

WE LIVE IN A DIGITAL WORLD: INCREASING EMERGENCY CARE CAPACITY IN PAPUA NEW GUINEA

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‘We haven’t used online learning before. We’ve just been doing our own in-house trainings here with the local team’, said Sister Wilma Sebby, NUM at AMPH Emergency Department (ED) in Lae, PNG.

‘I think on our own we wouldn’t know where to begin really. It would have been like being thrown in the middle of the Pacific Ocean and asked to swim’, added Dr Piamnok, AMPH ED physician.

There are two things you can’t help but notice in Lae – the weather is wet, and the potholes are big and many. With the city’s reputation as ‘rainy Lae’, the gardens are tropical, the grass is green, the weather is sticky, and power outages are common. Lae is PNG’s second largest city, located in Morobe Province. It is a port and industrial city, and a gateway to the Highlands Region. AMPH is PNG’s second largest hospital, and was built in 1964. In 2016 the redevelopment of AMPH, including the commissioning of a new ED, commenced. The project is a joint effort between the Papua New Guinean and Australian governments, including strong relationships with the PNG National Department of Health and the Provincial Health Authority.

In preparation for transition to the new ED, in late 2020 a team from ACEM began working with Johnstaff International Development (JID) and alongside PNG emergency care colleagues at AMPH to remotely support the development and implementation of an evidence-based model of care. At the forefront of the team at AMPH ED were Dr Donna Piamnok and Sister Wilma Sebby. Dr Piamnok is a Senior Emergency Physician at AMPH with extensive medical experience in the public and private sectors in PNG and has been a Senior Medical Officer at AMPH ED since 2019. Sr Sebby is an Emergency Nurse Specialist and has been the NUM of AMPH ED since 2000. They both have over 30 years of clinical experience and they are both pawa meris: powerful, strong women and experts in their chosen fields. Dr Piamnok

and Sr Sebby led the AMPH ED Technical Advisory Group for the commissioning of the new department.

Together, we designed a model of care that would be fit for purpose in the new ED and included triage, patient flow and data management. We then set out to develop and deliver a PNG-specific training program encompassing each aspect of this model of care using entirely digital methods. The concept of introducing a new model of care, new assessment skills and new processes, via a new learning platform, with a team that was based across two countries (PNG, Australia) and four cities (Lae, Melbourne, Sydney, and Townsville) was bold to say the least. But these are unprecedented times...

When asked to reflect on triage processes used at AMPH before the project, Dr Piamnok smiled, ‘I know in an emergency department it’s supposed to be organised chaos, but I really would say it was quite chaotic and very stressful for our staff’ The Integrated Interagency Triage Tool (IITT) was chosen as the preferred triage system for implementation in the ED. The IITT was developed collaboratively by the World Health Organisation (WHO), International Committee of the Red Cross (ICRC) and Médecins Sans Frontières (MSF), and is a novel, three-tier system purpose designed for developing EC settings. In partnership with local clinicians, ACEM has previously supported the successful implementation of the IITT in two other EDs in PNG and it has been well received by staff in those locations. In 2019, Dr Piamnok and Sr Sebby visited one of the sites, Mount Hagen Provincial Hospital. They observed the education program about triage and patient flow, followed by implementation of the IITT. Sr Sebby recalled, ‘We were practising triage previously, but it wasn’t really organised, and having a sneak peek of it when I went to Hagen. I saw that it was really organised, so we wanted to implement it here.’



Dr Piamnok conducting handover at the newly created patient tracking board. Photo: JP Miller/ACEM



Sr Wilma Sebby cutting cake at KHS Graduation. Photo: ACEM

Planning for training and implementation of the new model of care was affected by COVID-19 from the outset, with international border restrictions limiting travel. But, of course, a global pandemic wasn’t going to deter the devoted AMPH ED team. Dr Piamnok said, ‘We had no idea of course when COVID first hit our doorstep but like in any other emergency department you’ve just got to throw yourself into it and just plough and keep ploughing’. The project team were forced to be adaptable and innovative and embrace digital media. For 16 months, the teams from Australia and PNG have met weekly via Zoom to collaboratively create a digital learning program suitable for delivery in PNG. ‘Neither I nor Sr Sebby had any experience with Zoom conferencing... honestly, I didn’t think it would work at first... but that’s the thing, as a team we found ways and means to make things happen, and we’ve had really great support’, Dr Piamnok said.

