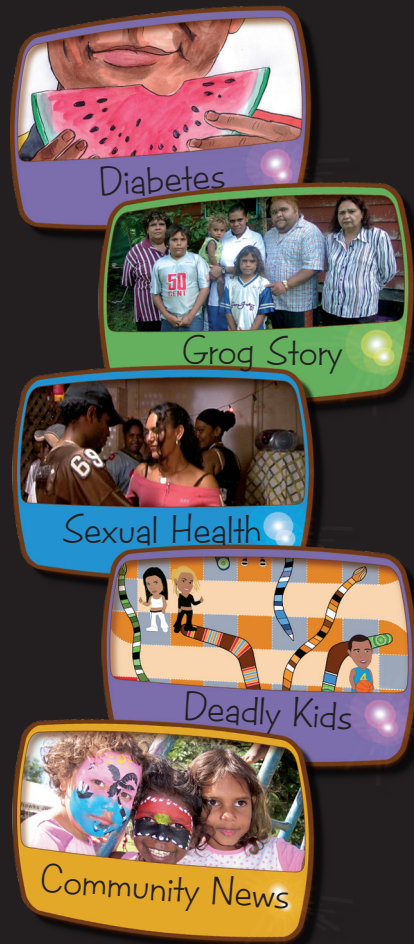


# Health Interactive Technology Report

December 2006

Volume 1



## HITnet

Health Interactive Technology Network

Touch and see and hear and DANCE!

# Health Interactive Technology Report

Volume 1



Report to Health Promotion Queensland on

***“Implementing and evaluating an innovative, sustainable,  
IT-based approach to enhancing health literacy and local capacity in  
disadvantaged remote populations”***

Ernest Hunter  
Helen Travers  
Julie Gibson

December 2006



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## ACRONYMS

ACRO	Australian Creative Resources Online
ADSL	Asymmetric Digital Subscriber Line (broadband)
ADTRU	(Queensland Health) Alcohol and Drug Training Resource Unit
AERF	Alcohol Education and Rehabilitation Foundation
AHC	Adult Health Check
AIHI	Australian Indigenous Health Infonet
AMP	Alcohol Management Plan
ATODS	(Queensland Health) Alcohol Tobacco and Other Drug Service
AUDIT	The Alcohol Use Disorders Identification Test
BI	Brief Intervention
CDEP	Community Development and Employment Program
CDS	(Queensland Health) Chronic Disease Strategy
CEC	Community Engagement Coordinator
CRRMH-Q	Centre for Rural and Remote Mental Health - Queensland
CYDN	Cape York Digital Network
CYHSD	Cape York Health Service District
DATSIP	(Qld.) Department of Aboriginal and Torres Strait Islander Policy
DOGIT	Deed of Grant in Trust
DoHA	(Commonwealth) Department of Health and Ageing
DON	Director of Nursing
DVD	Digital Video Disk
EQ	Education Queensland
FAS	Foetal Alcohol Syndrome
HIT	Health Interactive Technologies (the program as a whole)
HITnet	Health Interactive Technologies Network
HPQ	Health Promotion Queensland
IHW	Indigenous Health Worker
ICT	Information and communication technology
IP	Intellectual Property
IT	Information Technology
JCU	James Cook University
JSC	Julia Schofield Consulting
MO	Medical Officer
NIHNMF	National Indigenous Health and New Media Forum
NPA	Northern Peninsula Area
NQHEPU	North Queensland Health Equalities Promotion Unit (UQ, Cairns)
OATSIH	(DoHA) Office for Aboriginal and Torres Strait Islander Health
PHC	Primary Health Care
PHCC	Primary Health Care Centre
QH	Queensland Health
RFDS	Royal Flying Doctor Service
RIBS	Remote Indigenous Broadcasting Service (previously BRACCS)
RN	Registered Nurse
SOE	Standard Operating Environment
SPH	School of Population Health (of the University of Queensland)
UQ	University of Queensland
WAN	Wide Area Network (internet connectivity within QH)



## GLOSSARY OF TERMS

Abuzz .....	Sydney based integrated software/hardware touchscreen kiosk provider. Abuzz is the only integrated provider of software and hardware in Australia and have experience in the Aboriginal environment.
Activation .....	The activation of the kiosk by touching the screen.
Administration Website ...	Website created by Abuzz for the HIT project on which is located the Module Editor, access to kiosk remote monitoring and other kiosk administration functions.
Attractor .....	A series of screen savers that play when the kiosks are not in use displaying key messages.
AUDIT .....	A screening instrument developed by the World Health Organization. The AUDIT aims to detect harmful and hazardous alcohol consumption.
Chronic Disease Strategy	Primary prevention, early detection and management of chronic conditions.
ComPack .....	The set of protocols that HITnet has developed to ensure project integrity and cultural safety.
Content rich screen .....	Module screen containing health content information (rather than operational information).
Deploy .....	Send content via the internet to a remote kiosk.
Download .....	Transfer data from the internet to a personal computer.
Enterprise Release .....	Enables statewide implementation of software within Queensland Health
Extract .....	Select a subset of data from a database.
FERRET .....	Queensland Health's computer-based, clinical information management system.
'Grog Kit' .....	An interactive CD for health practitioners to assist in alcohol education, screening and brief intervention activities.
Installation .....	Placement and activation of kiosk hardware in PHCC settings.
Kiosk player .....	Software located on each kiosk hard drive that enables use of multimedia resources.
Module Editor .....	Software tool created by Abuzz to enable creation of new health and community-based content.
Monitoring. ....	The regular, methodical process of gathering routine information over the life of a project to track the performance against the project plan.
Photo Manager .....	Software created by Abuzz to enable communities to create material for local kiosk deployment without demanding broadband level connectivity.
Purposeful session .....	A touchscreen sequence that includes activation of: 1) At least one of the content modules (eg. 'Deadly Kids'); 2) followed by one further activation within that module (excluding 'replay', 'close', 'home', 'back' or 'sound' modify).
QANTM .....	Originally Queensland and Northern Territory Media, now Todaycorp (see below).
Remote monitoring .....	Internet monitoring of kiosk activity.
Sequence .....	A series of activations commencing with an initial activation and terminated by a 'time out' (this includes both purposeful and random use).
Session .....	See "Purposeful session".
Session duration .....	Time from initial activation to completion of a purposeful session.
Time out .....	The period of time without touch activation at which the kiosk is programmed to return to the default attractor screen.
Todaycorp .....	Previously QANTM Studios, and incorporating Impart Australia – the largest e-learning specialists in the Asia-Pacific region.
Trace data .....	The data set captured on the kiosk containing information based on 'touches', time used, order of answers given to onscreen surveys etc.
Upload .....	The process of deploying information or software to the kiosk.



## 1. EXECUTIVE SUMMARY

Health Promotion Queensland funded HITnet in 2003 to undertake the project: Implementing and evaluating an innovative, sustainable, IT-based approach to enhancing health literacy and local capacity in disadvantaged remote populations (hereafter referred to as the HPQ project). This project formed phase 2 of a wider health-IT initiative.

HITnet is a Queensland-based collaborative initiative which has developed and implemented innovative approaches to complex Indigenous health priorities through the use of touchscreen technologies. The HPQ project involved implementation of this initiative in four very remote Cape York Indigenous communities – Kowanyama, Lockhart River, Napranum and Pormpuraaw. The objectives identified at the project planning stage were to:

1. Demonstrate the effectiveness of touchscreen interactive technology to improve health literacy in relation to diabetes, alcohol use and child health;
2. Demonstrate the benefits of touchscreen technology in populations for whom literacy is frequently compromised and English often a second language;
3. Demonstrate acceptance and utility of touchscreen technology in isolated communities;
4. Demonstrate expansion in health promotion activities of community-based Indigenous Health Workers (IHW);
5. Demonstrate health outcomes from this intervention in relation to one specific area – alcohol use;
6. Demonstrate increased local and regional capacity through the development of the health and allied workforce skills necessary to utilise, expand use of and maintain this technology to effect improvements in Indigenous health status;
7. Demonstrate sustainability through a collaborative approach by building on and extending existing relationships across mainstream, community and corporate sectors;

8. Identify those factors necessary for the successful wider extension of this technology to Indigenous communities nationwide.

Through pre-project consultation with the funding body, supplementary objectives were defined, being to:

1. Provide content consistent with a 'learning content' modular approach;
2. Facilitate accessibility by incorporating volume control on-screen;
3. Ensure sustainability of applications maintenance.

A range of challenges were confronted during the project for which solutions were identified and implemented, but which significantly constrained the evaluation. These collateral outcomes related to:

1. Expanding technical applications – this has included both the development of new touchscreen processes and applications (such as the use of narrative process and video representations), but also the deployment of project materials onto new delivery platforms such as interactive CD-ROM, DVD and the web;
2. Cultural processes – including not only the production of culturally informed protocols for production and use of materials, but also the utilisation of the production itself as a culturally informed community development process;
3. Systems capacity – defining and developing technical, institutional, service and community capacity to sustain the entire range of activities necessary to support system sustainability;
4. Cost effectiveness analysis – while this was not incorporated into the HPQ project per se, as a result of this project HITnet has sought to incorporate a cost effectiveness analysis into its expanding activities.
5. Process and outcome evaluation was undertaken involving a range of qualitative approaches and development of trace data analytic capacities.

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6. Although the project resulted in demonstrated use and the capability to assess impact, it did not provide quantitative evidence of health outcomes. What the HPQ project has shown is that:
- a. HITnet approaches are able to be implemented in very remote and challenging environments;
  - b. The system can be maintained and the initiative sustained through Queensland Health;
  - c. Kiosk-based resources will be used by community members;
  - d. There are collateral outcomes that flow from localising production and support, and;
  - e. There is suggestive but not definitive evidence that HITnet influences health outcomes.

The following recommendations relevant to Queensland Health flow from the opportunities identified in the course of the project.

### Formalising HITnet

1. To ensure long term viability in support of QH health promotion activities, HITnet must transform from a project to a program based within an appropriate organisation which has linkages both with QH and with other organisations and agencies addressing issues relating to the health of Queenslanders.
2. The Centre for Rural and Remote Mental Health – Queensland would be suitable and would allow maintenance of a working relationship with the academic sector (UQ, which is a partner within the CRRMH-Q). QH should apply to the Board of the CRRMH-Q to identify appropriate mechanisms to support HITnet Queensland activities as a QH program within the CRRMH-Q.

### Formalising the HITnet – Queensland Health Relationship

1. To support and expand the HITnet activities within Queensland Health a formal relationship should be negotiated and defined. This should include specific consideration of:
  - a. Relevant QH sections involved;
  - b. Roles and responsibilities of parties;
  - c. Relationships to HITnet affiliates;
  - d. Ownership and use of HITnet resources and products;
  - e. Intellectual property;

2. Transition plan to allow QH to manage the QH HITnet network autonomously within the national HITnet system;
3. In order to optimise use and production of HITnet derived resources (kiosk based and other) for health promotion purposes, QH should ensure a formal agreement with Health Promotion Units at local and regional levels through the Public Health Network.
4. Consolidating and Expanding the Evidence Base
5. To ensure that the expanding QH HITnet activities are supported by and add to the health promotion evidence base, HPQ should ensure QH personnel and resources to support data analysis and new project evaluation;
6. To enable incorporation of cost-benefit analysis for Queensland activities, QH should support a formal linkage between the HITnet and an organisation with the appropriate skills and resources to undertake this work (for instance the Policy and Economics Group within the School of Population Health of the University of Queensland).

### Technical Capacity and IT Support

1. To enable extension within the QH IT environment, HITnet should be upgraded to enterprise status within the ISU environment;
2. QH should identify means by which HITnet activities can be coordinated with relevant QH IT systems (for instance FERRET);



3. To support reliability and sustainability QH should ensure that technical support systems are identified and available at state, area and local levels;
4. To ensure local and system-wide support, QH should formalise a working relationship with relevant HITnet technical affiliates (TodayCorp and Abuzz);
5. QH HITnet activities should remain integrated with the wider HITnet system (both in Queensland and other states);
6. To support such coordination, HITnet should retain primary control of technical management for the expanding national system.

### Community Capacity and Support

1. To build capacity within communities QH should provide means to engage local community members in the development and production of relevant health promotion HITnet resources;
2. Given the opportunities afforded through the school system to address health promotion priority areas, QH should formalise a relationship with Education Queensland to optimise such opportunities, including to increase the kiosk network (kiosks in schools), use of other resources (interactive CD-ROMs and DVDs in health promotion), student participation in production and utilising schools as a resource for community developed material.

### Systems Capacity and Support

To optimise the technical, operational and site support for the QH HITnet system, QH should:

1. Endorse and adapt the existing HITnet procedure manual and other relevant protocols to function within the QH environment;
2. Ensure local systems and protocols for use of and maintenance of HITnet resources within QH service areas;
3. Provide the means for dissemination, implementation and ongoing training within the relevant workforce.

### Network Expansion

1. To install and implement new kiosks in QH sites and integrate these into the HITnet network, QH should formalise a working relationship with HITnet affiliates (Abuzz & TodayCorp) in addition to HITnet's Implementation Manager. This will provide the capacity to:
  - a. Liaise with sites;
  - b. Coordinate installation (kiosk vendor, site manager, network IT manager);
  - c. Specify content, deploy content to kiosk hard drive, and check content and functionality prior to transporting to site;
  - d. Check new versions of health content for technical faults (and report to HITnet Technical Manager), and deploy to kiosks
  - e. Ensure detailed planning & scheduling;
2. To develop and implement new software (for eg. CD-ROMs) QH should identify who will approve it for testing and implementation on QH networks at State level, and identify who will provide IT support for software users
3. To expand the reach of the HITnet system within Queensland, QH should support HITnet developing formal relationships with other relevant sectors in which kiosk-based applications appear appropriate – specifically Corrections, Juvenile Justice, Education and the Community-controlled Health Service sector.

### Content Development

1. To optimise production and use of HITnet derived resources (kiosk-based and other) for health promotion purposes, QH should ensure a formal agreement with Health Promotion Units at local and regional levels through the Public Health Network;
2. To develop new health content QH should adapt existing HITnet protocols and procedures in partnership with HITnet's Content Development and Community Development Managers;

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3. To value-add to future QH health promotion resources (outside the HITnet project), QH should coordinate production activities to enable adaptation to the HITnet environment;
4. To value-add to existing QH health promotion resources, QH should enable adaptation of existing digital assets to the HITnet environment;
5. To optimise sharing of resources across the national HIT network, QH should consider IP rights and copyright that facilitate free exchange of new content across the network where appropriate.



## 2. INTRODUCTION

The dire circumstances of Indigenous Australia and the elevated levels of morbidity and mortality are now well known. Based on the 2001 census, the Australian Bureau of Statistics estimated the national Indigenous population at 460,140, comprising 2.4% of all Australians and made up of 90% identifying as Aboriginal, 6% as Torres Strait Islander and the remainder as both.

Some 40% of the Indigenous population are aged less than fifteen years compared to 21% of non-Indigenous Australians, with only 2.6% vs. 12% being aged 65 years or older [1]. Death rates are elevated for almost all causes and are, overall, about four times higher than for non-Indigenous Australians.

Quantifying burden of disease through disability-adjusted life-years (DALYs) in the Northern Territory (which with an Indigenous population of over 55,000 has the largest proportion of its population – approximately one third – of Indigenous descent) reveals that the Indigenous burden of disease is some 2.5 times greater than for non-Indigenous Territorians with the burden in the 35-54 year-age group being 4.1 times higher [2].

In North Queensland the proportion of residents of Aboriginal and/or Torres Strait Islander descent is some three times that for the Queensland as a whole (9% vs. 3.1%) with a greater proportion of Indigenous Queenslanders living in remote settings. Not only are Indigenous Queenslanders disadvantaged by comparison to non-Indigenous Queenslanders, this disadvantage is compounded in remote settings, particularly in remote northern Queensland (specifically in Cape York where this project is sited) [3].

While there is clearly a relationship to social disadvantage, the poor health status of Indigenous Queenslanders is not explicable simply on that basis [4] or on the basis of remoteness [5]. Summarising the health status of Indigenous Queenslanders Harper et al [5] note that for the period 1999-2001 half of non-Indigenous deaths occurred over the age of 78 years, while half of Indigenous deaths occurred in people aged 54 and younger, and that chronic disease hospitalisations occur earlier in Indigenous than in non-Indigenous Queenslanders.

That report – Health Determinants Queensland, 2004 – also documents that relative to the non-Indigenous populations of Queensland, rural and remote Aborigines have:

1. Higher death and hospitalisation rates due to all causes, with higher death and/or hospitalisation rates due to: injuries (especially interpersonal violence and particularly for women), diabetes, respiratory diseases, lung and cervical cancer, coronary heart disease, and suicide and self harm;
2. Higher hospitalisation rates due to infectious and parasitic diseases;
3. Higher fertility and infant death rates, and;
4. More people suffering from, and being hospitalised for sexually transmissible infections.

The key health determinants impacting on the health of Indigenous Queenslanders were identified as:

1. Environmental factors;
2. Socioeconomic factors;
3. Community capacity, and;
4. An increased prevalence of health behaviours increasing the risk of chronic disease.

In relation to socioeconomic factors, the report specifically noted that: “Indigenous Queenslanders also have low access to computers and the internet, meaning that many are denied the benefits of the information revolution” (p. 23).

For Indigenous Australians participation in the digital world is clearly associated with school retention [6] with remote northern Australia, including Cape York, having the lowest rates of Indigenous adolescent participation in education nationally [7]. As will be discussed below, these factors contribute to what has been termed the “Digital Divide”.

This project (HPQ project) and the program in which

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it is located (HITnet), developed as part of a wider approach to addressing the persistent health disadvantage of Indigenous north Queenslanders. Both were informed by an awareness of the complex of underpinning social determinants.

To that end HITnet seeks to expand Indigenous health promotion options to take advantage of opportunities emerging in the rapidly evolving IT and multimedia fields. It addresses key health issues through empowering Indigenous health consumers and providers with culturally-informed information, skills and resources that target not only health-related knowledge, attitudes and behaviours, but increase competence and capacity in relation to IT and multimedia. Thus, this approach both targets a social determinant of disadvantage and ill health, and uses it to support health gains.

This evaluation describes the HPQ-funded project within HITnet. Following a brief overview of relevant literature, the background to HITnet and this project are described. Because of the innovative and complex nature of these interventions the section which follows outlines the key challenges for which solutions had to be found before implementation could proceed. This resulted in adaptations and changes in course that necessarily constrained the project and its evaluation.

The section, Project description – the HPQ project, describes how the goals of the original HPQ proposal were transformed as a result of input from the funding organisation and as a consequence of events and challenges, and how the logic of the HITnet initiative informed the evaluation process.

Process and outcome evaluation sections are structured in order to cover the range of outcome areas specified in the original proposal, following which the general discussion attempts to consolidate and summarise the strengths and weaknesses of this initiative, the lessons learned and the implications of these for future development.

HITnet has involved the cooperation of a wide range of organizations and individuals. In addition to considerable input which was provided pro bono, the following staff positions were created during the course of the HPQ project itself:

- Senior Research Manager and Project Coordinator. Employed 0.8 FTE. This position also took on responsibility for the National HIT Development Program on July 1st 2005, and will continue to be funded 0.5 FTE by HPQ until July 1st 2006;
- Technical Manager. Employed 0.6 FTE commenced work in October 2005;
- Two Indigenous Community Engagement Coordinators. Casual part time positions 0.6 FTE.
- The first position was filled from August 2005 to January 2006. The second position was filled from August 2005 and is ongoing;
- Multimedia consultant employed on contract basis;
- Interviewers (3, part time in three discrete periods).



