

Telehealth a game changer: closing the gap in remote Aboriginal communities

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Face-to-face consultation via video conferencing and direct supervision and observation of patient examinations are delivering improved health care in the Laynhapuy Homelands, East Arnhem Land

"A picture says a thousand words ... especially when it's the patient's third language"

Dr John Kelly, Laynhapuy Aboriginal Community Controlled Health Services

Uptake of telehealth in the Northern Territory has been limited, for a variety of reasons including inadequate access to broadband internet.¹ Through collaboration between multiple organisations — Northern Institute, Aboriginal Medical Services Alliance NT, Laynhapuy Aboriginal Community Controlled Health Services (LHS), eMerge (a local information and communications technology company), Telstra Health, and Broadband for the Bush Alliance — funding was obtained from the Regional Economic Infrastructure Fund (NT Government, \$407 540) to provide access to reliable broadband for three very remote Aboriginal communities.

The cost of high quality satellite infrastructure (over \$45 000 per site) and monthly connectivity (over \$12 000 for the three sites) is expensive. Through this project, high quality internet and video conferencing systems were deployed at Gangan, Yilpara and Wandaway with 12 months' connectivity paid in advance. This approach has provided the opportunity to demonstrate the value of telehealth and video conferencing before the service incurring ongoing costs. LHS now has data that demonstrate the value of telehealth and is committed to maintaining and improving access to video conferencing.

These Aboriginal communities are about 750 km east of Darwin and 200 km south-west of Nhulunbuy (the major centre in the area, with a population of about 4000); each community has a population of about 100. Travel to these sites is via non-sealed road and can take 3–4 hours from Nhulunbuy depending on the conditions. However, the roads are often closed in the wet season and charter flights take 20–30 minutes. The clinics are usually staffed by between one and three Aboriginal health practitioners (AHPs) who typically hold a Certificate II in Aboriginal and/or Torres Strait Islander Primary Health Care. However, at times, there may be no AHPs on site due to evacuations or escort duty with patients. Nursing staff visit weekly and a GP registrar attends periodically. LHS is supported by a full-time GP/physician based in Sydney who provides services by telehealth. The GP/physician was employed by LHS as an on-site GP in 2011 and moved to Sydney in 2013 but remained employed on a full-time basis with LHS. The GP has developed a long term relationship with staff and patients and it is believed that this established relationship is a key factor in the successful implementation of telehealth.

Reliable internet has allowed the use of video conferencing as part of service delivery. This has been a game changer in remote

Aboriginal health service delivery. Previously, non-scheduled and emergency consultations with nurses (not on site), registrars, hospital staff in Nhulunbuy, and GP/physicians and specialists in major centres were done by telephone, that is, using voice only. Additionally, patients needing to see specialists had to physically travel to Nhulunbuy or Darwin. Patients now present at the clinic and, if they need higher level consultation, for example, with a nurse or GP/GP registrar, the AHP phones the home office or the GP/physician and video conferencing is initiated as required with the patient's consent. Anecdotal feedback (as indicated by the willingness to participate) from the community, patients and clinicians indicates there is wide (and increasing) acceptance of telehealth via video conferencing for a range of purposes, such as emergency triage and management, routine medical consultations, specialist consultations and family/consultant case meetings.

Access to video conferencing has changed the way that LHS delivers services to its remote clinics (Jeff Cook, Clinic Manager, LHS, personal communication). Face-to-face consultation and direct supervision and observation of patient examinations via video conferencing are providing improved options for two- and three-way communication between patients and health care providers. By showing patients and families pictures from the internet, the supervising GP can clearly demonstrate the problem and the treatment required. The off-site GP uses video conferencing to share images and videos from the internet with patients and families, and also uses it with staff to demonstrate examination and treatment techniques and to provide professional development. Staff now regularly use video conferencing for telehealth, with typically three to eight consultations a day and six to seven specialist consultations per month. Diagnoses are also being aided by mobile phone camera optics and digital capabilities, which have provided adequate video quality to undertake triage and significant diagnostic assessment.

