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PROJECT REPORT

Peer mentoring: evaluation of a new model of clinical placement in the Solomon Islands undertaken by an Australian medical school

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ABSTRACT

Introduction: Electives and selectives in developing countries are an important part of student learning experiences. During 2013, Bond University on the Gold Coast of Queensland in Australia piloted final year undergraduate medical student placements (n=33) at Kirakira Hospital, on Makira Island in the Solomon Islands. The placement was evaluated that year.

Methods: The clinical placement in Kirakira Hospital required 12 months of planning by the Faculty of Health Sciences and Medicine of Bond University in 2012. The evaluation of 2013 placements included a literature review; semi-structured interviews with participating Bond University and Kirakira Hospital staff, and with community members (n=16); an electronic survey (n=18); a focus group with participating students (n=9); and a written report with recommendations.

Results: All groups that participated in the evaluation – the students, Bond University faculty, Kirakira Hospital staff and community members – found that this was an extremely valuable, personally safe, clinically fascinating and professionally life changing student experience, which was greatly appreciated by, and contributes to, the local Kirakira community. The greatest strength of the program was the peer mentoring and supervision model – whereby four students worked in pairs supported by nurses, the doctor and local community. The main challenges were the supervision arrangements and available resources.

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Conclusions: Placements in developing countries can be career highlights for all students. This placement now has a solid foundation, is philosophically sound and provides multidisciplinary Australian students with a great experience, and leaves a long term legacy to the community.

Key words: Australia, developing countries, peer mentoring, rural clinical placement, Solomon Islands.

Introduction

Medical students undertaking electives in developing countries have increased over the past decade[1,2]. Many of these placements are undertaken by one student at a time, who often organises it themselves[3]. In Australia, 53% of graduate entry medical students and 35% of secondary school entry students undertake an international placement during their education[2]. These experiences are viewed as an important part of students' learning experiences, where they often get to see medicine involving tropical and communicable diseases that they never would in their own developed countries, as well as having a professional and personal experience that may change their life or future career path[1,4]. There is, however, little evidence regarding the impact these placements have on addressing the local community's healthcare needs and the contribution they make in communities where resources are already stretched[1,4,5]. This article describes an evaluation of the first year of a novel clinical placement opportunity in Solomon Islands that was carefully planned across 2012 and implemented in 2013 by the medical program at Bond University on the Gold Coast of Queensland, Australia.

About Solomon Islands

The population of Solomon Islands is more than 565 000 and its total gross domestic product (GDP) per person is less than 2% of Australia's per capita GDP[6]. The Solomon Islands are ranked 'low' on the Human Development Index[7], which is on par with many of the nations in Sub-Saharan Africa and is a long way to achieving the Millennium Development Goals as they pertain to health[8]. In 2006, the Solomon Islands were considered the poorest of the Pacific Island nations and one where Australia has made substantial support from the Australian aid program[6].

Solomon Islands has serious medical recruitment and retention problems, with only an estimated 100 doctors for the total population, of whom 75% work in the National Referral Hospital in the capital, Honiara. Most doctors outside Honiara work in solo or two-doctor hospitals.

In 2012, Bond University medical school, within the Faculty of Health Sciences and Medicine, decided to explore opportunities for innovative elective placements, for its final year undergraduate medical students, in the Solomon Islands in the Pacific. That year, two of the authors undertook initial trips to the Solomon Islands, completing a scoping study to determine the appropriateness and feasibility of ongoing medical student placements there. This included community and political engagement, logistics, finding suitable accommodation, coordinating travel, determining budgets, student negotiation, supervision arrangements, significant administrative arrangements, insurance, vaccination, as well as the educational and orientation planning for the placement.

Following discussions and agreement with the Permanent Secretary of Health for the Solomon Islands, they visited the provincial hospital in Kirakira and decided, with the Ministry of Health, to make it the focus for rotations, due to its proximity to Australia. The objective was twofold: this community would be the focus and vehicle by which students would obtain experience in a developing world community, and the students would be making a contribution to health care by their near continuous presence in the community. The placement was able to be funded internally by the Faculty of Health Sciences and Medicine of Bond University as a pilot program in 2013.