The online program developed was named the Essential Emergency Care Systems Training Program and comprised 10 courses addressing triage, patient flow, the IITT, data and documentation, as well as a recap of essential emergency care skills, IPC and ED equipment. The program was launched on a digital learning platform named Kumul Helt Skul (KHS) – kumul being the Tok Pisin word for bird of paradise and emphasising a locally led and designed program.

With the support of a design team from Catalpa, the digital learning provider, we were able to customise the learning platform to suit the needs of emergency care staff in PNG. Many of the training participants did not readily have computer access or stable internet, so a smartphone-friendly platform was designed with offline capability and downloadable resources that would update once a connection was restored, and images and videos were low-bandwidth friendly. There was limited time for teaching and no dedicated work hours for self-directed learning, so

the courses were designed with a micro-learning approach that used short lessons and courses to make up the program. Learning content previously available was rarely contextualised to the Pacific context, so a graphic designer was used to develop Melanesian-specific imagery and animations, with examples taken from the PNG setting, using voiceovers recorded by local clinicians. ‘All of us were keen to try something new, it was a huge learning experience for us’ Dr Piamnok said.

With coordination by the Project Delivery Office (managed by JID), live seminars were planned that would be delivered via Zoom to provide a ‘face-to-face’ component to the training and an opportunity to discuss the material and answer questions. We designed flowcharts and posters to be hung around the ED, as well as a quick reference guide containing all the information required to understand the new system, so that participants had their own resources to use for the training program, and for use after implementation. ‘I think the bulk of us use pictures and diagrams and colour coding and all of that. The tools that were used, I think they greatly helped our team’, said Dr Piamnok.

In early 2021, during the development phase of the project, a third wave of COVID-19 hit PNG and had a dramatic effect on the community, hospitals, and their front-line care providers. Meetings were interrupted by internet and power outages, COVID-19 outbreaks in the ED, nursing strikes and community protests, but the dedication of the team at AMPH ED was unwavering throughout. Balancing the coordination of a busy regional ED during a global pandemic as well as the commitments of family and community is impressive enough, but to add on an extra workload in designing and developing a novel training program to benefit EC staff across PNG is truly exceptional. Triumphant, KHS launched at AMPH in July 2021 and was then expanded to the ED at Port Moresby General Hospital, PNG’s largest hospital, in

the country's capital. This resulted in over 130 EC staff registering across both sites to participate in the online training whilst concurrently responding to the country-wide pandemic, and both EDs committing to implementation of the new model of care.

The already fragile health system in PNG faced significant pressure with recurrent COVID-19 surges, limited testing capacity, stretched resources and insufficient COVID-19 isolation areas. Business as usual emergency care systems had to be modified to accommodate surge support. This stretched already limited resources and impacted both patients and staff. Noting the challenges both facilities were facing in the wake of COVID-19, the Australian Government supported a team of clinicians, including six emergency nurse specialists to deploy to PNG from Australia to provide rapid training and COVID-19 system development support. This meant that in addition to the online training from KHS, Australian clinicians were available to concurrently provide face-to-face training opportunities and support ED staff with preparations for and implementation of the new model of care during their 'go live' weeks.

Many participants were excited to try online learning for the first time and while there were plenty of challenges, having Australian clinicians in-country meant there was support for access and troubleshooting, and the Zoom seminars could be delivered in-person for a combined

approach that maximised participation. Donna explained, 'Having face-to-face training was very good because we had immediate responses to questions and demonstrations at the bedside. Different people have different ways of learning, some are classroom-oriented people... others of us, we would like to diversify things'. Following completion of the online training, the team supported preparation for the new model of care in ED including clinical redesign, minor infrastructure improvements and data support for the new, custom-designed data management system.

