

Telepsychiatry Phase 3 Delivery

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- Waikato DHB Mental Health Service for supporting Jane Hudson – Midland Regional Coordinator;
- Capital and Coast DHB Mental Health Service for supporting Jenny Lynch – Central Regional Coordinator; and
- South Island Shared Service Agency Limited/Canterbury DHB Mental Health Service for supporting Toni Gutschlag – Southern Region Coordinator.

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Executive Summary

Mental Health services within New Zealand have been experiencing difficulty providing services to remote areas over the past ten years. This has been evidenced by patients not receiving or having to travel distance to access specialist treatment, difficulty in recruiting staff to work in those areas and difficulty retaining staff in remote areas due to isolation and lack of opportunities for professional development. Workforce development initiatives throughout mental health have become critical issues in addressing the lack of resources nationally. This statement was made in the 2002 Telemedicine Strategy document, and is still very relevant to the Mental Health sector today in 2005.

With the use of videoconferencing to support services there are clearly benefits to be gained by establishing this ability to provide services to patients who would otherwise not receive them, assisting with a reduction in severity of presentation and maintenance of the health of the consumer within the community. Likewise, the scarcity of specialist resources such as child psychiatrists, psychologists, Maori and Pacific Island staff can be addressed using videoconferencing to increase accessibility. In recent times, various Health Funding Authorities have funded the purchase of videoconference equipment in an effort to address some of the issues experienced by patients and staff working in remote areas.

There have been three phases to the Telepsychiatry project:

1. Strategy development (completed January 2002);
2. Pilot and preparation (October to December 2003); and
3. Delivery of Telepsychiatry Strategy (2004).

Delivery of the Telepsychiatry Strategy over 2004 has seen the establishment of a central repository, website for the project www.mhwdtelepsychiatryproject.co.nz with various supporting materials and information, followed up with regional support through the input of coordinators towards determining how best to increase and or encourage the use of videoconferencing regionally and nationally within the Mental Health sector.

The results and outcomes from each regional pilot have been brought together in this report towards looking at how best videoconferencing can be supported within the Mental Health sector from both regional and national perspectives covering service and infrastructure elements.

Whilst the Telepsychiatry project has provided a basis and infrastructure for supporting and optimising the use of Telehealth technology within the sector for Mental Health, there is a broader perspective that needs to be considered.

Recommendations for the future of videoconferencing within the Mental Health sector have been made suggesting the best solution for a national infrastructure for the Mental Health sector would need to be part of a national solution for the Health sector. Such a national solution would ensure the best utilisation of a cost-effective infrastructure by leveraging off the same technology for the public Health sector.

A national governance structure would go some way to providing the strategic and operational direction towards supporting best practice standards for videoconferencing within mental health as a part of an overall Telehealth initiative.

Recommendations

Recommendations from this project are split into two options. Option A is aligned with the review of a national Telemedicine strategy for the Health sector sponsored by the Ministry of Health.

Option B covers the recommendations put to the Mental Health Workforce Development (MHWD) Steering Committee in November 2004 before the national Telemedicine inquiry was activated and indicates an autonomous approach for Mental Health.

Option A

A meeting was held in November 2004 with the Minister of Health and interested stakeholders to review the state of Telehealth in New Zealand. This meeting highlighted the groundswell of work in Telehealth in New Zealand over recent years and the need for some central leadership and guidelines to assist health providers to undertake Telehealth in the most effective manner.

A working group has been formed with interested stakeholders in Telehealth to begin development of a pathway for Telehealth use, including the development of options for models of service delivery, and a governance model for Telehealth in New Zealand. Options will also be reviewed for telecommunication solutions that best meet whole of sector requirements, with considerations to cost versus benefit and the future feasibility of any technology solutions. It is intended that this group will be formed for no longer than twelve months at the end of which recommendations will be made.

Recommendation

That the MHWD Steering Committee support input from this Telepsychiatry Implementation Project by the project manager attending the Telehealth work group meetings on behalf of the MHWD Programme. Attendance and participation at these meetings would ensure the value of information collated and recommendations made from this project would support continuity and sustainability of outcomes on behalf of the Mental Health sector.

Option B

The following recommendations were presented to the MHWD Steering Committee in November 2004. These recommendations were made in light of continuing and sustaining the outcomes and outputs of this year's project by providing a mechanism from which to do this specific to the Mental Health sector.

MHWD Programme custodianship role

It is recommended the MHWD Programme provide an ongoing custodian role to support the use of videoconferencing as a national workforce development tool within the Mental Health sector.

In order to sustain various outputs from this project there needs to be a mechanism put in place to monitor progress and changes being made nationally so as to inform other areas about what works well and what does not work. A frequent comment made during this project was the interest from one region to what was happening in another region with the use of videoconferencing. The greatest benefits from using videoconferencing are not just within each District Health Board (DHB) catchment but within and between regions and nationally. The use of videoconferencing within the Mental Health sector has been championed most where access to health care professionals and services are limited.

Three regions have set up mechanisms to support ongoing progress with videoconferencing within their region as an output from this project. Given the purpose of this project being to improve and increase the use of videoconferencing nationally within the Mental Health sector – there also needs to be a national focus for this output to be sustained.

Recommendations

The MHWD Programme would provide continuity and sustainability from the project via the MHWD Programme website with a web page for:

1. Maintaining an up-to-date videoconference directory of the 60+ videoconference sites within mental health, contact peoples names and contact details, site addresses and phone numbers with relevant Integrated Services Digital Network (ISDN) or Internet Protocol (IP) numbers;
2. An events calendar of what is happening within New Zealand/overseas that people could hook into for events, meetings and training seminars available via videoconference;
3. Monthly news updates from the regional coordinators around what is happening in each of the four regions re use of videoconferencing; and
4. Programme meetings within the MHWD Programme that would eventually be available via videoconference link-ups.

The following headings summarise the solutions available to this project in ascending order of ability and ease to implement with 1 being the easiest solution and 3, 4 and 5 being outcomes requiring a national Telehealth infrastructure.

1. A national booking mechanism and centrally managed services

This outcome could be scoped for mental health once a direction has been decided as how best to implement Telemedicine within the Health sector at a national level.

With the rate and speed with which technology is developing today, a national network for videoconferencing within the Mental Health sector needs to be considered within a national framework so as not to reinvent the wheel or waste resources already in place.

2. Contract for a managed IP service through a “Telemedicine” framework

An option for the Mental Health sector could be for Telepaeds/Telemedicine to provide a managed service for videoconferencing as part of Telemedicine’s national strategy. To gain maximum advantage of a managed service the sector would need to develop a business case for providing such a service. The MHWD Programme could facilitate the scoping and requirements of such a business case should this option be chosen.

3. Clinical and organisational guidelines

The national Telehealth initiative would make recommendations around how to support best practice using videoconferencing by updating and evaluating clinical and organisational guidelines around the use of videoconferencing.

Clinical and organisational guidelines have been drafted as an output from this project. Using videoconferencing is still evolving as a tool to support service delivery within health, be it for clinical, educational, workforce development or administrative purposes. Guidelines around best practice for the use of videoconferencing need to provide a baseline to support integration

of this tool into service provision. This process would require a reference group to review, evaluate and update guideline recommendations on an annual basis and publish these from a recognised source.

4. Videoconference standards framework

In order to provide a cost-effective telecommunications and maintenance support framework for videoconferencing there needs to be a consistent videoconferencing standards framework and structure to negotiate from. At present most of the 60 units surveyed in this report are using ISDN technology. Of these 60 units, 37 (62% are IP capable but are not linked into a national network). Some regions use IP technology to link videoconferencing regionally e.g., Central Region – Capital and Coast DHB with Taranaki DHB (within the Mental Health sector). This issue would be addressed as part of the national Telehealth initiative.

5. Economies of scale for network and equipment purchase

In order to negotiate telecommunication and/or equipment economies of scale there needs to be a structure/vehicle to negotiate from. The South Island Shared Service Agency Limited with Canterbury DHB provide a model for such negotiations, negotiating on behalf of all six DHB's for the communication requirements of all Health sectors.

Technical Advisory Services has created a structure to negotiate for equipment purchase and maintenance contracts for videoconference units on behalf of the Central Region DHB's.

At present ten of the sixteen DHB's participating in this project each have separate telecommunication contracts.

This issue also would be addressed as part of the national Telehealth initiative.

1. Project Overview

This Telepsychiatry project was an initiative of the Mental Health Workforce Development (MHWD) Programme, the purpose being to enhance and encourage the use of videoconferencing within the Mental Health sector, not only for clinical purposes but also for workforce development initiatives. The project was essentially a re-launch of videoconferencing within the sector to promote the use of this technology for identified service needs. The end result being to support the more effective use of existing equipment where possible and to provide the support required for current and future purchase and use of videoconference equipment in the Mental Health sector.

There are a number of 'labels' used within Health Services to describe the use of telecommunications technology within the health care delivery setting. Telehealth, Telemedicine and Telepsychiatry commonly appear. This document refers solely to the use of videoconferencing within the Mental Health sector to deliver and/or support service delivery. Videoconferencing is the simultaneous transmission of both audio and video images between two or more sites in real time (live). Definitions of other terms and acronyms can be found in the Glossary.

The project had three phases.

1. The first phase was to establish a central support structure for the best practice deployment of videoconferencing to the New Zealand Mental Health sector. A project website was established with a communications strategy implemented to communicate to all stakeholders in the project.

A series of support packages have been provided from the website ranging from guidelines and protocols for the various uses of videoconferencing including clinical, supervision, training and administrative purposes; recommendations around videoconferencing room set up, etiquette of use, and training needs analysis guidelines.

2. The second phase involved an implementation pilot within each region. Project coordinators were appointed to each region and were responsible for:
 - Producing an annual plan for the use of videoconferencing within each participating District Health Board (DHB);
 - Supporting the creation of policy around the use of videoconferencing; and
 - Providing guidelines and support material towards raising awareness around the use of videoconferencing towards increasing its use within each DHB.
3. The third phase included reviewing opportunities for economies of scale initiatives with recommendations being made towards future integration with other videoconference networks.

The project had a twelve month timeframe, after which the centralised functions that were established will be transitioned to a permanent, 'business as usual' unit within the Health sector.

1.1 Background

The "MHWD Telepsychiatry Project Phase 3 (Delivery)" had its origins in a feasibility study, funded by District Health Boards New Zealand (DHBNZ), which produced a 'Strategic Plan for the use of Video-Conferencing in Mental Health' in January 2002. This strategy document highlighted the benefits of videoconferencing as a viable option within the Mental Health sector,

stating that a “well-developed and supported videoconference network will provide benefit to consumers, family/whanau/caregivers, and staff working within the Mental Health setting.”