### 3. BACKGROUND LITERATURE

The literature relevant to this field was extensively reviewed in 2002 by this research team for the Phase 1 (proof of concept) study [8, 9], the commentary of the evaluation report [8] recording that:

From this review of the literature and a sampling of relevant activities within Australia it is clear that the potential of touchscreen technology within health is expanding in the wake of the rapid uptake of IT technology generally. In relation to patient (and other health user) interactive systems there has been a shift over the last two decades from instruction or information provision, to systems that engage by personalising responses and providing feedback.

Touchscreens have been proven to be effective communications means in wider non-health applications and have particular benefits for users with limited literacy levels. While particularly attractive to youth, given appropriate content and design, older age has not been shown to preclude use.

However, in addition to technological sophistication, health application success also requires content, health promotion and social (cultural) expertise. It also demands consideration of location and institutional setting, both in terms of the acceptance and integration within a broader set of goals and activities, and in terms of system and content support, and making available appropriate interventions triggered by touchscreen use.

Effective use of this technology provides for a number of collateral outcomes, including the feedback of information in a timely manner to the wider interested public, and the ability to gather data. In this respect there is some evidence that particular types of information, for instance in relation to substance use, may be more accurately gathered through computer-based approaches than through conventional survey techniques.

Given the above, it is clear that evaluation must be attuned to far more than use. Indeed, it is also clear that such technologies may be user friendly and widely accepted without influencing the health outcomes in question. Evaluation must thus consider how use of touchscreen technology translates into behavioural (and thus health) change. It must also

take into account collateral patient and community/system benefits. The former includes the impact of proxy use (wider health impacts mediated by primary users), and increasing the familiarity of users with (and thus capacity to benefit from use of) computer technology. Community/system benefits include the ability to quickly gather, analyse and present information to users. The reliability of such data may be enhanced by program design, for instance by incorporation of forced answer approaches in particular instances. Having taken into account all of the above, this technology cannot be assessed in isolation and must be understood in the system context in which it is operating.

Finally, it is abundantly clear that IT-based interventions in Indigenous health have been embraced within the mainstream and community controlled sector. There is expertise in Australia in hardware, software and kiosk design and awareness across related activities of the potential benefits of cooperation and collaboration. (p. 20)

Following completion of Phase 1 a further review, instigated by this project team and funded by OAT-SIH, was undertaken by the Australian Indigenous HealthInfoNet (AIHN) preliminary to the development of a national network (see below). The summary of findings from the literature review contained in that November 2004 report [10] recorded that:

- Touchscreen kiosk technology has been embraced at both a national and international level, and has been used to provide a range of health information in a variety of community settings.
- Touchscreen kiosks have a substantial capacity to engage individuals in opportunistic use, and may also have the potential to influence knowledge, attitudes and health behaviours [11, 12].
- Computerised health information is seen to have a number of advantages over other traditional forms of health information delivery: such processes are engaging and appealing, especially if animation and video are incorporated; communication barriers such as low literacy and cultural or language differences are less problematic; the user can choose to receive more or less of the

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information offered; feedback from users can be used to modify or change the health information provided; and interactive programs allow users to 'rehearse' behaviour change strategies [11].

A review of readily available existing literature suggests that there is an overwhelming and enthusiastic response to the use of information and communication technologies (ICTs) in Indigenous communities in Australia [13].

Factors that impact on the use of ICT include difficulties associated with accessing the technology due to: cost; isolation; poor telecommunications infrastructure; and lack of computer skills. Such barriers are being addressed in part through the development of strategic telecommunication plans for remote Indigenous communities [14, 15].

Dyson [16] also describes the issue of cultural appropriateness surrounding the use of ICTs, and suggests a long term goal should be to offer training to Indigenous people in order that they are responsible for the ICT design, implementation and management in their communities.

Similar findings are reported in studies related to the provision of digital library services for Pueblo Indians (in the United States) and Native Canadians [17]. The author recommends the establishment of cooperative networks which encourage participation by Aboriginal peoples in information technologies, including: training and technical support; use of the most reliable and effective hardware and software for the delivery of digital services; and use of programs designed to integrate culture into the delivery of digital projects.

The use of touchscreen technology by minority groups in the United Kingdom relied on a coordinated planning approach between health promotion staff and community members [18]. Regular meetings and communications were implemented prior to the establishment of the touchscreen software platform. Advisory groups from within communities were established to ensure that information was translated appropriately, and at the right level for the community. The consequent interface was piloted among local advisory panel members and modifications made accordingly before extending to the wider community. (p. 5)

For Indigenous Australia generally, there is now evidence of significant disadvantage that results from restricted access to IT and online capacities and resources. Research based on the 2001 census [6] demonstrates that not only is Indigenous computer and internet access substantially lower than for the wider Australian population, but this access is further reduced with increasing distance from metropolitan centres. In a analysis of data from the 2001 Census on computer and internet access Daly [19] reports that for Indigenous Australians:

- Access to computers is well below that for other Australians, particularly in Western Australia and the Northern Territory.
- Home internet access is even more limited for Indigenous Australians with less than 10 per cent of the population having access to the internet at home.

The data presented show that there are significant differences between the capital cities and other areas in each State, with much lower home computer access outside the capital cities. The census evidence confirms a digital divide between Indigenous and other Australians. (p. 13). As Daly notes in relation to community online access centres which are being developed in Indigenous communities, a critical factor in terms of bridging the "divide" is local support and capacity.

The "digital divide" in turn has significant social and health consequences. Thus, education, a key social right and health determinant [20], is a major issue in Indigenous Australia with persisting poor outcomes [21]. Examination of other data from the 2001 census reveals that one of the key factors associated with lower retention of Indigenous adolescents in the education system is lack of access to electronic resources [7]



## 4. BACKGROUND TO THE PROJECT

The health sector in Australia has embraced Information Technology (IT) which offers means to address a range of problems and the needs of particular disadvantaged groups – for instance residents of rural and remote settings.

These new technologies have been rapidly taken up by organisations involved in Indigenous health with obvious benefits. However, as Swanson [22] notes: “IT and telecommunications technologies are proceeding at an extremely rapid pace. The likely social effects are ‘location independence’ of a range of activities and widening gaps between the ‘information rich’ and ‘information poor’. Most of the currently underserved groups will fit into the latter category” (p. S209).

These caveats are particularly salient in relation to IT innovations in health promotion for Indigenous Australians generally and for those living in remote Australia in particular, most of whom are “information poor” as a consequence of being broadly disadvantaged. These differentials, as with health differentials between Indigenous and other Australians, are informed by complex historical, social, economic and political factors [23-25]. Redressing the latter is a whole-of-government challenge and will take time to be consequential for health. However, as Leonard Syme [26] notes:

*insisting only on fundamental and revolutionary social change is dooming us to programs that will take years and generations to take effect. Since it is difficult to implement such major social change, it is easy to ignore inequalities because, they say, nothing can realistically be done about them. Moral outrage about inequalities is appropriate but may be self-indulgent. If we really want to change the world we may have to begin in more modest but practical ways. (p. 9)*

Such “modest but practical ways” include addressing ‘information disadvantage’ by exploring the utility of innovative IT approaches to improve Indigenous health literacy and capacity. The project outlined here is one such example and grew out of an initial project (now considered ‘Phase 1’ of a wider multimedia strategy) that involved a community development partnership between an Indigenous

community (Yarrabah, near Cairns), the University of Queensland and a corporate donor (SmithKline Beecham, now Glaxo SmithKline). The IT component of that community development project was expanded into a pilot implementation of touchscreen technology developed by an English company (Julia Schofield Consulting [JSC]) and funded by the Office of Aboriginal and Torres Strait Islander Health (OATSIH,) with wall-mounted touchscreen kiosks in two settings – the waiting room of an Indigenous health clinic in a large metropolitan community health centre in Inala (Brisbane), and in the Centrelink waiting room of a discrete Aboriginal community (Yarrabah), the evaluation of which was undertaken by the University of Queensland [8].

Following successful completion, the team that had developed around that project sought options to build on the lessons learnt and expertise developed. This involved wide consultation, engagement of new players and significant reconfiguration of the project partnership (addressed below). Through this process a broader understanding of the project as a strategy that had national implications emerged, and the need for a phased, strategic approach, with the abovementioned Yarrabah/Inala project constituting an initial ‘proof of concept’ phase. The overarching and expanding program within which the HPQ project came to sit is the Indigenous Health Interactive Technologies network (hereafter HITnet), the development of which has involved three overlapping phases:

### 4.1 Phase 1 – Proof of Concept (Touch and See and Hear)

Phase one of the strategy was the twelve month pilot project in two Aboriginal communities from July 2001 to June 2002 which identified that Aboriginal people will indeed use this technology, and provided circumstantial evidence that this changes attitudes and intentions. It was not possible to assess behavioural or health status change, or to ascertain sustainability.

As a result of this work the project team sought to explore the impact of this intervention through implementation and thorough evaluation in a wider range of Indigenous settings. Concurrently the

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project team became aware of funding opportunities through Health Promotion Queensland, and of IT and other investments through community controlled and mainstream service sectors in Cape York. An application to HPQ resulted in funding for a project to be implemented in four discrete communities. Additional resources and continuing engagement with OATSIH resulted in parallel developments with the emergence of a 'network' approach inclusive of kiosks in South East Queensland, the Cairns area, the four HPQ-funded kiosks in Cape York and, eventually, others elsewhere. During this period of transition the broader strategic vision encompassing subsequent phases emerged.

#### 4.2 Phase 2 – Regional Expansion and Evaluation (HPQ & Enhancement)

The second phase sought to measure health and technology-related outcomes from kiosk use in remote Indigenous settings (being four Cape York communities) - specifically to measure change in knowledge, attitudes, behaviour and local capacity, while ensuring gradual transition in ownership to the local level. As this is the focus of this evaluation – Implementing and evaluating an innovative, sustainable, IT-based approach to enhancing health literacy and local capacity in disadvantaged remote populations – this will be addressed in the body of the report.

As this phase developed, an additional element emerged with realization of important collateral outcomes and the potential to draw on these to amplify impact. It stemmed from awareness of local community engagement and investment in the content creation and production process in Yarrabah which led to identifying one of the Cape York communities as a potential site to facilitate this enhancement in systematic way.

As a result of funding and other constraints, and opportunities emerging through production of new material, two communities became locations for this phase – Napranum (one of the four HPQ sites) and Yarrabah.

While this was supplementary to the proposal to HPQ, and because of political and policy changes (addressed below) that compromised the original evaluation design, this element of phase 2 will be incorporated into this report.

#### 4.3 Phase 3 – National New Media Network (HITnet)

Following extensive negotiations with a range of organizations through the beginning of the HPQ project, funding was obtained from OATSIH in the final year of the project to establish the National HIT Network to:

1. Oversight the expansion of the network to improve access for information-disadvantaged populations and to develop approaches appropriate to the needs of priority groups, more specifically, for Aboriginal and Torres Strait Islander Australians;
2. Develop and manage core partnerships, systems and infrastructure which will facilitate innovation and support demonstration of effectiveness, replicability (across settings, subjects & modalities) and sustainability
3. Utilize participatory development practices to enhance and support localized capacity building activities -
  - content development projects and activities, including health, art, history, bush tucker, etc;
  - alternative uses for the technology – consumer rights information, business, etc;
  - generation, ownership and use of locally derived data & information.

By the conclusion of the HPQ project this initiative had expanded in terms of geographic reach, content development and technical applications. It had grown to involve a total of eleven touchscreen kiosks (which will increase incrementally), multimedia and web-ready product, and community development applications.

The existing system including those kiosks purchased through HPQ are now sustainable through institutional support (Queensland Health and community controlled health services), with additional activities enabled through funding support from DoHA (OATSIH, National Indigenous Australians Sexual Health Strategy and Drug Strategy Branch), Queensland Health (Cairns Health Service District, Cape York Health Service District [CYHSD],



Alcohol and Drug Training Resource Unit [ADTRU]), the Alcohol Education and Rehabilitation Foundation (AERF) and Diabetes Australia. Ongoing working relationships have now also been developed with the corporate sector (discussions with Telstra), industry partners (Abuzz and Todaycorp), other non-health government sector agencies (Department of Aboriginal and Torres Strait Islander Policy [DATSIP], and Education Queensland [EQ]), universities (University of Queensland, James Cook University and the University of Southern Queensland) and Indigenous community controlled organizations.

Discussions have begun to lodge HITnet within the Centre for Rural and Remote Mental Health – Queensland (CRRMH-Q), a partnership of government, academic, corporate and community controlled organizations founded in 2006. Furthermore, preliminary discussions with Indigenous multimedia providers interstate has been initiated regarding the setting up of a National Indigenous Health and New Media Forum (NIHNMF) that will facilitate communication, cooperation and capacity development in this new field.

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## 5. PROJECT CHALLENGES

From the foregoing it will be evident that the HPQ project resides within a wider and far more complex evolutionary process that has seen growth geographically, technically, culturally and conceptually. In breaking new ground, the project encountered and identified solutions for a wide range of unforeseen challenges. This has had implications both for the broader strategy development but also for the evaluation of the HPQ project.

### 5.1 Funding Limitations

#### The Challenges

Breaking new ground in this area is expensive. As this project developed in terms of sophistication and reach, costs mounted dramatically. Furthermore, in relation to the HPQ component itself, the budget submitted in the original proposal was carefully costed to provide product to four very remote communities in a project spanning three years. Although this budget was above the resources advertised in the call for proposals, discussions with the HPQ secretariat had suggested that higher amounts would be considered.

Ultimately, the project was accepted but with the proviso that it be undertaken for funding offered in the original call for proposals, which was some 18% less than sought. Requests regarding a reduction in costs through limiting sites or project duration were not accepted and the project, consequently, absorbed those additional costs.

Furthermore the financial limitations were compounded by a realignment of the project partnership (which, as discussed below, was informed by recommendations from HPQ) which resulted in paying out the original UK partner for participation to that time (5% of HPQ funding). However, the most important additional impost on the budget was the dramatic increase in software development costs that stemmed from this partnership realignment (but which allowed on-shore control and significantly enhanced sophistication of delivery).

In total, this increased the software development component of the budget from approximately 20% to nearly 50% of funds available through the original

grant. Overall, the funding required to deliver the project as proposed increased by approximately 40%.

#### The Solutions

In addition to significant tightening of all budget lines, the deficit was overcome through a variety of measures. Additional funding was sought and obtained which allowed cost-sharing around common goals. Thus, for instance, project funding provided for the development of innovative, narrative presentations of AUDIT material (the Alcohol Use Disorders Identification Test), to boost the evaluation of project impact in the primary care setting, and to upgrade and extend existing modules (Diabetes).

Furthermore, significant input to the project was provided on a pro-bono basis (the Project Manager [HT] gave more time than was allocated by budget, and pro bono time and resources from Queensland Health, the University of Queensland and other non-government sources was substantial). Not only were these factors critical in enabling the core project, but underpinned the capacity enhancement phase. For instance, the in-community support necessary to enable local engagement was supported through the subsequent development of sexual health materials. These measures also allowed for increasing sophistication in terms of the incorporation of state of the art interactive technologies. Finally, difficult decisions were made regarding certain technical service provision activities which, while compromising the goals of capacity enhancement within the community controlled sector, ensured sustainable delivery at manageable cost (see below).

### 5.2 Partnership Realignment

#### The Challenges

The arena, in which this project has operated, across large health, IT and multimedia institutions as well as diverse corporate interests, is complex. It necessarily involves shifting relationships which, in this case, began before the official commencement of the project and following comments from the HPQ Technical Review Committee. The Committee made recommendations in relation to the sophistication



of the IT applications on which the original proposal was based which resulted in a reconsideration of the relationship with the technical provider to that date (JSC) who had also been party to the proposal.

As a result the working partnerships were developed with on-shore e-learning providers (QANTM, now Todaycorp) and integrated software/hardware providers (Abuzz Technologies).

These positive shifts not only came at a financial cost, but resulted in significant delays through contract negotiations.

A second significant realignment occurred when it became obvious that the Cape York Digital Network (CYDN) was still in the development phase and could not provide reliable technical support (indeed this support did not exist at all for two of the four Cape York sites). Furthermore, the costs for this service were prohibitive. While the project maintains a relationship with CYDN (particularly in Napranum, the project enhancement site) responsibility for these tasks was negotiated with Queensland Health which provides presence and capacity in all sites and which, ultimately, has ownership of the hardware (Appendix 1 is a memo from September 2004 detailing the issues involved in the CYDN vs. QH networking decision).

The third institutional realignment was that with OATSIH who have contributed to the funding of every phase of this initiative. Challenges included that OATSIH maintained a relationship with the original technical provider (JSC) which resulted in the development of two incompatible systems in Queensland and interstate (Western Australia). This became increasingly complex around the time that the HPQ grant began, as an organisation was sought by OATSIH to coordinate the development of a national network (the Perth-based Australian Indigenous HealthInfoNet [AIHI], which is itself funded by OATSIH, was proposed by the team for this project on the basis of existing relationships and common interests).

This led to a fourth major realignment. The AIHI was funded by OATSIH in 2004 to undertake national consultations and provide a report assessing the feasibility of a national touchscreen network (Trevaskis & Thomson, 2004), which concluded:

International and limited Australian evidence suggests that the use of touchscreen kiosks can be a valuable component of health promotion programs, and it is likely that they will become even more widely used in this area in the future.

It is important, however, that their use as a part of broader health promotion processes should be viewed within a long-term context. This aspect applies particularly to situations where touchscreens with similar content are provided in a number of settings, such as the case with the proposed network in Indigenous communities.

If enhanced community capacity and sustainability of touchscreen technology is to be achieved, a long-term commitment to the development and support of touchscreens in Indigenous communities needs to be embodied in a formal plan covering at least three to five years. This plan needs to address five main areas: physical infrastructure; training and support; content maintenance; network management; and network extension. (p. 29)

Because of problems that arose in negotiations between OATSIH and AIHI, this project at the University of Queensland was approached at the end of 2004 to take over responsibilities for the national extension of the network. This required extensive negotiations to ensure that the incompatibilities in the systems that had been set up (see above) were resolved and that this was consistent with the directions of the HPQ project, and that provision was made for ensuring adequate local support and training across the network. This was, in essence, the beginning of HITnet.

### The Solutions

These realignments have all come at a cost in terms of time and resources but have provided security, sustainability and the capacity for innovation within the HPQ project and beyond. There are also a range of new relationships that are now being developed with other interested organisations and providers (interstate and overseas) which will further enhance this initiative.

Through these transformations the project has developed from a half-time funded position based on limited experience with one provider – to a national

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network of interested organisations, a range of delivery systems, and a team of dedicated workers now recognised to have leading expertise in this area (Appendix 2 contains a graphic representation of the institutional complexities, including ownership of hardware, software rights and institutional investments at the time that the University of Queensland took over national expansion at the end of 2004).

### 5.3 Technical Constraints

#### The Challenges

The major technical challenges stemmed from shifting at project outset towards increasing sophistication and complexity of the touchscreen / multimedia product, and the shift from JSC controlling all aspects of technical development, to control of technical issues within the project through a series of relationships to onshore provider organisations (Abuzz, QANTM/Todaycorp). For this to happen it was necessary for Abuzz to develop a system that enables kiosk management and content development. No existing product was available to support that task. The original plan was for content to be deployed to the community kiosks through a broadband network (in collaboration with CYDN).

The shift to Queensland Health entailed obtaining access to the QH IT systems (see below). Internet access was initially via dial up, later through the QH Wide Area Network (WAN) which still has significant limitations in terms of internet speed (for instance, the internet download of the first alcohol module to Lockhart River, undertaken over Christmas when less activity was occurring, took more than four days and was still not complete). This issue also impacted the software designed by Abuzz which was created for a broadband supported environment.

