunities might be achieved through a better orientation process, which highlights initiative and a broad range of strategies to recognise and maximise learning opportunities (Gallagher et al., 2012).

The opportunity of learning in rural and remote environments may help them feel better prepared for practice than their metropolitan peers but they must still pass barrier exams and meet their learning needs. Students reported concerns about being dependent on a small pool of resident teachers and encountering a large number of locum clinicians. This is a feature of rural services which are vulnerable to small workforce changes. Despite this concern there is a body of evidence showing that the academic results of rural students is comparable to or better than their metropolitan counterparts (Birden and Wilson, 2012, Worley et al., 2004). As information and communications technologies improve local supervision might be supplemented by telehealth links to specialist supervisors in larger centres.

Higher supervisor to student ratios in the rural setting creates an opportunity for enhanced supervision and support from enthusiastic mentors alongside the experience of professional camaraderie in a challenging environment. This requires competent engaged supervision from committed supervisors. There is the potential for educational risk if teaching quality is impaired through poor educational methods, time management and heavy workloads. These concerns can be ameliorated by better supporting rural clinical supervisors to reduce any sense of isolation, providing a high quality learning environment, good mentoring opportunities, and quality role models, all of which may turn perceived educational risk into rural educational advantage.

Medical students on rural and remote clinical placements have unique learning opportunities that are not necessarily available to their urban counterparts. The framework summarised in Figure 1 might be useful in examining potential rural integrated placements to optimise their contribution to P4P.

Strengths and Limitations

This study includes data from students and clinicians and the method allows a depth of insight which cannot be achieved in surveys. The findings are limited by the fact that participants were drawn from a single program in a rural community.

Further exploration of the longitudinal experiences of the rural and remote clinical supervisor looking at continuity and quality of remote supervision would be useful. In addition follow up research with the students as interns would show whether their placement experience better prepared them for their internship. The views of their Clinical Directors would provide a complementary view of their preparedness.

Conclusion

This study suggests that an integrated placement in a diverse rural health community may provide a good foundation for P4P by enhancing clinical skills, personal and professional development and increasing cultural competences. A longitudinal clinical placement in a rural setting provides opportunities to enhance self efficacy and competencies that facilitate P4P but students need the skills to make the most of available opportunities.

Box 1: Broken Hill Extended Clinical Placement Program (BHECPP): Key Features			
General Practice	Hospital	Remote	Academic
Students hosted in one general practice with a GP supervisor spend 2-4 sessions each week in general practice using a model of parallel consulting.	Students undertake concurrent placements at Broken Hill Base Hospital in emergency medicine and other specialities	Students spend 4 weeks in remote healthcare teams in communities with no resident doctor. The Royal Flying Doctor service provides supervision.	Students participate in structured inter-professional education program. Local facilitation of universities' tutorial programs.

Clinical learning	Personal and professional development	Cultural skill development
<ul style="list-style-type: none"> • Clinical skill acquisition • Procedural skill development • Service learning • Clinical care responsibility • Patient Interaction (quality and continuity) • Acting up 	<ul style="list-style-type: none"> • Sense of professional belonging • Development of confidence and self efficacy • Role Model access • Balance and wellbeing 	<ul style="list-style-type: none"> • Cross-cultural care • Indigenous health • Cross cultural communication and interaction • Rural Health Challenges

Figure 1 : Opportunities within a longitudinal rural placement that may contribute to preparedness for practice

GLOSSARY TERM : Preparedness for Practice (P4P) : “Preparedness for Practice (P4P)” concerns the acquisition of clinical, professional and cultural skills required for successful practice as an intern.

Authors Contributions

MD drafted the paper. MD, DP, KK and CR participated in data collection and analysis, development and revision of the paper. MM is director of the program and although not directly involved in data collection and analysis contributed to revision of the paper.

Declaration of interest:

The authors report no conflicts of interest. The authors alone are responsible for the content and writing of this article.

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