A second phase of the Telepsychiatry project, known as the “pilot” phase, spent two months from mid-October to mid-December 2003 revisiting and updating the strategy and preparing the project charter for Phase 3. The main aim of Phase 3 this project, being to increase the utilisation of the equipment that exists and to bring the use of videoconference equipment into the mainstream of mental health service delivery.

Within Mental Health videoconferencing has been acknowledged as providing:

- A tool to enable DHB’s to provide clinical supervision for clinicians working in rural and remote areas, thereby having the potential to contribute to reducing the clinical risk that can be associated with a lack of clinical supervision;
- Access to clinical training and professional development through grand rounds, guest presenters and videoconferencing based training programmes, reducing the clinical risk of clinicians not being kept up-to-date with developments within mental health specialties;
- A means of supervising mental health services consumers when they return to a rural or remote area as part of the discharge management process; and
- Access to peer review or second opinions for clinicians from rural or remote areas reducing the risk associated with a single view of a consumer’s degree of wellness and hence the most appropriate treatment plan.

While acknowledging the benefits of videoconferencing and the successful implementations that have occurred in New Zealand, this project has found some of these implementations have not been sustained, while others have. Reasons as to why these implementations have or have not been successful will be further explored as part of this project report.

1.2 Key DHB Business Drivers

DHB business drivers identified by the Telepsychiatry Strategy document where the use of videoconferencing can contribute are in the areas of clinical risk management, cost reduction, hospital accreditation, recruitment and retention, capacity and capability development, and service integration (DHBNZ, 2002).

The following summary points originating from the Strategic Plan 2002 outline how each of these areas have been addressed in some regions and or DHB’s through the use of videoconferencing.

1.2.1. Clinical risk management

Videoconferencing provides a tool to enable DHB’s to provide clinical supervision for clinicians working in rural and remote areas, thereby having the potential to contribute to reduce the clinical risk that can be associated with a lack of clinical supervision. While acknowledged as being a tool to support clinical supervision the use of videoconferencing for this purpose was found to be limited. Some DHB’s have a well established system in place to support rural and remote areas within DHB’s; Waikato, Hawkes Bay (to Wairoa – although not used as much as in the past), Southland, and Capital and Coast being examples. Some smaller more rural DHB’s commented they would benefit from a structured clinical support process driven by the larger tertiary DHB’s. Midland Region through Waikato DHB and Central Region through both Capital and Coast and Hawkes Bay DHB have structures in place towards supporting various clinical initiatives intra DHB’s.

The key issue with using videoconferencing for teleconference opinions or assessments of complex cases intra DHB being there is no funding or a resource structure to support this service. For example, a teleconference opinion might be presented to a specialist forum for management of intractable pain, neuropsychiatry or a consultation – liaison matter (where small services might not have these areas of expertise in their workforce). Often consultants are unable to cover their normal commitments let alone being requested to provide additional teleconference consultations. The time required for such a service has in the past been absorbed within the larger DHB's who carry the cost (in time and resource) or as is happening more and more, decline what they are not funded to do (i.e., from outside their regions).

Videoconferencing can provide access to clinical training and professional development through grand rounds, guest presenters and videoconferencing based training programmes, reducing the clinical risk of clinicians not being kept up-to-date with developments within mental health specialties. There were very few examples of videoconferencing being used consistently to support clinical and or professional development opportunities. Videoconferencing is used as part of the Registrar Training Programme for Psychiatrists; however, this does not occur in a coordinated manner on a national basis – but in pockets from Capital and Coast to Hawkes Bay, Waikato, and to some South Island DHB's. To be useful as a national initiative the use of videoconferencing for registrar training would require some centralised coordination.

Videoconferencing can provide a means of supervising mental health service consumers when they return to a rural or remote area as part of the discharge management process. This happens in some areas where the use of videoconferencing has become part of everyday practice when consumers are discharged within the same DHB, however, intra DHB support was an area that was indicated to be lacking in both use and/or coordination around such a service.

Videoconferencing can provide access to peer review or second opinions for clinicians from rural or remote areas reducing the risk associated with a single view of a consumer's degree of wellness and hence the most appropriate treatment plan. Again, the use of videoconferencing for this purpose happens in pockets within some DHB's but not intra DHB.

1.2.2. Cost reduction

Videoconferencing provides a tool to lower travel costs by requiring fewer journeys to meetings of both a clinical and administrative nature. Although there is an initial capital outlay and operational cost for providing a videoconferencing service, effective use of such a service for meetings of short duration or ones that require participation from several locations can provide for a rapid pay-back on the investment (see Section 4.3 Cost Benefits). While reduction in travel time and cost is often quoted as a benefit for the use of videoconferencing there was very little data documented to verify and or justify this benefit amongst the participating DHB's in this project.

Videoconferencing provides a means of increasing the utilisation of the mental health workforce by not requiring them to spend as much 'down time' in travel therefore making the time available for other tasks. Again very little data was available to justify this statement.

The operational costs of using Integrated Services Digital Network (ISDN) versus Internet Protocol (IP) networking for videoconferencing will be discussed further in Section 4.3 Cost Benefits. Economies of scale in relation to networking costs and infrastructure management require a mechanism through which these can be negotiated. This is covered in Section 3.6 Economies of Scales Initiatives.

1.2.3. Hospital accreditation – best practice - policy compliance

The Telepsychiatry project has provided draft guidelines towards supporting the use of videoconferencing within the Mental Health sector that covers:

- Privacy and consent;
- Security of information;
- Protocols for videoconferencing usage; and
- Protocols for clinical interactions using videoconferencing.

This Telepsychiatry project supports best practice through its development of a central repository of knowledge, a website www.mhwdtelepsychiatryproject.co.nz which provides access to a range of material including:

- Guidelines for clinical use, room set up, videoconference etiquette;
- A national register of videoconference units in use within the Mental Health sector; and
- Guidelines for equipment purchase.

1.2.4. Recruitment and retention

The use of videoconferencing within the Mental Health sector is seen as an effective tool to lower the isolation and professional support issues that can contribute to retention problems in the Mental Health sector. The use of videoconferencing can provide:

- Access to peer support and supervision;
- Professional development through videoconference training;
- Professional development through access to grand rounds and sessions by sector experts; and
- International recruitment through interviewing via videoconference.

There was evidence of all of these uses in some DHB's, however the potential to use videoconferencing as a professional development tool could be further enhanced with a centrally managed network and calendar of regular events all of which need to be coordinated at either a regional and or national level.

1.2.5. Capacity and capability

The use of videoconferencing within the Mental Health sector has the ability to enhance the capacity of the Mental Health sector by linking the available mental health workforce through videoconferencing to redefine the service delivery model. Some of these areas include:

- The key worker plus videoconferencing;
- The registrar with videoconferencing based supervision;
- The national/international grand round on multi-party videoconferencing;
- The referral second opinion via videoconference;
- The Mental Health Act Judge and the subject of the hearing linked by videoconference;
- Consumer and family interpreters available through videoconferencing; and
- Cultural assessment assistance over a videoconference link.

Realising the potential of such services that will enhance the capability and capacity to deliver services within mental health will require planning and coordination at both regional and national levels. Pockets of these examples are in evidence throughout the country but tend to be very ad hoc and not integrated as part of service delivery.

1.2.6. Service integration

The use of videoconferencing has the ability to provide links between tertiary and secondary sector services and in the longer-term between primary and secondary services within mental health. Such a service would enable referral, assessment and discharge planning activities by videoconferencing, for example, between a regional service and a local secondary level site. Issues were identified from the project around tertiary sectors providing services to secondary sectors. The project was unable to identify any examples of use of videoconferencing enhancing services between primary and secondary sectors within the Mental Health sector at present.

1.3 Stakeholders

The project was a national initiative set up by the MHWD Programme through the DHB Mental Health sector. Initial interest and invitation to participate in the project was distributed through the Mental Health Services Managers Network to each of the twenty-one DHB's. Representation at a national and regional level was also sought from the following areas to ensure as much input and participation as possible :

- Consumers of mental health services;
- Providers of mental health services including Non-Government Organisations (NGO's) Primary Health Organisations (PHO's);
- Clinicians;
- Maori;
- Pacific Island;
- Family/Whanau;
- Judicial;
- DHB IT departments;
- Videoconference equipment suppliers;
- Telecommunication service suppliers;
- Other services using videoconferencing within the Health sector; and
- Ministry of Health.

Interested people and/or groups were kept informed throughout the project by monthly newsletters along with updates posted regularly on the website. Meetings were held in as many of the participating DHB's as could be organised to inform them of the project and identify key people for the coordinators to work with towards gathering and providing relevant data and information.

A clinical reference group was set up through Dr. Douglas Drysdale, a retired psychiatrist and clinical advisor to the project. This group was tasked with drafting and reviewing the clinical and non-clinical guidelines for the use of videoconferencing within the Mental Health sector.

1.4 The Process

Sixteen of the twenty-one DHB's participated in this national project. Communication and meetings throughout the project were facilitated both through contacts set up for each DHB and through the appointed regional coordinators.

The twenty-one DHB's were divided into four regions as outlined in the following table. Each participating DHB was asked to look at supporting a regional coordinator who was contracted to the project for a set period of time.

The four regions were Northern, Midland, Central and Southern Regions. All twenty-one DHB's are split into four regions for this project.

Table 1. Indicates how the twenty-one DHB's are divided into regions.

Region	DHB's
Northern	<ul style="list-style-type: none">• Northland• Auckland• Waitemata• Counties Manukau
Midland	<ul style="list-style-type: none">• Waikato• Lakes• Bay of Plenty• Taranaki• Tairāwhiti
Central	<ul style="list-style-type: none">• Capital and Coast• Hutt• Wairarapa• Mid Central• Wanganui• Hawkes Bay
Southern	<ul style="list-style-type: none">• Nelson Marlborough• Canterbury• West Coast• South Canterbury• Otago• Southland

The Deaf Mental Health Service was approached at the beginning of the project as being a stakeholder that could benefit from an increased use of videoconferencing. There has been considerable success internationally with the use of videoconference equipment within the deaf Mental Health sector. In the United Kingdom, for example, Dr. Peter Hindley, clinical director of the South West London St George's Mental Health NHS Trust uses videoconferencing for their large Deaf Mental Health Service, as do many services for Deaf worldwide. Unfortunately, due to various factors the Deaf Mental Health Service was unable to participate.

Project coverage exclusions included child and family workforce development, as well as health services outside of mental health.

1.5 Alignment to New Zealand Health Strategies

In January 2002 the DHBNZ 'Strategic Plan for the use of Video-Conferencing in Mental Health' highlighted the benefits of videoconferencing as a viable option for delivery of health services, stating that a "well developed and supported videoconferencing network will provide benefit to consumers, family/whanau/caregivers and staff working in the mental health setting".

