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ORIGINAL RESEARCH

Education and Mentoring of Specialist Pediatric Palliative Care Medical and Nursing Trainees: The Quality of Care Collaborative Australia

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Background: The Quality of Care Collaborative Australia (QuoCCA) builds capability in the generalist and specialist paediatric palliative care (PPC) workforce throughout Australia. It supports regional and community services to provide care close to families' homes, as well as building expertise in tertiary centers.

Objective: Medical Fellows and Nurse Practitioner candidates (specialist trainees) were funded by QuoCCA at four tertiary hospitals throughout Australia supported by an education and mentoring framework. This study explored the activity and experiences of clinicians who had occupied these roles to evaluate their effectiveness to build PPC capability.

Methods: Online surveys recorded the monthly activity of Medical Fellows, with a point in time check of knowledge, skills and confidence in 2019. Discovery Interview methodology was used to collect detailed experiences of 11 trainees employed between 2018 to 2022 in Queensland.

Results: A combination of mentoring and formal and informal education, peer support and practical experience was valuable for trainees. They found the support of the whole interdisciplinary team advantageous to learning. Shadowing experienced team members gave them the opportunity to learn practical skills, especially regarding communication with families. Practicing clinical skills was beneficial, through being on call, attending home visits, supporting families, prescribing medications and developing treatment plans in collaboration with the team. The trainee experience was optimised through learning from families, personal reflection, involvement in research projects and delivering QuoCCA education.

Conclusion: The QuoCCA trainee roles for Medical Fellows and Nurse Practitioner candidates exhibit a valuable and effective education and mentorship framework that could be applied to other specialties. The service leadership and collaborative interdisciplinary team support various modes of education and mentoring. The roles not only develop the trainees' specialised PPC clinical skills, they also improve their general clinical practice, including communication, empathy and holistic care. A structured curriculum of education is recommended to protect these positive outcomes.

Keywords: palliative care, mentoring, education, pediatrics, specialist workforce

Introduction

The crisis in health workforce around the world, exacerbated by the COVID-19 pandemic, necessitates effective models of training to be explored to maintain high quality care, especially in specialised areas. Traditional supervision, which is skills based and often disempowering for the learner, has evolved through to supportive supervision, which is focussed on skills, professionalism and power sharing, and then to mentorship, which is mutually beneficial, career focused and empowering for the learner.[1]

Mentoring has been shown to have a positive impact on health outcomes in high, medium and low-income countries.[1,2] Mentoring improves professional development, clinical expertise, quality of care, workplace culture and staff engagement and retention. It benefits both the mentee and the mentor.[3]

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Although considered an excellent training approach, the model of mentoring can vary greatly in recruitment, ratio, style and intensity. An appropriate amount of training, and an optimal intensity of mentoring is required to be effective.[1]

In palliative care, the translation, adaptation and application of knowledge in different contexts is an important part of education, and mentoring can support health care professionals to achieve this high quality care.[4] The development of capacity and capability in the specialist palliative care workforce is particularly important in Australia, with large distances between tertiary centers and the need to support families in regional areas. As a specialised subset of palliative care, the development of the workforce to deliver paediatric palliative care (PPC) is vital to improve outcomes along many dimensions.[5]

The Quality of Care Collaborative Australia (QuoCCA) project has been funded by the Commonwealth government since 2014 to achieve service quality improvement in national PPC in acute and community settings through education, research and evaluation within a quality framework.[5] The collaborative includes representatives from specialist PPC teams in six tertiary children's hospitals in Australia and medical, nursing and allied health educators have developed and delivered education throughout Australia. Participants engage in either a scheduled general education session in a metropolitan, regional or rural health site or "pop up" education and mentoring focused on a specific patient and family's needs in regional areas.[5–7] Nearly 20,000 health and human service participants throughout Australia have received education through the three successively funded QuoCCA projects to October 2022.

QuoCCA evaluation has shown a significant increase in knowledge and confidence for all measures following education, increasing with greater dosages of education (both in length and repetition of exposure to education sessions), a result that has been sustained in the long term, with improvements to clinical practice and care of patients.[8,9] Statewide general health practitioners praise the value of QuoCCA in building capability through effective and accessible education, inter-professional partnerships in the network of care, as well as mentoring with ongoing collegial support and guidance.[10] Families have expressed their appreciation for this burgeoning network of care for their ongoing support, regardless of their residential location.[11]

Having supported the regional and community services to provide specialised care close to families' homes, QuoCCA also sought to maintain the sustainability of tertiary services where the specialist PPC services were located. This included the recruitment, education and mentoring of Medical Fellows (MF) (mostly full time) and Nurse Practitioner (NP) candidates (mostly part time 0.4 to 0.6 full time equivalent) as specialist trainees to develop expertise in the provision of PPC. Medical Fellow positions were funded at four hospitals that were part of the QuoCCA collaboration (Queensland Children's Hospital, Brisbane; Sydney Children's Hospital, Randwick; John Hunter Children's Hospital, Newcastle and Women's and Children's Health Network, Adelaide) and Nurse Practitioner candidates at Queensland Children's Hospital. This study explored the perspectives and experiences of health professionals who had occupied those positions to evaluate the effectiveness in building capability in PPC and thus improving outcomes for clinicians, patients and families.

Methods

Medical Fellows Monthly Activity Survey

Medical Fellows were requested to complete an activity summary each month of their fellowship, which provided information as shown in Tables 1 and 2. Data was collected from Medical Fellows in this way from 2015 to 2022. This survey was delivered via Survey Monkey. Descriptive statistics were calculated on the survey results via Microsoft Excel, including totals and average responses.

Medical Fellows Survey Re Knowledge, Skills and Confidence 2019

Medical Fellows who were current in August 2019 were requested to complete a survey focused on their knowledge, skills and confidence to ensure that the program was meeting their needs. This survey was delivered via Survey Monkey. Descriptive statistics were calculated on the survey results via Microsoft Excel, including frequencies of the different responses.