The internet limitations not only impacted deploying content, but in maintaining connectivity to support remote monitoring. This problem was compounded by supplier factors (Abuzz) which were only recognised when the multimedia consultant (LG) involved in production of 'Grog Story' and 'Put it on' identified software limitations, and only consistently addressed with the employment of the Technical Project Manager (JG) in the last year of the project, when it was able to be demonstrated to the supplier that the problem did not lie within Queensland

Health (either at the PHCC level or in the wider system) but in one of their own core deliverables.

The key issue here is that the software provider (Abuzz) was tasked to produce new software (the "Module Editor") which was central to the creation of health modules and local community material. The Module Editor is accessed via the "Administration Website" which itself requires broadband access to be functional. As a consequence of the constraints of lack of broadband access in remote settings and the complexity of the Module Editor itself, this tool was found to be impractical in remote settings.

"Remote monitoring" of each of the community kiosks presented problems similarly difficult to define. Over the period of one year during which problems with ensuring monitoring capacity were ascribed by the provider to Queensland Health limitations (fire-wall), the cause of this problem remained hidden. It was only in the last months of the project that it was finally identified as being a provider problem and successfully rectified by Abuzz.

Connectivity issues also impacted development of reliable trace data – a critical factor in evaluation. When functional, data regarding kiosk use is downloaded by internet to a central server on a regular basis. That data is then, theoretically, accessed via the Administration Website. As a result of connectivity limitations, data was not able to be downloaded and, remaining on the kiosk hard drive, eventually led to overflow and loss of data (causing the kiosk hard drives to crash resulting in intermittent kiosk inoperability until this problem was recognised and rectified).

The transition from JSC to Abuzz also led to difficulties in trace data analysis capacity as the latter company did not have experience in this field and in accepting the project contract had significantly underestimated the task (or, conversely, significantly overestimated capacity). This problem was compounded with the increasing sophistication of health modules.

The key unit of trace data analysis is purposeful use – a "session". For the purpose of the phase 1 project, this had been simply defined as a function of module penetration and time between activations (a 'session' was defined as more than two activa-



tions past a “content-rich screen” within a particular time period, with the “session duration” being the time between first activation of a purposeful session and ‘time out’ – itself a period of non-activation).

With the development of the narrative multimedia modules (‘Grog Story’ and ‘Put it on’) this definition becomes problematic as there can be long periods in which the screen is not activated, but while information is being provided to the user (as, for instance, when segments of the ‘Put it on’ video sequences are playing). The challenge was how to obtain meaningful information about both module types without losing information about one or the other.

Also, in relation to trace data analysis, the module architecture constrains the data that can be extracted. While the questions that needed to be answered in order to provide an understanding in depth of module use had been provided at the outset to the content developers, the capacity to extract that data had not been successfully incorporated. Consequently not only was data lost (through connectivity problems) and interpretation confounded (through session time definition), there remain limitations to the depth of level of data analysis possible.

For multimedia modules to play on kiosks requires purpose-built software – the “Kiosk Player”. Because ‘Grog Story’ and ‘Put it on’ were developed in different technical environments (the former using still photographs and the latter video) it was not recognised until these were available for use on the test kiosk in Cairns, that one Kiosk Player could not be used for both types of media.

Finally, these programs can only operate effectively if this is through a delivery system that is attractive, reliable, robust and easily maintained. The kiosks used in Phase 1 (Yarrabah and Inala) were produced by NCR which has subsequently ceased producing touchscreen kiosks. Regardless, the decision to move to Abuzz had already been made and consideration had to be given to a range of considerations (with cost implications) in terms of the particular model utilised. The model ultimately selected included printer capacity. However, while the printers were operational following deployment, feedback from staff revealed a number of problems (particularly relating to children printing off reams of

paper, but also about various foreign objects including bank books and Medicare cards being dropped through the printer port into the machine). This does not exhaust the technical problems that emerged through this project. Indeed, an ongoing Technical Issues Log was maintained (see Appendix 3 for an example) to track problems and their resolution.

## The Solutions

Developing solutions for this aspect of the project was the major challenge encountered. Clearly, some problems could not be rectified, for instance connectivity (although this will change with time). In order to address connectivity limitations health modules (large files) were manually downloaded onto kiosk hard drives at Abuzz, then physically sent to the kiosk site for installation. To overcome the difficulties encountered with the Module Editor required development of a new software tool (“Photo Manager”) that is both simple to use and enables material to be transferred across systems that are not supported by broadband connectivity.

Solutions for problems associated with remote monitoring and with elements of trace data capture were only overcome following dogged investigation and repeated return to the software supplier. The solutions were only possible by developing the knowledge and capacity in-house to challenge technical answers to content and process questions. In relation to the working definition of purposeful use (a session) which underpins analysis, the complexities arising from introduction of multimedia modules has required (in the last months of the project) further software refinement such that differential definitions are used contingent on the module activated. Similarly, the capacity to activate both narrative, multimedia modules (‘Grog Story’ and ‘Put it on’) on the same kiosk required new software that enabled Kiosk Player to handle both.

In relation to hardware, the kiosk selected for the HPQ project was the top-of-the-line, stand alone, Abuzz kiosk (the ‘Spark’ kiosk – see Appendix 4). These required local power and telephone line connections and were ‘dynabolted’ to the waiting room floor with dual lock access to the kiosk interior which contained the hard drive, printer and instructions for local maintenance. This functioned well with only minor hardware problems (a crack appeared in one



screen through the project). Because of the concerns raised regarding practical problems relating to printer use, the printers were removed early in the project (although the potential for reactivation remains).

Through the course of parallel projects less robust hardware was trialled in urban settings but found to be wanting. Discussions are now underway to progress field testing a purpose built, robust and weather-proof, wall mounted model, as well as a system of directional sound that minimises sound radiation, thus supporting privacy.

While these solutions have been instituted through the life of the project, there remain challenges that will only be addressed successfully in the future. For instance, a decision made early in the course of developing the content and logic of the alcohol module resulted in that part of the module which contained the screening tool (the AUDIT) being located at a submenu level (that is, deeper within the module architecture). While the user entering the alcohol module may find this option through a variety of paths, it is not immediately visible. As it is known (from the Phase 1 evaluation) that there is user falloff with depth of penetration into modules, this decision effectively reduces the pool of potential AUDIT users. While recognised soon after deployment to the kiosks, definitive correction to foreground the AUDIT would have required major software redesign, the costs of which were prohibitive.

#### 5.4 Institutional Constraints

##### The Challenges

Serendipitously, this project has been based within an academic health setting more attuned to conventional research than to cooperative, applied research with corporate partners. This created challenges, for instance, in terms of how academic administrative services support the creative processes and players critical to effective multimedia production.

Similarly, as the project came to increasingly rely on Queensland Health services this brought with it technical, procedural and human resource constraints, including:

- Systematic network connectivity;
- Technical support (at State, Regional and District levels);
- Introduction of new software to a Standard Operating Environment (SOE), and
- Kiosk ownership.

These issues necessitated extensive negotiation and documentation to achieve a well-managed, cost-effective, network for kiosks in Cape York with reliable post-production technical support.

Finally, because of the creative nature of this project and the involvement of multiple organisations in both production and use, serious consideration in contractual and other negotiations was given regarding Intellectual Property (IP) and copyright.

##### The Solutions

Overcoming these challenges, while adding complexity and demand in terms of time and resources, ultimately strengthened relationships. In terms of network connectivity, this was recently achieved through facilitation of a year-long liaison between the kiosk supplier (Abuzz) and the network provider, QH. This has now provided the ability to remotely monitor kiosk function, extract trace data and deploy new community content (see Appendix 5 for graphic representation of the network solution).

Ongoing technical support at the above levels has been achieved, though with particular challenges to onsite support. A solution devised by Abuzz has seen onsite technical support provision through outsourcing at the local level to fill the gap created by lack of QH resources (QH have one technical support officer for clinics in the CYHSD). However, this service comes at a cost and will need to be rationalised in the future.

Installing HITnet CD-ROMs onto the QH SOE has been problematic. Future CD-ROM production will attempt to be more compatible with institutional SOEs (see Appendix 6 for example checklist for software production and deployment consistent with QH requirements).



This remains an ongoing challenge. In addition, support arrangements for the implementation of new software state-wide and for ongoing systems support requires extensive negotiation and documentation. QH is currently working with the project to attain “Enterprise Release” status for HITnet software, enabling a state-wide distribution and training strategy to be implemented.

Ownership is crucial to long-term maintenance and day-to-day care of the kiosks. At QH corporate and District levels, agreement has been reached regarding ownership of the four kiosks funded by HPQ. This will ensure sustainable technical support, identification of mechanisms that may link the FERRET information system to the kiosks, and a supportive structure for a future state-wide network.

At the clinic level, while a sense of ownership to instil responsibility for the daily care of the kiosks has been slow to evolve, the project’s Community Engagement Coordinator maintains weekly contact with staff by phone, and is reporting improvements. Furthermore, discussions with the District Manager of CYHSD have begun to lodge these activities within routine health promotion responsibilities.

In terms of IP, a process was developed for this project by which each funding body involved retained copyright for the product they had supported with free access and use guaranteed through a mutual use agreement. This leads to a further significant challenge, as developing this inter-institutional framework also raised the complex area of cultural process and safety.

## 5.5 Cultural Processes

### The Challenges

This project necessarily deals with sensitive issues in communities with quite different expectations regarding protocol. Whereas models for IP and copyright for the wider society are available, this is not the case for working in Indigenous settings – particularly with such an innovative product. The challenge was to develop respectful ways of operating within communities that not only acknowledged local process and protocol, but ensured cultural safety and security for the project through development of agreed and documented formal processes.

## The Solutions

As the project progressed and expanded in terms of range and sophistication, with emphasis shifting to local resource production, specific agreements were discussed, negotiated and formalised. This has resulted in the collation of a set of cultural protocol documents – “ComPack” (see Appendix 7). ComPack is the set of protocols developed by HITnet to ensure project integrity and cultural safety by encouraging ethical conduct and promoting interactions based on good faith and mutual respect. This set of protocol tools enables an agreement to be reached regarding how HITnet will operate in each community. This approach provides a space for agreement regarding activities while acknowledging and respecting cultural difference – both between Indigenous communities and HITnet, but also between Indigenous communities themselves, an issue that becomes particularly important when considering the diversity of Indigenous Australia across urban, rural and remote settings. In addition, the copyright protocols outline appropriate ways of using Indigenous cultural material, and provide a protective framework around ownership and use of materials collected.

## 5.6 Social and Institutional Change

### The Challenges

HITnet now operates across a range of sites in Queensland and Western Australia with touchscreens in both mainstream and community controlled settings (Appendix 8). The four HPQ-project funded touchscreens are located in Queensland Health facilities which provide certain benefits. However, this arrangement also introduces challenges beyond those presented by remoteness. Three particular issues of note for this project relate to the difficulties that Queensland Health has confronted through the last decade and, more specifically, the last three years. Over the last fifteen years there have been five major reconfigurations of health regions and districts, which has been particularly consequential for consistency and planning in remote settings. This is further complicated in the Cape York Health Service District (CYHSD) where planning has been ongoing for a transition to community control. Furthermore, demands are such that primary care services have remained crisis-oriented, which is itself compounded by extremely high staff



turnover (and a high reliance on temporary agency nursing staff).

The implications for the HPQ project are that clinical staff have significant competing, acute demands, and frequently come and go before there is an opportunity to develop the relationships necessary for undertaking health promotion, or for functional engagement with the opportunities associated with this project.

Finally, this period has also seen the introduction of a range of new resources, protocols and practices across the gamut of health fields, particularly as a result of the introduction of the “Chronic Disease Strategy” (CDS). New tasks, roles and responsibilities within the remote Indigenous primary care sector have added to the climate of uncertainty.

These clinics also sit within communities that are experiencing major social transformations (indeed Cape York has been a focus of national attention as a consequence of political and policy shifts at the centre of which is the Cape York Institute and Noel Pearson [27]). Of particular importance to the HPQ project is the collaboration between Pearson and the Queensland Government Department of Aboriginal and Torres Strait Islander Policy (DATSIP) which in 2004 resulted in all discrete Indigenous communities (including all four HPQ project sites) agreeing to implement Alcohol Management Plans (AMPs) which introduced a range of restrictions on the sale, transport, possession and consumption of alcohol.

Thus, at the very time that the HPQ project was being implemented, patterns of consumption (and the consequences of drinking) in project sites changed dramatically. In three sites only beer is available (only mid-strength in some, in Napranum a wider range is available due to the proximity of Weipa) and only at particular times, with varying restrictions regarding on-premises and take-away consumption. It is understood that some heavy drinkers have moved as a result and other substance use has increased (particularly marijuana and episodic periods of heavy petrol sniffing among youth).

Over time ‘sly grog’ and ‘home brew’ have emerged as problems but the overall impact, as of 2006, ap-

pears to be a reduction in aggregate consumption and of immediate social and health consequences in the affected communities. As a result, community changes in attitudes to, and patterns and consequences of drinking occurred through the period of this project which clearly swamp any impact brought about as a result of a health promotion initiative. Furthermore, these confounding social forces make it impossible to isolate program-specific changes in terms of consumption or consequences that might be attributed to this intervention.

To cite two other significant social changes that have impacted all of these communities. First, during this project they have each ceased to be Deed of Grant in Trust (DOGIT) communities (formed by gazettal of ex-reserve communities some two decades ago) and became shires under the Local Government Act. Second, the primary source of work across Indigenous Australia, the Community Development and Employment Program (CDEP) is being wound up through 2006 – the impacts of all these changes are still emerging.

## The Solutions

The initial approach to addressing the workforce issues in Queensland Health PHCC sites was to accept that orientation of staff to the requirements and potential of the touchscreen and other resources must be ongoing and grounded in practice. Through experience it was found that in terms of clinic staff, this was best achieved by someone with clinical authority and was ultimately undertaken as part of regular visits to the community by the Regional Psychiatrist (EH).

It was realised that given the competing pressures and demands it was critical to lodge these initiatives within core Queensland Health protocols and practice. This was ultimately achieved through negotiations with ADTRU as a result of which the “Grog Kit” will be implemented and evaluated through relevant sections of the Queensland Health system.

In terms of the changes brought about as a result of the introduction of AMPs in project sites, a substantive shift was necessary in terms of the evaluation framework with increasing emphasis given to process evaluation and to assessment of institutional and community capacity rather than outcomes in



terms of alcohol consumption or its consequences. One direct project response to the uncertainties associated with the introduction of AMPs (the provisions of which vary from community to community) was to incorporate information regarding the AMP provisions of every affected community in Queensland within the touchscreen alcohol health education module (Appendix 9).

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## 6. PROJECT DESCRIPTION – THE HPQ PROJECT

Because the HPQ project is embedded within the wider HITnet development a combined timeline is provided in figure 1.

**Figure 1. Project and related activities timeline (HPQ specific elements in bold).**

<b>2001</b>		
	June	Phase 1 (proof of concept) starts
<b>2002</b>		
	June	Phase 1 ends
	<b>October</b>	<b>HPQ proposal submitted</b>
<b>2003</b>		
	<b>January</b>	<b>HPQ Technical Advisory Committee report</b>
	<b>June</b>	<b>HPQ begins</b>
	<b>September</b>	<b>JSC relationship concluded/ QANTM &amp; ABUZZ commence</b>
<b>2004</b>		
	January	'Deadly Kids' deployed on non-HPQ project kiosks
	February	AMP implementation begins
	November	AIHI touchscreen report released
	<b>November</b>	<b>Baseline interviews in HPQ communities (GM)</b>
	<b>December</b>	<b>Touchscreen hardware installed in communities</b>
	December	UQ approached to take over HITnet coordination
<b>2005</b>		
	<b>April</b>	<b>Touchscreens activated in communities – Diabetes, 'Deadly Kids', Alcohol + community photos</b>
	<b>April</b>	<b>'Grog Kit' introduced to PHCCs, installed on computers</b>
	<b>April</b>	<b>Baseline interviews in HPQ communities (GM)</b>
	<b>August</b>	<b>'Grog Story' filmed at Yarrabah</b>
	October	'Put it on' produced and filmed in Napranum
	<b>November</b>	<b>'Grog Story' deployed to PHCC touchscreens</b>
		<b>'Grog Kit' redeployed to community computers</b>
	<b>November</b>	<b>Interim interviews (AN and EH)</b>
<b>2006</b>		
	<b>February</b>	<b>'Put it on' launched and deployed in Napranum</b>
	<b>April</b>	<b>'Grog Story' launched at Yarrabah.</b>
	<b>April</b>	<b>'Put it on' and 'Grog Story' operating in all four HPQ sites</b>
	<b>May</b>	<b>Final interviews (JC)</b>
	<b>June</b>	<b>HPQ project ends</b>



## 6.1 Objectives

The objectives of this project have expanded with the changing circumstances and capacities of HIT-net. Objectives will be described in terms of those contained within the original proposal, additional objectives that were incorporated through discussion with the funding body, and collateral objectives that reflect the organic growth of the project.

### 6.1.1 HPQ Proposal Objectives

The original project proposal submitted by the North Queensland Health Equalities Promotion Unit (NQHEPU) in October 2002 listed eight objectives.

Through the implementation of touchscreen computer technology in four remote Indigenous communities the HIT project aimed to:

1. Demonstrate the effectiveness of touchscreen interactive technology to improve health literacy in relation to diabetes, alcohol use and musculoskeletal problems;
2. Demonstrate the benefits of touchscreen technology in populations for whom literacy is frequently compromised and English often a second language;
3. Demonstrate acceptance and utility of touchscreen technology in isolated communities;
4. Demonstrate expansion in health promotion activities of community-based Indigenous Health Workers (IHW);
5. Demonstrate health outcomes from this intervention in relation to one specific area – alcohol use
6. Demonstrate increased local and regional capacity through the development of the health and allied workforce skills necessary to utilise, expand use of and maintain this technology to effect improvements in Indigenous health status;
7. Demonstrate sustainability through a collaborative approach by building on and extending existing relationships across mainstream, community and corporate sectors;
8. Identify those factors necessary for the success-

ful wider extension of this technology to Indigenous communities nationwide.

### 6.1.2 Additional HPQ Objectives

As part the HPQ proposal assessment the Technical Review Committee made specific recommendations regarding key aspects of the project which resulted in additional deliverables. Ultimately, three of these recommendations were incorporated into the project contract, these being to:

1. Provide content consistent with a 'learning content' modular approach;
2. Facilitate accessibility by incorporating volume control on-screen;
3. Ensure sustainability of applications maintenance.

These objectives were agreed to and incorporated into the service contract with a resultant total of 11 project objectives. In addition, while the original proposal had specified outcomes in relation to diabetes and musculoskeletal problems (as these had already been created) negotiations were undertaken with HPQ to replace musculoskeletal problems with a module targeting children and youth ('Deadly Kids').

This was done because the existing musculoskeletal problems module was an adaptation of an English module which not only appears less relevant to Indigenous users, but for which copyright was retained by JSC. The focus for a new module on children and youth was chosen because of feedback during Phase 1 which emphasised the importance of this issue, and which had been undertaken through funding provided by OATSIH.

### 6.1.3 Collateral Project Objectives

With the expansion of this initiative and increasing understanding of the need to capitalise on the rapidly expanding opportunities emerging in the IT / multimedia / health arena, and with increasing expectations of HITnet, this project has grown in diverse ways. Through this process a range of unanticipated but important outcomes have been recognised and incorporated into project develop-



ment. This has included developments in three broad fields:

3. Expanding technical applications – this has included both the development of new touch-screen processes and applications (such as the use of narrative process and video representations), but also the deployment of project materials onto new delivery platforms such as interactive CD-ROM, DVD and the web;
4. Cultural processes – including not only the production of culturally informed protocols for production and use of materials, but also the utilisation of the production itself as a culturally informed community development process;
5. Systems capacity – defining and developing technical, institutional, service and community capacity to sustain the entire range of activities necessary to support system sustainability;
6. Cost effectiveness analysis – while this was not incorporated into the HPQ project per se, as a result of this project HITnet has sought to incorporate a cost effectiveness analysis into its expanding activities.