The administrative, and to a lesser extent, clinical use of videoconferencing has been established in New Zealand over the last 6-7 years. Within the last two years there have been a number of developments that have enhanced the readiness of the Mental Health sector to the wider adoption of videoconferencing. There is an acknowledgement that recruitment/retention, particularly for rural and remote sites, could be addressed by the better use of videoconferencing. Recent enquiries into high profile mental health cases have raised issues on the level of access to clinical supervision for clinicians working with little or no peer support on site.

The change from the competitive Crown Health Enterprise "CHE" model of the 1990's through to the more cooperative "DHB" model has increased the willingness of the Health sector to seek out opportunities for integration of services at a regional and national level.

The sector now has had some experience with videoconferencing and can see the benefits that this technology can bring, especially through the introduction of high quality, lower operating cost units that use cheaper Transmission Control Protocol/IP (IP) Internet based communications protocol technology as opposed to dedicated leased communication lines (ISDN) supplied by telecommunications providers.

1.5.1. Working to add value to e-information (WAVE) strategy

The WAVE report, published in 2001, is the Ministry of Health's information strategy for exploiting the opportunities presented by information management and technology. It sets out a road map for development with clear recommendations and priorities. Telehealth can contribute significantly to the goals of the WAVE strategy.

The 'Strategic Plan for the use of Video-Conferencing in Mental Health' (DHBNZ, 2002) focuses on the following three WAVE recommendations:

- Focusing on making sure that what is currently in place is developed and promoted encouraging improved utilisation of the existing resources;
- Ensuring effective use of funding and resources by developing a centralised support model to facilitate sector cooperation and coordination; and
- Dissemination of good practice.

1.5.2. Primary Health Care Strategy

The Primary Health Care Strategy (Ministry of Health, 2001) outlines changes to the delivery of primary care in New Zealand is now the DHBs' responsibility to fund and ensure the delivery of primary care. This strategy encourages an integrated model of care, and also highlights the requirement to develop the primary workforce. Videoconferencing will be one method that can be used towards supporting primary care providers through access to specialists, supervision, training and workforce development initiatives.

The Primary Health Care Strategy notes that PHO's must be able to identify disadvantaged groups within their populations. Meeting their needs may mean a variety of approaches for

hard-to-reach groups, including the need to deliver services and providers to people who cannot get to them. Videoconferencing would go some way to providing these types of services through video consultation with specialists and/or information being available via the Internet.

The Primary Health Care Strategy notes that the Ministry of Health will facilitate the development of a coherent approach to rural health service provision including the difficult issues of attracting and retaining the appropriate workforce (Health Workforce Advisory Committee, 2001).

1.5.3. Health workforce issues

The shortage of psychiatrists available within the Mental Health sector in New Zealand has been well documented along with the lack of access in rural communities to the same level of health services enjoyed by urban communities. Lack of access to appropriate care has been created by a number of factors including a shortage of health providers prepared to work in these areas, distance from the location of health services and inadequate provision of resources. For those health providers who do choose to work in rural and remote communities there is a lack of access to education, training and ongoing support for their roles, as well as a lack of peer support. This results in problems with recruitment and retention of staff.

Videoconferencing has the real potential to improve the access of rural health providers to education and training opportunities, and to provide them with a wider range of clinical applications to use to deliver improved health services to rural and remote communities. There is a wide range of interactive technology systems currently available that could enable health providers in rural areas to access distant education and training opportunities. Comprehensive and sophisticated clinical applications are available that could, if implemented, provide enhanced health services to rural and remote New Zealand.

1.6 Continuing Education

The low numbers of staff in some rural areas has meant that ongoing postgraduate education is extremely difficult to operate or access. Clinicians are unable to travel to conferences, as they have no replacement while they are away. The 'Surgical Bus Project' has attempted to meet some of the educational needs of postoperative nurses and surgeons through interactive education via a videoconference link to overseas surgical staff.

Simpler measures with local videoconference units could provide cost-effective, multidisciplinary training and education for those within the Mental Health sector.

2. Project Outputs

2.1 Project Delivery Against Goals

Table 2. Summary of the project goals with a shortened version of delivery outcomes against goals.

Goal	Delivery Outcomes
1. Provide a mental health Telepsychiatry network that is acceptable and accessible by: <ul style="list-style-type: none"> • Increasing the acceptance of the use of Telepsychiatry within the mental health setting; • Ensuring that the current network is accessible; and • Ensuring accessibility to and across future Telepsychiatry sites. 	Awareness of use increased – need centralised directory of units and events calendar to provide reason for use. Above would increase accessibility. Future needs covered in recommendations.
2. Ensure that the mental health Telepsychiatry network is cost-effective by: <ul style="list-style-type: none"> • Reducing operational costs to the lowest possible levels. 	Regional/national structures would encourage economies of scale for operational costs. The project has prepared an inventory of equipment in use within the sector to aid in this process.
3. Ensure that the mental health Telepsychiatry network is capable by: <ul style="list-style-type: none"> • Maintaining the ability to take advantage of new technical developments. 	Future recommendations address this issue.
4. Provide a facility that is recognised as meeting the best practice standards for implementation, management and use within a mental health setting: <ul style="list-style-type: none"> • Through targeted training and technological leverage. 	Draft clinical guidelines and organisational guidelines developed – need to be sustained with a formalised structure for best practice.
5. Increase the capacity of the mental health Telepsychiatry network: <ul style="list-style-type: none"> • Facilitate the rollout of new Telepsychiatry sites and the better utilisation of existing sites. 	Better utilisation of existing sites by increasing bandwidth used from 128 to 384 kbps.
6. Increase the capability of the Telepsychiatry network: <ul style="list-style-type: none"> • Facilitate through training and best practice guidelines an increase in the quality and range of uses of the Telepsychiatry network. 	Increased awareness of what videoconferencing can be used for – guidelines in place for use, room set up, etiquette and cost benefits.
7. Increase integration using the Telepsychiatry network: <ul style="list-style-type: none"> • Between regional services and secondary services. 	For increased integration between regional and secondary services need structures to drive demand.

Goal	Delivery Outcomes
<p>8. Secondary Goals</p> <p>By achieving the primary goals, it is believed that this project will establish:</p> <ul style="list-style-type: none"> • Technical leadership in the use of videoconferencing within the Health sector; and • An infrastructure that becomes the model for the use of Telemedicine in other health services. 	<p>Technical issues are fundamental to increasing acceptability and usage. This issue is addressed in this report with recommendations made as how best to go forward within the Mental Health sector.</p> <p>A centralised website with directory and events will go some way to providing an infrastructure for other health services.</p>

2.2 Project Scope

Table 3. Summary of what was in scope for the project and what was out of scope.

In Scope	Outcome	Out of Scope
Central repository – develop	Centralised website set up. Needs to be maintained at project handover.	Purchasing of videoconference equipment.
ISDN/IP directory	Directory provided – needs to be maintained after project handover.	Implementation of videoconferencing systems.
Business case guideline document	Document provided for reference to DHB's wanting to set up videoconferencing.	Commitment to purchase specific telecommunications provider services.
Training package/guidelines for videoconferencing use	Training guidelines provided for videoconferencing use.	Commitment to purchase videoconferencing maintenance services.
Telepsychiatry protocol documents	Telepsychiatry Clinical Guidelines and Protocols developed in draft format.	
Encouragement of National Telecoms negotiations by regional shared service organisations	Shared service agencies made aware of price differences for telecommunication line rental costs and calls per minute costs.	
Encouragement of national maintenance services negotiation by regional shared service organisations	To encourage national maintenance service negotiations need a vehicle to negotiate through. SISSAL/Canterbury DHB and TAS only shared service agencies at present who negotiate these deals.	
Cooperation with other services for the provision of Telepsychiatry	Communications and discussions with Telepaeds being another method of service delivery for videoconferencing within the Mental Health sector.	

2.3 Project Assumptions

Table 4. Outline of key assumptions for the project.

Assumptions	What is the basis for this assumption?	Outcomes
DHB cooperation for the provision of both a contact person and regional coordinator from a lead DHB.	Response from strategy development phase and national mental health managers meetings.	Sixteen DHB's participated by providing key contact person for project information and updates.
Three or four DHB's as lead providers for project implementation coordinators.	Responses from national mental health managers meetings. Previous support in strategy stage. However, until specific individuals are identified as candidates for the roles, the response of the DHB's cannot be known. The MHWD Programme contracts for the secondment to the project on a back-to-back agreement with the implementation coordinators costs from the project.	Three DHB's (Waitemata, Waikato, and Capital and Coast) and SISSAL provided and supported the coordinator positions for each of the four regions.
Regional cooperation to achieve collective agreements for the purchasing of telecommunications equipment and collective maintenance support contracts.	SISSAL and Central TAS currently have this model.	No change to this status.
Access to host website.	Offer from MHWD Programme.	A website was provided for the project duration – its ongoing management to be determined in project recommendations.
No funding for 'business as usual' operation of the central repository after the project finishes.	Advice from MHWD.	Project has made several recommendations to ensure impetus from project maintained.

2.4 Project Deliverables

Table 5. Project deliverables, description and outcomes.

Deliverables	Description	Outcomes
Project initiation	<ul style="list-style-type: none"> • A full establishment on the project team. • A contact person committed to the project from each DHB. • Established reference groups for Maori and Pacific Island issues. • Established clinical reference mechanism (through either a designated clinical advisor or a clinical reference group). 	<p>Project team consisted of four regional coordinators and a clinical psychiatrist.</p> <p>Sixteen of twenty-one DHB's participated and provided a key contact person for coordinator's to work with.</p> <p>Reference groups and/or contacts were established for Maori, consumer, family, telecommunication, equipment suppliers and DHB IT network providers.</p> <p>Clinical Reference Group established.</p>
National repository establishment	<p>National directory of ISDN. Numbers and IP addresses and facilities.</p> <p>Protocol guidelines for clinical consultation, clinical supervision, administration, family, consumer use of Telepsychiatry.</p> <p>Best practice guidelines for clinical use of Telepsychiatry.</p> <p>A repository of currently installed and planned equipment and usage statistics.</p>	<p>Directory developed from sixteen participating DHB's.</p> <p>Draft guidelines developed for use of videoconferencing developed by clinical reference group – including best practice guidelines.</p> <p>Distribution for comment has been via the website and Clinical Reference Group. These will be published as part of the project outputs.</p> <p>Repository of currently installed and planned equipment with usage statistics where possible.</p>
Communication strategy	<p>Develop a communication strategy for Telepsychiatry:</p> <ul style="list-style-type: none"> • National level communication; • Flow out to Regional and DHB level; • Stakeholders list; and • Annual schedule of stakeholder events/opportunities compiled. <p>Participation in scheduled events.</p>	<p>Communication was set up with monthly newsletters to:</p> <ul style="list-style-type: none"> • Mental Health Services DHB Managers Group; • DHB key contact people; • Identified interested parties; and • Meeting dates for each participating DHB set up and put on website.
Development of training modules	<p>Develop training modules for Telepsychiatry:</p> <ul style="list-style-type: none"> • Training programme outputs/analysis; • How to set up a videoconferencing facility; and • Effective use of Telepsychiatry equipment. 	<p>Training needs analysis plan set up as part of each DHB annual plan for use.</p> <p>Guidelines put on website for setting up a videoconference facility.</p> <p>Videoconference etiquette guidelines provided.</p>