Discovery Interviews

The study utilized Discovery Interview (DI) methodology to explore the perspectives of Medical Fellows and Nurse Practitioner candidates/trainees employed by QuoCCA working in the Queensland Children's Hospital specialist tertiary service. This descriptive study was guided by the consolidated criteria for reporting qualitative studies (COREQ).[12]

Table 1 Count of Monthly Data Entries by Medical Fellows (MF) by Hospital and Year and Number of Individual Medical Fellows Involved

Year	John Hunter Children's Hospital, Newcastle	Queensland Children's Hospital, Brisbane	Sydney Children's Hospital, Randwick	Women's and Children's Health Network, Adelaide	Total Entries
2015			5		5
2016	5	2	10		17
2017	9	1	17		27
2018	8	3	23		34
2019	9	8	12		29
2020		1	10		11
2021		2	11	5	18
2022	3		3		6
Total	34	17	91	5	147
Number of MF	7	9	14	1	31

Table 2 Education Activity for 31 Medical Fellows (MF) from 148 Monthly Data Entries to June 2022, Including Total Sessions or Hours and Averages (Avg)

Activity	Type of Education	Total Sessions / Meetings	Total Hours	Avg Hours Per Session /Meeting	Avg Sessions Per MF	Avg Hours Per MF
Education activities participated in	Participate in PPC[a] clinic	470	1092.8	2.3	15.0	35.3
	Participate in a home visit	299	513.0	1.7	9.7	16.6
	Attend a neonate consultation	132	174.8	1.3	4.3	5.6
	Participate in MDT[b]	644	820.2	1.3	20.8	26.5
	Backfill senior medical officer for PPC sessions	105	744.0	7.1	3.4	24.0
	Attend morbidity and mortality meetings	197	946.5	1.1	6.4	30.5
	Undertake a course, seminar, or conference	132	214.25	7.2	4.3	6.9
	Undertake a formal qualification	112	460.0	4.1	3.6	14.8
	Other education (describe)	383	528.5	1.4	12.4	17.1
Education provided at their base hospital	Planned education	174	300.5	1.7	5.6	9.7
	Unplanned education	171	308.5	1.8	5.5	10.0
	Orientation	15	13.0	0.9	0.5	0.4
Education provided outside their base hospital	Planned education	56	153.0	2.7	1.8	4.9
	Unplanned education	16	14.0	0.9	0.5	0.5
	Orientation	3	3.0	1.0	0.1	0.1
Meetings in which they promoted the awareness of PPC	Total meetings	407			13.1	
	Adult Palliative Care meetings	12			0.4	
Education supervised and approved by the RACP[c]	Number of Fellows participating	20				

Notes: [a]Paediatric palliative care, [b]Multi-disciplinary team, [c]Royal Australasian College of Physicians.

DI methodology was developed by the National Health Service, United Kingdom as a service improvement tool for progressing patient-centered services.[13–15] Previous evaluation at CHQ demonstrated benefits in this methodology for exploring families' needs and improving their experience.[16] DIs consisted of a one to one, open interview technique that enabled the collection of detailed experiences of participants with the content driven by the interviewees.[13,15]

DIs were undertaken between September 2018 and April 2022 with 7 Medical Fellows and 4 Nurse Practitioner candidates/trainees who had completed their term of employment with QuoCCA in the Queensland Children's Hospital. The subjects were chosen via a convenience sampling technique, where the trainee was consenting and accessible.

Box 1 QuoCCA Discovery Interview Spine for Health Professionals

Meeting the family
Caring for the child and family
End of life care of the child
Ongoing support for the family
Providing future pediatric palliative care
QuoCCA education

Notes: Adapted with permission from Dove Medical Press. Donovan LA, Slater PJ, Baggio SJ, McLarty AM, Herbert AR. Perspectives of health professionals and educators on the outcomes of a national education project in pediatric palliative care: the Quality of Care Collaborative Australia. Adv Med Educ Pract. 2019;10:949–958.[10]

All interviews were conducted by the QuoCCA National Project Advisor (PJS), who was trained in undertaking DIs, in a meeting room at the participant's workplace or via phone. The interviewee was taken through an information sheet and consent form, which was signed and witnessed, and instructions given about how to revoke an interview from the pool. The participants were informed both in writing and verbally about how the data would be used in the study, including publication of de-identified responses.

A "spine" guided the interviewer through their story based on key stages of experience of the service (see Box 1).[10,15] The interviewee could use this spine as a prompt to facilitate the interviewee to tell their story and talk about whatever they felt was important in those areas in the journey of being a health professional in PPC, without being limited to topics that may be presented in a series of set questions. Clarifying questions were kept open and did not guide the interviewee down any particular path.

The interview duration was guided by the interviewee. They were audio-recorded, transcribed by a professional transcription service and de-identified (for patient, family, clinicians and location).

To align with the intention of the DI methodology an inductive thematic analysis was conducted.[17] This methodology ensured the voice and experience of individual participants was retained while simultaneously allowing for collective themes. Transcriptions were analysed drawing on the phases described by Braun and Clarke: generating initial codes through immersion in the data; sorting codes into sub themes; refinement of themes; and finalizing a thematic map of the data.[18]

The Discovery Interview methodology is not designed to provide a representative sample, but to discover insights into the family's experience that cannot be gained in other approaches. Even one interview was a rich resource for the service team to develop service improvements.

The protocol for this project was approved by the Children' Health Queensland Human Research and Ethics Committee (HREC/16/QRCH/55).

Results

Since commencement, QuoCCA has employed 31 Medical Fellows to June 2022. Most of these have been full time with 6 month terms (although some part time fellows had 12 month terms). Five Nurse Practitioner candidates / trainees have been employed in Queensland to date for terms varying from 6 to 12 months (although one was 3 months). Most NPs have been employed part time at 0.4 to 0.6 full time equivalent.

Medical Fellow Monthly Activities Survey

Tables 1 and 2 summarise the activities of the 31 Medical Fellows as provided in monthly reports from 2015 to June 2022 (n=148). Although this was not a complete record of all the months of Medical Fellows activity, it gave a good picture of the range of activities undertaken, including targeted experience, self development, providing education inside and outside the hospital, attending meetings to promote awareness and formal education (Table 2).

There was a range of education modes experienced by the respondents. Some examples were service orientation, handover meetings, bedside teaching, writing care plans, providing end of life care, pop up services, inpatient and outpatient care (including clinics with other specialties), formal education workshops, informal teaching from the Consultant, supervising medical students, informal education of registrars, and doing a clinical diploma.