## 6.2 Project Description: Components

The HPQ project is thus embedded within the broader HITnet initiative as Phase 2 of what is now a multifaceted health promotion intervention. The aim of the HPQ project was to build on the developments of Phase 1 to target three key Indigenous health issues – alcohol use, children and youth issues, and diabetes, developing new materials in relation to the first two and refining existing materials in relation to the last. As was also the case in Phase 1, it also sought to improve IT capacity within the Indigenous health sector and within Indigenous communities. In relation to both health outcomes and IT capacity, the program aimed to create change at three different levels:

- Client;
- PHCC;
- Health Program.

To these ends, the intervention involved five major components:

- Creation of health education modules;
- Deployment of health education modules;
- Education and engagement;
- IT infrastructure management;
- Capacity enhancement.

### 6.2.1 Creation of Health Education Modules

Health education modules suitable for deployment onto touchscreens were developed during the Phase 1 project in Inala and Yarrabah (see Appendix 10 for an example of a Phase 1 diabetes module screen). With additional resources from other sources, the HPQ project involved development of a set of new resources.

- First, it refined the existing module on diabetes (updating of content, improvement of presentation and addition of a new element detailing aspects of traditional nutrition and the impact of historical forces on health-relevant behaviors). (See Appendix 11 for an example of an updated, Phase 2 screen);
- Second, it enhanced the module for children and youth creating a more interactive and engaging module incorporating a health-related game format (Appendix 12 demonstrates the main menu of this module);
- Third, a health education module on alcohol use was developed utilizing a content development process similar to that of Phase 1 (Appendix 13 shows the main menu of the alcohol module);
- Fourth, the interactive AUDIT screening module was developed utilizing the same presentation as the health education modules but allowing for personalized health information feedback (Appendix 14 shows the beverage selection screen of the AUDIT module);
- Fifth, while concerns have been raised regarding the long term benefits of brief intervention (BI)



without concerted follow up for alcohol problems in the wider society [28] BI has been adopted as a key element of the Chronic Disease Strategy within Queensland Health Indigenous Primary Care settings. Furthermore, there is some evidence of its efficacy in Indigenous settings [29]. The Alcohol Brief Intervention Flipchart developed by Maggie Brady (in the field-testing of which EH participated and the graphics of which were produced in Cairns) which has been distributed throughout Queensland, was adapted for screen use and integrated into the alcohol module (Appendix 15 – brief intervention module main menu screen). As will be discussed later, while theoretically a core clinical activity within the CDS, brief intervention has not been incorporated into clinical practice on the ground in the communities in which this project was undertaken;

- Sixth, the health education, screening and brief intervention tools were reformatted and provided together on CD-ROM for use on computer by local health practitioners (Appendix 16 – ‘Grog Kit’ main menu screen);
- Seventh, additional resources supported the use of an entirely new approach to facilitate health decision making and learning – shifting from a didactic to a user-centric, constructivist model. This involved adapting the key elements of the consequential harm questions of the AUDIT into a multimedia photo-narrative journey (‘Grog Story’) in which consequences of on-screen alcohol-related choices were reinforced. This was the first community-based production emphasizing the community engagement potential of the production process itself. (Appendix 17 shows narrative and choice screens from ‘Grog Story’);
- Finally, in the course of the HPQ project, the experience of producing ‘Grog Story’ in Yarrabah led to the production of a video-narrative addressing sexual health issues (‘Put it on’) in Napranum (one of the HPQ project sites) and to expanding the community engagement potential of the project (Appendix 18 shows scenes from the video and a choice screen from ‘Put it on’).

To create these resources demanded a range of approaches. While the reworked diabetes health edu-

cation materials drew on the expert driven process that had been mandated in Phase 1, subsequent modules broadened the base of expertise involved and increased field testing of product through key informant interviews and focus groups. Thus, the production of the interactive AUDIT involved several meetings of content and cultural expertise followed by extensive negotiation with QANTM during the development of the computer algorithms (see Appendix 19) driving the program. In adapting the AUDIT important decisions had to be made regarding means to assess quantity (ultimately this was presented to users as local consumption units rather than standard drinks, significantly expanding the complexity of the program but simplifying the process for kiosk users).

Scoring protocols were adapted and repeatedly revised, and scripts prepared for every outcome option (see Appendix 20 for draft protocol and script development). A mock up of key screens (produced by a Cairns-based artist) was produced which was used for focus groups run in all Cape York (and several Torres Strait) communities to assess content, language, comprehension and presentation (Appendix 21 shows feedback from one focus group held in Napranum).

This process was repeated with successive versions of the AUDIT module, some 20 groups being run over a period of 6 months (the same process was used for development of ‘Deadly Kids’ which occurred at the same time). Ultimately over 100 screens were necessary to enable all beverage choice and volume options to be included – the majority accounting for the first three questions of the AUDIT.

At this point Abuzz Technologies took the lead to produce the appropriate software environment and screen presentation (the “look”). Once this penultimate version of the AUDIT was produced a clinician (EH) field tested the module through laptop use with a wide range of patients and staff in clinics across Cape York. In this last review (early-2005) some minor errors were identified following which modifications were introduced and the final version re-deployed to PHCC touchscreens in November 2005.

The AUDIT is a ten question screening tool (see Appendix 22 for paper version of the AUDIT) [30-33].



The final version of the AUDIT deployed on touchscreen and in the 'Grog Kit' covers all questions contained in the AUDIT. The greatest challenge and the most significant complexity lies in the first three questions which assess quantity and frequency of consumption and binge drinking. The remaining questions assess consequential harm (dependence, health and social effects).

From the evaluation of Phase 1 the researchers were aware that the proportion of kiosk users answering questions falls progressively with the number of questions being asked. Accordingly, after consultation with content experts (Professors John Saunders and David Kavanagh) it was decided that these first three questions were most important in terms of motivating reflection and change and that evaluation of the AUDIT revealed similar screening specificity and sensitivity using the first three items, as using the complete tool. Accordingly it was decided to incorporate a feedback option when the first three items had been answered, as well as the option to proceed with the rest of the questions.

Feedback is given on the basis of three categories of risk (determined by gender and quantity/frequency – see Appendix 23 for one screen example of the first feedback screen for high risk drinking). In addition, because alcohol consumption during pregnancy is now recognized as a major Indigenous public health concern [34], prior to information feedback, users who identified as being female are asked about pregnancy status, and relevant information regarding alcohol and pregnancy is provided (see Appendix 24 for one alcohol and pregnancy screen).

HITnet has subsequently involved evolution from expert (content and cultural) driven processes (focusing on the message), to multimedia development that, in addition, utilizes the development process itself to reinforce the health-related message and, in doing so, to support community engagement and capacity building. This process has utilized a Forum Theatre approach (see Appendix 25). 'Grog Story' and 'Put it on' aim to engage community at the development stage so as to produce culturally relevant educational material.

The resulting modules are interactive and can be deployed on multiple media platforms including

touchscreens, PC, laptop and DVD, thus expanding the range of applications including the use of these resources in group health promotion activities.

While partner organisation Abuzz was responsible for creation of the software environment in which content from this project is lodged, and QANTM was responsible for adaptation of modules to this environment, coordination and content development itself remains under the management of HITnet.

### 6.2.2 Deployment of Health Education Modules

The modules resulting from the above processes are able to be deployed on a range of delivery platforms including touchscreen, laptop computer, PHCC desktop computer and DVD big screen (for group activities). For the purposes of the HPQ project the key delivery vehicle was the community-based touchscreen kiosk. The process of deployment thus involved not only lodging the health education modules in an IT environment (touchscreens) but also locating and supporting this product in remote Indigenous communities.

The challenges associated with this have been described above, and necessitated complex and time-consuming institutional negotiations. This included decisions regarding kiosk design, location, network connectivity, integration into the Queensland Health IT and service environments, and ongoing local and IT support.

Because of the technical and institutional challenges outlined above, kiosk deployment and activation was undertaken as a phased process over a period of four months. Through negotiations with Queensland Health staff, Council representatives and community members in each community, it was decided that in each site the kiosk would be located within the waiting area of the PHCC. This decision was made after consideration of security, support, planned and opportunistic access, and taking into account the need for consistency across sites for evaluation purposes. The relationship with Queensland Health also ensured that the touchscreen initiative would continue after completion of the HPQ project.

One of the collateral outcomes noted earlier was that in addition to making material available through



kiosks, modules were adapted for computer use. The 'Grog Kit' and the two narrative multimedia modules ('Grog Story' and 'Put it on') were made available in CD-ROM and DVD form for use on clinic computers and in group formats using digital projector systems.

### 6.2.3 Education and Engagement

Ensuring that touchscreens were functional and used within PHCC settings demanded that a range of health staff and community members were provided with appropriate information, instruction, resources and guidelines. Various project staff undertook roles in relation to this task at different times during the project, however two Indigenous Community Engagement Coordinators (JG and DL) were employed in the final year of the project to support engagement of the project with the community and capacity building activities (particularly in terms of developing local content). Overall, these tasks can be conceptualised as follows:

#### Education

- Training of PHCC staff in each site in utilizing and maintaining the touchscreen and its IT environment;
- Training of PHCC staff in each site in Brief Intervention particularly utilizing the 'Grog Kit';
- Training of community members in each site in basic multimedia skills to allow them to contribute to the local content on the touchscreens.

#### Engagement

- Social marketing of the touchscreen project and related activities – for instance, creating community support and coordinating negotiations around local production of 'Grog Story' and 'Put it on';
- Coordinating and facilitating the local launch, deployment and follow-up of community based resources ('Grog Story' and 'Put it on');
- Development of ongoing relationship with local councils and schools.

### Communications Strategy

- Creation of a newsletter and a website development (See Appendix 26)
- Maintenance of accurate databases of all community contacts
- Regular liaison with community contacts by phone or email.

### Cultural Protocols

- Negotiation of Memoranda of Understanding with individual community councils (within Com-Pack) to give clear guidelines as to the management and ownership of the touchscreen content.

### Local Multimedia Content Management

- Coordination and support for local multimedia product.

### 6.2.4 Information Technology Infrastructure Management

The complexity of the HITnet network management structure is best illustrated figuratively (Appendix 27 shows how the IT management structure has changed with time). Overall management of the network is the responsibility of HITnet program managers. Development of the software platform and the touchscreen interface is the responsibility of Abuzz. QANTM/Todaycorp is concerned with script writing and module development.

Procedures have been setup within the HITnet structure to manage the kiosks, their software and content. These procedures are followed by a Systems Administrator within HITnet, and documented within a HITnet User Guide (see Appendix 28). Kiosk management is controlled through the Administration Website, to which all kiosks on the expanding HITnet network (including those not part of the HPQ project) are linked and through which their activity is monitored. Any changes to the kiosk hardware or software are recorded within a Kiosk Change Management spreadsheet (see Appendix 29), which enables HITnet staff to track changes which can potentially impact both content and trace data.



The deployment of new content to the kiosks is initiated via the Administration Website, but then recorded in a Kiosk Deployment Version Control spreadsheet (see Appendix 30). This then enables HITnet staff to have a record of what version of which content is on each kiosk, and the date that it was deployed. Weekly HITnet staff meetings use a Kiosk Status List (see Appendix 31) to go through the current status (in terms of internet connectivity, new content development, community protocols sign off, provision of trace data) of each of the current and new kiosks.

Any problems/issues that arise from the above procedures are documented within a HIT Issues Log (see Appendix 3). This is used by the whole project team, and stores not only the details of the problem, but when the problem arose, who resolved it, and when it was resolved. This will help in the resolution of any similar problems in the future. From the Issues Log, a separate Outstanding Tasks Lists (see Appendix 32) has been created for our hardware/software providers, Abuzz. This is used at weekly teleconferences between Abuzz and HITnet staff, and serves as an important communication tool. As the number of tasks has grown, prioritisation has now been added to provide focus.

### 6.2.5 Community Enhancement

Community enhancement was initially conceptualised as a process by which identified local capacity emerging through the early stages of the project would be supported to empower a selected community to take control of and expand the applications of this project locally. Because of the range of technical and other issues resulting in project delays, and the lack of resources given financial constraints, this approach was not feasible. During the second year of the project, following development of the AUDIT, it was recognised that the section of the AUDIT dealing with consequential harm had limited user engagement potential. However, it was also recognised that reconfiguring this in an innovative way presented an opportunity to maximise the interactionist, constructivist learning behaviour of community members and kiosk users. Following discussions with content and multimedia experts the project leaders decided to utilise a narrative framework drawing on Forum Theatre to create a story module that would incorporate all AUDIT items

(including those relating to consequential harm). The opportunity presented was to utilise the local production process as the vehicle for community engagement.

Resources were obtained from DoHA to undertake this work which, for logistical reasons, was undertaken in Yarrabah. However, that funding also provided for a series of community engagement and support activities through project sites and, ultimately, for the planning that led to the development of an even more sophisticated narrative, multimedia product, the sexual health module 'Put it on'. Once funds were obtained for this purpose (OATSIH), this was undertaken in one of the project sites (Napranum) which set in train a series of broad-ranging community engagement activities. This included community consultation, pre-production orientation, production, and the launch of 'Put it on' to which over 100 community members came (see Appendix 33 for photos from the Napranum launch).

### 6.3 Setting and Context

Four remote Cape York communities were chosen to receive touchscreen kiosks – Napranum, Lockhart River, Pormpuraaw and Kowanyama (see Appendix 34 - community profiles). These communities vary from 600 to 1800 population, all relying primarily on Queensland Health for primary care services delivered through a Primary Health Care Centre (Napranum is relatively close to a regional hospital in Weipa).

In all communities there is only one alcohol outlet, controlled through the community council (now the Shire with responsibility shifting with the implementation of AMPs to the local Justice Groups in an attempt to break the invidious reliance of local government on the sale of alcohol as a source of revenue). As noted earlier, Napranum is in a somewhat different situation as there is an alcohol outlet in Weipa, some fifteen kilometres distant. For the other three sites the nearest alcohol outlets are some two to four hours drive away, with varying restrictions also applying there (Archer River, Musgrave and Normanton).

Each PHCC is staffed by Queensland Health RNs and IHWs, with visiting medical services provided by Queensland Health (to Napranum from Weipa)



and by the Royal Flying Doctor Service (RFDS) to the other three communities. Kowanyama is the only community with a resident doctor which is a job-share arrangement through the RFDS. Clinical services are provided five days a week with services provided on an on-call basis only at night and on the weekend. Program services (including ATODS) for all four sites are coordinated through CYHSD based in Weipa with specialist services largely by Queensland Health practitioners from Cairns.

As was suggested in the introduction, these communities are characterised by social disadvantage with poor housing, low employment, low school attendance, limited recreational and occupational resources (somewhat different in Napranum as a result of proximity to Weipa and contractual obligations of Comalco in terms of Indigenous employment), and high rates of chronic ill health. As is the case across Australia, the youth dependency ratio is elevated with significant consequences in terms of social and health problems [35].

Despite these circumstances, there are strengths in each community (for instance active youth and women's programs in Napranum, a strong Justice Group in Kowanyama, a crocodile farm and extensive engagement in sea-based activities in Pormpuraaw, and a vibrant and economically prosperous art movement in Lockhart River). Each of these communities also retain their investment in tradition and are defining their own accommodation with the demands of a globalised world.

*in touch with*

*health choices*

*health consequences*



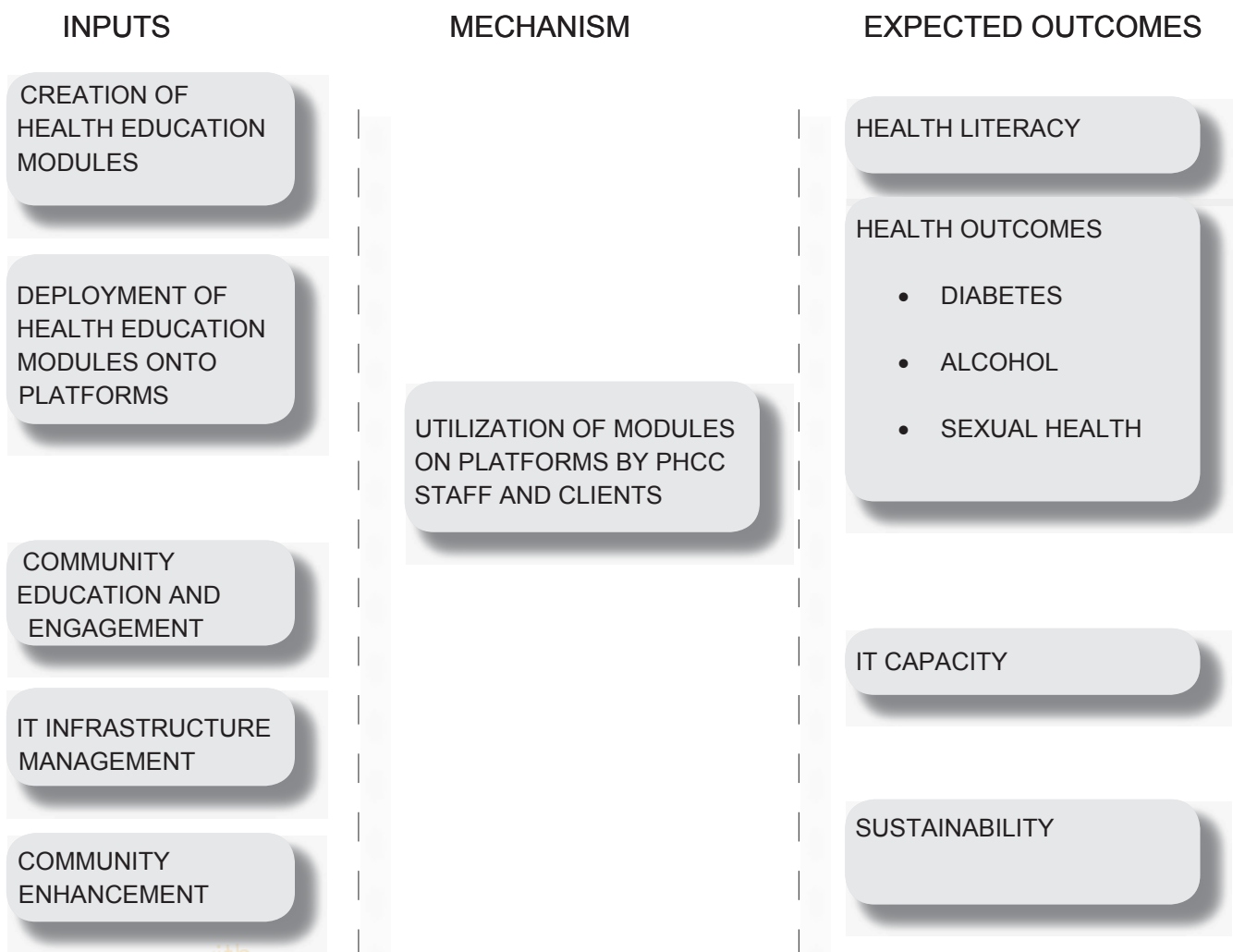
## 7. THE EVALUATION FRAMEWORK

### 7.1 Project Logic and Evaluation Questions

The HITnet program (and thus the HPQ project) logic is schematically illustrated below (Figure 2). Assumptions are embedded within the program logic include:

- All people have an investment in their health and, to the extent that there are relevant issues over which they have perceived control, are self-efficacious;
- The ability to access and make use of health promotion initiatives for positive lifestyle changes is significantly influenced by social factors and reduced in circumstances of social and political disadvantage;
- Even if it is not possible to substantively address the social and political determinants of Indigenous health disadvantage, by sustaining effort in “modest but practical” ways [26, 36], including appropriate health promotion, it is possible to incrementally influence individuals’ and communities’ capacities to bring about change;
- Health promotion initiatives that are better suited to the needs of the target population will be more effective in terms of influencing health-relevant knowledge, attitudes and behaviour;
- Health staff (in the case of this project primarily being the staff of the community PHCC) are invested in promoting health and would be more involved in health promotion if circumstances allowed and if there were resources that were appropriate for use with the local population.