Deliverables	Description	Outcomes
Regional pilot – Central and Midland commenced at same time	Confirmation of DHB attendance and participation at workshop. Workshop to cover guidelines for developing Telepsychiatry policy and protocols, training needs and planning for pilot implementation. Each participating DHB was assisted towards developing an annual plan for videoconference use consisting of a current state audit, usage statistics, needs analysis for new/improved service, access to reference material, and identifying clinical and training needs for videoconference use.	Sixteen of twenty-one DHB's participated. Workshops/meetings were held in the following DHB's: <ul style="list-style-type: none"> Waikato, Hawkes Bay, Taraiwhati, Canterbury, Mid Central, Taranaki, Northland, Wairarapa, and Waitemata. Plans were developed for those DHB's who were prepared to provide relevant information and participate.
Policy development	Policy was to cover patient privacy, security/confidentiality of information, and consent to interview.	Of the sixteen DHB's participating four DHB's already had policies in place, at project end eight DHB's had policies in place with another five DHB's indicating they would put them through their internal processes to get them recognised.
Training needs analysis	Training needs identified training opportunities and support required.	Training plan put in place as part of annual plan for areas identified.
Northern and Southern regional pilot rollouts	Consisted of same as for Midland and Central Regions.	Annual plans developed with those participating DHB's.
Economies of scale initiatives	Information was collated from all participating DHB's for line rental and call costs for use of videoconferencing.	Costs indicated a great variation nationally of line rentals and call costs for ISDN calls. SISSAL/Canterbury DHB model is an example of how economies of scales can make a difference for 6 DHB's, where telecommunication and equipment contracts have been negotiated on behalf of the region. TAS has negotiated equipment purchase and maintenance agreements for the Central Region DHB's. Ten of sixteen DHB's participating in pilot have separate, individual telecommunication contracts. The project recommends the use of regional or a national framework for purchasing of equipment and bandwidth to maximise economies of scale.

Deliverables	Description	Outcomes
Project closeout and handover	Ensuring that the knowledge, experience, policies and procedures established during the project are transferred to an agency within the Health sector that can continue the work.	<p>The objective is to ensure the continued coordination of videoconferencing support and the maintenance of the integrity of information in the central repository.</p> <p>The outcomes of this phase are:</p> <ul style="list-style-type: none"> • MHWD Programme to continue with support via website and news updates; and • Successful handover to the MHWD Programme. <p>Project review and closeout session held.</p>

3. Project Outcomes

3.1 The Current State

This project was a national initiative providing central infrastructure and guidance, customised and supported at regional and local levels within the New Zealand DHB Mental Health sector, through the provision of a national repository of videoconferencing information. The national repository was a website www.mhwdtelepsychiatryproject.co.nz providing information on clinical and organisational guidelines and standards around the use of videoconferencing along with training analysis guidelines, videoconference room set up requirements and news of what meetings were occurring in each region.

People were invited to become key contact people for each participating DHB, to assist with project communication, selection and support for the four regional coordinators. The four regional coordinators were chosen over a period of time to represent their respective regions. These roles were contracted to the project for a period of three months on a part-time basis along with management and travel support provided by the sponsoring DHB.

Originally a pilot was to be run through one of the regions, with lessons learned passed on to the other regional pilots. However due to time and resource constraints by those regions participating, two regions, Central and Midland started their pilots at the same time beginning in July, with Northern and Southern regions starting a month later in August.

Of the twenty-one DHB's sixteen participated in this project. They were as follows:

- Northern Region,
 - Northland
 - Waitemata;
- Midland Region,
 - Waikato
 - Lakes
 - Taranaki
 - Tairāwhiti;
- Central Region,
 - Capital and Coast
 - Wairarapa
 - Mid Central
 - Hawkes Bay; and
- Southern Region,
 - Nelson Marlborough
 - Canterbury
 - West Coast
 - South Canterbury
 - Otago
 - Southland.

There were a variety of reasons as to why the outstanding five DHB's did not participate. These ranged from:

- That DHB Mental Health sector did not use videoconferencing at this time;
- Various management and staff changes meant the timing was not suitable for the support required for the coordinator to complete the project outputs for that DHB;
- It was difficult to get a contact who had an overview of what was happening and had time to participate in the project; and
- Several comments were made that timing was not good but they would be keen to be kept informed of what was happening and or of any outcomes.

3.2 Regional Outcomes

3.2.1. Central Region

The four DHB's that participated in this pilot, Capital and Coast, Wairarapa, Hawkes Bay and Midland DHB's, all use videoconferencing within the Mental Health sector to varying degrees. The main users of videoconferencing are senior clinicians and specialist services. Within Capital and Coast, Central Region and Hawkes Bay DHB Mental Health Services there is moderate internal activity, between teams and between rural and central bases. The highest users of videoconferencing at present are the Regional Forensic Service.

In the past the under utilisation of videoconferencing has been related to lack of knowledge of the existence of the facility, lack of familiarity with the equipment and lack of training.

The project identified that a definite process for tracking and ability to provide statistics on videoconferencing usage would aid in targeting the need for training and exposure and identifying champions of Telepsychiatry/videoconferencing with the Mental Health sector.

The Central Region Mental Health and Alcohol Network (CRMHAN) Strategic Plan identifies the use of videoconferencing as an effective tool to be promoted to support optimal service delivery especially to rural communities.

Health Pacifika (Pacific Island Mental Health Service, Capital and Coast DHB) has shown enthusiasm for using videoconferencing. Health Pacifika is currently in the process of becoming a regional service and can identify some clear future uses for videoconferencing, for both national and international purposes.

The promotion of the use of videoconferencing is seen as positive by Whakapai (Maori Monitoring and Advisory Group, Capital and Coast DHB) with the recommendation that cultural processes be applied where appropriate. Input was asked as to what these might be. This is still to be coordinated and collated by Central Region as part of their ongoing action plan for videoconference use.

One common desire was to see Wellington as a regional centre that might in future offer videoconference links with smaller DHB's, in areas such as registrar training and specialist service training opportunities.

3.2.2. Midland Region

Waikato DHB has been using videoconferencing within the Mental Health sector since 2003, when dedicated units were purchased to provide video links between Ward 35 (Henry Rongomau Bennett Centre, located in Hamilton) and the Community Mental Health Team in

Thames. This initiative was built on the organisational strategy to link up district hospital Emergency Departments (ED) with ED in Waikato Hospital. Other uses of videoconferencing at Waikato DHB have been for grand round and other conferences/presentations from the Bryant Education Centre; a linkage between the Waikato Hospital Dermatology Service, and Taupo and Rotorua Hospitals (which has since been discontinued).

Mental Health trialled a Telepsychiatry link to Taumarunui in the mid-1990s; while deemed successful, this was also discontinued.

The Waikato DHB Strategic Plan identifies rural health service delivery as a priority initiative. The major strategy for 2004-2005 is directed to retention of the rural health workforce.

Videoconferencing within the Midland Region is managed by the Information Systems Department, who set up the equipment and assist with the technical aspects of using it. Times/places are booked through identified contact people in the departments/locations. For Telepsychiatry none of the locations have been purpose-fitted and therefore there can be difficulties with lighting, picture clarity, sound etc. Training was conducted when the Telepsychiatry units were installed, but is not ongoing.

3.2.3. Northern Region

Waitemata and Northland were the two DHB's that participated in this project. Waitemata had been involved with Telepsychiatry initiatives over the past nine years. The equipment, which has not been replaced in that time, is now old which affects the quality of outcomes within the existing network.

The key issues identified with the two participating DHB's were:

- There has been no ongoing training or funding to further support the original initiatives that started back in 1992;
- There are no policies and or guidelines in place to support the use of videoconferencing within the Mental Health sector; and
- There has been no further training provided in use of equipment or areas for further training identified.

As a result of this project the Northland Mental Health Service is reviewing the purchase of a new unit which will enable meetings to take place using higher bandwidth (currently limited to 128 kbps by one machine). Waitemata DHB is looking to prepare a business case for the upgrade of their current units and network requirements.

3.2.4. Southern Region

The six South Island DHB's are fortunate to have had access to videoconferencing facilities in mental health since 2001. This was funded as a project by the Health Funding Authority and led by Canterbury DHB, Mental Health Division, and was known as the Telemedicine Project. The Telemedicine Project oversaw the purchasing and installation of equipment, established a regional servicing contract, developed policy and procedure documents and established mechanisms for accessing and using the equipment. The coordination and management of videoconferencing in mental health was not funded in an ongoing capacity, and the utilisation of the equipment has been somewhat patchy and inconsistent since that time. There has not been any significant regional activity focussing on the continuing development of videoconferencing since 2001.

For this reason the South Island DHB's welcomed the national "launch" of videoconferencing in mental health (Telepsychiatry) through the Mental Health Workforce Development National Telepsychiatry Project. This project provided an opportunity to review clinical, technological and financial issues at a regional level.

Key outcomes from this pilot has identified videoconference equipment that needs replacing, networking that needs to be increased from 128 kbps to 384 kbps to increase picture quality and sound, as well as reviewing opportunities within IP networking. Policies have been updated in some areas in relation to the draft clinical guidelines.

3.3 National Outcomes

This project was a national initiative with the aim of providing a central infrastructure and guidance with customised support from a national level to regional and local levels within the New Zealand DHB Mental Health sector. This support was provided through several mechanisms:

1. A website that provided a national repository of Telepsychiatry/videoconferencing information relating to guidelines and protocol advice with reference material pertinent to the best practice of Telepsychiatry/videoconference use;
2. Four regional coordinators were tasked to work with each DHB in their region to provide assistance with policy development, training needs analysis, and extending usage to the stakeholder groups identified as part of an annual plan for each DHB. Three of the four regions have since put in place a mechanism to maintain the outputs from this project so the momentum is not lost. Examples of these mechanisms include the development of a strategy for Telehealth across the region, as one example, to developing a business case to review videoconference use across the Health sector for one region, with the other reviewing both the equipment and network infrastructure within the Mental Health sector; and
3. A clinical reference group who had input into developing the draft Clinical Guidelines for Telepsychiatry.

