

# Experience and hopes for telehealth in Tokelau

PETER ADAM\*

## Abstract

The two key factors affecting healthcare in Tokelau are its small population and its great isolation. Both of these make telehealth a critical issue for the development of health services and it is hard to see how the services can develop to a modern standard without a larger component of telemedicine. The Tokelau islands consist of three roughly equal atolls usually served by 1-2 doctors who deal with all aspects of medical care. There is a small hospital on each atoll and each is staffed by a Nurse manager, two staff nurses and some nurse aides. There is a need for a communication facility for the nurse on the atoll(s) without a doctor to consult with a doctor about medical cases; doctors to consult each other; and for doctors to consult outside specialists about the management of cases. Distance education for health care staff is another perceived need. The current communications systems are still basic and although there is a PeaceSat terminal on each atoll it has largely failed to provide the above communication needs and most is still done by the costly telephone system. Recently ITC has been made a priority for the health department.

## Introduction

The two key factors affecting the provision of healthcare in Tokelau are its small population and its great isolation. Both of these make telehealth a critical issue for the development of health services, and, indeed, it is hard to see how the services can develop to a modern standard without a large component of telemedicine.

## The situation of Tokelau

Tokelau is a largely self-governing territory of New Zealand.

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*\*Health Development Manager, Tokelau Health Department, c/- Tokelau Apia Liaison Office, Po Box 865, Apia, Samoa. Ph: 685 20822 peter.adam@extra.co.nz*

land. The country is of Polynesian background and consists of three small atolls, with a land area of 12 square miles. It lies about 500 km northeast of Samoa its closest neighbour. The central atoll, Nukunonu, is separated from the northern atoll Atafu by 8 hours and the southern atoll Fakaofu by 4 hours boat journey. Boats provide the only access to the outside world, and they come on a roughly monthly but irregular and unreliable schedule. The passengers and cargo unload in the open sea to small boats, and are carried to shore on small boats through a reef passage. There is no air access, even for emergencies. The population is about 1500, with roughly equal numbers on each atoll. Each atoll has a community hospital, which has basic medical services, and the Health Department is located on Nukunonu, which has been designated as the central hospital. It has an X-ray facility, but no laboratory facilities. There are at present two doctors, one resident doctor on Fakaofu, and a UNV surgeon at the central hospital.

I would like to share some stories which illustrate our problems.

1. Dr A., the resident doctor on Fakaofu was called by the nurses who had just delivered an infant to a 38 yr old G7 mother. The baby had an Apgar of 1 at birth, and in spite of the resuscitation efforts, the baby died. The midwife was also unable to deliver the placenta. Dr A. was also unable to deliver the placenta. He attempted to do a manual removal of placenta having given the woman pethidine and valium. He found a tight constriction ring between the upper and lower segments, and was unable to reach the fundus of the uterus. The woman continued to bleed moderately.

Not knowing what the best option was, he tried at this point to get some specialist advice. He rang for the obstetrician in Apia who was the only one he knew, but the specialist was unobtainable. At this point Dr A. decided to proceed to general anaesthetic with ketamine and was able to remove the placenta.

There is extreme strain on local medical personnel when they have to deal with difficult situations without access to support from their colleagues or specialists.

2. We have funding support from an outside agency for a visiting specialist to advise on an important area of the health services. We have found a well-experienced and qualified consultant who is willing to come. The only condition he has made is that he is able to maintain

communication with his other work by E-mail. Without becoming part of the modern world of E-mail and related technologies we will be missing out more and more.

3. The nurses at our hospitals have done their basic training and then had no further training for twenty years or more in some cases. Even if courses are available and free, a candidate from Tokelau may have to spend a month or two away from Tokelau to attend a course lasting a few days. Also, one person leaving can create critical staff shortages and make it impossible for them to attend an outside course or conference. Staff cannot maintain a satisfactory level of performance without regularly updating and extending their skills.

### Identified priorities for telehealth

From our own experiences, we have identified these as our most urgent needs:

- For the nurses on the atoll without a doctor to be able to consult with a doctor about medical cases.
- For the doctors to be able to consult with each other on management of cases.
- For the doctors to be able to consult with outside specialists on management of cases.

The first two needs are met quite well by the phone system, but the third is a vital need that is still largely unanswered. The second greatest area of need is distance education, which offers quite a lot of hope in our situation for assisting with staff training. We also recognise other areas such as public health networks, disease surveillance, professional associations, ability to search literature, and to form groupings with colleagues, which were well summarised in the topics of the Pacific Telehealth conference.

### Developments in telemedicine and information and communications technology (ITC) in Tokelau

Although systems are still basic, there have been significant developments in the area of communications over recent years. These have largely arisen because of general administrative needs, rather than from the area of health, but have greatly benefited the health services. Until about 8 years ago the only form of communication with the outside world was by short-wave radio, which was an unreliable and difficult system to use. The initial significant move to improve communications came with the installation of PeaceSat terminals on the three atolls. Although there seemed to be a lot of potential, and they had some good use, they largely failed to deliver the communications needs. A full phone system was installed and became operational towards the end of 1996 and is now the main means of communication, but the cost of long-distance calls is a significant barrier.

Since then, the management of the Health Department has more fully recognised the needs for ITC and has made it a priority area in health development. Initiatives are now coming from within the Health Department. The conference was very timely for us.

### Present initiatives and constraints

Our present phone system would need to be considerably upgraded to provide satisfactory Internet access. The satellite link has a maximum bandwidth of 9600 bps, and in practice faxes can only connect at 2400 bps. The phone system, although new, is still prone to breakdowns. The cost of connecting to an outside Internet Service Provider is prohibitive for Internet access.

We have a disused Peacesat terminal on each atoll. It is not known at this stage whether they can be converted into a useful Internet link.

There is a lack of ICT experience in the staff. Most have never worked with computers before. They are also willing to learn, and there has been a recent positive experience with staff taking an interest in and learning to use the new computers. Including multimedia features in the computers makes the experience more interesting.

### Areas for progress

Work will continue along the lines of what has been happening so far, with relatively simple steps leading to improvements in the ability of the hospitals to communicate with each other and with the outside world. But for many of our identified priority areas, the only way forward is to look outside Tokelau and join with others in partnerships and networks. So we come here with a little knowledge and experience to share, but mainly with a large desire to learn and to gain support from others in this area.

### Conclusion

In Tokelau we have many areas of need and many areas where progress can be achieved in Telehealth. Up until now we have worked largely on our own initiatives. The new management of the Health Department has gained an awareness of the importance of Information and Communications Technology, and an enthusiasm for developing its capabilities to support the provision of health care services in Tokelau. We are pleased that others also share our view of the priority of this area, and are pleased to be part of this conference.

### References

Available from the author on request. □