Twenty of the Medical Fellows reported participation in education supervised and approved by the Royal Australasian College of Physicians (RACP)[19] (eg RACP Clinical Diploma of Palliative Medicine, RACP Advanced Training in General Paediatrics, RACP Psychosocial training for general pediatrics/medical oncology, Mini-Clinical Evaluation Exercise) or other formal courses (eg Masters of Palliative Care, Faculty of Pain Medicine (ANZCA) course, Child Protection course).

One comment provided in the survey about the experience was:

> This has been a thoroughly enjoyable six month rotation where I have seen my confidence around palliative care increase and have developed a unique set of skills which is essential to my career as a Medical Oncologist/General Pediatrician.

Medical Fellows Survey Re Knowledge, Skills and Confidence 2019

Eleven Medical Fellows completed this survey; 5 based at Queensland Children's Hospital (QCH), 2 at Sydney Children's Hospital (SCH), 3 at John Hunter Children's Hospital (JHCH), and 1 unknown; 7 worked full time and 4 part time; 4 had completed a Diploma, 1 completed a Fellowship and 1 completed a Masters of Public Health.

Eight found the medical fellowship extremely valuable and 3 found it valuable, in helping them care for children/young people and families with PPC needs. The aspects they found valuable were the cohesive functional team work, as well as reframing how they thought about the care of children with chronic and life limiting conditions, focusing on goals of treatment and supporting the family, improving communication skills, management of symptoms, and increased confidence in terminal phase and discussions.

Table 3 shows the improvement in knowledge skills and confidence in different areas of PPC. Trainees particularly felt that they developed capability in the palliative approach, management of early referral, advance care planning and assessment. Areas where training could be further enhanced included bereavement care, self care and service improvement activities.

Table 3 How Helpful the QuoCCA Training Was in Improving Knowledge, Skills or Confidence in Relation to Areas of PPC as Reported in a Survey of 11 Medical Fellows in 2019 (Number of Responses)

Area of PPC	Not at All Helpful	A Little Helpful	Moderately Helpful	Very Helpful	Extremely Helpful	% Extremely or Very Helpful
Palliative approach				4	7	100
Early referral				4	7	100
Advance care planning				5	6	100
Assessment			1	4	6	91
Accessing resources			1	5	5	91
Physical symptoms			1	7	3	91
Psychosocial needs			1	5	5	91
Spiritual care			3	5	3	73
Communication skills			4	2	5	64
End of life care			2	5	4	82
Bereavement care		1	4	4	1	50
Self care, support for health care professionals		1	3	6	1	64
Service improvement		1	3	6		60
Working in a team				6	4	100

All of the fellows agreed or strongly agreed that they felt confident in managing pediatric patients with life limiting conditions. Ten of the 11 Medical Fellows found the medical fellowship extremely or very helpful in making a difference to their practice in caring for PPC patients. This included practical skills in dealing with medically and socially complex and challenging scenarios, transferable skills of holistic inter-disciplinary care for any pediatric specialty, raising awareness of self care, having difficult family discussions, early introduction of symptom management, and parallel planning and spiritual/psychosocial care. One fellow mentioned that it had:

> Changed my approach to consider the total suffering of the family and my communication has been adjusted to provide more space to the families to express themselves and then address their concerns while providing the over-arching message that they are not alone and supported in their time of need.

Trainees were also able to participate in the delivery of quality and educational activities of benefit to other health professionals within the hospital (eg junior medical staff teaching, mortality and morbidity meetings and conference presentations). In the survey, 82% of the fellows agreed or strongly agreed that they felt confident in teaching medical colleagues and other health care professionals in matters relating to PPC.

At the time of interview, five of the fellows were working in general pediatrics, three were still in PPC, one had gone to an adult cardiac service, and one to pediatric Intensive Care Unit.

Discovery Interviews

Seven Medical Fellows and four Nurse Practitioner candidates/trainees were interviewed over the period 2018 to 2022. The average interview time was 32 minutes, ranging from 16 to 59 minutes.

The QuoCCA trainees receive education and mentoring to improve their knowledge and confidence in delivering pediatric palliative care. The interviews revealed that the trainees' experiences went well beyond pure PPC education as they became immersed in the nature of care provided by the service. As well as education and mentoring, they talked about the importance of learning from the interdisciplinary team, the development of their clinical practice, and experience in caring for families. The additional role of these positions in supporting the trainee personally, improving their wellbeing, job satisfaction and career planning, will be discussed in another paper.

PPC is a specialty that requires specific education around complex rare conditions and targeted medications to manage symptoms. Interviewees described the opportunities of learning by observing, doing, reflecting and trouble-shooting, and the value of lived experience of situations that could not be learnt from a text book.

> I don't think you learn palliative care from reading materials... it had to be a lived experience; you have to be in it, I think, to really get it. MF5

The QuoCCA Education and Mentoring Framework

There were several formal and informal ways in which the education and mentoring of the Medical Fellows and Nurse Practitioners were enriched during their experience, and these are described below and summarised in Figure 1.

Formal Education

QuoCCA sponsored attendance at conferences and courses to support the education of their staff.

Mentoring by Experienced Staff

Trainees were mentored by senior and experience staff, including the service Consultant / Director and the Nurse Practitioner. Teaching in this context was "on the run" and ranged from discussing patients at morning handover meetings to reviewing patients in various settings (inpatients, outpatients, home visits and telehealth during the day).

> I think because it's so well established and you've had a nurse practitioner within the palliative care team for a long time, I saw it as an opportunity to get mentorship from someone who's well embedded as a nurse practitioner … they do a lot of writing scripts and assessments and things which is really the key of the difference between nurse practitioner role and the CNC role. NP1