Observations indicate that the introduction of telehealth has led to a reduction in the trauma associated with travel. Remote Indigenous people practise group decision making as befits their culture. Decision making in these communities involves the whole family, and it is important to ensure that the relevant family members are present for the diagnosis, ensuing discussions and joint decision making. However, many remote communities and families are spread over large geographical distances, which can result in decisions to carry out crucial clinical procedures taking some months. For example, in the case of a cancer patient requiring surgery urgently to prevent a tumour becoming inoperable, the whole family would be involved in the decision as to whether the patient will travel for treatment. If the required family members are in a different community, they can be involved in case conferences, consultations and decision making via video conferencing, reducing the necessity for travel from community, and allowing more informed, thorough and effective decision making. With the introduction of telehealth, this type of decision can be made

Off-site general practitioner assessing an injury via video conference



GP/physician John Kelly carrying out a simulated consultation at his workplace in Sydney. He often uses video conferencing equipment to share images and videos with patients and staff in the Laynhapuy Homelands to address diagnostic and treatment issues. He has the clinical information system open on his laptop (test patient) and the hand is a picture obtained from the internet. He often uses video clips to demonstrate examination and treatment techniques to staff. ◆

much more quickly, allowing the patient the best chance of a successful outcome.

Another advantage of video conferencing has been that staff are able to make more accurate assessments for medical evacuations of patients and acute care retrievals. It has also allowed access to a wider range of specialist services. For example, in cases where patients present with wounds or lacerations, an off-site GP can judge the extent of the injury (Box), and if necessary a video recording can be made and sent to a specialist surgeon for advice. In some instances, this has allowed injuries that would otherwise require evacuation to be treated in the community. Follow-up physiotherapy consultations to aid recovery have also been arranged via video conference where required.

Management of difficult chronic conditions has also been possible via telehealth. For example, a patient with problematic diabetes presented to the clinic at a time when the AHP was the only staff member in the community. The AHP was able to initiate video conferencing and manage a three-way consultation with the off-site GP and endocrine team, all located at different sites, allowing the patient to be successfully managed within the community. Moreover, patients with chronic conditions are able to see familiar faces via video conferencing, making them feel comfortable.

Video conferencing has allowed the supervising GP/physician to directly observe and mentor new staff (trainee GPs and

nurses) by providing immediate feedback regarding culturally sensitive practices, examination and treatment techniques. This provides an added level of patient safety, as incorrect practices can be prevented and clinician skills further developed. The GP/physician provides a high level of clinical supervision and has performed remote patient examinations by supervising on-site clinical staff via video conferencing. As part of ongoing staff training, the GP/physician also provides annotated versions of diagnostic photos to staff, indicating abnormalities.

Conclusion

LHS has demonstrated that telehealth can be practised via high quality satellite internet, and access to video conferencing has changed the way the services are delivered in clinics in very remote Aboriginal communities. Feedback from staff, patients, participating specialists and the hospital in Nhulunbuy has been positive; telehealth implementation has resulted in savings for the health service on patient travel and improved health service delivery. Therefore, it is hoped that these savings can fund telehealth costs sustainably for existing telehealth enabled communities. The service is now looking at expanding its use of telehealth to utilise specialist services previously unavailable to remote people (such as endocrine services), to provide support services not previously accessed (eg, support for people who are deaf to learn sign language), to allow direct observation of trainee GPs, to increase the number of specialist consultations done by telehealth, and to increase digital inclusion for the community.

To expand telehealth services to other Laynhapuy communities, access to broadband needs to be extended, simpler and more robust video conferencing systems need to be established and a range of diagnostic tools deployed (eg, audio stethoscopes linked to bluetooth speakers and good quality cameras that can be controlled remotely by the supervising GP/physician). Work is continuing on detailed cost-benefit analysis and the development of more suitable information technology, and negotiations are underway with the national broadband network provider (NBN Co) to develop new broadband products suitable for remote service delivery.

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1 Murtagh DP, St Clair M, Marchant N. Expansion of telehealth in remote Northern Australia and the potential for international collaborations. Proceedings of the 14th National Rural Health Conference; 2017 Apr 26-29; Cairns, Australia. ■