Figure 2. Program logic.





This program logic informs the evaluation objectives which, broadly, are to determine:

1. Was the program implemented as intended?
2. Did the program achieve the intended objectives?
3. Did the program have unintended effects?
4. How did the unintended effects impact on overall program outcomes?
5. What lessons can be learnt in order to improve the national roll out of the project (extension)?
6. What lessons can we learn from the evaluation that can be applied in other settings (generalisability)?

### 7.2 Evaluation Constraints

The original 2002 project proposal described the methodology as a “2 X 2 cluster analysis utilising a modified waitlist design”. The modified waitlist design planned the following sequences:

Figure 3. Evaluation logic.

	Cluster 1	Cluster 2
Phase 1	existing modules	existing modules
Phase 2	existing modules	existing modules + alcohol
Phase 3	existing modules + alcohol	existing modules + alcohol

It was envisaged that qualitative and quantitative approaches would be utilized to assess outcomes in relation to knowledge, attitude and behaviour across three levels:

- Program level (HITnet and allied activities)
- Service level (PHCC and related activities)
- Client level (patients and community members).

The project concept planned to utilize the overarching framework of ‘realistic evaluation’ as outlined by Pawson and Tiley [37], as was used in the proof of

concept evaluation of the HIT program Phase 1 [8, 9]. This approach is based on the understanding that:

$$\text{CONTEXT} + \text{MECHANISM} = \text{OUTCOME.}$$

The original evaluation frame intended to utilize data from the following sources:

- Pre-intervention, midpoint and post intervention structured interviews with clients and PHCC Staff;
- Observational data collected opportunistically during site visits;
- Quantitative data gathered retrospectively from the Queensland Health database (Ferret);
- Quantitative trace data of touchscreen use.

In defining solutions to the challenges confronting the project (see sections 5.1 to 5.6) it became clear that the original evaluation approach would not be feasible. Critically:

- The implementation did not follow the clustered plan, reflecting two issues – delays as a result of technical and institutional processes, and the region wide changes associated with implementation of the AMPs;
- The Chronic Disease Strategy was only partially implemented at the four sites. Data collection, especially at the community level had serious limitations and thus Ferret data/Queensland Health statistics would not reliably reflect health outcomes;
- Monitoring activities were delayed in implementation;





- Development of a reliable trace data monitoring system was significantly delayed and only fully operational at the conclusion of the HPQ project;
- The performance indicators identified at the project planning and implementation stage were not feasible in light of project changes and as a consequence of the iterative nature of project development, were never clearly redefined and established.

Thus the evaluation framework has evolved from a semi-experimental pre- and post-interview design to a design focussed on qualitative descriptions of process. Because of the evolutionary nature of the intervention and the need to constructively adapt to a range of unanticipated factors, this project has necessarily also taken on aspects of action research, being iteratively responsive to project learnings.

However, consistent with the foregrounding of context in ‘realistic evaluation’, it is hoped that it will

Figure 3. Evaluation Logic

EVALUATION TYPE	HIT PROGRAM LEVEL	SERVICE LEVEL	CLIENT LEVEL
PROCESS EVALUATION			
OUTCOME EVALUATION			

highlight the importance of the context in which the intervention occurred, and the fact that many of the important lessons from this project were a function of the processes rather than the outcomes of the intervention.

### 7.3 Realised Evaluation Structure

In the sections that follow, the adapted evaluation is presented and will address the inputs which, mediated by utilization of this technology, result in outcomes identified in the project logic (in turn drawn from the project objectives). Within these two fields, which broadly constitute process and outcome evaluation, each of the elements identified in the project logic will be addressed. Thus the **process evaluation** will consider:

- Creation of health modules;
- Deployment of modules on to platforms;
- Community education and engagement;
- IT infrastructure management;
- Community engagement.

In turn, **outcome evaluation** will consider:

- Health literacy;
- Health outcomes;
- IT capacity;
- Sustainability.

The evaluation will then consider the impact of each of these domains in terms of the three levels at which it is proposed that this initiatives has effect: the program through which it is created and delivered (HIT program); the service setting through which it is mediated; and the populations proposed as the ultimate beneficiaries (Indigenous residents of remote communities). This may be conceptualised as in figure 3.

### 7.4 Process Evaluation

The five elements which will be addressed as process evaluation have been described in some detail in the Project Description (Sections 6.2.1 to 6.2.5) and aspects of each of these presenting challenges (and the solutions devised) were also addressed (Section 5). Despite challenges, each of these has been achieved, albeit with significant delays in some cases. In identifying and implementing solutions, lessons were learned with relevance not only in terms of the HPQ project, but more broadly for such interventions.

The sections which follow consider each of these in the light of the foregoing and are based on a process of ongoing reflection within the project team throughout the duration of the HPQ project. This



was supported through a series of reflection workshops, some internal to the project and one driven by an external interviewer, and some involving other organisations participating in the project (these were held in Cairns, Brisbane and Sydney). In addition, the comments draw on the ongoing project documentation derived from regular project team meetings. Concluding this section is a **commentary** which will summarise and integrate these elements.

#### 7.4.1 Creation of Health Education Modules

For the purpose of the HPQ project the production of two health education modules was required – an alcohol information module and the interactive AUDIT. By project completion both had been created. In addition, the original diabetes module had been comprehensively revised and expanded, the musculoskeletal module (which had been found wanting) had been replaced with the interactive module for children ‘Deadly Kids’ and a completely new format utilising interactive multimedia had been developed to produce two new modules – ‘Grog Story’ and ‘Put it on’ to address choices and consequences in relation to alcohol use and sexual health respectively.

The key lessons learned through the course of the HPQ project from reflecting on process in relation to the creation of health education modules fall into three domains: appropriate content and process; technical issues, and; strategy and management.

##### Appropriate Content and Process

In addition to addressing priority health issues (in terms of health burden and community perception), content creation must be responsive to user need at every stage of the production process. This demands iterative development with feedback from the range of potential users (community members, clients/patients, service providers) throughout the module production process.

Localising production clearly has demonstrable benefits in terms of engagement around the health issue, capacity building and kiosk use, but also appears to have wider community impact. To this end, utilising existing local product (digital resources produced for other purposes, for instance in Yarrabah a short video with animation – “Yarrabah Digital

Dreaming” – produced by students in the Yarrabah Primary School, has been deployed on the local touchscreen) also contributes to drawing on the appeal of local social representations in terms of esteem and perceptions of competency (such representations are increasingly recognised as a means to addressing the oppression experienced by Indigenous peoples as a result of stereotyping [38]).

However, although localisation is clearly an important issue, it became evident that certain forms of representation had very broad appeal, not only across the project sites, but when used in quite different cultural settings such as urban and Torres Strait Islander communities (for instance, when ‘Grog Story’ was presented during the planning for installation of kiosks at Woollangabba and Stradbroke Island the feedback was very positive, and ‘Put it on’ was requested and used as the central resource in a series of sexual health workshops held across outer islands in the Torres Strait ). This touches on the issue of ‘curiosity’ in terms of cultural contexts and groups in which ‘similarity’ and ‘difference’ are both operating.

##### Technical Issues

Through this process major challenges arose from shifting to more sophisticated product and delivery platforms (as was suggested by the Technical Review Committee). However, this was clearly the right decision and reinforced the need to be at the cutting edge of technology in order to create quality product that is visually appealing, with high levels of interactivity and variety. This increasing complexity adds to the importance of the active feedback process during creation.

This increasing complexity also raises challenges in relation to data analytic capacity. Through this project, these lessons were learned at some cost and have made clear the importance of defining and negotiating data analytic strategies within the content design stage in order to enable appropriate software development. Consequently, there must be high levels of communication across content, software and design processes.

Increasing product sophistication, however, raises other issues in terms of deployment (for instance in relation to download in settings such as the project



sites without broadband access). Thus, there must be a pragmatic balance sought between the complexity of modules, particularly video files, and the limitations this presents in terms of remote deployment (download).

### Strategy and Management

Technical sophistication comes at a cost and early in the course of the project it became clear that 'up front' costs are substantial. This is compounded by incorporation of multimedia content and demands that project budgets are carefully and realistically costed. When working in remote communities this must also include the additional costs of working in such setting. There are possibilities to offset these costs through drawing on local resources and existing content (as has been done with "Digital Dreaming" at Yarrabah).

However, the cost implications are different for a project (such as the HPQ project) compared to the wider HITnet development program. The 'up front' costs incurred in this development process are now offset by standard operating procedures and the ability to disseminate and utilise product across a wide range of kiosks and applications (see Appendix 35 for an example of start up and recurrent costs for a touchscreen with deployed content).

In order to effectively carry out the tasks necessary for content development requires that a range of skills is available within the project team, including the expertise to ensure that the technical aspects of this process are understood, and relationships with technical providers are transparent. As content development and product sophistication expands, quality assurance measures (in terms of content, style and technical issues) are imperative. For the purpose of developing interactive multimedia content, HITnet is cooperating with the multimedia consultants (Frontier Documentaries) to produce a standard "Style Guide". Furthermore, given the involvement of additional parties in various aspects of content development, and in support of ensuring long term stability, clear documentation of all aspects of the production process (creative, technical and cultural) is critical. To this end, HITnet is developing a 'how-to guide' for new content development partners, to include four stages:

- Pre-production: project development & writing;
- Production of film on location;
- Post-production: editing of raw assets for integration into the HITnet software environment;
- Final production and marketing of the product.

### 7.4.2 Deployment of Health Education Modules

As with the creative process, deployment of material to remote sites is dependent on highly technical processes. All of the issues noted above regarding technical expertise and communication across involved parties also applies to deployment. In addition, this project has led the following specific issues:

- Need to clearly define and document, in house, specifications for technical providers regarding content to be installed on the new kiosk hard drives to prevent problems associated with staff changes in supplier companies and other unforeseen provider operational problems;
- Connectivity and network limitations (within QH) necessitating two levels of deployment, depending on the network service provided to the kiosk
  - Kiosks connected to QH's network in the Cape can support deployment of only small modules (indeed none of the more sophisticated modules now in use through HITnet). Larger modules, such as Grog Story and Sexual Health have to be manually loaded onto the hard drive, offsite, then the hard drive is swapped over;
  - Kiosks connected to a reliable broadband network, can deploy all content modules. As proposed by one Abuzz representative at a reflection meeting: *"ADSL broadband may provide the best short term solution and wireless in the future. It would be of benefit if a satellite connection for at least one kiosk could be provided as a pilot"*.
- It is imperative that a clear testing and deployment protocol be developed across HITnet and contracted providers. For instance, initial deploy-



ment of one content module was performed by HIT staff to their test kiosk (in Cairns), which resulted in the hard drive of this kiosk being wiped clean, except for the module being deployed. This highlighted that the Kiosk Administration Website was out of step with the contents of the test kiosk's hard drive, due to incomplete testing processes on the part of the supplier company. This required a software change to be made by Abuzz;

- Prior to reliable internet connectivity being established with the Lockhart River kiosk, it was reported that a community member's photo displayed on the kiosk, had died. Due to cultural sensitivities it was necessary to remove this photo as quickly as possible. In this instance, Abuzz were able to remove the whole photo module (containing many photos) from the kiosk with the limited internet access that was available. This did however take some days. Now that this kiosk has full internet connectivity established, when this next occurs it will be possible to remove the single photo only, within the hour.

### 7.4.3 Education and Engagement

The key lessons learned through the course of the HPQ project from reflecting on education and engagement relate to three target groups: HITnet; community organisations and members, and; service providers.

#### HITnet

Because of the obvious importance of addressing cultural process that has been noted earlier, community cultural protocols (ComPack, see Appendix 7) were developed. However, as noted in the previous sections, a 'Style Guide' (including quality assurance protocols) is being developed to enable expansion in sophistication of product and of quality local content development across new sites. To this end a range of specific training resources are required and have been developed, including:

- CD ROM – Photo Manager Training Manual (hard copy) and Photo Manager Tutorial (video);
- CD ROM – How to Shrink a Photo – video and hard copy versions;

- CD ROM – Module Editor – video and hard copy versions;
- CD ROM – Style Guide – video and hard copy versions.

In addition, an integrated communications strategy to complement existing capacity-building activities would provide greater opportunities for engagement with new media and the project. Elements may include subscriber email and newsletter (building on work in 2005-06), a website and exposure through radio/TV (this has begun through the Remote Indigenous Broadcasting System [RIBS]).

#### Community Organisations and Members

Engagement and education were identified early in the course of the project as critical to working in Indigenous settings. As a consequence, the Community Engagement Coordinator (CEC) role was created to link with relevant community organisations and with members of the broader community itself. This was not without challenges, as articulated in a CEC report about practical problems on the ground:

*Scheduling an audience with local groups:* Communities have their own pace and procedures on how to conduct business. While making initial contact was an easy step, locking in times and the right people proved difficult. People were busy or not in town because of various reasons including other commitments, cultural business etc. It is a common view that most communities, who are now under the Local Government Act, are under resourced and funded. Local Governments always have something to take care of; the HIT initiative is just another matter to deal with. Making HIT a community priority was at first difficult until we introduced the idea of the community newswire component. This part of our presentation outlined the benefits of using the touchscreens as community portals where information could be shared with locals. Presenting this to local Government made it relevant to the core business of Governance. We make sure that the HIT Project is seen as productive for Council and not a hindrance, which always remains a danger with external initiatives.

*Transient People:* We were aware that within a few months someone might leave to another commu-



nity or change jobs. With this in mind we identified locals who did not indicate that they had itchy feet. This has been successful, however, regular contacts through email and phone calls are important to maintain the links. Ironically, this is probably exactly what the locals may have thought about us – “more blow ins” just here for a few days and never to be seen again. So our regular weekly contacts will hopefully separate us from the community visitors. The monthly newsletter facilitates this process.

*Communications and Transport:* It was difficult to conduct business in remote areas without sufficient communications and transport. At times we were using local phones and in some cases asking to use someone else’s CDMA mobile phone; this created embarrassing moments especially when working with the latest touchscreen technology. Transport too, was an issue in some communities; once again going cap in hand to get a lift here and there. Indeed, some communities are relatively small, but at some places people wanted to take us to a significant area but we didn’t have transport. I believe these are opportunities missed when locals want to share their lives with us.

*Lack of interest in training:* Community people are too busy and didn’t have the time to receive training in Photo Manager. There was a lack of commitment by people after we left. Only two photos had been received after extensive training. The Module editor not working compounded this. We couldn’t immediately show people the results of their work. There was a lack of camera equipment in the communities.

*Implementation of the communications strategy:* There was a lack of time allocated for this strategy to be realised.

The production of community cultural protocols involved extensive interaction with community representatives and was consequently a constructive way of engaging and informing as well as instilling respect for the project’s integrity. Furthermore, community engagement was supported through activities such as training locals in the use of digital cameras, downsizing and emailing photos, and the use of the project’s Photo Manager software. Maintaining these relationships requires taking into account:

- Peoples’ capacity to participate (influenced by culture, shyness and the ability to use the equipment)
- Targeting the right people in the community (those with perceived interest and some IT skills – schools, councils, RIBS),
- Using quality training resources developed for the project (see Appendix 36 for an example of one such resource)
- Sustaining communication between community visits
- ‘Rewarding’ participants through responsive deployment of photos to the kiosks.

### Service Providers

Developing community cultural protocols demands engaging with community based services, particularly school (EQ) and clinic (QH) staff, as they are integral players in relevant issues to be addressed (this might, in due course, include formal agreement with these services.

Through this project it became obvious that significant barriers exist to engaging the interest and ensuring the involvement of health service providers in the primary care setting. The reasons for this have been described earlier. For the purposes of the HPQ project this was addressed by repeated education (introduction and orientation) sessions, with this undertaken by a project team member who commanded clinical attention (EH in his role as Regional Psychiatrist). This is clearly not a sustainable solution to this critical issue. Three approaches have developed and are being implemented. First, to locate responsibility for the ongoing management and support of this resource with designated local staff who have this in their health promotion portfolio (this is in train in the CYHSD). Second, to lodge these resources within standard operating protocols for the relevant user systems (as in the involvement of ADTRU). Third, it is incumbent on the HITnet program itself to develop receptivity and understanding within potential user systems. This requires a social marketing strategy that segues with institutional needs, policies and directions.



#### 7.4.4 IT Infrastructure Management

Meeting the challenges associated with the development of software and hardware for the project has required diligent management and specific expertise, something that was not available to HIT in its first two years. This absence of expertise resulted in increased costs and extensive time delays.

The project needs to now maintain this level of expertise and to ensure that when future proposals for IT development are negotiated, they are feasible and able to be implemented in target settings. These issues are compounded in working across a sensitive and complicated cultural dimension. Exemplifying this, an Abuzz consultant noted:

*The primary goal in designing an interactive kiosk solution is the need to understand what a user is thinking. This challenge would only be magnified for indigenous users in remote communities. Very few organizations have ventured into this territory. The project is indeed cutting edge.*

Process evaluation sessions at Abuzz Technologies, instigated by the HITnet program, have been useful in facilitating the move to a management structure at Abuzz that is more transparent, consistent and maintained. There remains a need to consolidate systems development and administration processes implemented by the HITnet project, including change management practices and tracking mechanisms, to ensure that ongoing work with technical providers remains responsive and productive. Furthermore, with a view to the future identified needs include to:

- Alter the nature of the relationship between technical providers and HITnet to better reflect the partnership required to progress an Indigenous new media community development project (for instance through a proposed joint proposal for research and development);
- Formalise new roles for Phase three of the project to incorporate a systems administrator, installation manager and technical support manager
- Ensure further development and management of systems occurs in Phase Three, including ;

- Content testing and deployment;
- Data management;
- Technical coordination.

#### 7.4.5 Community Enhancement

Community enhancement within the HPQ project shifted from a process of opportunistically building on local responses to the project, to a targeted intervention building on new product (interactive multimedia). It had originally been planned that the first of these initiatives ('Grog Story') would take place in Lockhart River. However, at the end of 2004 an airplane crash (with numerous fatalities) occurred at that community and the decision was made by the project team that it would be inappropriate to proceed. Consequently 'Grog Story' was shot at Yarrabah, the next product, 'Put it on' being filmed at one of the HPQ project sites – Napranum.

Lessons that emerged through this process included the need to:

- Involve community members in the creation of new content from consultation, story creation, script writing and casting through to filming, in order to ensure local relevance and style, and meaningful participation;
- Ensure community actors/participants are contracted to receive award wages (influencing drive, commitment and self-determination) to encourage a robust work ethic and to understand copyright conditions;
- Use the production process itself, the final product, and the celebratory community launch (including involving actors/participants) as opportunities to engage individuals, families and the community in other health and media-related activities to ensure wider promotion of the project. This last element is also an important vehicle for restoring community pride;
- Develop partnerships with local health service providers in communities where modules are produced to ensure ongoing health promotion activities capitalise on opportunities created to engage people in the issue;
- Develop strategies for sequential film produc-



tion in communities to harness the participatory environment that these activities create. As noted by the Co-director of 'Put it on' -

*I think that the highlight for me was on the final day when we reshot the rap scene and we moved the location to the beach. I was really surprised to see a lot of young male, unpressured, following us down to be a part of the rap scene. Throughout the week they were shy, looking in but not coming forward. It took a while for them to actively be a part of that, but it was good to see how they all want to be a part of filming in the end and forgot about the shame part of it.*

and data collection. While there are significant costs entailed, these should be understood in the context of longer-term program development where efficiencies of scale operate.