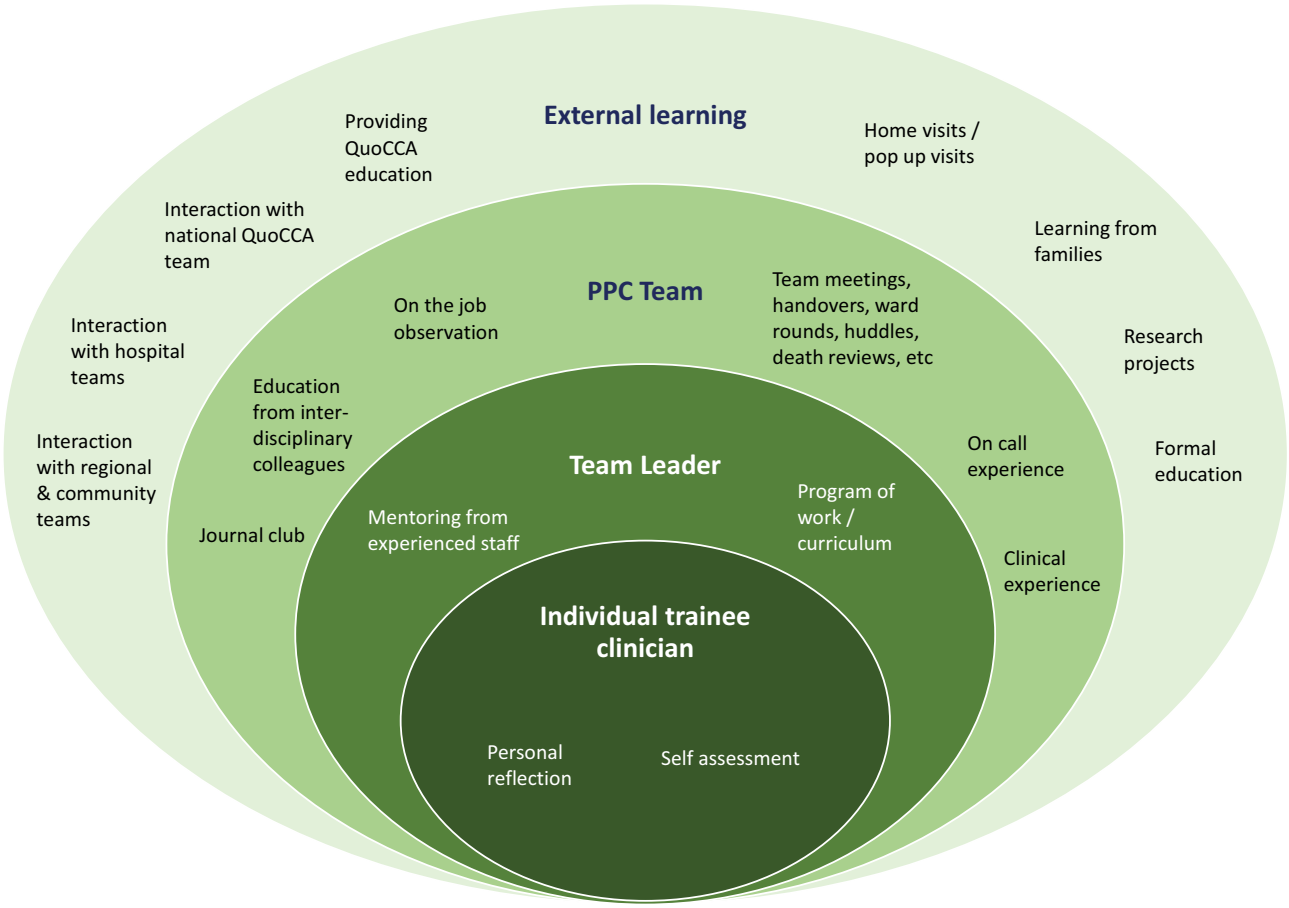

Figure 1 A summary of the different levels of the QuoCCA education and mentoring framework, from individual clinician to external learning, with the various strategies employed.

The QuoCCA roles gave trainees the opportunity to shadow experienced staff and observe how they interacted with families and managed different situations.

> And really it was following them around and seeing how they interacted with people, seeing how they managed situations. NP4

There was opportunity for learning after patient consultations and at the end of the day. Topics included the management of the patient's medical condition with insights from the patient's primary team and specialist, symptom management, communication, cultural care and spiritual care. Pre- and after-meeting "huddles" around family meetings could also be fruitful opportunities for learning for both the trainee as well as the specialists.

Interdisciplinary Education and Mentoring from Team Colleagues

The whole PPCS and QuoCCA team had a valuable role in teaching and mentoring trainees and providing a good environment for learning. The mode of operation was interdisciplinary, with collaboration and mutual respect, using transferable skills and calling on colleagues to help out in real time. The family was met and supported as a team, with the common goal of improving the quality of life and meeting the family's needs using different strengths and skill sets. The trainees benefited from this team approach.

> The team's been very aware that I'm here for a short amount of time and to make sure that I get as much as I can out of the situation … 'Come to clinic, we're going to have some discussions there' or 'Come along and have a listen to this, we need to get this family home to their rural center' … And it's often more just sitting and listening and hearing how that all plays out. NP1

As the palliative care inter-disciplinary team used the strengths of every member, they were able to provide holistic support for the families.

> You learn a lot more skills about how to manage the end of life … by using the strength in each part of the team … every family and every patient are going to have a different journey …. and by having a team approach that allows the strength of the team to really come through … they might want a certain pathway and the nurses are the best ones at spotting that and really guiding them through. MF5

Working in the team provided the opportunity to work together to solve problems using the different skills of the members and learning from each other. Examples were learning about medication from pharmacists and Medical Fellows and being able to phone someone to talk through a situation when on call. The team gave each other constructive feedback and positive reinforcement.

> And just being able to work alongside another very experienced health professional... and also learning from the different disciplines, the fact that it's not just nursing staff, that you've got social workers in there, and you've got allied health professionals and getting the different educational perspectives of them too, has been really good. NP2

> Doing what is high dose morphine and all the neurology medication, that's been a massive learning curve. But I've always felt really well supported, particularly from the pall care pharmacist, I know I can ring her at any time … and what was one of the things I was very nervous about has actually been great learning. NP2

> The Fellows …would support me through if they were prescribing something, this is how we would do it. And if we're doing the symptom management plan … why don't you do that and then we'll just have a look at it after you've done it. So I did get good learning from the Fellows. NP3

Informal Education Through Daily Service Meetings

Meetings of the team for handover and multidisciplinary team meetings, rounding meetings, death reviews, journal club, workshops and ward rounds were an important source of ongoing education for the trainees, including referral to relevant education resources and articles.

> Going on those ward rounds and leaning more about the patients and then what the treatments were and what we did when pain was a problem or seizures were a problem, or family stresses were a problem, and strategies for that. And that escalation of where you start and where you end up. NP4

> We have rounding meetings two or three times a day. So they're going through the list of current inpatients and problem patients and who's out in the community. So everyone can have their input if they want … hear how people look at situations differently and what they do. You can't get that out of the book and that's a really strong part of this team. And just hearing people say out loud what they think. NP1

Interaction with Other Teams

Hospital Teams

The trainees learnt about the processes of referral and interaction with other teams in the hospital.