The night before the launch of the new model of care, an eager Sr Seby slept in ED to get an early start on preparations, and there was excitement in the air for ED staff. We separated each ED into dedicated areas to align with the IITT and applied coloured tape and signs to make each area clear to staff and patients. Each ED has triage, resuscitation, acute, fast track, and respiratory areas. The local staff then used the knowledge they had gained from the KHS training, including case studies and triage scenarios, in the real world. 'It has brought a lot of clarity to us, seeing how we can manage patients according to the type of problems that they present with at the ED, especially attending to the very sick ones quickly', Sr Seby said. Dr Piamnok added, 'It gives us a tool not only to help us quickly identify emergencies, but it forms a basis for us to be able to explain to our presenting population what constitutes an emergency, and why we can't see everybody

at the same time. It helps the public understand and cooperate with us.'

The COVID-19 pandemic affected every phase throughout the project period. Respiratory screening and isolation areas were incorporated into the IITT and new patient flow processes, though limited resources meant that access block and staffing difficulties were dominant during the introduction of the new model of care. These conditions were not ideal for the introduction of new systems and processes, but the commitment of local staff and the leadership of Dr Piamnok and Sr Seby have seen use of the IITT continue. 'You either sink with the ship or you keep it afloat, knowing there are innocent lives on the ship with you... so I think it's the instinct to survive that's really kept us going', Dr Piamnok said.

Despite ongoing challenges, Dr Piamnok and Sr Seby both have an optimistic outlook for the future. Sr Seby explained, 'online training and the new model of care implementation has given us a lot of help in how we can manage patients in the ED. Going forward it's not only the Kumul Helt Skul that we'll be continuing, but we can also do refresher courses and if we need some more Zoom training we know that our counterparts from Australia will always be there to support us and they will help us out through future online trainings'. Donna agreed, adding, 'it's definitely my hope and my belief that the ED will not be where it is right now, it will improve greatly. In the

new ED I can see that we will have much better control of patient flow, and I can see that the space will be huge, so our current problems with space will be pretty much eliminated. Our challenge is those factors that are out of our control - the pharmaceutical challenges, staffing problems, administration problems - those are pretty big-ticket items which we have no control over. If we can correct all those constraints, it will definitely be a really nice hospital for the Morobe people, the Highlands people, the Southern region people, and even the Islands people.'

Acknowledgements

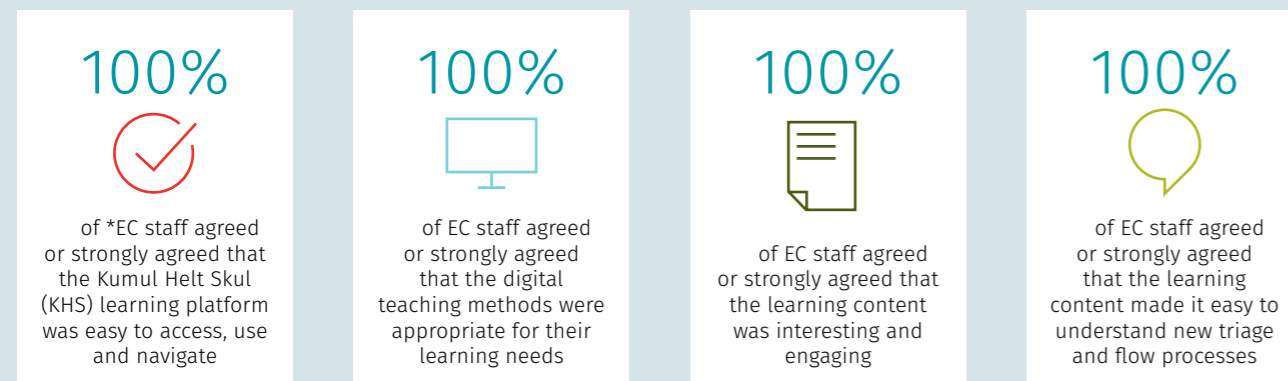
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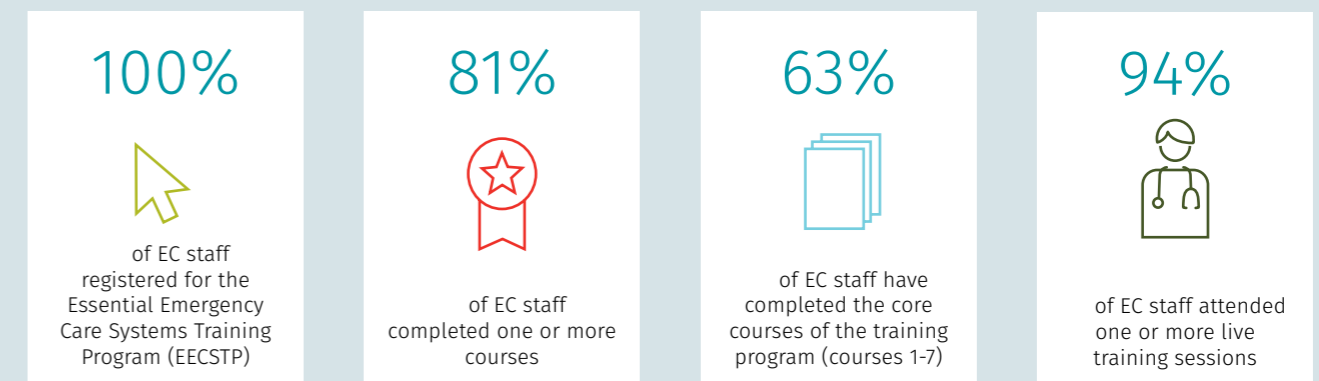
We would also like to acknowledge all healthcare workers in PNG and the Pacific who are working tirelessly in challenging environments during the COVID-19 pandemic.