Table 6. Outputs from the project at a national level

National Mechanism	Description	Outcomes
Website	<p>Website established July 2004.</p> <p>Reference documents included:</p> <ul style="list-style-type: none"> • Draft clinical guidelines; • Guidelines for equipment purchase; • Needs analysis guidelines; • Project plan for a new site; • Training needs guidelines; • Videoconferencing etiquette; and • Videoconferencing installation checklist. 	<p>276 unique visitors to December 2004.</p> <p>581 visits total.</p> <p>3028 hits.</p> <p>22.7 mb downloaded.</p>

National Mechanism	Description	Outcomes
Regional meetings	Meetings, workshops to assist regions meet project outputs.	Meetings held in 2004: <ul style="list-style-type: none"> • Waitemata DHB – 5 Aug; • Northland DHB – 16 Aug; • Hawkes Bay DHB– 9 Aug; • Mid Central DHB – 7 Sept; • Wairarapa DHB – 20 Sept; • Taranaki DHB – 17 Aug; • Tairāwhiti DHB – 10 Sept; • Lakes DHB – 26 Aug; • Canterbury DHB – 12 Aug; and • Otago DHB – 31 Aug.
Clinical reference group	Draft clinical guidelines established.	Guidelines to be published as an output to the project.

3.4 Guidelines/Policies for Use of Videoconferencing

Initially there were four DHB's with policies and/or procedures in place for using videoconferencing within the Mental Health sector.

Table 7. Summary of the outcomes from this project re policies being in use and or modified and developed.

Participating DHB's	Before Pilot Policies/Guidelines in place	After Pilot Policies/Guidelines in place
Northland	No policies/guidelines.	Wanting to use policies/guidelines.
Waitemata	No policies/ guidelines.	Wanting to use policies/guidelines.
Waikato	Policy in place.	Modified policy updates along with implementing an overall Telehealth Strategy.
Lakes	No policies/guidelines.	Wanting to use policies/guidelines.
Taranaki	No policies/guidelines.	Wanting to use policies/guidelines.
Tairāwhiti	Policy in place.	
Capital and Coast	Policies and procedures in place.	
Wairarapa	No policies/guidelines.	Wanting to use policies/guidelines.
Mid Central	No policies/guidelines.	Wanting to use policies/guidelines.
Hawkes Bay	Policy in place.	Policy updated from project.
Nelson Marlborough		
Canterbury	Policies and procedures in place.	
West Coast		Policies modified from project.
South Canterbury		Policies modified from project.
Otago		Policies modified from project.
Southland	Policies and procedures in place.	

The policies already in place focused on purpose of use, system administration, equipment use, consent, privacy, documentation and storage of information.

Three DHB's had a system for tracking purpose of use. No DHB's tracked outcomes from using videoconferencing. Most tracking statistics were based on telecommunication call costs, time and dates. Waikato DHB is now looking at developing a Strategic Plan for Telehealth and building the use of videoconferencing into clinical pathway planning.

3.5 Equipment Inventory

Table 8. Summary of some of the key points from the equipment inventory developed as an output from this project. See Appendix 9.1.

DHB	Key points – description	Outcomes
Northland	7 videoconference units 5 IP capable/2 ISDN only	2 old ISDN units being replaced
Waitemata	3 ISDN units – 9 years old	Units being reviewed as part of overall review of videoconference unit needs for Waitemata DHB
Waikato	8 units ISDN/IP capable internally	Good management and bandwidth capacity
Lakes	2 units	
Taranaki	2 units ISDN/IP capable	Use minimal bandwidth at 128 kbps
Tairāwhiti	1 unit ISDN capable – 5 years old	Has ability to use up to 384 kbps
Capital and Coast	5 units ISDN/IP capable (internal only)	4 new units purchased end 2003
Wairarapa	2 units ISDN capable only	
Mid Central	1 unit ISDN capable only	
Hawkes Bay	2 units ISDN capable only	
Nelson Marlborough	3 units ISDN capable	2 are 4 years old 1 is 6 years old to be replaced
Canterbury	4 units, 2 ISDN/IP capable	2 units, 6 years old, to be replaced
West Coast	3 units, 1 ISDN/IP capable	2 units, 6 years old, to be replaced
South Canterbury	1 unit, 6 years old	Unit to be replaced
Otago	4 units ISDN/IP capable	3 units looking to be replaced
Southland	5 units – 4 are ISDN/IP capable	3 units looking to be replaced

3.5.1. Usage statistics

Usage statistics were not consistent and were only gathered from some DHB's. Most of this information was gathered from telecommunication billing costs with figures based around who called, length of call and where call was made from. There were no figures for purpose or outcomes of calls made. See Appendix 9.2 for South Island average monthly usage figures and Appendix 9.3 for usage of three units from Capital and Coast.

The following summarises some of the key points around equipment usage:

- Ten of sixteen DHB's track usage in some way – locations, duration, call and line costs;
- Most have a manual booking system;
- Two DHB's use Microsoft Outlook to book equipment and people to rooms;
- One DHB has an IP booking, scheduling, billing and fault management system;
- At present no-one tracks purpose or outcomes of use; and
- The project has been unable to determine or trend clinical versus non-clinical use or any increase in use during this project as purpose of use has not been documented.

3.6 Economies of Scale Initiatives

The project was required to encourage the provision of cost effective telecommunications and maintenance support for videoconferencing. This included the exploration of a national contract framework for the provision of equipment, maintenance and support by the regional shared service organisations. Opportunities to share network resources and access to gateways were also to be investigated during this phase.

Of the sixteen DHB's that participated the following was found in relation to how telecommunication and maintenance services were managed:

1. The Southern Region through South Island Shared Service Agency Limited (SISSAL) and Canterbury DHB was the only region to combine both telecommunication and equipment negotiations and contracts, for all services, not just videoconferencing within Mental Health, for all six DHB's. Good economies of scale for both line rental and call costs for videoconferencing had been negotiated through this structure;
2. Technical Advisory Services (TAS) has in the past managed videoconference equipment purchase for the Central Region DHB's along with ongoing service and maintenance contracts with one provider;
3. Ten of the sixteen DHB's each had separate telecommunication agreements, the main providers being Telecom and Telstra Clear; and
4. Another three DHB's had separate equipment/supplier/purchase/maintenance contracts that were still in force, which had not lapsed, for videoconference equipment.

Some of the issues that became apparent around setting up a national contract framework for the provision of videoconference equipment and telecommunication contracts were the following:

1. Each region and DHB manages its telecommunication services differently, these services being for all of health and health needs, as opposed to the Mental Health sector and or for just videoconferencing. To encourage economies of scale in both these areas was therefore outside the scope of this project. However, information provided from this project has assisted already with some telecommunication contract negotiations at a regional level by providing an indication of the wide range of service/contract costs being provided nationally;

2. The ownership and therefore management of videoconference units was in some areas unclear. In some cases the purchase and ongoing maintenance of equipment came under one umbrella for a DHB, for example the IT department, which managed and tracked this service very efficiently. In other areas actual ownership of videoconferencing units was unclear which impacted on fragmented servicing and or maintenance requirements. TAS and SISSAL managed the required servicing and maintenance requirements for their respective DHB's. The other DHB's managed their requirements separately or not at all;
3. In order to provide a cost-effective telecommunications and maintenance support framework for videoconferencing there needs to be a consistent videoconferencing standards framework and structure to negotiate from. At present most of the 60 units surveyed in this report are using ISDN technology. Of these 60 units, 37 (62% are IP capable but are not linked into a national network). Some regions use IP technology to link videoconferencing regionally e.g., Central Region – Capital and Coast DHB with Taranaki DHB (within the Mental Health sector); and
4. SISSAL, Health Alliance and Health Intelligence are all reviewing the ability to regionalise access to videoconference units for all their relevant DHB's. Access to videoconference units needs to be managed throughout the Health sector to be most beneficial to all and to be supported by an information technology solution to meet an identified service need. These three organisations are reviewing these needs across their Health sectors.

3.6.1. Cost ranges nationally

Table 9. An overview of the call and line rental costs from each DHB that participated in this project. (DHB names removed for commercial sensitivity reasons.)

Line Rentals	Call Costs	Tele-communication Provider
xx% discount on line rentals	13c per 64 kbps channel	Telecom
	26c/128 kbps	Recently negotiated
	52c/256 kbps	
	78c/384 kbps	
	Bridging costs from ISDN/IP – \$65/hour Inbuilt bridge costs \$10,000/unit	
4 lines – \$405/month	128k is approx \$1.20 per minute	
1 line (2 channels) – \$100/month	256k is approx \$2.80 per minute	
DHB discounts	384k is approx \$4.20 per minute	
	60c per channel	
\$60-\$120 per month line rental (for 128 kbps)	12c to 48c per minute per line	
IP \$500 per month unlimited use		
\$100 per circuit/line (128 kbps)	12c/64 kbps	
	48c/256 kbps	
\$300/3 lines	60c/384 kbps	
	9c to 14c per channel	

Line rentals	Call costs	Tele-communication Provider
\$30 per line (128 kbps)	17c/64 kbps	Telstra Clear
\$180 for 3 lines (384 kbps)	\$1.02/384 kbps	Onesource – equipment
\$45/line/month (64 kbps)	12c/min for each line	Telecom
\$270/videoconference unit – 6 lines	72c/min for 6 lines (384 kbps)	
\$45/line (64 kbps)		Telecom
\$45/line	12c/min – 72c/min for 6 lines	Telecom

The following points summarise the key findings from the table above:

- Line rentals varied nationally from \$30 to \$100 per line with percentage discounts negotiated with each DHB along with various add ons such as bridging costs in some areas; and
- Call costs per minute per line varied from 12c to 60c per line.

Terminology became rather confusing where lines, channels and circuits were used interchangeably to mean the same thing. For the purposes of this report:

- One line which is 128 kbps is made up to two 64 kbps channels; and
- So three lines at 386 kbps is made up of 6 x 64 kbps channels.

In order to be able to negotiate telecommunication and/or equipment economies of scale there needs to be a structure/vehicle to negotiate from. SISSAL with Canterbury DHB provide a model for such negotiations negotiating on behalf of all six DHB's for the communication requirements of all Health sectors.

TAS has created a structure to negotiate for equipment purchase and maintenance contracts for videoconference units on behalf of the Central Region DHB's.

At present ten of the sixteen DHB's participating in this project each have separate telecommunication contracts.

3.7 Feasibility of a Central Booking Mechanism

Part of looking at a national network for videoconferencing would require the option of having a national web-based booking system for the use of videoconferencing within the Mental Health sector in New Zealand.

The Telepsychiatry Strategic Plan in 2002 identified the need to have a central booking system for videoconferencing indicating scheduling was a barrier to use after getting clinicians buy-into use the technology.

The following issues were summarised during the 2002 Telepsychiatry Strategic Plan:

- There is varied information available around collection of statistics for use of videoconference equipment within the Mental Health sector. Bookings are generally made using a form, email or a phone call. Some information is collected around purpose of call and duration but this is sporadic;

- Access to ISDN numbers not currently in a directory on the videoconference machine is a problem. A national directory of ISDN numbers and facilities does not exist. International numbers are available (for a price) but others cannot currently share information gained by some sites; and
- Inability to easily access general information around the use of Telemedicine, facilities and booking contact details within the Health sector was a consistently reported issue.