The importance of protocols extends to all aspects of the project including deployment and community engagement. In order to sustain an operational system across a broad range of settings (and IT systems and capacities) requires both adapting the intervention to local circumstances and ensuring that the HITnet program as whole has the capacity to operate across such differences (for instance with and without broadband access) and flexibly respond to local technical changes.

These learnings have been incorporated into the planning for now funded new modules on petrol sniffing in Kowanyama and suicide prevention in Yarrabah.

#### 7.4.6 Process Evaluation Commentary

For initiatives such as HITnet to be viable clearly demands relevant and appropriate content, the production of which must be ongoing. While the creative element cannot be considered in isolation, it is clear that it must be flexible, incorporating experience and integrating feedback across multiple levels in a process of iterative growth. Localising expertise and production is clearly desirable and results in local skill development, growth of relationships and community pride, and ensuring the relevance of the process and content to local needs.

However, it has also emerged that localising production does NOT localise relevance; demonstrated interest in material produced in other (but recognisably Indigenous) communities suggests a complex interplay of sameness and difference motivating interest and use.

The increasing sophistication and technical complexity of the product and systems supporting it (each of which has set a new precedent in this field) demand that sufficient resources are available and budgeting informed by a realistic appreciation of these costs. Appropriate expertise must be available within the project, and protocols developed to inform relationships with and deliverables from technical providers, including the critical issues of monitoring

Education and engagement is an ongoing process. For HITnet a critical issue has been respecting the importance of embedding project activities within an appreciation of cultural processes which is locally referenced and defined, and clearly articulated in protocols negotiated with and agreed to by each community. Engagement at a community level must be ongoing, on-site, capacity-enhancing and supportive of local esteem and pride. At the service level, engagement must also be ongoing, on-site and capacity-enhancing, BUT, for this to have enduring effect demands integration within service structures and procedures. HITnet expansion has underscored the importance of IT infrastructure management, specifically the need for local control and the expertise to understand both the technical and systems environments involved.

Community capacity building is a key goal of this project and the community enhancement initiative has emphasised that this demands a commitment to spending time, effort and resources in communities, and bringing to that task appropriate skilled external expertise. It requires respectfully engaging with local community members and organisations, and building local capacity underpinned by an appreciation of local cultural norms and processes, and supported by effective social marketing strategies.

In summary, the project inputs (Figure 2 and the headings of this section) were all implemented. However, this did not occur as was intended per the HPQ proposal and, to different degrees, the elements were delayed. Considering the process elements identified in the project logic (Figure 3),



the most obvious consequences were for the **HIT program** itself. Dealing with the obstacles encountered with each input element (module creation, deployment, community education/engagement, IT infrastructure management and community enhancement) has resulted in improved understanding, working relationships, standard operating approaches and formal protocols. Through this the corporate knowledge and capacity of HITnet has expanded dramatically. From service functionaries of an overseas IT company (Phase 1), HITnet is now grounded in a clear appreciation of and responsibility for the whole creative and productive process.

At the level of the **service** and **service providers** the story is mixed. It has not been possible to operate through the community controlled IT services initially envisaged. Working with Queensland Health has provided obvious benefits to the project and the resolution of technical and institutional problems associated with working within the Queensland Health IT system has probably had mutual benefits (and has resulted in Queensland Health taking ownership and ongoing responsibility for the Cape York kiosks). However, at the level of clinical service providers the project has had questionable impact, reflecting the circumstances of clinical practice in remote Indigenous primary care (competing priorities, crisis and acute care orientation, high staff turnover ...) and the failure of the project to incorporate project activities within standard protocols and operations (although this is now being addressed).

For the **client** and **community** the implementation of this project has been most consequential in terms of local engagement. This was evident early in the input of Health Workers and other community members in every community during the production of health modules which required repeated group and individual interviews. However, it has been localised activities, both the deployment of local photos and other materials, and local production, which is now understood as a key vehicle for both personal influence and community development. The conceptual shift around 'community enhancement' continues and while the growth in local IT involvement with this project has not been substantial the potential opened up by engagement involving local creativity has been an unanticipated but significant collateral outcome on which the project is now building.

## 7.5 Outcome Evaluation

This section will address health literacy, health outcomes, IT capacity and sustainability. Information relating to these outcome areas comes from four sources which will be reviewed first before comments are provided across these sources in relation to the outcome areas. The first data set derives from a **baseline survey** conducted (by GM) in November 2004 which was undertaken in conjunction with installation of kiosks into PHCC waiting rooms, and introduction for staff to the hardware and kiosk function (although the kiosks were not operational at this time and simply had a screen saver activated alerting users that the kiosk would be operating in the near future). This survey involved one-on-one interviews with PHCC clinical staff (n=26) and community members (n=17) during two day visits to each community.

Clinical staff interviewed included:

- 11 Indigenous Health Workers (58% of IHW workforce in pilot communities and 38 % of CYHSD PHCS based IHW workforce);
- 11 Registered Nurses ( 61% of RN workforce in pilot communities and 39% of CYHSD PHCS based RN workforce);
- 3 Medical Officers;
- 1 Allied Health professional (ATODS outreach team).

The second data set is from an **interim survey** constituted of semi-structured individual and focus group interviews conducted in late 2005 across two project sites (Appendix 37 contains the template for the clinician and clinic attendee individual interviews and for the focus groups). Individual interviews were conducted by a medical student working with the project (AN) and focus groups by the Regional Psychiatrist (EH) during three day clinical visits to each community.

The third data set is from a **final survey** which was a repeat of the above semi-structured surveys conducted (in the two project sites that had not been sites for the interim survey) in mid-2006 by an interviewer hired by the project (JC). In total, some 100 individual and group interviews have been



documented and analysed, the sources being as in figure 4.

- Staff reaction to the kiosks was very positive. Most had used some type of touchscreen before and were confident that having kiosks in clinic

Figure 4. Sources of interview data across three time periods.

	Baseline	Interim	Final	TOTALS
IHW	11	4	4	19
RN	11	2	8	21
MO	3		1	4
Allied Health	1	1		2
Clinic Attendees	17	10	10	37
Group		4	4	8
Other		2	7	9
				<b>100</b>

The fourth dataset is comprised of **trace data** relating to kiosk use. Because of issues raised earlier under “challenges”, the capacity to generate this information was significantly delayed and this section will provide information on realised capacity rather than on extensive data collection.

While this represents a major limitation of this evaluation, it should be understood in the context of major expansion in terms of sophistication and technical complexity.

### 7.5.1 Baseline Survey

The full baseline survey report is included as Appendix 38. The summary from that report is as follows:

#### Computer literacy and touchscreen acceptance

- The PHCS staff interviewed were mostly female, experienced in their profession and had significant experience working in remote Indigenous communities. Because an electronic patient information and recall system (Ferret) is operating in all pilot sites almost all staff used computers daily and the majority reported themselves as competent and confident computer users.

waiting rooms was potentially useful in engaging and educating clients in a non-confronting, entertaining way, reinforcing health messages received from other sources (including themselves), and reinforcing their own clinical knowledge on particular topics.

- They also thought the touchscreen could help to overcome the difficulties associated with raising sensitive topics, particularly sexual health, but also including topics such as nutrition, personal hygiene, drugs and alcohol. Some staff thought that the lack of privacy with the kiosk situated in the clinic waiting room may present a barrier for users.
- Community members interviewed, about half of whom had previously used a touchscreen thought this technology was a good way of providing people with health information.
- However there is an acknowledged bias towards computer literacy among the small sample of community members who participated in this survey, many of whom used a computer at work and nearly half of whom had a computer at home. The 2002 census found less than 1% of residents in these four pilot communities used a computer at home (ABS, 2002).



## Brief Intervention

- The majority of clinicians were familiar with the concept of BI despite less than a quarter having had any formal BI training. Most claimed to use BI regularly (half reported performing BI in the previous 24 hours) and felt it was useful, important, and central to their clinical role to raise awareness about health issues despite an apparent lack of interest by many clients.
- When asked to explain BI the majority mentioned giving people advice, education, ideas, information and options related to lifestyle issues and chronic disease. All appeared to adopt a relatively unstructured approach to their BIs and none mentioned using the stage of change model [39] advocated as part of Chronic Disease Strategy being implemented in the pilot communities. Client receptivity to the clinician raising a lifestyle issue or to a pathology test result were the reasons most quoted by clinicians for undertaking BI, indicating clinician recognition of a client's interest in a particular topic and possible readiness to consider change.
- Alcohol BI was identified as important by most clinicians interviewed and undertaken regularly. Most community members interviewed reported being asked questions about alcohol by someone at the clinic. About half thought this was an acceptable practice with most expressing a preference for this discussion being initiated by a medical officer.
- However issues of confidentiality and perceived clinician knowledge probably account for only two community members expressing confidence in engaging in BI with IHW. These issues may also explain the perceived lack of client interest in BI and attitudes of shame and denial in their clients expressed by a number of IHW.
- *[A review of ferret data which asks clinicians to record BI as part of AHC in these communities is underway. This will provide quantitative evidence of clinician practice with BI and allow an assessment of the accuracy of self reported BI activity]*
- It is not the intention of this component of the HIT evaluation to make a detailed assessment of clinician BI competency, however some misconceptions were identified regarding clinician use of alcohol BI.
- Nearly one third clinicians thought those with a dependency or alcohol abusers would benefit from an alcohol BI whereas evidence in the literature indicates BI is most efficacious with moderate drinkers and those just starting drinking [40] and unlikely to result in change among established drinkers [41].
- Undertaking BI with clients who are intoxicated or stressed due to alcohol related incidents also requires emphasis in any future alcohol BI training as being non-productive.
- Alcohol assessment was reported to occur mainly using AHC however most IHW reported using their personal knowledge of community members as their reference for individual alcohol intake. This infers client questioning regarding alcohol intake may be absent from the discussion and an opportunity for awareness raising related to (quantified) excessive intake is lost.
- The majority of clinicians undertaking BI reported using some form of resource to support the discussion indicating this to be accepted practice.
- While some barriers to discussing alcohol with clients were articulated by clinicians, issues related to culture, gender and having the time available to conduct BI were not significant. It would appear that client receptivity related to confidentiality and perceived clinical knowledge rather than responsiveness to the topic of alcohol were barriers to be considered by clinicians.
- The overall impression is that most clinicians appeared willing and able to undertake their interpretation of a BI with their clients as a routine part of their daily practice and that, while these BIs were relatively unstructured, the flexibility they afford the implementers facilitated a personalized, natural approach to lifestyle modification, tailored by the clinicians' personal knowledge of their clients.
- Future BI training for these staff should consider



the validity of what is currently being done, correct any obvious errors in the approaches used, but be cautious not to be overly prescriptive in how BI are delivered as this could have a negative impact on the inclusion of BI in daily practice. The use of both the touchscreen alcohol module and grog toolkit CD may assist in building client confidence in IHW knowledge, whereas the issue of confidentiality requires constant reflection by all clinicians living and working in remote communities.

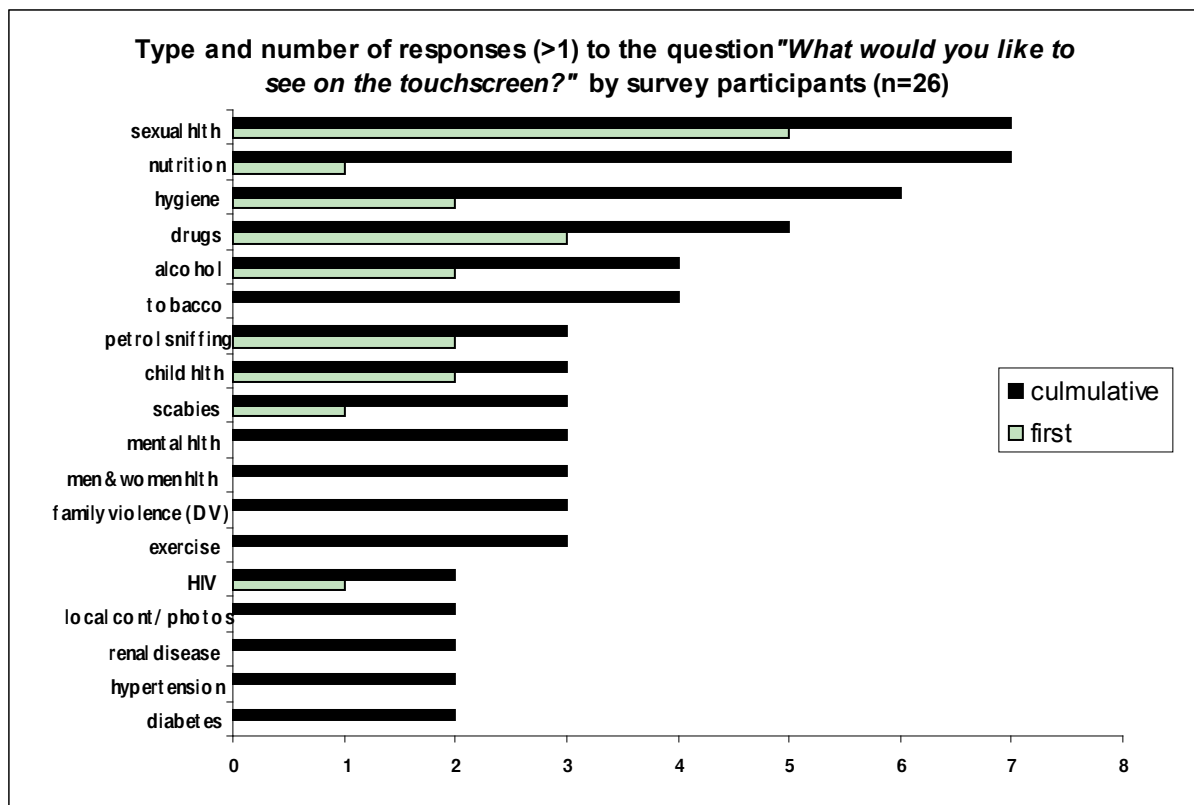
### Alcohol Literacy

- All except a couple of survey participants knew the details of community alcohol management plans.
- The concepts of a “standard drink” and safe drinking limits continue to present difficulties for many people. About half the clinicians interviewed and only one community member could describe a standard drink or knew safe drinking limits for men and women. However most clinicians and about three-quarters of the community members knew the dangers of alcohol for pregnant women, the physical problems from

excessive alcohol consumption, and times when drinking could be particularly harmful.

- This indicates a good general understanding about the negative effects of alcohol despite an apparently limited knowledge (perhaps influenced by people questioning the practical relevance) of defining and monitoring low risk consumption.
- There was evidence that some clinicians tended to underestimate their drinking risk, however the overall impact of clinician alcohol consumption on their day to day practice appeared minimal.
- The baseline survey also obtained information from informants to the question: “What would you like to see on the touchscreen?” (Figure 5). As with other aspects of the project, this information has been incorporated into HITnet planning. Thus, since the baseline survey further modules have been produced on sexual health and alcohol, and funding has been obtained and planning underway to produce modules on petrol sniffing and mental health (2007). Discussions have now begun (with Lockhart River) for the production of a nutrition module which will

Figure 5 Recommendations for touchscreen content





be community based and draw on local knowledge regarding traditional and locally grown introduced foods, as well as incorporating other aspects of local culture and activities (such as music and visual arts).

## 7.5.2 Interim and Final Interviews

Information from each informant group is presented with interim (late-2005) interview followed final interview (mid-2006) data.

### 7.5.2.1 Indigenous Health Workers

#### Interim Interviews

Interim interviews included one male and three female Indigenous health workers with a mean age of 28 years (range 24-36). The four IHWs all had computer experience but only one with a computer at home. The first section of the interview dealt with perceptions of kiosk use and efficacy. They self-assessed their competence as being universally reasonably good and all indicated that the TS was easy to use and that they thought this provided a good means to convey health information. Expectations of the kiosks varied, but all felt that it had positively met expectations, one reporting:

*“And some!” Better than expected. Firstly it was just kids. Then adults have taken an interest. Adults just looked at the pictures to start with but later seemed to be reading through modules (but not printing) and this is all pretty impressive. Makes our job easier. People can do it at their own pace. Seems to be better than “harping at people”. No concerns about it not living up to expectations.*

In terms of population groups perceived to use the kiosks all groups were mentioned, children noted to be more frequent users and older community members less frequent users. None of the IHWs reported that there was a process or protocol in place for encouraging use but one added:

*No! It's the flashing lights and colour of it. It eye catches. They got no choice but to get up and have a look. And they touch that screen the first time and it changes, and they go Wow! And just keep going.*

One IHW identified literacy as a potential barrier to use but privacy (particularly the sound) did not emerge as a voiced consideration although specifically prompted for. Indeed one informant noted:

*That part that asks them: Are you a man or a woman, an elder or a child... That's really good. Makes them comfortable about using it 'cos it lets them know it's for everyone.*

There were no objections voiced to the location of the kiosks in the PHCC waiting room, but none of the IHWs reported that clinic attendees discussed TS content with them (although one commented that this may have stimulated particular questions about alcohol).

Three of the four informants reported that the TS had helped them with their work, one noting that the TS gave appropriate information “for me and the patients”, another noting:

*Yes, for the patients' personal knowledge – Yes. Feeding them with information, knowing what can become of them if they don't take action. And the kids' game is really good. The challenge [the 'Deadly Kids' interactive game] teaches them a lot and they love it. It saves my time.*

All four IHWs felt that the TS was useful in educating patients about health issues, two identifying sexual health, drug and alcohol issues, and mental health as subjects that would be appropriate, another reporting:

*Slide shows with explanations about different health problems like liver disease. Show one healthy liver, then show what happens to it when you drink too much. But all sorts of health problems. Give them a scare out of their boots. Those things that make people know it's urgent.*

The second section of the interview dealt with alcohol literacy in terms of local alcohol restrictions (AMPs), safe drinking levels, the consequences of unsafe drinking and the impact of drinking on foetal development. By and large these health workers appeared to be reasonably well informed. The IHWs reported that they approached assessing patients' drinking status in line with the provisions of the CDS, however, one commented that:

*I sit down and ask those questions for the adult health check. But people don't give the honest answers. I know those people and they are not being honest about it. But what can you say? You got to write down what they say. So, I think one kiosk should be in a quiet room for people to go through the 'Grog Quiz' privately, that way, with us to help if*



*they want.*

All four IHWs indicated that discussing alcohol with patients was “very important”. Two of them reported using specific resources in addressing alcohol use with their patients, these being pictorial resources. None of the IHWs reported that they were using the ‘Grog Kit’ and only one reported referring patients to the TS. In terms of particular groups needing attention two IHWs indicated concern for specific groups, one opinion that:

*Young people who are binge drinking, because they are open to getting STIs or mental health problems or pregnancies. And men, because of fertility and domestic violence. The grog turns you into a non-person, and the grog starts doing the talking. You are not in charge of yourself, and in the end it links to violence and then two years in jail. Links to murder some times. And then to diabetes, hypertension and renal failure.*

In relation to alcohol brief intervention there were quite varied understandings of this activity, however none of the IHWs indicated that this was something used regularly, or comfort attempting to do so.

## Final Interviews

Final interviews were undertaken with four female Indigenous health workers with a mean age of 41 years (range 19-55). These health workers reported levels of computer ease and facility similar to those reported above. Only one IHW (who had decades of experience) commented on whether this technology would be an appropriate way of providing information, in her response reflecting on the changing role of health workers and the reduced importance that she felt was given to traditional health promotion activities:

*“we used to be out more doing preventative, just like doing more health promotion ... mostly we do the clinical now”.*

In these interviews IHWs did not indicate expectations regarding TS impact, but mentioned that:

*“When it fist came it was all right. But now that its got more on it, its more reality. It’s improved a lot”. In terms of the population group perceived as most using the TS there was general agreement that this was particularly children and young people, one informant stating that: “teenagers use it. They always go straight for the sexual health one because its their own age group acting it out”.*

The elderly (and in the opinion of one IHW, “mental health” patients) were again identified as low users of the TS.