Summary of Monitoring and Evaluation Data from AMPH

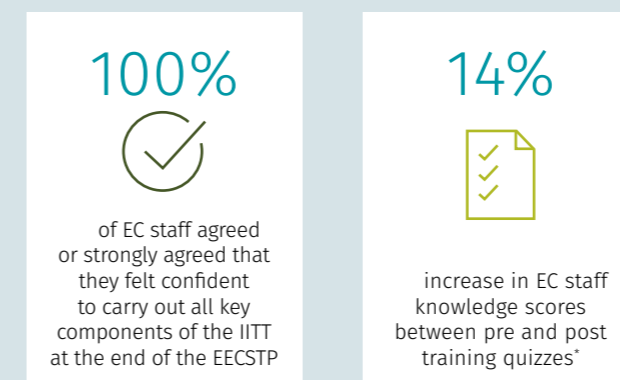
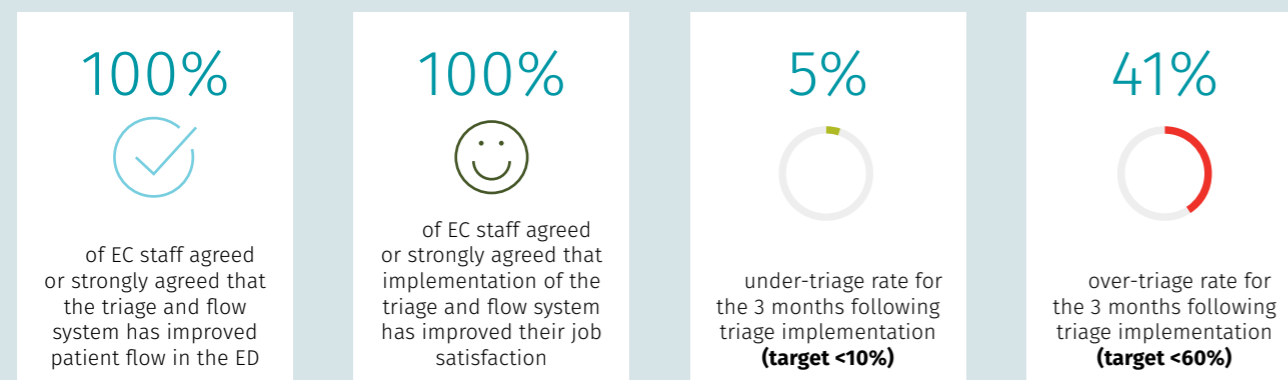
Training Delivery



Implementation process



Triage and flow process



* emergency care (EC)

* further increase anticipated following refresher training (in a post-COVID environment)