> I hadn't really been involved in any antenatal palliative care consults before. So I think I did about half a dozen with the team … so that was really good learning for me from how it works with the referral process with the antenatal referrals and then when pall care becomes involved. NP3

They were involved in respectful, meaningful and collaborative conversations with other teams when PPCS saw the family in between or in addition to consultations with their specific clinical team.

> Palliative care is very good at not being negative about other units …. Just because say, intensive care might have managed the pain in a different way to how we would have, we're very respectful and collaborative. So there's no blaming, there's no you should have done this … just cut all that ego out of it and just say, Where are we now? How can we best help this patient? MF5

Community Services

Trainees developed a good knowledge of community services as they supported the families at home, often in regional areas.

> Training in the hospital, I was …. detached from knowing what sort of community services were available … until I met with the pall care team, because they're linking in with the local professionals and knowing the local resources, was quite a wealth of knowledge, which is never part of your training. MF4

Statewide Team

QuoCCA enabled the provision of the best care for all families, regardless of geographic constraints and the challenges of delivering care at the more remote sites. Delivering PPC in regional areas was different to Brisbane and needed input of the local teams to provide flexible support for the family. Providing QuoCCA education for the regional team through pop up and scheduled education visits had a positive impact on quality of care and outcomes for the family, including sustainability, increased confidence, transferable knowledge, setting up a network of care for extra support, and community education.

Trainees were part of the processes to empower and support regional teams, through telehealth and pop up visits. They provided support to Queensland Ambulance Service (QAS), Royal Flying Doctor Service, General Practitioners, hospitals, community services, and schools. QuoCCA trainees assisted in developing plans for different scenarios, providing consumables and equipment, and discussing expectations. This built trust and rapport between regional and tertiary teams, cemented relationships, and improved the timeliness of referrals.

> It empowers the local team to feel that they are doing something they are capable of … that's a takeaway point for me. And working … in small communities, knowing that they can make a change and how you can facilitate that. MF4

> That was a huge eye opener for me as to how families live in the more rural areas. So one of the families live two hours away from any medical facility … when we were taking that phone call from that family … and I said, Oh, just call QAS. Well QAS is two hours away and is run by nurses in the hospital…. we're taking those calls 24/7 and we need to know actually what is involved on the ground. NP2

National Team

Collaboration between states of Australia exposed the trainees to a broader range of models of PPC and enabled them to experience a greater range of education.

On Call Experience

Providing 24-hour support for families gave trainees experience in troubleshooting situations and prioritising actions, especially when the family were distressed. This gave them experience in assessing the situation, planning the ongoing management of the patient and building trust with family. They were supported with an information folder and staff that they could call as a backup. Sometimes the issue could wait until morning for further support once the family was reassured.

> And I had the on call phone sometimes ….generally having a good foundation of nursing skills and assessments … you could troubleshoot a lot of things … the more you did it, the less terrified you were that you wouldn't be able to help somebody when they called you in the middle of the night... you just try to be there and do the things that need to be done without taking away from their time and the things they want to do but be reassuring and also provide whatever care can be of benefit. NP4

> Having that senior support and being on call was really valuable as well … you were the first person to be called and so you had to do lots of problem solving and often it was a good experience in communication skills because the families often called when they were distressed. MF7

Home Visits and Pop Up Visits

Home visits provided the opportunity for trainees to learn from experienced team members in a broad range of disciplines, including supporting the family with equipment, beds, plans for different scenarios, end of life care, memory making, care of body, and coordinating funeral and other logistics.

> For a lot of Fellows … being able to go out to a family's home, they'll never forget that, and that experience is quite powerful …. It's quite a bonding experience with the people you're travelling with… MF2

> This patient is two hours away, so how can we start that management and that plan when no-one's there? … getting all those medications to mum so she's got it in a box ready to go. So that was a big learning curve and really valuable to be able to help plan that, organize that and then teach mum but also go and teach the medical staff. NP2

Interviewees described home visits as being powerful learning experiences. The found it enlightening to see families at home as they ensured they had the practical supports they needed. Understanding the family dynamics at home enabled the service to meet their needs better, reinforcing the holistic model of care.

In regional pop up visits, trainees saw the integration of the whole community in the support provided to the family, including school, hospital, community and home. They valued including a familiar face for the family in the visit, such as the local nurse. The support provided through QuoCCA was invaluable for local teams and the families, reducing limitations to care in the regional area. Trainees felt privileged to be invited into families' homes, which they described as a sacred space, and they were grateful to the families for that vulnerability.

> So it's actually really nice to get to know families, get to know the whole social situation, and looking after the family as a whole and not just what's wrong. That whole holistic care … NP2

> We so rarely see families in their home … and hospitals are a very vulnerable place for families, because they often feel quite powerless. So it was really enlightening to see. the families and seeing their house and how things work and it's such a privilege to be able to go into somebody else's home... it really puts into perspective what's happening with the family. MF5

Practical Clinical Experience

Trainees learnt by providing direct care and the support provided through the team gave them the confidence to do that. They experienced having flexibility and fluidity in their plans to meet the family's changing needs in different locations, including regional and remote locations, and at hospital or home. They also had experience with practical clinical skills, script writing, symptom management plans, patient notes, and troubleshooting situations with support.

> You learn by doing … things like getting more comfortable with the infusions and those very simple medical prescribing things and working out how to do it appropriately… that comes down to actually doing it again and being there setting it up and having some advice from a distance. MF3

> It's getting that feedback and that positive reinforcement … going on some of the pop ups, all those meetings, watching how it's done and supported, but then also having the opportunity to do it myself which is important…. I felt very supported but I appreciated the opportunity to do it myself. NP2

The trainees received useful experience with end of life management. They reported the trauma associated with the family not accepting the impending death and having to emotionally work through difficult deaths and the suffering involved. When the family accepted that their child was dying, they experienced a much more controlled process, with good symptom and emotional management. They had seen deaths with excellent palliative care, that had minimised emotional and physical suffering.

> Working through those difficult deaths is actually pretty challenging because you want to be able to make it a peaceful process. And sometimes it's pretty hard to achieve that. MF3

In the experience of the trainees, the plan for end of life care was very individual to families. Some were comfortable at home as it was less clinical, others were more comfortable in hospital as access to ICU made them feel that they were

doing everything possible for their child, from their perspective. Sometimes families changed their mind at the last minute, and the PPCS could be rapidly reactive to those changes. The trainees had also learnt from the memory making activities of the PPCS team, bereavement follow up and ongoing support.