About Kirakira Hospital

Kirakira is a small very remote community of 3500 people and is the provincial capital of Makira Ulawa province, which has a population of 40 000 people. The population base is Indigenous. Kirakira is a very impoverished community with no formal governance structure, poor infrastructure and the expected range of public health issues.

Kirakira Hospital is a 30-bed community hospital. Its outpatient area serves as a triage and treatment point for urgent and emergency care, and sees approximately 10 000 patients per year. There is an operating theatre, and separate men's, women's, children's, tuberculosis and maternity wards. The hospital has very limited diagnostic services, but a reasonably well stocked pharmacy. On average there are three to four admissions, one or two deliveries and one or two minor operating theatre procedures daily, and several evacuations to Honiara weekly. There is a plethora of fascinating medicine for students to explore, with the main diseases being communicable tropical diseases – malaria, dengue fever, tuberculosis, as well as pneumonia. The most common cause of trauma requiring admission to hospital is injuries due to falls from coconut trees. The patients that present for care will often have been brought by their family after trekking for 2 or 3 days to see the doctor.

In 2013, the hospital was staffed by a single Solomon Islands doctor and 30 highly skilled nurses, who also support 16 very remote nurse-run clinics across Makira Island. These nurse-run remote clinics are accessible only by boat or several days of walking across mountainous jungle terrain. These remote nurses work as sole practitioners and they refer complicated cases on to Kirakira Hospital. There is a mobile phone service in the township of Kirakira, but no coverage in any of the remote communities.

In October 2013, the solo doctor resigned and was not replaced until March 2014. He provided medical support for the entire population of Makira Island, which included providing outreach clinics in remote areas, attending meetings in Honiara, and medical administration; he was also responsible for some of the medical supervision of the students.

About the Kirakira Hospital placement

During 2013, 33 final year medical students were electively placed for 4 weeks to support the local delivery of health care at Kirakira Hospital. This is approximately one-third of the graduating class, which provided a near continuous presence on the island from mid-January to November 2013. Each group of four students was accompanied by an Australian based supervisor (either Bond faculty or associated clinical staff) to orient and teach students during their first week of placement. Flights and accommodation were organised by the university and students made a financial contribution towards the expenses associated with this rotation. Students undertook a preliminary briefing education session and were provided with learning guides and a procedural logbook. A formal evaluation of the placement was conducted in the second half of 2013 to determine the activities of the placement, its perceived value to the students and the community, and its sustainability for the future.

Methods

The student placements commenced in February 2013 with a formal evaluation process incorporated as part of the implementation strategy of the placement. The lead author of this article was a member of the faculty's Teaching and Learning Unit but not a member of the academic staff of the Medical School. In June 2013 the placement evaluation commenced and was completed in November 2013. The evaluation included undertaking a literature review; semi-structured interviews with participating Bond University and Kirakira Hospital staff, and with community members (n=16); a focus group with participating students (n=9) and a student survey on the electronic platform SurveyMonkey, which received a 69% response rate (n=18). Students were asked in the survey to rate their level of agreement with 34 statements about aspects of their placement on a five-point Likert scale (where 1 = 'strongly disagree', 5 = 'strongly agree'), and mean scores were reported. The qualitative comments underwent thematic analysis. Interviews were recorded and handwritten notes were also taken. Data from the interviews, survey and focus groups were triangulated and were synthesised into a written report with recommendations to faculty in November 2013[9].

Ethics approval

Ethics approval was gained through Bond University Research Ethics Committee, protocol number RO 1712.

Results

The evaluation found that this was an extremely valuable and personally safe placement experience for students, who reportedly developed clinical skills and acumen, cross-cultural communication and teamwork skills, and who greatly enjoyed the experience as well as learning a lot about themselves. The experience was so positive for some students it changed or confirmed their future career path, with them wanting to work in the developing world:

> *The placement has confirmed and reinforced in my mind that the 3rd world is where I want to work. (Focus group)*

Local hospital and community staff views

Local hospital staff and community members reported that the students had made a big impact on the community, having improved the capacity of the hospital, raised the quality of care of patients, as well as the overall standards of nursing care:

> *We really appreciate the student presence, they are more like an MO [medical officer] … they also help the nurses to maintain a standard of care and we [the nurses] are very cautious about making a mistake when the students are here. (Interview 9, local staff informant).*

Students were viewed as 'really smart', respectful and team players who were valued by the community and local staff; and their work was seen as making a significant contribution to the local community through an exchange of experience.