The results of this pilot have found that not much has changed:

- Statistics around usage of videoconferencing within the Mental Health sector other than cost based data from telecommunication billing was minimal. Some information is collected manually in some areas around purpose of use, but nothing around clinical, training or administrative outcomes;
- The project has set up a directory of ISDN and IP numbers for within the Mental Health sector. This directory needs to be managed to be kept up-to-date; and
- There is still no centralised network to enable communication within health around videoconferencing uses.

Telepaeds, the nationally networked videoconferencing service for the Paediatric Health sector, is the only example of a centrally managed IP network system with an associated centrally managed scheduling and booking mechanism.

Concern has also been expressed about the potential for ongoing duplication of resources. One of the significant contributors to this issue is the lack of any visibility of Telemedicine development across the Health sector at a regional or national level.

Fortunately these issues are now being addressed at a national level by a working group assigned to report to the Minister of Health about the opportunities for a national Telehealth network within New Zealand. Telehealth Working Group with Dr. Jan White CEO of Waikato DHB as the Chair.

3.7.1. What are the viable solutions to the problem?

1. A national Telemedicine directory that everyone knows how to access is the first step to addressing some of the issues.
2. A centrally managed IP network would be the ultimate solution.

Table 10. Summary of the pros and cons for having a national Telemedicine directory site.

Pros	Cons
Everyone know where to look for the most up-to-date information.	Someone has to manage this service – by keeping contact and site details up-to-date.
Any changes are updated immediately.	You need Internet access and an email service to use.
Everyone knows this information is recent.	Does not necessarily connect into technical support.
Statistical information can be gathered on frequency, duration and purpose of use.	
Other areas of health would know where to look should they want to use the service.	

Pros	Cons
There would be transparency of use and or lack of use.	

Table 11. The pros and cons of a centrally managed IP network.

Pros	Cons
Easy to manage – Telepaeds is a working example.	Can only manage IP network and IP capable equipment.
Easy to pick/trouble shoot problems and sort them from central source due to technology being used.	Twenty-three of 60 (38%) units with the Mental Health sector are not IP capable.
Easy to keep track of usage, frequency, purpose and duration.	Expensive to bridge from ISDN to IP capable networks.
The way development with videoconferencing technology is heading.	

3.7.2. Assess costs, benefits, risks, returns

Table 12. Summary of the costs, risks, benefits and returns of having a national videoconference directory.

Topic	Comment
Costs	<p>This requires to be:</p> <ul style="list-style-type: none"> • Accessible to all via the web; • Maintained and kept up-to-date – someone responsible for its administration; • Easy to make changes and send through updated information; and • Process at end point needs to be administered and kept up-to-date to ensure the process is functional. <p>This does not take into account whether or not equipment at the end points is IP or ISDN capable along with associated costs of line rental and call rates for ISDN use, as well as bridging costs from IP to ISDN.</p>
Benefits	<p>Information about videoconferencing is:</p> <ul style="list-style-type: none"> • Easily accessed; • Up-to-date; and • Accessible to all that want to use this service.
Risks	<p>Greatest risk is that the administration of units at the end points falls behind creating issues around scheduling and accessibility. Reliant on people being available to administer system. Administration only available within business hours. Technical support may or may not be available at time of use.</p>
Return on investment	<p>For the effort required to keep a directory up-to-date from a recognised central website – the return would provide useful information that over time could grow into something more. Need to keep within mental health to be manageable.</p>

Table 13. Summary of the costs, benefits, risks and returns of having a centrally managed IP videoconference network.

Topic	Comment
Costs	<p>This requires:</p> <ul style="list-style-type: none"> • Connection to a relevant IP network which may already be available or may need to be installed or updated; and • Initial cost of installing relevant software to manage scheduling, booking, billing and technical trouble shooting. <p>Ownership, management and administration of such a service.</p>
Benefits	<p>Main benefit being ease of scheduling and associated support of such a system:</p> <ul style="list-style-type: none"> • Removes initial barriers to use therefore will be used more; • Cost of IP monthly networking a consistent rental – only extras if bridging required to ISDN technology; and • Accessible to all that want to use this service. <p>Clear understanding of cost and administration before use.</p>
Risks	<ul style="list-style-type: none"> • System needs to be accessible to all that want to link into it within the Health sector. • New IP capable technology needs to be used. • Older ISDN technology does not fit into the system. <p>Reliant on adequate bandwidth being available to support the system.</p>
Return on investment	<p>Given the required technology is in place, both the Health Intranet and two DHB's have the ability to manage or set up their own internal IP network – the issue is more around a centralised structure that can be centrally managed. The main issue with this being ownership and cost responsibility.</p>

3.7.3. Which solution is recommend and why?

The following summarise the solutions available to this project in ascending order of ability and ease to implement with 1 being the easiest solution through to 4 requiring the most effort.

1. The MHWD Programme would provide continuity and sustainability from the project via their website with a web page for:
 - Maintaining an up-to-date videoconference directory of the 60+ videoconference sites within mental health, contact peoples names and contact details, site addresses, and phone numbers with relevant ISDN or IP numbers;
 - An events calendar of what is happening within New Zealand/overseas that people could hook into for events, meetings, training seminars available via videoconference;
 - Monthly news updates from the regional coordinators around what is happening in each of the four regions re use of videoconferencing; and
 - Programme meetings within the MHWD Programme that would eventually be available via videoconference link-ups.
2. The MHWD Programme would provide a mechanism towards supporting best practice using videoconferencing by updating and evaluating guidelines around the use of videoconferencing towards supporting workforce development initiatives.

Clinical and organisational guidelines have been drafted as an output from this project. Using videoconferencing is still evolving as a tool to support service delivery within health, be it for clinical, educational, workforce development or administrative purposes. Guidelines around best practice for the use of videoconferencing need to provide a baseline to support integration of this tool into service provision. This process would require:

- A reference group to review evaluate and update guideline recommendations on an annual basis and publishing these from the MHWD Programme website. This would be facilitated through the MHWD Programme and be linked to a national body looking at Telehealth guidelines.

3. A national booking mechanism and centrally managed services.

This outcome could be scoped for mental health once a direction has been decided as how best to implement Telemedicine within the Health sector at a national level.

With the rate and speed with which technology is developing today, a national network for videoconferencing within the Mental Health sector needs to be considered within a national framework so as not to reinvent the wheel or waste resources already in place.

4. Contract for a managed IP service through a “Telemedicine” Framework.

An option for the Mental Health sector could be for Telepaeds/Telemedicine to provide a managed service for videoconferencing as part of Telemedicine’s national strategy. To gain maximum advantage of a managed service the sector would need to develop a business case for providing such a service. The MHWD Programme would facilitate the scoping and requirements of such a business case should this option be chosen. (Please note that this project uses Telepaeds as an example of a managed Telehealth service and does not necessarily advocate this service over other managed service options.)

4. Results

4.1 The Problems

The problems this project has attempted to address, taken from the Project Goals, are summarised as follows:

1. There needs to be an acceptable and accessible network for now and into the future;
2. The network needs to be cost-effective;
3. Network needs the capability to take advantage of new technical developments;
4. Need to use best practice standards;
5. Need to increase the capacity of existing network with utilisation of existing sites; and
6. Need to increase integration with other services – regional and secondary.

In summary the project needs to address a national problem with a national solution by addressing the feasibility of an integrated network for videoconferencing within the Mental Health sector.

For any of the above problems to be addressed within the Mental Health sector there needs to be a national mandate for a national solution.

The following are some of the issues summarised for each identified problem.

4.1.1. Acceptable and accessible network

The use of videoconferencing within the Mental Health sector is sporadic being well utilised within some DHB's and regions driven by the need for better access to clinicians and staff, and in some cases for training purposes. There is some coordination of use at a regional level, the main purposes being for specialist consultation, clinical review of inpatients, case presentations, speciality service meetings between DHB's and regionally, with some non-clinical and workforce development coordinated activities.

There is however very little coordinated at a national level, some national meetings provide an option to be attended via videoconference. The main reasons given for not using videoconferencing as an option were given as follows: the ability to coordinate sessions proving difficult across a number of venues; lack of awareness of where units were to be accessed for national meetings; large regions expect smaller regions to travel and have not considered alternatives; and smaller regions would like the option not to travel but are often not given a choice.

At present there is no one network for videoconferencing within the Mental Health sector. There are 60 videoconference units among the sixteen DHB's that participated in this project. They all use ISDN technology to link up usually with other units within a DHB, in some cases between DHB's, and occasionally to link up nationally. A national directory of ISDN numbers, contact details of people who organise room bookings and room locations goes some way to coordinating an ability to network nationally, to improve **accessibility**. This structure has a long way to go to be **acceptable**. This structure in its present state is redundant to what is possible for the future.

4.1.2. Cost-effective network

For a videoconference network to be cost-effective there needs to be a centrally managed structure through which telecommunication and equipment contracts can be negotiated to maximise economies of scale. The SISSAL/Canterbury DHB model is a good example of this.

4.1.3. Network capability

Given the way technology for videoconferencing is developing, the majority of what is used at present being ISDN technology is quickly becoming out-of-date. IP standards are the way videoconferencing technology is developing which then requires an information technology network capable of managing these expanding requirements to maximise their potential.

4.1.4. Best practice standards

At present within the Mental Health sector there are and have been examples of pilots set up to use videoconferencing to benefit clinicians, staff, patients and their families. There is however little documented about these pilots and or any outcomes are difficult to source for the purposes of consistency and or standards of practice. The Draft New Zealand National Telepsychiatry Clinical Practice Protocols and Guidelines (0510) (MHWD Telepsychiatry Project, 2004) are the beginning towards providing some guidelines towards establishing best practice for the use of videoconferencing within the Mental Health sector.

As part of a search of international literature around best practice standards within Telehealth, a 'Framework of Guidelines' developed as a National Initiative for Telehealth (NIFTE) in Ottawa, Canada (NIFTE Research Consortium, 2003), has been used as part of this pilot to guide what could be adapted for the Mental Health sector within New Zealand. These guidelines cover five key areas that an organisation is required to review in order to implement Telehealth initiatives. For the purpose of this pilot, we have applied and reviewed these guidelines according to the use of videoconferencing within the Mental Health sector as being similar principles to that of setting up Telehealth initiatives.

Table 14. The key heading areas the NIFTE guidelines address.