> I had some preconceived ideas that possibly everybody would want to be out of hospital to die, but that's not true … every person has a different kind of idea about what's going to be comfortable for them … a lot of families don't know until the very end... palliative care does a very good job of bringing it up on multiple occasions to say … we have options … [palliative care is] reactive to families and their needs at end of life care … all we need to do is to provide support and that is often to be silent. MF5

Learning from Families and Listening to Their Perspectives

Being part of the PPC team changed the mindsets of some trainees as they listened and gained more understanding about the family's perspective of different treatment options. They learnt to be mindful of what they were bringing to the discussion with families. They sought out what was best for the family and the child, and to reach a place where they were the most comfortable.

> Having that patience is actually a lot of what you learn from families... reflections of what they say and how that teaches us, and it's surprising every day when you hear something different or a different perspective on things and how that also then shapes your ongoing practice as well. MF6

> Some families are really fighting and advocating for their child and sometimes it's very hard to understand when a child has a prognosis that's incredibly bleak … I feel like this job gave me a better understanding of their perspective and acceptance of that … I have a better understanding of why families may pursue those things now and be more comfortable with that. MF7

They became advocates for early referral to PPC. Trainees whose past role was focused around the hospital experienced a change in mindset around the different options of providing care.

> Having experienced that … interface of community and hospital … doing procedures, putting a catheter in in someone's living room on a couch. Changing your mindset and the way you do things. Hospital is all very aseptic and this has got to be there …. if you're doing it in someone's living room, and the child's sadly imminently going to die, that kind of goes out the window and let's do what is best for the family and the most comfortable for the child… it's changing your mindset and doing things differently. NP2

Personal Reflection

The trainees learnt through personal reflection and self assessment on the care provided.

> We all learn well when we're actually delivering care then reflect back on, ask questions about, "Well why did you do that?" "How can we change those medications?" So learning and reflecting on clinical care was probably the main opportunities for me. NP3

> You learn by doing and I think the best way to learn is self reflection, if you're a reflective person… I guess I had a great experience, I reflected a lot, I learnt a lot. MF3

Involvement in Research Projects

Being involved in research projects gave the trainees the opportunity to explore different ways to improve the quality of care.

> I had the opportunity to be involved in some research projects that were happening at the time through clinical consults and looking at how communication is delivered to families. So it was nice to be involved in those projects as well. NP3

Providing Education at QuoCCA Workshops

Some trainees provided statewide education for the QuoCCA project to regional and metropolitan human and health service professionals. They delivered education, were part of role playing for difficult conversations, and listened to and supported other presenters.

> The opportunity to promote education … for it to really be a priority in what we do …. Because we know that it's going to have such a positive impact on patient care and quality of care and that the education and helping local teams feel more comfortable … you're creating sustainability also in trying to upskill local teams so that that's transferable knowledge for if they have another case … it's also building their confidence and helping them know who to call as well for support. MF2

> I then went with the same [nurse educator] to then give education on … pumps and infusions … so I did it and then I suppose really consolidated that knowledge by being able to also then help educate others. NP2

> So I suppose from both sides, having that education but also helping to provide it to other center obviously helps hugely with your own knowledge, because you've got to know what you're talking about and that sort of full circle's been really good. NP2

An Example - Communication Skills

One important example of the experience gained by the trainees was related to communication skills. Trainees valued having the opportunity to observe the way experienced team members communicated with families, especially around challenging conversations. They experienced the mentor partitioning time to hear the family narrative, being silent to give the family space to talk, using correct terminology to advocate for PPC, not trying to fix everything, and controlling how they responded emotionally. They also learnt to focus on cues from the family, ask questions and get the information they needed from the consultation.

> That observation initially was helpful around how you meet families and broach conversations and certainly having that initial maybe not lead role but observation and helps then set it up for feeling confident, but also having the skills to direct the conversation and I guess re-goal for a better term with families or bring up the tricky subjects … being present and observing is really helpful initially... to get different perspectives of different clinicians … everyone has their own way as such, but having the opportunity to do it with a number of Consultants was certainly helpful and valuable from a training perspective. MF6

> I probably have seen a family have the space to talk … as a medical professional … I really realised that we interrupt families all the time and cut off their narrative, because we're often under time pressure and we have specific questions we want answered … palliative care does not do that. It's very open ended and by being silent … they start opening up and talking more … by keeping it very open and only nudging the family, he would pick out tiny things that they had said and then reflect it back with a really active listening kind of way that made them feel like they were being heard. MF5

> It makes you just more focused on different cues that people say, and actually taking the time to unwind those a little and just see what's behind what they're saying … that will be one of the things that I take away which is good. It can only enhance your care, really. NP1

As there were usually other team members in the room at the time, the trainee was able to listen to peer review in discussing the interaction with the family later; every conversation was followed by reflection.

> [The consultant] would really ask my opinion and I think he genuinely cared... he wanted my opinion of how that conversation went with the family … I think about how other clinical medicine works … we don't do peer review like that or have that support … [he] suggests that we reflect after every conversation we have with the family … MF5

Trainees had been involved in caring for families from their first introduction to PPCS to supporting the family after death of the child. They learnt how to introduce PPC and its different roles in a family centered way, build rapport, raise the family's acceptance, promote symptom management, advocate for the child and family, and provide other options to improve quality of life. They built a picture of the family through different team members' interaction with them and different occasions of care, and were able to improve the level of trust with them.

> That first impression or that rapport building is so important down the track as I'm learning that a lot of families with that word palliative care, it's a scary word. Some of them don't want a bar of us … and certainly learning from the teams … I can sit and listen to how they start those conversations. NP2

> We're just trying to get that message across that palliative care is here to be supportive through the journey and to really help manage symptoms and quality of life. That's our main focus. MF5

Trainees managed family dynamics and broadened their experience in helping to support the whole family's mental health.

> Giving them space and time and making sure they feel heard was really important to deal with that anger... we would create meetings with them and the key members of their team from before, to give them space to … ask all the questions again and make sure they felt that they were really heard about the end of life process. And that really helped a lot. MF5

A couple of families were not accepting of the prognosis for their child, and trainees observed techniques to approach that. Trust was built as the team did everything they could to keep the child at home and comfortable, and were happy to try new techniques even though they were thought futile. Trainees found that it was very meaningful for some families to feel that they had done everything possible.