> *We have learnt a lot from them … it is an exchange of experience … we share and they appreciate our experience. (Interview 13, local staff informant)*

Their presence has also contributed to the local economy through their accommodation, food and recreational activities, as well as the community wanting to see these placements leaving a legacy:

> *They have made a big impact on a small community, having white man around; they play sports with the kids and bring them small toys the community really appreciate that … I would like to see a legacy from all this work. (Interview 15, community informant)*

What did the students think?

Nine women and seven men responded to the electronic survey; two people didn't participate. More than half (54%) were aged 18–24 years and two were older than 35 years. All had only undertaken one placement at Kirakira Hospital. This survey included a series of questions which were assessed using the Likert scale. The mean result for the clinical and professional questions are shown in Figures 1 and 2. Students had the opportunity to provide written comments at the end of the survey.

Students thought the objectives of their placement had been well met. They were able to discuss the typical medical problems facing people of the Solomon Islands (mean Likert 4.33), compare the quality of life and burden of disease (mean 4.17) and discuss health promotion and public health issues compared with the Solomon Islands and Australia (mean 4.17). However, students felt less able to apply evidence-based practice in the resource-poor clinical environment on Makira Island (mean 3.22). Students thought the administrative arrangements were very well coordinated (mean 4.31), the accommodation was very suitable (mean 4.44), and that the verbal briefing (mean 3.72) and the written information prepared them for the placement (mean 3.65). They would have liked more information about pidgin English, what to take, the types of medication available and the costs of non-academic activities such as boat trips prior to leaving.

Clinically, student respondents (n=18) perceived that they could communicate well with their patients (mean 3.61), they were confident in taking a history and performing a clinical examination (mean 4.12) and they were able to

suggest appropriate treatments, given the limited diagnostic and medical surgical management at Kirakira Hospital (mean 4.00). Respondents (n=18) also believed they had very good opportunities to perform procedures on their patients (mean 4.44), and they felt relatively confident to undertake these procedures (mean 3.72). Respondents agreed that at times they felt out of their depth clinically (mean 3.94) and at times they felt at risk of doing harm to their patients (mean 3.17). They reported good exposure and hands-on experience in obstetrics and paediatrics, and they reported opportunities to perform procedures that were not possible in Australia as a strength:

> *Having many opportunities to perform procedures not possible in Australia due to lack of clinicians in Makira. (Respondent 15).*

> *Exposure to, and hands on experience in obstetrics and paediatrics. (Respondent 5)*

Professionally, respondents very much enjoyed working in a cross-cultural multidisciplinary team (mean 4.50), felt confident working in the cross-cultural environment (mean 4.28), learnt a lot about themselves during the placement (mean 4.38) and believed the work they performed was useful to the community (mean 4.28). It was clear that students tried to learn the language and had a genuine affection for the local community:

> *Learning the language so as to be able to communicate to the beautiful island people and children. (Respondent 3)*

> *We visited a local school and conducted some health promotion talks. The principal was very grateful for this saying that even being exposed to doctors visiting gives the children motivation to study harder. (Respondent 15)*

Respondents (n=16) indicated that the support Bond University offered was satisfactory to good (mean 3.81), but they would have liked more clinical support (mean 3.75). They generally perceived that the level of clinical supervision was satisfactory (mean 3.13); however, five disagreed or strongly disagreed that the supervision met their needs. This was a major challenge for the students and for Bond University during these placements:

> *An Australian doctor present to guide care … I feel I didn't learn much in terms of clinical knowledge without the expert opinion to confirm or deny our own clinical impression. (Respondent 10)*

> *Students need regular direct supervision by a medical officer. (Respondent 14)*

Respondents (n=16) indicated they did not have sufficient opportunity to raise their issues and concerns in the post-placement debriefing experiences (mean 2.83). They asked for opportunities for personal as well as professional debriefing sessions, as well as telephoned sessions weekly during the rotation. This issue was addressed during 2014 and a mobile phone was provided for students to call their clinical supervisor in Australia. Many students used it daily, some weekly:

> *One on one debriefing upon return, at least an hour to be offered, also a private phone call weekly to touch base with mental health as it's an isolated place and people respond differently to cultural isolation. (Respondent 3)*

It was clear that the resources provided did not meet the student's needs (mean 2.69), specifically lack of internet access for Skyping supervisors and educators, information and resources and guidelines. Suggested improvements included Solomon-specific medical resources in the form of textbooks or diagnosis/management guidelines, improved internet access and perhaps basic student medical kits/equipment for the care of patients:

> *Resources specific to Solomon Island/PNG [Papua New Guinea] health ie books you can buy from the government as guidelines, some are in the Kira Kira hospital but cannot be removed from the premises. Would be a good guide for students so we know what drugs are available to prescribe and the management of common conditions. (Respondent 6)*

Internet access at the guesthouse and the hospital would be fantastic. (Respondent 19)

Procedural kits for students – cannula, catheters, speculums etc. (Respondent 7)

On a personal level, student respondents (n=16) strongly agreed they enjoyed living in the remote community (mean 4.31), working and socialising with the other students (mean 4.25) and, very importantly, they felt safe in the community (mean 4.31). Students clearly enjoyed the personal aspect of the placement as well as the professional, particularly the culture, the people, feeling welcome and social events:

Living and experiencing a different culture and country. (Respondent 15)

Feeling welcomed by the community (invitations to play soccer, visit local school and village etc.) (Respondent 14)

Weekend trips to the islands. (Respondent 14)

Travelling on the weekends to sight-see. (Respondent 7)

Respondents listed the three best things (n=46 responses) about the Kirakira Hospital placement, which were grouped according to common themes: clinical/professional experience (n=18), followed by people/community (n=10), professional autonomy (n=6), recreation (n=6) and teamwork (n=6):

Being exposed to medical conditions which are not common in Australia. (Respondent 18)

Opportunity to gain experience in a place close to, but a world away from urban Australia. (Respondent 6)

Creating relationships with the nursing staff and doctor, hostel owners and extended community. (Respondent 7)

Opportunity to see our own patients and make/suggest the management of their conditions more so than we usually get the chance to do in Australia. (Respondent 5)

Exploring the surrounding beautiful paradise islands in the sun on the reef, on the weekends, generating tourism income. (Respondent 3)

The peer mentoring and supervision model

During the year it became apparent that it was not possible for the solo doctor, with the range of responsibilities that the position entailed, to offer continuous supervision for the students on placement. Initially, the concern was such that consideration was given to stopping the placement because of fear that the placement was not sustainable and placed students, and the patients they were treating, at risk. It became clear that the placement could not continue with the same level of medical supervision of students in such a remote setting.

Following feedback from students, several improvements were made to allow the placement to continue despite the challenges. A 'peer mentoring and supervision model' was developed, which turned out to be a major strength of the program. The model was not so much 'what the students do' but the 'way in which they do it'. Each morning the students worked in rotating pairs, within their scope of practice, and completed a ward round of all patients in the hospital under the supervision of the senior hospital nurse or the medical practitioner. In the afternoon, students would attend either the medical or nurse-run outpatient clinics or assist with any minor procedures in the operating theatre or delivery suite. Due to limited resources and the inability to undertake many basic investigations (eg liver function tests, urea and electrolytes, radiology and pathology services), students had to use their hands (examination rather than clinical testing) and clinical acumen to jointly make their clinical decisions:

This is a very valuable experience for students [–] they work with a degree of autonomy and they get challenged by things that push their knowledge and skills … they are no longer in a passive role they are diagnosing and managing patients (Interview 1, Bond staff).