Area	Topic
Clinical Standards	<ul style="list-style-type: none">• Duty of care• Communication with patients• Standards/quality of clinical care• Patient confidentiality• Informed consent
Human Resources	<ul style="list-style-type: none">• Human Resource plans and policies• Roles and responsibilities• Licensure and related issues• Competency and qualifications• Education orientation and training• Reimbursement
Organisational Readiness	<ul style="list-style-type: none">• Planning readiness• Workplace environment readiness• Technical readiness

Area	Topic
Organisational Leadership	<ul style="list-style-type: none"> • Organisational issues • Organisational accountability • Ensuring quality Telehealth services • Continuity
Technology and Equipment	<ul style="list-style-type: none"> • Procurement practices • Safety • Security • Diagnostic quality • Reliability • Acceptability

Within the Mental Health sector there are two areas where there are some guidelines, within some DHB's, for using videoconferencing being for clinical standards and for technology and equipment standards. Clinical standards consisted of policies being in place outlining aspects of patient confidentiality and informed consent along with purpose of use for videoconferencing. For technology and equipment, some DHB's had guidelines in place for procurement practices, security, and maintenance in relation to equipment supply, use and maintenance. These guidelines however were not standard across DHB's.

There were no examples of organisational readiness, organisational leadership or human resource standards to be found as part of the regional pilots.

Waikato DHB is now looking at developing an overall DHB strategy for Telehealth into which the use of videoconferencing will belong.

As stated in the introduction to the NIFTE 'Framework of Guidelines' it is important to understand what is meant by the terms guidelines and standards.

A standard is a statement established by consensus or authority that provides a benchmark for measuring quality and that is aimed at achieving optimal results (NIFTE Research Consortium, 2003).

A guideline is a statement of policy or procedures by which to determine a course of action or give guidance setting standards (Loane and Wootton, 2002). According to Loane and Wootton (2002), standards imply technical compliance with rigid and defined criteria while guidelines imply following recommended, and to some extent flexible, practices. The overall aim of guidelines is to promote best practice and to improve the consistency and efficiency of health care, based on scientific and clinical research and expert opinion. The definition for guidelines is consistent with the intent of the NIFTE Framework for Guidelines.

4.1.5. Increase network capacity

As part of reviewing the ability to increase the capacity of the existing network with better utilisation of existing sites the following outcomes were noted:

1. Many sites were using minimum bandwidth capacity at 128 kbps, which is reasonable for meeting purposes but totally inadequate for clinical assessment and consultation purposes. 386 kbps is the minimum bandwidth recommended for quality picture and sound for clinical purposes. Knowledge of this meant changes were made to bandwidth accessed thus increasing the quality of sound and picture at both end points;

2. Similar to above some sites as an end point only had 128 kbps capacity while the other end point was using 384 kbps capacity and were wondering why the quality of sound and picture was so poor. The transmission capacity defaults to the lowest capacity in this case;
3. Some equipment was so old it was not capable of receiving quality picture and sound thus affecting the other end point. This is being addressed in several areas where video equipment is being updated and replaced;
4. Some DHB's were unable to maximise the bandwidth potential required, Tairāwhiti being one and Hawkes Bay to Wairoa being another example. Both DHB's line capacity was limited and outside of their control. Bandwidth access is also a problem for parts of the South Island, notably the West Coast and parts of Otago and Southland; and
5. Cost was mentioned as an issue for why some areas were using 128 kbps as opposed to 384 kbps. Line rental and call costs for ISDN from using 128 kbps increases three fold if using 384 kbps. This was however difficult to qualify and quantify due to the lack of data around cost versus frequency of use versus quality of outcomes.

In summary, any ability to increase the capacity of the existing ISDN network is totally affected by the existing telecommunication line network in place.

There is at present no national IP capable network for videoconferencing within the Mental Health sector. Technology is available now for this to be implemented. The ability to access a broadband network nationally for health as has happened with Project PROBE (Ministry of Education) for the education sector, would go a long way to improving network capacity. A network however is still required to be set up to maximise this technology.

4.1.6. Increase integration with other services

One of the project outputs required reviewing the ability of the Mental Health sector to integrate with other videoconference services within the Health sector, not only at a regional level but at a secondary level as well.

There is only one national network for videoconferencing set up within Health within New Zealand being Telepaeds. Telepaeds, was set up through the New Zealand TelePaediatric Society (NZTS), and was formed to act as a direct Telehealth solution for the paediatric community of New Zealand. Telepaeds consists of a national network for videoconferencing within the paediatric community, which is centrally managed by the NZTS. The Telepaeds model was identified early in this project as a structure that could potentially be integrated with the Mental Health sector towards achieving a national videoconferencing solution.

This opportunity is being further researched as part of a national Telehealth initiative.

4.2 The Solutions

The following solutions are recommended in an attempt towards providing a national videoconferencing network for the Mental Health sector.

4.2.1. Acceptable and accessible for now and into the future

An immediate solution towards providing an acceptable and accessible network is to provide and maintain an up-to-date videoconference directory of the 60+ videoconference sites within mental health, contact peoples names and contact details, site addresses, and phone numbers with relevant ISDN or IP numbers.

The next option towards improving acceptability and accessibility into the future would be to scope a national booking mechanism. This outcome could be scoped for mental health once a direction has been decided as how best to implement Telemedicine within the Health sector at a national level.

With the rate and speed with which technology is developing today, a national network for videoconferencing within the Mental Health sector needs to be considered within a national framework so as not to reinvent the wheel or waste resources already in place.

4.2.2. Is cost-effective

A more cost-effective solution would be closely tied into a national initiative and strategy for Telehealth. Networking and communication solutions would be best achieved working under a structure that could negotiate cost-effective economies of scale throughout the Health sector.

4.2.3. Has the capability to take advantage of new technical developments

Again the best solutions to take advantage of new technical developments would need to be part of a national initiative given the speed with which technology and communication solutions are developing. Any new developments need to be reviewed in the light of future proofing the strategies to be put in place.

4.2.4. Uses best practice

The MHWD Programme would provide a mechanism towards supporting best practice using videoconferencing by updating and evaluating guidelines around the use of videoconferencing towards supporting workforce development initiatives.

Clinical and organisational guidelines have been drafted as an output from this project. Using videoconferencing is still evolving as a tool to support service delivery within health, be it for clinical, educational, workforce development or administrative purposes. Guidelines around best practice for the use of videoconferencing need to provide a baseline to support integration of this tool into service provision. This process would require a reference group to review, evaluate and update guideline recommendations on an annual basis and publishing these from the MHWD Programme website.

This service could be facilitated through the MHWD Programme and be linked to a national body looking at Telehealth guidelines.

4.2.5. Increase the capacity and utilisation of the existing network

Technology is available now to increase the capacity and utilisation of the existing network. The ability to access a broadband network nationally for health as has happened with Project PROBE (Ministry of Education) for the education sector, would go a long way to improving network capacity. A network however is still required to be set up to maximise this technology. This would need to be considered in light of a national strategy for Telemedicine to be cost-effective.

4.2.6. Increases integration with other services at a regional and secondary level

The Telepaeds model for a national videoconference network could be adapted by the Mental Health sector as one option toward providing a centrally managed videoconference solution. This option could provide the technical solution. The Mental Health sector would still need to determine fit for purpose as to how best it would integrate the use of videoconferencing into service delivery not only for clinical purposes but also for workforce development initiatives.

An option for the Mental Health sector could be for Telepaeds/Telemedicine to provide a managed service for videoconferencing as part of Telemedicine's national strategy. To gain maximum advantage of a managed service the sector would need to develop a business case for providing such a service. The MHWD Programme could facilitate the scoping and requirements of such a business case should this option be actioned.

4.3 Cost Benefits

One of the main reasons for the existence of Telepsychiatry and/or the use of videoconferencing within the Mental Health sector is the perception that staff and patient time is being saved by holding case conferences and/or consultations remotely.

An outcome of this project is that very little information is being collected or is available retrospectively around the costs and/or benefits of using videoconferencing within the Mental Health sector. The only information available in varying forms of accessibility were call costs, frequency, length of call and where call was made to – all taken from telecommunication billing data.

Often with the use of videoconferencing, time and travel savings for people not having to travel to meetings or consultations are quoted as being a cost benefit. There has been no data of this sort generated for this purpose to give these measures any validity.

When looking at cost benefits for videoconferencing the appropriate measurement and analysis of costs is fundamental to any economic evaluation. Five questions need to be asked when reviewing the cost/benefits of videoconferencing:

1. Whose perspective is being considered?
2. What costs should be included?
3. Over what time period should costs be measured?
4. Who will provide the resource use data in order to generate costs?
5. What is the source of the unit cost information?

4.3.1. Perspective

It is important to determine the perspective from which an economic evaluation is established. Generally the focus is on the cost of providing the health service. It is also likely that any change in the way that a service is delivered will have an effect on non-health care services, families, patients and society in general.

4.3.2. Costs to include

Economic evaluations usually compare at least two treatments or modes of service delivery, or alternatively focus on a single treatment or mode of delivery and compare the situation before

and after its inception. Opportunity costs are costs incurred when opportunities are forgone by engaging in a particular activity. It should be apparent that opportunity costs and financial or accounting costs may well be different, although the latter are frequently used. The project found no evidence of any cost or opportunity cost factors being collated in relation to the use of videoconferencing.

4.3.3. Time period of which costs should be measured

The introduction of Telepsychiatry services will inevitably incur substantial start-up costs. Although there is a downward movement in the price of the necessary hardware, it still constitutes a major investment for any mental health care provider. The costs of equipment should be apportioned over the expected lifespan of the equipment. The initial period during which a new videoconference service is introduced, staff are trained and the equipment is used will be operationally different from the situation six months later. To make valid comparisons between using videoconferencing versus existing services may be necessary to wait until a “steady-state” has been achieved. When a new service is introduced a sufficient period of time should be used to detect any changes in resource use. In mental health care evaluations a cost period of between 3-12 months is generally used.

4.3.4. Sources of resource use information

The evaluation of a Telepsychiatry service is different from that of other service innovations in that many of the effects may not be realised by the patient, and in such situations data provided directly by staff may be warranted. An example being a case conference in which the patient may or may not be present could be facilitated via video link, and the main cost impact of this could be travel-time savings for professionals who would otherwise have had to travel to one central location.

4.3.5. Unit costs

The purpose of conducting an economic evaluation of a videoconferencing service is usually to justify its existence to local managers and policy makers, and as such the unit costs attached to the measures of resource use need to reflect local circumstances. Evaluation findings in one area may be used to inform planning in another setting. If this potential is to be fully exploited then generic cost units should also be considered. For example in the United Kingdom, generic unit costs for a number of mental health care services have been published by Netten et al (2001).

4.3.6. Review of economic evaluations in Telepsychiatry

Few economic evaluations of Telepsychiatry have been conducted. This is ironic since one of the main aims of Telepsychiatry is to reduce costs and increase access. However, good studies have been conducted in other areas of Telemedicine (Wooten, Yellowlees and McLaren, 2003). Studies to evaluate the benefits of Telepsychiatry have tended to have small sizes, have predominantly taken of cost – minimisation perspective where costs are not linked to patient outcomes, have measured costs narrowly and have not explored the implications for the broader mental health care system. It is therefore not possible to determine whether Telepsychiatry is an efficient alternative to existing methods of care provision based on the current literature.