Only one IHW (from a community in which engagement with the TS and its potential was clearly greater) commented on encouraging patients to use this resource, noting in relation to patient concerns regarding privacy, that:

*“If we are busy we just watch them to give them a bit of privacy. We don’t send anyone out there. Even if you turn it down they might feel embarrassed. It should be somewhere else”.* These do not seem to be issues of relevance to younger users and several comments were provided regarding the TS’s utility in providing an activity for children and youth who were in the waiting room. The engaging element of the TS was perceived by one IHW in Napranum (where ‘Put it on’ was filmed) as being: *“more about kids themselves being on TV, not about the message. They don’t get the message. Teenage pregnancy and STIs have not changed”.* Barriers to use identified by two IHWs were privacy concerns and noise.

Only two of the IHWs provided alcohol literacy responses, suggesting variable understanding of safe drinking levels, with only one indicating active involvement in brief intervention. There was only one clear suggestion regarding approaches that may facilitate communicating about alcohol with clients, the IHW stating:

*Even if they had a DVD and they showed how they went to hospital and those diabetics, they don’t know the dialysis. That’s just a word to them, they don’t know what it means. We could put on a short DVD, make them a coffee and they could watch the acting. Mainly Aboriginal people – they learn from visual – actually seeing things. But if they mainly saw it in the video, or they saw it on the X-ray, or real lungs and liver – they made a picture that looks real. Talking – you can’t see what’s happening in side – You know what I mean?*

### 7.5.2.2 Nurses

#### Interim Interviews

Interim interviews were with two female nurses aged 57 and 52 who had been in their current positions between one and two years, but with fifteen and



five years experience in Indigenous health settings. Both rated themselves highly in terms of computer competence. The expectations of these clinicians was universally good, there being two comments regarding the particular appeal and relevance for children, but reservations noted in terms of living up to those expectations because of the time it took to enable the inclusion of local content and expanding the range of health related materials. One RN commented in relation to living up to expectations:

*Probably not. I think that's because health staff don't positively encourage people to use it. Kids use it, and in that way it is fulfilling expectations and its great. Health Workers and RNs are already busy with many tasks, so there is the issue of time. I would prefer preventative health or health promotion to be a priority, but the reality is that FERRET and such activities are a priority. Staff don't really have a primary preventative health care focus. Also, the touchscreens are perceived as "not ours". I think the touchscreens have great potential, but not being used to capacity at the moment. I am not sure how to make that happen. Mainly because of workload issues.*

In terms of populations perceived to use the TS – the particular attraction to youth (particularly boys) was noted, with this group functioning to occasionally mediate use by older groups. Pictorial presentation and the use of local photographs was identified as an inducement, one clinician noting that she used the latter to encourage use. Barriers to use identified were practical issues (literacy and familiarity with computers, although not perceived to be major matters) and also the limitations on staff time that might otherwise encourage use. Suggestions regarding overcoming barriers to use, as with factors supporting use, were using local resources and focusing on prevention.

Waiting room location, although perceived as being intrusive initially, did not appear, with time, to present problems. These nurses were not approached by patients to talk about the TS content. In terms of the positive effects on clients, one noted: "the positives are that because literacy is a concern there is a voice over. It's also good because this community are also big TV watchers. I think it's a good educational tool". The other, commenting on familiarity with interactive databases by IHWs noted in relation to mediated use: "could be a positive for health workers to use the touchscreen as an impar-

tial tool, especially because of family issues, awkward moments, respect issues and such things".

In the section in which the nurses were asked whether the TS had helped with their primary work roles both informants commented that while they felt it was helpful for patients, neither indicated that it has facilitated their own responsibilities. However, one nurse made some interesting practical observations that relate to clinic activities:

*No, but I haven't chosen to use it. I use Ferret as a talking point. So I think it's because I haven't changed my practice to accommodate it. Also it's because it's in the waiting room rather than in the consulting room [the suggestion had been raised of having modules/information on CDs available for consulting room computers]. But I don't think it would work to have CDs and such as you still need to use Ferret as well – and you'd have to close Ferret. Ferret usually stays open and you finish putting things in when people leave the room. So I think it's better to have the touchscreen in the waiting room, but then it's less useful as a consult tool. I also think there's an issue of when to suggest people use it. The close of the appointment is not the right time.*

In the section relating to suggested issues for the TS, one clinician identified local photos, sexual health, chronic disease and parenting. The other raised quite different ways of using the TS as a motivating resource:

*competitive things. Like, there was that town where together they lost one tonne of weight combined. We could do something like that and everybody could put info on the computer and it could display progressive graphs and charts and things. Maybe distance walked and exercise done are other ideas. It could give people a sense of achievement. Need short-term rewards like being able to see the progress visually. And long-term goals too. Maybe there could be a town night to celebrate the achievements. Could be in family groups, or groups of diabetics etc.*

Not surprisingly, alcohol health literacy was good for both of these clinicians. One of the nurses stated that the 'Grog Kit':

*made me a bit more aware of talking to people about grog. More so when it was first installed. It's still on my computer, but I don't really use it. I think it would be more useful if it was a tool that everyone together was committed to using – especially the health workers...*

in touch with

health choices

health consequences



*With the 'Grog Kit', I think you should elaborate the section on babies and pregnancy and have information about breastfeeding and about drinking with little ones around. All of the stages are important and people don't understand it well. I think it's a good opportunity to reinforce messages about women drinking with respect to all these issues.*

Clinician mediated use was not occurring with either of these nurses, although one reported that she "sometimes" encouraged patients to use the TS. Brief intervention skills appeared to be reasonable and seen as an integral part of clinical care, although the approach appeared to draw more on "just talking" prompted by FERRET, than an approach based on a recognised theoretical framework.

### Final Interviews

Final interviews were of eight nurses (two male, five female and one not specified) with a mean age of 48 years (range 37-56 years) from two of the project sites (Napranum and Lockhart) These clinicians had experience in Indigenous communities ranging from one to ten years. Only two comments were provided regarding an overall sense of the utility of the TS technology, both being positive. There were other comments that identified problems in maintaining the kiosk working in that community. One informant (Kowanyama) provided the following observation regarding kiosk operation that reflects on issues relating to local process and staff turnover (following which a staff-wide workshop [EH] was run to ensure clinic-wide understanding of use and maintenance):

*Eighteen month ..., off a lot of the time... Recently off a lot. It has never seemed to work properly all the time, freezes. Every time we report it broken someone comes to fix it. If we knew how to get it going it would be a good advantage. [The dual-lock keys to the kiosk] are kept in the DON's office. Nobody's responsibility to look after it officially. G-- used to make it her responsibility but she left. No one told her [the new administration officer] to do that at the front desk.*

This informant also noted that he had become aware of the 'Grog Kit' coincidentally; having not been involved in the introduction in November 2004 (it was located on one computer in the PHCC). Without an introduction he was not motivated to explore its use. Furthermore he expanded on the reac-

tive "bandaid medicine" approach that he perceived clinicians were forced to practice which prevented giving attention to preventive and health promotion approaches, such as might be offered by the TS and the 'Grog Kit'.

There were few comments in relation to expectations and use of the TS. However one nurse (in Napranum, the community enhancement site) noted that she had expected that this would be "to reach people ... to deliver information about diabetes, youth and alcohol" going on to state:

*I often see people looking at the touchscreen, it is being used on a daily basis. It is not measurable how much it has changed people's attitudes. I have seen groups of young people looking at the movie. They are interested but there is no way to gauge what they are getting out of it... It has exceeded expectations. We didn't know about the movie. We didn't know how much information it could deliver and being able to put photos on makes people more interested in the screen.*

Barriers to use identified included, privacy (and shame), age and location. While the earlier mentioned common user groups (youth) were repeatedly noted, one nurse commented on: "older people using it to look things up". In terms of encouragement to use the kiosk most nurses indicated that they did not (for a variety of reasons including not having had a formal introduction), but the DON at one PHCC reported:

*I encourage the staff. I support it because it's a form of education. Give out some information about how to improve things. With the young ones it is good. Kids like to interact with the computers. People weren't really encouraged to use it but they did anyway. The diabetes mob, sometimes they encourage use.*

Comments regarding overall impression were generally positive although note was made of the noise in crowded (and small) waiting rooms (particularly at Kowanyama), and the need for: "a place where people can go to really be alone with it and have a look". Little was provided in the interviews regarding health consequences, but one nurse reported: "the young people are quite bright, quite intelligent, and do take in information. I think the computers are a bit too culturally appropriate at times – a bit too 'dumbed down'". Another suggested that an after-school care room being built in the community



would be an ideal site for kids to access information and participate in the TS project's ongoing development.

Only two nurses gave specific information regarding health promotion activities and the potential of the kiosk, both noting that the expectations of clinic users were simply to be "fixed up" rather than to address health promotion and preventive issues. These comments resonate with those regarding the reactive, crisis oriented nature of these services made elsewhere. Two informants related that the touchscreen was probably of greater practice relevance to Indigenous Health Workers than nurses (although one commented that the diabetes module was "great").

In terms of suggestions for development, more on nutrition, exercise, petrol sniffing and gambling were mentioned, with one nurse suggesting a means to inform community members about Cairns Base Hospital and the services available there and processes entailed. Another stressed the importance of more information for women about alcohol and pregnancy and foetal alcohol syndrome. One nurse was aware of the 'Grog Kit' on a PHCC computer but none of the nurses reported utilising this resource, the recurring themes being about the demands of acute care, the need for dedicated ATODS workers, and the burden of social issues.

### 7.5.2.3 Clinic Attendees

#### Interim Interviews

Ten clinic attendees (five male and five female) with a mean age of 28 years (range 20-50 years) were interviewed across two of the four project sites (this was before the implementation phase, thus before deployment of 'Put it on'). In the first section of the interview dealing with awareness and use of the TS all informants were aware of the resource save for one 35 year old male who explained that he rarely came to the clinic. Four informants stated that they had seen similar kiosks in Centrelink offices elsewhere. The male informants indicated that they found it interesting and although these males were between 20 and 48 years they commented in particular about the game within 'Deadly Kids' and the community photos.

One 20 year old male said: *"the problem with the*

*machine is that it flicks to the next screen to quickly, no time to read it, so I just go to the game. But, yes, I'd use the machine again".* An older (42 years) male stated: *"the good things – just about everything. You always learn something new".*

Women, by contrast, talked about it in terms of its use for children and seemed less confident to initiate interaction on their own, two reporting that they had used it as a consequence of being introduced to it by a clinic nurse (likewise the local photos were particularly appealing but they reported looking at all of the modules – again being attracted by the game in 'Deadly Kids'). One young woman also noted: *"I liked it be cause it tells you the good and bad things ... like about diabetes and alcohol".* Another 50 year old woman who was somewhat reluctant to use it added:

*Children come in here, they play with it, then my children play with it and I watch them. All the adults – they sit here and they lean back and watch it. I don't know [if I would use it] ... Yeah, if nobody is around I might. It's a toy for children to play with. It's not for adults. Maybe I would look if it were more private. People would say to me – "What you doing, what you playing with that baby toy?"*

In relation to the diabetes module all informants who had used the TS were aware that this is a component, a male informant adding: *"yes, I've got diabetes, that's why I'm here, I'm waiting for tablets".* In terms of the alcohol module, the majority of users had used this module. On enquiry few could describe specific issues, but related that it appeared "believable" and had told them things they "knew already", although one woman, who was a drinker, indicated that the module had made her think differently about how much someone can: *"take in ... especially if you are a small person, then you need to have less grog".* While two women commented that it would be good for family members (who drink) they added that they would not be able to encourage those people to use the kiosk:

*"No, no one listen to no one – they say 'I'm older than you – don't tell me what to do'. You try but people don't listen".*

Two young mothers specifically commented on the sections dealing with alcohol and pregnancy, one stating: *"the stuff about mum and baby; when you're drinking, the baby's drinking – that's impor-*



*tant*". Both of these young women related that they knew about alcohol but could not answer questions regarding safe drinking limits, but adding that pregnant women should not drink at all.

Section four involved facilitated use (by the interviewer). By contrast to the four women who demonstrated quick learning and comprehension, several women voiced reservations. This included the 50 year old woman who had not used it before and whose comments are quoted above. Having watched the demonstration by the interviewer (of the segment dealing with ear, nose and throat problems in children) from her seat, she then got up, and said: "While I'm sitting here listening, I'm thinking about my daughter. She's sixteen and doesn't hear well. She's been saying to me that she has sore throats. I didn't know they were connected". By contrast, two of the men found it difficult to appropriately use the kiosk, even with help (although this MAY have been somewhat anxiety provoking, particularly as the interviewer was a young non-Indigenous female).

Two of these six informants did not use Standard English at home (one used a Torres Strait language and Creole, the other 'broken' English). Only two had difficulties with understanding, one suggesting: "it needs to be more in the way that people talk at home. Like in broken English. And much slower. People don't talk that fast. Need to give it time to soak in. The pages move along too fast". Comments were also provided about the need for specific approaches to attracting adults (rather than children for whom appeal seemed a given) and, from two women, agreement that sexual health would be an important module ('Put it on' was not yet deployed). Other suggestions included something about sporting injuries, realistic photos of the damages that result from smoking (although another suggested that there should be a warning sign which might alert but also, possibly, increase curiosity). Local issues and local activities (for instance local languages and bush tucker) were also recommended.

## Final Interviews

Interviews were undertaken with ten women with mean age of 30 years (range 17-73 years) from two project site communities (Kowanyama and Pormpuraaw – these are the two communities for

which there were no interim interviews). All of these women were aware of the kiosks, some had used it, and one who did not commented: "thought it was for games", "I looked at it before alcohol just looked at it – I don't drink". Several Pormpuraaw residents related that they had used it because of the sign that had been placed above the kiosk inviting use. An informant from Kowanyama noted that: "the kids showed me how to use it". Comments in relation to facilitating use and understanding again related to non-verbal presentations and the use of video with recognisable local people. In relation to the sexual health modules, some of the informants clearly felt that privacy was not an issue while others obviously were concerned.

In terms of diabetes there seemed to be quite reasonable general knowledge of this condition. Little information was elicited relating to the impact of the diabetes module. However, one elderly informant made comments that suggested the importance of information that is personalised (the diabetes module presents general information rather than information responding to user input). Only three informants provided information regarding alcohol literacy, all three of whom talked about looking at the sections relating to drinking limits, one (a woman who had experienced seizures from alcohol) being particularly interested in the effects of spirits, another about the mental, physical and family damage that can be caused. One informant, herself a drinker, commented:

*It's OK but it didn't really grab me. I sort of drink myself so I kind of ignored it. I think a lot of people might feel the same. ... [You should] be straight up. Tell them it can kill you. I don't think it tells you the facts about alcohol – like the damage that alcohol does. Like foetal alcohol syndrome. People don't realise, they think the kids are mad or crazy. Like my sister said, "everyone else drinks when they're pregnant – they're OK".*

By and large awareness of safe drinking levels was reasonable although one informant who had already experienced health related problems suggested that six standard drinks a day for a woman was safe. A thirty year old woman who had used the kiosk said that: "it made me think about my dad – he died this year. My mum told me about his early hard drinking; made me think I don't want to end up like dad". This



informant suggested that the kiosk would be useful to: *“teach my kids about alcohol. Want them to drink right. And nana, she has diabetes. Tell the kids about good food”*.

### 7.5.2.4 Other Individual Interviews

#### Interim Interviews

At the time of the interim interviews only two other informants provided information – these being clinic administration staff at the enhancement community (Napranum) – this being before deployment of the sexual health module. The comments of note relate to their role in directing people to use the TS. Both informants raised privacy as an issue, particularly with young men, however they also noted that it also appeared to enable people to access information at their own pace (that is, in a self-directed way). These women also recommended child and maternal health as a topic.

#### Final Interviews

Other groups interviewed at this stage were a medical officer, psychologist, administration officer, Council CEO, a Council Social and Economic Development Officer, the HIT program Community Engagement Coordinator, and two of the young women who had acted in ‘Put it on’.

The medical officer commented that new initiatives were too often “parachuted” into communities, not adequately supported which, in the case of the community in question, also involved a lack of cooperation and investment on the part of senior staff. He did, however, suggest that it would be useful to fill some of the information gaps that (he perceived) were present in the current system – for instance regarding antenatal issues. The psychologist was not supportive of this intervention, commenting that this approach supports “passivity” and that funds might be better expended through other interventions. His only positive comments related to the use of video product.

The health centre administration officer had had past significant personal and family issues relating to alcohol. He commented on the appeal to children and the fact that in this community there had already been an initiative through which youth participated in the production of a DVD about family violence. This informant felt that there should be

more kiosks in public spaces where people congregated. He felt that initiatives have to start young and in relation to the kiosk: “more people are coming to the clinic to see the screens. But maybe they are coming to take condoms”. He expanded on community issues in relation to addressing alcohol:

*The community don’t ever talk about alcohol – they talk about more alcohol in the community. I reckon people should be taught how to be sociable. Not to binge drink ... Not by taking it away – you just have to teach them – show them how it’s going to affect their body. It’s not going to happen overnight. But, its going to happen... The pictures, some people can’t even read. They need movies and they need to talk their own lingo. ... Tell them what’s going to happen to them, like on cigarette packets, treat beer like cigarette packets.*

The Council CEO (Pormpuraaw) was asked about local non-health relevance and responded that there were adequate systems in place to communicate community level information. He did, however, comment that there may be a place for this technology in providing information for tourists at the visitor centre. He added that there was satisfaction with the protocols that had been used in engaging with the community and that the Mayor had gone to examine the kiosk.

The Social and Economic Coordinator (Napranum) was quite different in her comments:

*The DVD [‘Put it on’] was really popular. We presented it at the youth centre in February. We had a barbecue. There were about 60 kids and 20 or 30 adults. The response was overwhelmingly positive. There was lots of laughs. The adults said it was good for the kids to get this information. One woman said we should do it again. There has been no negative feedback. We absolutely want to go ahead with the Hip Hop workshop. It provides a different experience for our kids. They learn new skills, see different things, have positive role models...*

This kind of intervention is brilliant because it encourages participation, then the awareness about the whole message is elevated. The kids got really engaged in the process. Having the screening and having the touchscreen feeds it back to the community. I have five youth workers and they are all really keen to see it happen again. We are getting the



PCYC involved in the centre.

The HITnet Community Engagement Coordinator had been involved as an actor in the abovementioned DVD, and was interviewed in Napranum. His comments related particularly to appropriate cultural process and how the production of 'Put it on' addressed issues of self-esteem and community pride. This informant had also been involved in a sexual health promotion initiative in the Torres Strait which had been structured around 'Put it on' and coordinated by the Torres Health District Sexual Health Team. Comments here related to the (somewhat surprising) enthusiasm with which this product had been received in this quite different cultural context.

Finally, two of the other actors in 'Put it on' (females aged 16 and 17 years) who were interviewed at this time (seven months after filming) spoke at some length about their increased knowledge of sexual health and health related behaviours, one (sadly) noting:

*"The movie's good. I think they should put one on in [community X]. They have lots of STIs there. My cousin, she is my age and she has two kids. She is really struggling". On being asked about personal change one reported:*

*My attitude. I used to go out partying with my friends and get really drunk, then those boys would come around and take advantage of us. I stopped drinking after making the movie. It wasn't about the drinking. It was about sex and disease. I started to think: If I get those diseases, in the future my mum wouldn't have grandchildren. I might lose my friends too if I got some disease*

One young person who was asked about the other interactive multimedia module ('Grog Story') which was shot at Yarrabah and commented that while they felt it was good, there was particular appeal locally for 'Put it on' given the local personalities on screen. This young woman added that she now intended to go to media school.