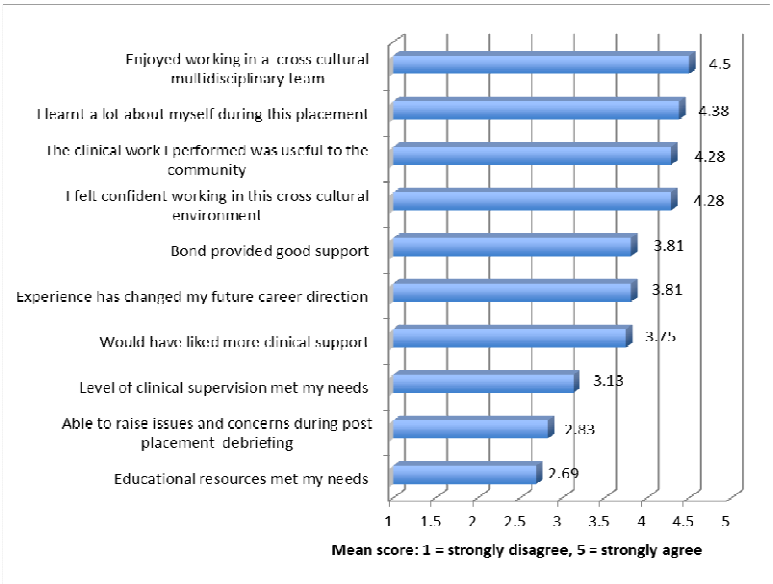

Figure 1: Student responses to survey questions relating to clinical experience (*n*=16).

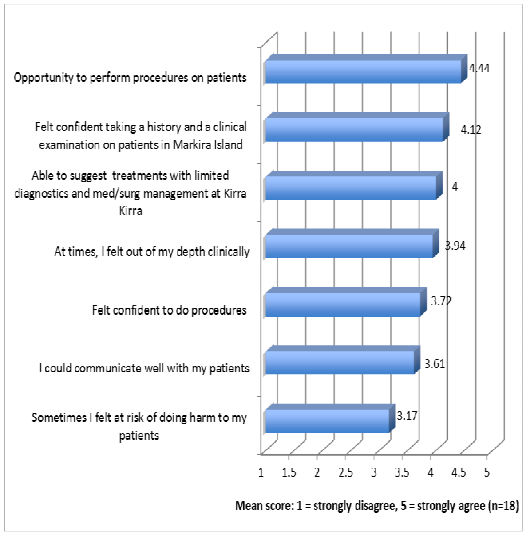

Figure 2: Student responses to survey questions relating to professional experience (*n*=16).

Twice a day the student pairs met and discussed their provisional diagnosis, based on their clinical assessment. They then negotiated a management plan, in consultation with hospital staff and using the resources available. Students also worked in pairs as first on-call for any after-hours emergencies and used the mobile phone provided by the university to seek advice, guidance or support from the Australian clinicians as required. Students would admit all the new patients into hospital, undertake minor procedures such

as inserting intravenous lines, prescribing, plastering, suturing and writing in the patients' medical files.

Several students participated in community visits, vaccinations, school screening and health promotion activities and most undertook three or four deliveries per rotation:

> *I feel like the Solomons elective was a very beneficial experience and has strengthened my clinical skills as a future doctor. Supervision was an issue that arose at one point however I feel as though we were able to handle the patients with our own clinical knowledge and management and the assistance of the head nurse and nurses and who are very experienced. … I believe that we truly had a positive impact on the hospital by being there, and in many circumstances the patients received better care than if we weren't there. (Respondent 15)*

Discussion

Controversy continues to surround the benefits and potential harms of international elective medical student placements in resource-poor settings. Although there is evidence of universities in the UK and North America committing to a continuous single overseas placement in Africa there are no current examples of this occurring in a remote or rural provincial region in either Asia or the South Pacific[10]. The main innovation in this placement compared to similar placements organised by Australian medical schools[11] is that it involved a continuous senior medical student presence supported by Australian faculty visiting the remote setting.

This placement built on the experience gained in Australia across the last two decades with the implementation of the Rural Clinical Schools program and how the steps involved in establishing medical education in a small community were learnt and able to be applied across a diverse range of communities across Australia[12]. Placements in remote regions have at their heart an aim to assist with the development of future clinical services by exposure of medical students during their formative years of education in the hope that a number of them might decide to spend part of their future careers working with or advocating for the health needs of an impoverished near-Pacific neighbour. A key feature that helped establish the placement was the consultation with the Ministry of Health of the Solomon Islands and the fact that they helped guide the choice of the community the Bond medical program would engage with. This process also meant that the authors of this article have had the opportunity to engage with senior staff from AusAID and the program has been recognised as an important initiative by the Australian High Commissioner to Solomon Islands.