One outcome that is clear from a small number of economic evaluations of Telepsychiatry is that the level of activity is the main factor influencing its efficiency. One solution to potentially low rates of use is to open up the system to other specialties, such as those focusing on the

physical and social conditions of patients. This would seem to be a good use of technology in that patients with mental illness frequently also have physical health problems as well as social difficulties.

Another area that needs further comprehensive evaluation are those areas that assess not only the broad cost implications of Telepsychiatry but also link cost data with patient outcomes in order to determine the worth of this form of care delivery.

5. Conclusions

Having reviewed the problems, solutions and cost benefits around implementing a national videoconference network for the Mental Health sector, the following key points summarise the conclusions that have been reached on behalf of this project.

The project has been asked to review the use of videoconferencing within the Mental Health sector so as to enhance and encourage its use, not only for clinical purposes but also for workforce development initiatives.

In order to provide a cost-effective network/infrastructure that is acceptable and accessible for now and into the future, a nationally managed IP infrastructure would provide the best option for a national solution. Such a national solution would ensure the best utilisation of a cost-effective infrastructure by leveraging economies of scales to their best advantage. This option would require being part of the national recommendations from the strategic direction of the Telehealth working group for New Zealand.

A national governance structure would provide a platform for providing the strategic and operational direction towards supporting best practice standards for videoconferencing as a part of an overall TeleHealth initiative. As part of best practice standards there would need to be some standardisation around what constitutes a measurable outcome for service delivery and how best to generate the relevant data to measure these costs and benefits to service provision.

To support the national provision of any clinical and workforce development initiatives using videoconferencing requires some coordination both at a regional level through to a national level. There are structures in place within the Mental Health sector to support regional initiatives however, in order to provide national solutions there needs to be a national mandate to do so. It is hoped this would come out of the recently set up Telehealth review through the Ministry of Health.

6. Transition

The Telepsychiatry Implementation Phase 3, has been the third stage of the original project initiated by DHBNZ in 2002 which looked at an overall strategy for videoconferencing within the Mental Health sector. To ensure this implementation phase continues after the project finishes, there needs to be a framework in place to ensure the continuity and sustainability of outcomes.

The project outputs to date have provided the following structural elements towards building a support framework:

- A website providing information specific to best practice, guidelines and reference material;
- A national directory of videoconference sites, equipment and contact details from participating mental health sites;
- Draft national clinical guidelines for Telepsychiatry;
- Organisation guidelines for setting up Telehealth initiatives which includes clinical, technical and equipment, organisation readiness and leadership, and Human Resource guidelines; and
- Business case guidelines for implementing a videoconference solution.

The above structural elements support some of “WHAT” that needs to be in place in order to support the operational use of videoconferencing. In order to sustain any progress made the framework also needs the “HOW” and “WHO” elements to be taken up and owned within the sector (nationally) for continuity.

The HOW and the WHO factors would be supported by a governance infrastructure, to be recommended by the national Telehealth working group.

Governance of a national Telehealth strategy could consist of two major processes. That of Stewardship and that of Custodianship.

6.1 Stewardship

For Telemedicine stewardship would exist at a national level while implementation of videoconferencing would be under the custodianship of the implementing sector organisations.

Governance comprises:

Stewardship, which is

Representation of stakeholder interests

Oversight of the delivery of the strategy to meet these requirements.

and Custodianship, which is

Day-to-day management

Operational decision making on allocation of resources or funds

Management of information systems or business projects.

Stewardship would clearly determine:

- Who key stakeholders are;
- Who would be responsible and accountable for defining requirements;

- The development and use of resources would be clearly stated so as to reduce the risk of either duplication or gaps in services;
- Prioritisation of various projects;
- Quality assurance;
- Championing emergent strategies;
- Setting standards;
- Developing funding options; and
- Monitoring and reviewing progress.

6.2 Custodianship

Custodianship would occur within each Health sector/region/DHB keen to implement the use of videoconferencing. Factors to consider under custodianship would be:

- A clearly defined business case around purpose of use so as to determine equipment purchase, spread, day-to-day management of;
- Service integration factors such as documented guidelines for use, roles and responsibilities, technical support required, infrastructure issues, booking, monitoring and evaluation processes to be put in place; and
- Need a mechanism to continue input and evaluation of guidelines for use of videoconferencing.

Once these national structures are determined for Telehealth in New Zealand the outcomes of the Telepsychiatry project from 2004 could be used as an example for other Health sectors as how best to integrate such technology into service delivery.

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8. Glossary of Terms

Term	Definition
BRI	Basic Rate Interface – An ISDN access or subscriber line, consisting of two 64 kbps B ("bearer") channels and one 16 kbps D channel used for both data and signalling purposes.
DHB	District Health Board
Infrastructure	The components required to ensure that the equipment is functioning appropriately – lines, exchanges, equipment maintenance.
ISDN	Integrated Services Digital Network, currently the most common network used to transfer audio and video images during videoconferencing. A switched network service providing end-to-end digital connectivity for transmitting voice, data and video simultaneously over a single line versus multiple. Uses high-speed, out-of-band signalling. There are two major forms of ISDN: BRI and PRI.
IP	Internet Protocol – use of Internet lines to transfer data. The emerging option.
PRI	Primary Rate Interface – An ISDN subscriber line consisting of twenty-three 64 kbps B channels and one 64 kbps D channel used for signalling. ISDN uses circuit-switched bearer channels (B channels) to carry voice and data and uses a separate data channel (D channel) for control signals via a packet-switched network. This out-of-band D channel allows for features such as call forwarding, call waiting and advice of charge.
Service	A Mental Health Service provided from within a DHB structure.
Site Administrators	Staff within each Mental Health Service who are responsible for booking/room management, bridge booking, user training, equipment testing and fault management.
TUANZ	Telecommunications Users Association of New Zealand Inc.
Telehealth/Telemedicine/ Telepsychiatry	Words used to cover a range of initiatives generally around the use of telecommunications technology to support health care delivery.
Videoconferencing	Videoconferencing is the simultaneous transmission of both audio and video images between two or more sites in real time (live).

9. Appendices

9.1 Summary Facts from the Four Regions

Region	What used for	Monthly Usage	Age of Equipment	Main Issues/Barriers	Future Developments
Central Region	<ul style="list-style-type: none"> Liaison Consultation with senior psychiatrists from larger DHB's to smaller DHB's – decreasing service. Supervision and education of psychiatric registrars – in pockets. DAMHS meet regularly via videoconference. Team meetings in some areas. Clinical consultation, assessments, reviews and discharge-planning meetings happen to a lesser degree. Whanau meetings on a minimal scale – use to date for those that have has been totally positive. Main use between Capital and Coast, Central and Hawkes Bay DHB's internally with some intra DHB use. Forensic is area that used videoconferencing most. 	<p>Based on 3 units usage from Capital and Coast DHB varied from 1-15 hours/month. Average monthly usage for these units being 6 hours/month.</p> <p>Usage based on cost based data.</p>	<p>15 units total. 12 new units bought in 2003. 11 of 15 units are IP capable. 3 units, 3-5 years old.</p>	<p>Lack of knowledge of existence of a facility. Lack of familiarity with equipment. No training for its use.</p>	<p>Defined process for tracking and provision of statistics on videoconferencing usage will aid in targeting need for training and identify champions. Integrate service use of and training into be part of performance criteria.</p>

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Southern Region	<ul style="list-style-type: none"> • Administrative • Clinical • Workforce development • Recruitment • Supervision • Regional • Case conferencing • Family access 	<p>Average use ranges from half an hour to 32 hours per month.</p> <p>One DHB of the six surveyed did not have usage information.</p>	<p>3-5 years old.</p> <p>Total of 20 units within the Mental Health sector.</p> <p>12 of 20 units are 6 years old.</p> <p>8 units are now 4 years old.</p> <p>7 of 20 units are not IP capable.</p>	<ul style="list-style-type: none"> • Quality of picture and sound poor and unpredictable. • Cost re time and travel for meetings out of region. • Cost of use/networking. • Equipment outdated. 	<p>All DHB's will continue to support a regional approach to purchasing of equipment and Telco contracts.</p> <p>Use in rural GP settings once access arrangements are sorted.</p> <p>More regional use for specialist services.</p> <p>Teaching opportunities.</p> <p>Interviewing outpatients living outside of the Canterbury area.</p> <p>Put promotion, training and equipment purchase for videoconferencing into strategic plan.</p> <p>Region is reviewing best fit re technologies i.e., ISDN vs. IP.</p>
Northern Region	<p>Mainly used for meetings between Waitakere Hospital and North Shore Hospital, with about four mental health act hearings per year between North Shore and Tohu Wairua.</p> <p>In Northland use is mainly for court days, and between other areas and Whangarei. Psychiatrists use videoconferencing for their weekly Thursday meetings.</p>	<p>No more than 2 hours per month for Waitemata DHB.</p>	<p>3 units at Waitemata DHB – 9 years old.</p> <p>7 units in Northland – 2 being replaced.</p>	<ul style="list-style-type: none"> • Old equipment. • No training. • No drive by service for staff to use videoconferencing. • No funding. 	<p>Northland Mental Health Services to purchase a new unit, which will enable meetings to take place using higher bandwidth (currently limited to 128 kbps by one machine).</p> <p>Waitemata to prepare business case for upgrade of their current units.</p>

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Midland Region	<ul style="list-style-type: none"> Judicial Reviews, clinical consults. Regional Forensic staff based in Taranaki, Bay of Plenty etc. attending forensic meetings. Rural Services management and clinical meetings. Provision of specialty services both within Waikato DHB and regionally. Provision/receipt of training e.g., HoNOS, MHSMART, School of Addictions. Psychiatric Registrar training from Wellington, review tribunals, national and international education/training (CME, conferences), HoNOS. Regional Mental Health Network meetings, Maori Advisory Group meetings, Regional Clinical Mental Health Network meetings, short presentations from other centres. Formal post-graduate education from Auckland and Massey Universities. Increased use by GPs and other community groups. 	Varied from DHB to DHB.	Varies from new equipment within the last year to older equipment 4-5 years old.	Current Windows NT operating infrastructure does not support desktop at this time.	<ul style="list-style-type: none"> Units planned for Te Kuiti and Tokoroa. Not mental health specific. Located in hospitals. Want to swap Taumarunui Polycom unit with an IP capable unit. Proposed relocation of Hamilton services. Eventually planning for units in Turangi one-stop-shop and possibly Mangakino. <p>Gisborne would like more equipment, however there is no further bandwidth available for Gisborne, which limits the ability to videoconference further up the coast, and to increase the existing capacity.</p>