> [The consultant] reflected back to me that maybe that is what this family needed to do, continue to fight to the end.

> When we first met them, they were very angry … from a team effort, they really moved from anger into I guess more acceptance and focusing on what really was meaningful for them as a family … in the end... they were actually quite happy … they really felt like they advocated for him and were very heard. MF5

Challenges and Suggestions

Different ways of utilising the team were suggested including team nursing and the 1800 number being staffed by different people or having a dedicated contact as a familiar voice to assist the understanding of the family's journey and to build trust with the family. A trainee mentioned that they did not have a lot of interaction with the QuoCCA Educators and some scheduled time would be useful.

Being on call was a challenge for those new to the area.

> And the worse things – on call – I had a week of doing both phones and it was just really busy. And I think what I didn't appreciate before coming to pall care was the complexities of the non-oncology patients. I really did not have an appreciation for how complex some of those kids are. NP1

A suggestion from one trainee was to expand pop up visits by bringing local champions on the visit, and to include more allied health team members. This had occurred in some pop up visits.

Timing in relation to nurse practitioner studies was also something that could be considered.

> It was quite early in my nurse practitioner studies so it would be actually more beneficial for me I think to have stayed longer because then I would have finished all my subjects where you do all your health assessment and your system reviews and I would have been more confident with that to then use that in reviewing patients. NP3

The circumstances that the trainees had to deal with meant that they often had to be a "Jack of all trades" NP2 and "to think on your feet and coordinate a lot of things". NP2

> Managing the social dynamics of families ….always can be a challenge when you're trying to help a family plan for end of life care, that mum and dad aren't talking and then you've got siblings involved and other family members…. Learning to be a bit of Jack of all trades, a bit of a social worker, counsellor, as well as other stuff, because there's a lot involved. NP2

One practical challenge was the lack of a work mobile phone for home visits, especially over public holidays. Using personal mobiles to coordinate care was not ideal.

The condition of the team was an important factor for the QuoCCA placement to provide maximum impact. One trainee arrived during a time of team transition, which meant the focus was on providing a service rather than educating a new trainee. The PPCS, as a busy service, could become very task orientated and reactive when under stress, which did not encourage job satisfaction for trainees. Generally however, the trainees were very grateful for education opportunities, even with the balance with clinical duties.

Medical Fellows and NP trainees suggested more formalised education with a schedule of topics as a core curriculum (on top of the current journal club). This could involve the trainees presenting the different aspects – eg communication, pain management.

> I don't know whether there could be some formal fellow teaching with the core curriculum that therefore is more targeted medically and that maybe some of the NPs and the NP candidates would also like, because as a prescriber some core curriculum and the fellows could present as well. So not just didactic learning, but certainly take turns at presenting the topics. MF6

Another suggestion was to provide trainees with education through set programs such as Education in Palliative and End-of-life Care (EPEC).[20]

Nurse Practitioner clinics were suggested to give NP trainees experience in providing care.

> Look at having a training program and what the nurse practitioner candidate needs in that part of that training. Like assessments of patients. The prescribing of medications. So the different standards of care that the nurse practitioner needs to meet, from a clinical domain to leadership to research education and how they could fit that into the nurse practitioner training position. NP3

Outcomes for Clinical Practice

Trainees had left their time with the QuoCCA placement being more rounded as clinicians. They had a sense of it being a privilege and incredibly satisfying to support families, and the amazing impact that they could have. They became comfortable with chronic complex medical conditions and had learnt how to guide families through their journey.

Trainees were able to apply the skills they learnt in different areas following this placement. They had expanded knowledge of services that were available outside of the hospital and how better to manage care at home. One said how they were better at managing PPC families when they came into the emergency department. Another could ensure rapid referral to PPCS, framing it well with the family and advocating about what the service offers. The experience of managing end of life gave trainees increased skills and comfort dealing with patients and death.

> Having made those links was quite beneficial for my next role as a general pediatrician... so many chronic children who are kept out of the hospital system because they've got … a service to link into, and provide those things at home or in the community. MF4

> QuoCCA has given me an insight into family centered care that I hadn't seen before. It's given me a drive to just really do the best by the families that is possible, and it's also made me see what is possible, in terms of care. MF1

> I think QuoCCA, having that experience has been … unsettling in a way, but also it's really made me think about the best way to treat patients... it makes you question your ideals and the best way to do management, just in general, not only in palliative care. MF1

> From a medical perspective, it's not about medications, it's a lot about conversation and compassion and how you sit in that distress. So I guess being comfortable to do nothing … and just listen, whereas that need to want to fix everything and make everything better... and just sometimes people just want to feel supported without necessarily doing anything … I found that difficult initially and then certainly just develop that skill as you gain experience. MF6

> My time in palliative care has I would say, undoubtedly made me a better clinician... if you don't spend time on palliative care you aren't exposed to … those life limiting conditions, what that does to families and clinicians and by seeing so much of it, sort of being embedded into the unit …. Has really changed how I handle and discuss difficult conversations. MF5

Discussion

This paper provides insights from medical fellows and nurse practitioner trainees regarding their experience of education and mentoring in PPC. The trainees reported value in having a combination of mentoring, formal and informal education, peer support and practical experience. The support of the whole team was advantageous in learning, both in discussing cases and in providing support to each other. Shadowing experienced team members gave them the opportunity to learn practical skills, especially around communication with patients and families in challenging conversations. Practicing clinical skills independently was also useful, such as being on call, supporting families or prescribing medications and treatment plans in discussion with the team and with the overview of the senior consultant.