Many positives to this final-year placement are more than just clinical experience. Students found the placement personally, professionally, environmentally, clinically and culturally enticing, as well as personally safe and for some a life-changing experience. It was clear that the local staff and community saw the students as making a great contribution to their healthcare needs and were keen for the program to continue.

The peer mentoring model could not be found in the literature. As the placements continued across the year, what was seen as the likely Achilles heel of the placement became a strength of the placement. In contemporary medical education and in the workplace, students and doctors are required to work and function in teams. At medical school this team work commences with pedagogy of group work in problem-based learning, which then develops further during undergraduate and graduate medical educations into being able to work as part of clinical team. In this placement it became apparent that the student group supported one another through the challenges encountered during the placement. In subsequent years the pre-departure preparation of students has included providing them with a position description, which defines how they are to work with one another and either the local nursing or medical staff to formulate and implement clinical decisions and management plans. A major component of the success of this model has been the placement of students in groups of four so they can work as pairs in either in-patient or out-patient clinical settings.

Another cornerstone for the success of the project has been securing safe and reliable accommodation for the students and

staff whilst in Kirakira. As has been documented in the literature surrounding the recruitment of health professional staff and the establishment of clinical training, the availability of accommodation is essential[10]. A feature of the small guest house in Kirakira is a communal dining area. The guest house provides breakfast and dinner for the students and supervisors, with lunch usually being fruit and coconuts purchased at the local marketplace. Students from all disciplines on placement and their supervisors eat breakfast and dinner together, and this provides another important part of the support during the placement.

A third area seen as important to the success of the placement is the trust built up between the community and medical program because of the continuous presence of the students across the full year. The community and health workers looked forward to 'their next group of students' coming to assist them. A defined role for the students in the hospital has evolved and this has helped the students understand what is expected of them on this placement:

Providing a continuous presence in the community for 36 weeks per annum:

- *Having the placement organised by the university rather than the student;*
- *Having a central community person to communicate with and good community support;*
- *Having a lot of goodwill from the local medical and nursing staff, the supervisors and the community; and*
- *Being willing to have a go, as well as good Faculty support.*

There were a number of significant challenges of the placement: sustainable supervision arrangements, preparation and debriefing processes, as well as resources – not to mention dealing with an earthquake, cyclones and tsunami alerts.

Outcomes from the evaluation and 2013 Solomon Islands placement

The evaluation found that the placement had potential and it was recommended that the medical program should 'embrace' and further develop the placement. In January 2014 the medical program was awarded a 12-month grant by Health Workforce Australia[13] to continue and expand the placement to include students from the disciplines of Physiotherapy, Nutrition, Sustainable Development and Film and Television to the medical students. Across 2014, a further 31 final-year medical students and 14 students from other disciplines completed placements in Kirakira.

In 2015, the program has received further Australian Government support through the New Colombo Plan and support from Queensland Health with a grant that allows support for Australian-trained clinical supervisors to be part of the clinical placements. Across the three years from 2013 to 2015 some 96 final-year medical students completed a placement in Kirakira, representing over one-third of the graduating medical class at Bond University. In 2016, another 31 students have requested to complete a rotation at Kirakira Hospital and the program is now recognised as part of the clinical program and no longer a pilot program. The multidisciplinary opportunities have continued in 2015 and the placement has now been recognised as a research group by the faculty[14].

Conclusions

Kirakira remains a resource-poor community. The health challenges that confront this community have not reduced over the past three years. Identifying sustainable clinical training opportunities for Australian medical students is a continuous challenge in Australia with new medical graduates flooding clinical placements in Australia. This novel placement has been developed in a community where at first glance you might not have thought it was possible for such a large number of students from a diverse range of disciplines to obtain a quality education. The placement has been embraced by the all of the medical students, who have formed their own charity called *Iumetogeda*, which is pidgin English for 'let's work together'. They have raised several thousand dollars and established a website that provides information for students thinking of completing the

placement. It is a marker of the influence this project has had on the medical school[15].

In 2015, at the end of the fourth year of the project, the clinical placement at Kirakira Hospital has proved sustainable. The Bond University medical program is uniquely placed to continue to support local health service delivery and clinical education placements in Kirakira. The next phase is the prospect of being able to expand the academic activities of the university to include research that targets opportunities to improve the safety of quality of health services and provide plans to improve the built environment in Kirakira.

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