Mentoring of medical trainees has been widely practiced and shown to be beneficial at varying career stages to facilitate confidence and stress management, critical reflection, and connections with colleagues through networking.[21,22] Mentoring in the nursing profession is also common, especially where geographic distance results in a lack of access to other forms of education.[23] A review of 69 rural nursing mentoring programs from 11 countries found a focus on improving clinical skills, but also impacts on social and professional domains, such as socialising the mentees into the workplace, increasing networks and using and undertaking research. In Australia, nurse mentoring assists intergenerational transfer of knowledge and skills, especially passing on the practical experience of everyday care and leadership skills.[24] Mentoring values multigenerational staff, using their experience and engaging them in a meaningful way.[25] Mentoring through local or metropolitan based specialists has been shown to be a valuable way to support the delivery of PPC by maximising the use of available resources.[26] Mentoring can also support senior nurses to become more experienced in a speciality area.[27]

The experiences of the QuoCCA trainees showed how a variety of mentoring and education modes supported their development. Other studies have also reported various means of building capability; virtual or in person, combined with formal and informal distance education, opportunities to shadow a senior staff member, and supervised on site practice improvement projects,[28] attendance at conferences, and local network building.[29] An example is a two year multi-method interdisciplinary palliative care training program in the Chicago region which implemented intensive longitudinal mentoring and built relationships across the organization with significant increases in knowledge, confidence and job satisfaction.[29] This type of education and mentoring involves the whole internal and external network in developing trainees and gives them exposure to a range of experiences, disciplines, approaches and learnings. QuoCCA particularly gives trainees exposure to a strong network of care within the hospital, within the state and across the country.[16]

The QuoCCA trainee positions in PPC for Medical Fellows and Nurse Practitioner candidates develop the medical and nursing workforce, increase the capability of the participants, increase educational activity across the states and allow opportunities for increased integration of PPC into hospitals.[13–15] The program also fostered the interest of trainees who wished to pursue PPC as a career path or have PPC as a special interest in their career. The practical experience assisted trainees to apply what they learnt to their next area even if they did not remain as part of the tertiary PPC workforce. Using these skills in a supportive learning environment will assist the trainees to retain them.[14] In particular, the skills of holistic and family centered care, guiding challenging conversations with families, listening to the families, and showing empathy were all transferable to any situation.[15]

Implementation

Some mentoring pitfalls include blurring of roles, conflict, bias and confidentiality issues.[4] Careful implementation with the assignment of adequate time and support is needed to ensure mentoring continues to be a positive process. This should start prior to mentoring with support from the organization, selection of mentors and mentees and determining the best approach to mentoring. Once mentoring commences, the goals, expectations, roles and timeframes should be agreed on, followed by evaluation of the effectiveness and efficiency of the program and its outcomes in terms of patient care, satisfaction of mentor and mentee and development of mentee.[30]

A risk is that mentoring could be implemented in a variety of different ways if it is not specifically defined.[31] QuoCCA mentoring is not currently a structured program, but the whole team supports the development of expertise in the trainee. Such "mentorship on the fly" through informal meetings and incidental conversations, both with senior clinicians and mentors from other disciplines, has been found to be valuable.[32] An organic and broad approach to

mentoring in a supportive team, naturally leads to development in areas not traditionally covered by a formal curriculum. This holistic model works for QuoCCA because of the collaborative and supportive nature of the whole team and the reflective practice and drive for learning of the trainees. There was one time of transition in the tertiary team which resulted in less beneficial conditions for mentoring. To protect the positive outcomes of mentoring long term, a more defined model of mentoring, including formalisation of the goals, processes and relationships in the team are recommended, as well as monitoring of the team's capacity to support trainees.

A systemic and planned approach to mentoring ensures the successful achievement of program objectives and the fulfilment of the needs of the mentees.[3] Examples of more formalized mentorship programmes are that of critical care nurses, which required the mentors to be supported, and be familiar with the prescribed learning objectives and core competencies required.[31,33] A list of recommended discussion topics between mentors and mentees may be useful and more than one mentor may be able to provide all the different aspects required.[34]

The trainees in this study also suggested a structured education program to ensure they covered all the necessary topics. The mentoring program and practice of clinical skills should work in concert with any formal education (such as Nurse Practitioner studies) to allow practice at the appropriate time to embed the skills.

The evaluation of the recommended planned and structured approach is the next step in determining the impact of the QuoCCA trainee mentoring on care delivery and outcomes at a patient and family level, which would include trainee and family follow up.

Inter-Disciplinary Mentoring

Working together in inter-disciplinary mentoring improves team collaboration as well as the coordination and quality of care.[35] It effectively provides multiple mentors enabling contact with diverse perspectives.[36] Palliative care particularly benefits from good collaboration, as many different teams may care for these complex patients. Collaboration and communication are vital skills in developing a network of care for the family.

QuoCCA trainees benefit from supportive leadership of the collaborative inter-disciplinary team that focuses on shared principles of family centered holistic care. QuoCCA mentoring goes beyond the traditional one to one mentoring relationship. Although led by one senior and experienced clinician, it is also delivered through the interaction of the inter-disciplinary team, supporting and encouraging each other, solving problems and learning together. They attend home visits, develop treatment plans, discuss their approach with a family, reflect on family conversations and brainstorm any issues together as a team.

As well as receiving formal mentorship from an experienced Nurse Practitioner, inter-disciplinary care is also useful for Nurse Practitioner trainees, who find teaming with Medical Fellows and Pharmacists particularly helpful, to hone their prescribing and treatment planning skills. Although Nurse Practitioner roles can challenge the professional boundaries in some contexts of medical mentorship,[37] this study showed a synergistic relationship between the NP and medical trainees.

Limitations

This study shares authentic experiences of health professionals who were working in medical and nursing trainee specialist positions in PPC. The richness of these voices informs future mentoring approaches within the PPCS and QuoCCA. A limitation of this study saw recruitment of interviews limited to one Australian state. Greater diversity of experiences would be captured through inclusion of health professionals that represent the particular nuances of each Australian state.

Recruitment to the interview process was low, which reflected low numbers of PPC specialist trainee positions generally, but also funding and researcher capacity as QuoCCA funding mostly covered education activities rather than protected time for research. Thus the research was conducted over a number of years. Recruitment was interrupted by the ending of the 3-year phases of funding, for example, one phase finished after the 2017 recruitment which was followed by a brief gap in funding. The DI methodology is not one that requires a specific sampling regime, as each interview is a rich source of information as the health professional tells their unique story.

Conclusion

The QuoCCA trainee roles for Medical Fellows and Nurse Practitioner candidates exhibit a valuable and effective education and mentorship framework that could be applied to other specialties. The service leadership and collaborative interdisciplinary team support various modes of education and mentoring. The roles not only develop the trainees' specialised PPC clinical skills, they also improve their general clinical practice, including communication, empathy and holistic care. A structured curriculum of education is recommended to protect these positive outcomes.

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