The other young person had similar comments and noted that while she knew many of the issues raised through formal education programs:

*"I learned what you have to do at the hospital. I am able to help a lot of other people now. I am able to encourage them to go to the hospital, not so much playing a different role, but with my friends, they ask me for advice now".*

She added that:

*Songs were a big thing. The kids from the community came in and helped us with it. At first when it came out they used to come and ask if there was going to be another one and if they could be involved in the next one. Another one would be good. Young couples and having children at a young age, there is a lot of that in the community at the moment. They just drop out of school and have kids. Some are happy – some are not. I think it's a problem, and they are dropping out of school, mostly in year ten and eleven – four girls dropped out.*

The Sexual Health Coordinator with responsibility for Napranum gave comments that support the above, adding that.

*Kids say I should "put it on – put it on" when I am contact tracing. It has become a bit of a catch phrase. When I ask them why they didn't use a condom they say 'I was drunk' or 'I was stoned'. Feedback from the kids is that they like it. They see their own peers that they identify with, they see their own location, their own back yard. And it rings true. ... The reason that it is so good is that engaging kids from Napranum is really difficult. ...*

These comments are consistent with information gained through interviews with six of the actors that were undertaken by the Project Coordinator (HT) in the week after completion of filming (before the post-production work and thus before product had been viewed locally). In these interviews the informants reported that:

- Awareness of sexual health as an issue had increased, although it is not at all clear whether this had translated into an increase in functional knowledge (one interviewer [JC] noted that infertility – a major issue in Indigenous communities – was a very real concern);
- They felt that they now had a greater sense of responsibility around these issues towards others in the community because of their 'role model' status;
- The individual experience was empowering in that none had ever acted before. For instance a fifteen year old male informant whose circumstances in life had been very challenging explained that he felt that over the five days of filming his confidence grew, he felt himself "coming out" and that by the end of this time "I feel like



there's nothing I couldn't do". He went on to state that he had now found something in life that he felt he could do well at and that he now had an ambition – to be an actor;

- These young people were all engaged through formal contracts. This entailed responsibilities to which all lived up – on time each day and cooperating throughout;
- The presence in the community of a professional film team, which included highly regarded Indigenous professionals, was a powerful role-modelling, mentoring experience, particularly given the professional focus that was brought to each actor's capacities.

### 7.5.2.5 Group Interviews

During the production stages of the alcohol module, the AUDIT and the kids' module dozens of focus groups were held across Cape York and Torres Strait communities informing content, language and presentation. Two additional sets of focus groups were held in each project site PHCC at the time of the interim and final interviews (by EH). These groups involved a range of clinic staff.

### Interim Groups

Across all sites these workers identified that the goals of the HITnet project related to education, new means to reach community members and attracting people to the clinic. Informants in one group also commented on the TS as a vehicle to facilitate bringing up particular issues. Only one community volunteered the ancillary goal of increasing local IT capacity. Within the groups here was general understanding of the range of content topics although this was not the case in one community (Kowanyama) where there had been significantly greater difficulty engaging local staff (this, in fact, led to a specific workshop [EH] which appeared to address this problem). In terms of how these workers perceived the TS and its contents supporting their alcohol-related clinical work, two groups (including the above community) did not see this happening, the other two indicating only minimal roles. Informants from only one community could indicate where the 'Grog Kit' sat on the local computer network, adding that this possibly had been made inoperable when QH

IT systems were transitioned to the SOE. The informants from only one community identified growth in IT capacity as a result of the project.

Although several groups mentioned the utility of the TS in terms of keeping children engaged, no other direct staff interaction with patients around the TS was noted. When asked how that could be addressed informants suggested having these resources on laptop or DVD format, as well as staffing and time. Suggestions regarding improvement included location (to increase access), screen navigation and involvement of community members in production. Across several groups there were recommendations for modules to introduce community members to services, resources and procedures associated with going to health facilities in Cairns. Members of one group also suggested having a range of clinical tools, such as basic anatomical diagrams, available for use on laptops in consultation, more information about a range of health topics (including FAS) and resources that might help with supporting treatment compliance.

### Final Groups

The final group interview entailed the same format and the same interviewer (EH). Because of high levels of staff turnover, very few of the individuals attending the first round of focus groups were involved in the final groups. In terms of informants' understandings of the HITnet project the responses were similar, however there was discussion of health promotion and prevention, brief intervention, more broadly stimulating thinking regarding health with an informant at one site stating that it:

*"allows kids and adults to look for something themselves rather than us telling them, doing it at or on request – taking initiative without us having to verbalise information – they can go and take the initiative".*  
An informant at another community commented about returning responsibility to patients for their health decisions.

At this interview there were accurate reports of the content areas available on screen (including at the community where this had been obviously wanting at the time of the first interview). However, it became clear that understanding of what was available within the alcohol modules, was not as good. There was still little obvious thought regarding how



the TS modules could support clinic roles in terms of alcohol interventions.

No informants indicated that they were using 'Grog Kit', one stepping out of the room to locate it (which she did). Impact of the 'Grog Kit' was, unsurprisingly, not acknowledged. During these focus groups few of the staff indicated that they used or facilitated kiosk use. As these groups became a teaching opportunity, one informant noted: *"now I know, I would be VERY interested to see the kids" one. Then I would use it. ... If we know more about it we would be tempted to show them. We need personal competence".* However, in one group a nurse stated that she did interact with patients around the TS: *"particularly with the sexual health module. When kids are using it I help them with making decisions. .. I want to get the video of the sexual health story to run groups"*.

In terms of suggestions these largely replicated those of the first groups. However, in Lockhart, where there had earlier been complaints regarding the printer (which led to the printers being removed) there was a requests that this be replaced and reactivated. At this community there was also an interesting observation stemming from a crack in the screen which, although the TS was still operating, resulted in the incorrect buttons being activated. Despite this fault, children had quickly learned how to navigate around this problem using the 'wrong' buttons to get to the areas of the program they were interested in (particularly the game within 'Deadly Kids').

This suggests strongly the capacity of these children in terms of innovation and 'e-fluency'. It is the opinion of the interviewer (EH), who also spends regular periods of time in each community and has run development and feedback groups at various stages of this project, that a key issue in terms of clinical

'take up' of this resource, is the degree to which it is understood, embraced and supported by the DON in each site. This, in turn, relates to who and how the resource is introduced, reflecting the traditional power and hierarchical structures of mainstream health systems.

### 7.5.3 Trace Data

As has been described earlier, with the transition to new providers, the shift to increasingly complex and interactive programs and, most recently, expansion into interactive multimedia, major challenges were encountered in accessing trace data. These challenges were compounded with the extension of HITnet which brought with it the need for central monitoring of the entire network. These complicated technical challenges were only resolved at the conclusion of the HPQ project.

While not part of the set of sites in which the HPQ project has been operating, there is early trace data information that relates to use of the 'Deadly Kids' module which was produced as an agreed replacement module for the musculoskeletal module in the project. This module was completed in early 2004 and deployed, initially, onto kiosks operating in three sites - Woolloongabba, Inala and Cairns (Wuchopperen Aboriginal Health Service).

In mid-2004 trace data created through the JSC system was compiled for two months for both Inala and Woolloongabba, and three months at Wuchopperen. Overall use statistics for these three kiosks (the now-replaced NCR wall-mounted kiosks), with session duration and the proportion of activation sessions in which health content was accessed are shown in Figure 6.

Figure 6. Monthly kiosk use by site.

Site	Monthly users	Session time (minutes)	% Health Info Access
Inala	57	3.6	51%
Woolloongabba	175	4.5	45%
Wuchopperen	168	5.3	47%



The age distribution of these users was as in Figure 7.

Figure 7. Age distribution of kiosk users.

Age group	Percentage
<20	50%
20-34	15%
35-49	13%
50+	22%

The 437 users of the ‘Deadly Kids’ module across the three sites who provided on-screen answers regarding user characteristics were almost equally divided by gender (218 male, 219 female) with age distribution as in Figure 8.

Figure 8. Age distribution of ‘Deadly Kids’ module users.

Age group	Percentage
<8	19%
8-10	22%
11-13	26%
>13	33%

Of the 569 entries into the ‘Deadly Kids’ module (some users entered more than one content area), the distribution by topic (each referring to a set of relevant health issues) is resented in Figure 9.

Figure 9. ‘Deadly Kids’ health topics by proportion of entries.

Module area	Percentage
Deadly body	34%
Deadly face	31%
Deadly feelings	35%

This information is consistent with data obtained during Phase 1. Specifically, there is kiosk use across the age span but a greater proportion of users are younger, and the average duration of purposeful use is approximately 5 minutes.

For purposeful users accessing ‘Deadly Kids’ the age distribution appears quite broad across childhood and youth with the three child health content

areas attracting similar levels of access.

### 7.5.3.1 Kiosk Use

For the purposes of this section, six ‘data collection periods’ from each community have been utilised. Each constitutes one week of activity with one exception. The data capture period 3 for Kowanyama (the site where local support was least reliable) coincided with a period during which the kiosk was frequently inactive.

Consequently, for this data collection period the whole month of April was used (as will be seen from data below, this does not result in an overestimate of use). Data collection period 3 also coincided with problems at Lockhart River with data available only for the diabetes module. Because the timeline for kiosk installation and activation, and module deployment varied from community to community the data collection periods have also varied.

Figure 10 presents a timeline with the date of PHCC kiosks ‘going live’ (they had been installed with a static screen saver approximately one month earlier) identified for each. For each community there were three data collection periods prior to the deployment of the interactive multimedia module ‘Put it on’.

There are also three data collection periods following. As mentioned earlier (technical challenges, Section 5.3) this significantly complicated data analysis as it introduced long periods of module use without touchscreen activation that has implications for the definition of a session and, consequently, for data capture. While this problem is now resolved with the introduction of differential session definitions (contingent on module activated) this was NOT available for the data collection periods in question. However, an example of the impact of differential session duration collected after the end of this project is presented in section 7.5.3.7.





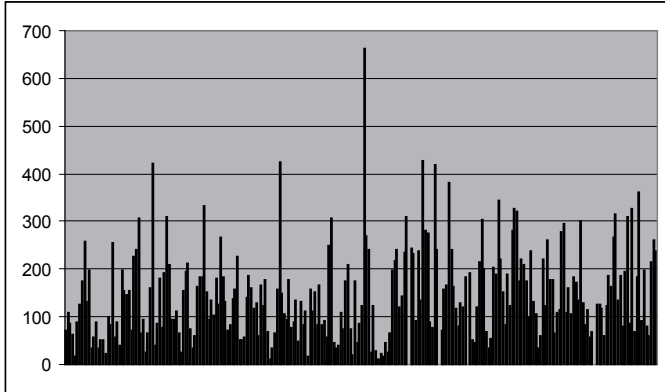
Figure 10. Kiosk activity and data sampling timeline

	Kowanyama	Lockhart	Napranum	Pormpuraaw
2005 July 2		11 July		
3				
4				
August 1				
2				
3				
4				
September 1				
2				
3				19 September
4				
October 1				
2	11 October		14 October	
3				
4	1	1		1
November 1				
2				
3				
4			1	
December 1	2	2	2	2
2				
3				
4				
2006 January 1				
2				
3				3
4				
February 1			3	
2				
3			16 February	
4			4	
March 1				
2				
3				
4			5	28 March
April 1	3			4
2	3			
3	3	3		
4	3	27 April		
May 1	4 May	4		5
2	4			
3				
4				
June 1		5	6	
2	5			
3				
4				
July 1				
2				
3				
4				
August 1				6
2				
3				
4				
September 1		6		
2	6			
Kiosk activation			11 October	
Data collection periods after activation				
'Put it on' deployed			16 February	
Data collection periods after 'Put it on' deployed				



Across all sites there is considerable variation in kiosk use with regular fluctuations. Thus, Figure 11 shows the total duration of kiosk operation by day from October 2005 to August 2006 in Napranum.

Figure 11. Total kiosk operating time by day for Napranum: 2 October 2005 to 9 September 2006.



Closer examination reveals that the fluctuations in operating time are associated with day of the week and with the impact of introduction of the interactive multimedia modules.

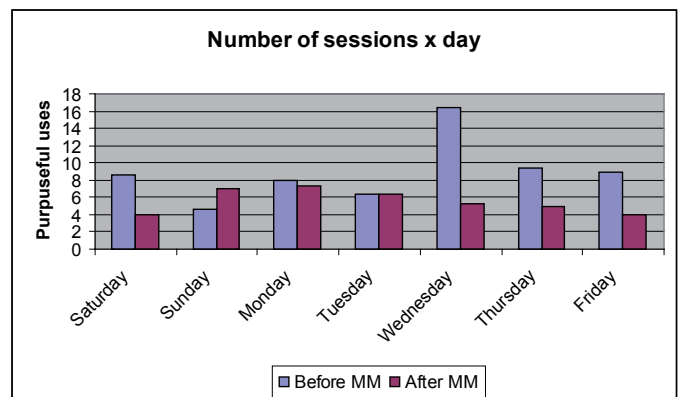
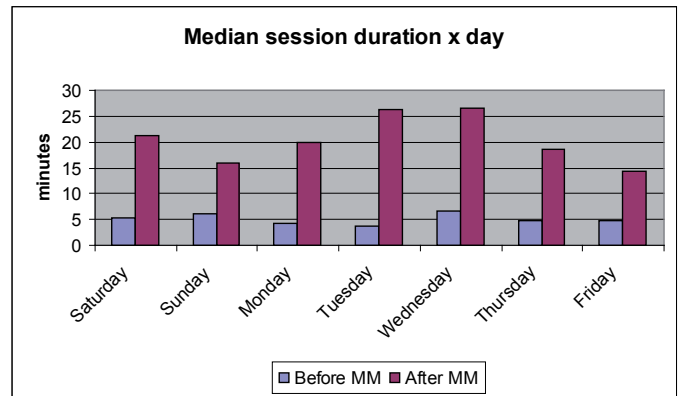
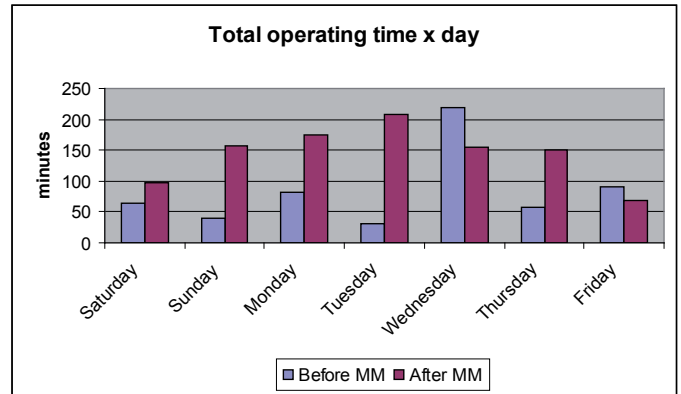
Figure 12 shows total kiosk operating time, average session time and the average number of sessions for the six data collection periods for Pormpurraw (Napranum does not have any weekend services).

Clearly there is activity on every day, including the weekend (when clinics are relatively quiet but informants have commented that patients and their relatives in the waiting room appear less hesitant to use the kiosks given less activity and relatively more privacy).

Predictably total operating time is greatest in the middle of the week (when there are more frequent specialist clinics that increase clinic attendance) – falling off at the end of the week (payday in most of these settings is Thursday and clinic attendance drops significantly in the face of competing priorities).

Also predictably, there is a substantial increase in median session time and a reduction of the total number of sessions following the introduction of the interactive multimedia modules.

Figure 12. Kiosk activity by day of week: Before and after installation of interactive multimedia modules.



MM = deployment of multimedia module

Of those people using the kiosks, the distribution of total kiosk activation sequences and purposive use episodes ('sessions') indicates that the majority of uses involved activation of content rich screens (Figure 13).



Figure 13. Average total kiosk (four sites) activation sequences (total uses) and purposeful uses (sessions) by data collection period.

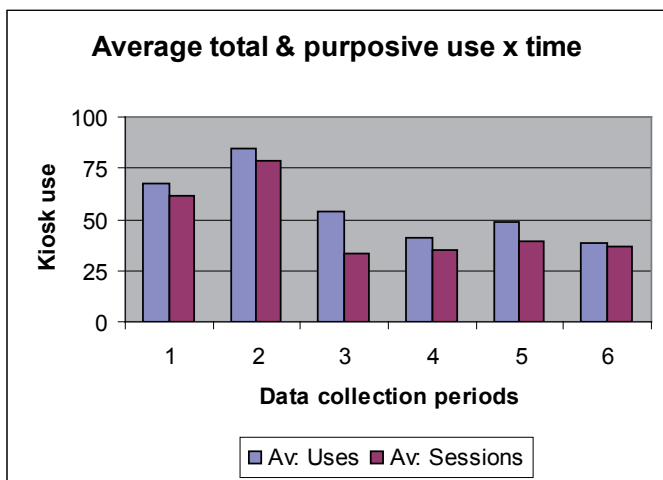
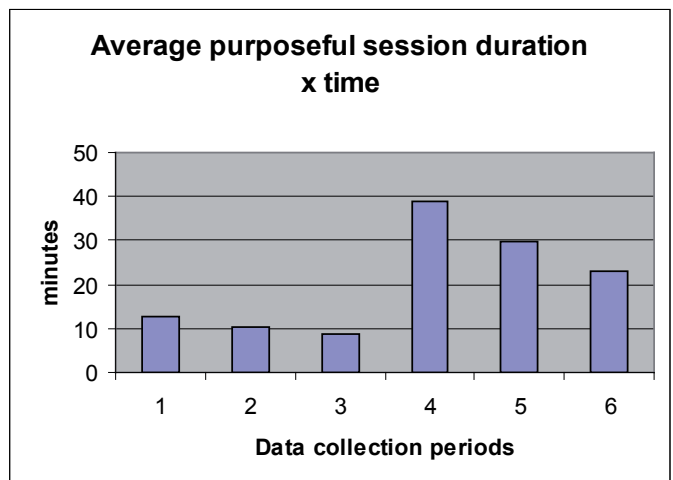


Figure 15. Average purposeful use (session) duration for 4 sites by data collection period.



Excluding kiosk activation sequences that did not conform to the definition of purposeful use (a 'session') resulted in the following distribution of purposeful sessions by community across the six data collection periods (Figure 14). It will be obvious that there is a sustained fall in the number of sessions after the deployment of 'Put it on' which reflects those abovementioned definition issues which is not as evident in Napranum (the enhancement site, thus with particular local relevance and interest) than in other communities (Napranum does not function at all in evenings or over weekends whereas the other sites function on an emergency basis).

Approximately one third of purposeful users across all data collection periods identified age and gender (Figures 14 and 15).

Figure 14. Purposeful kiosk use (sessions) by time by data collection period.

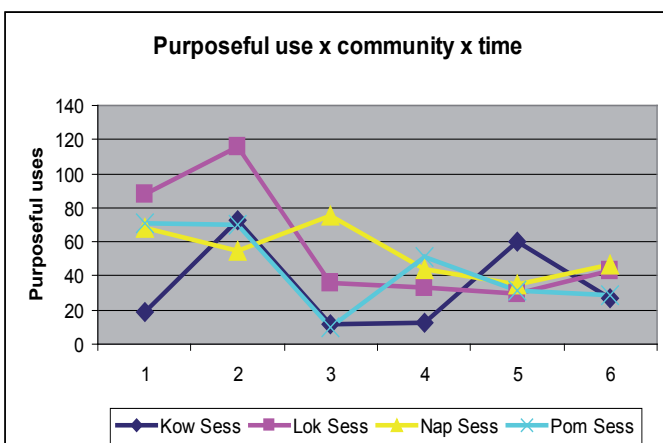


Figure 16. Gender (male, female, not specified) for 4 sites by data collection period.

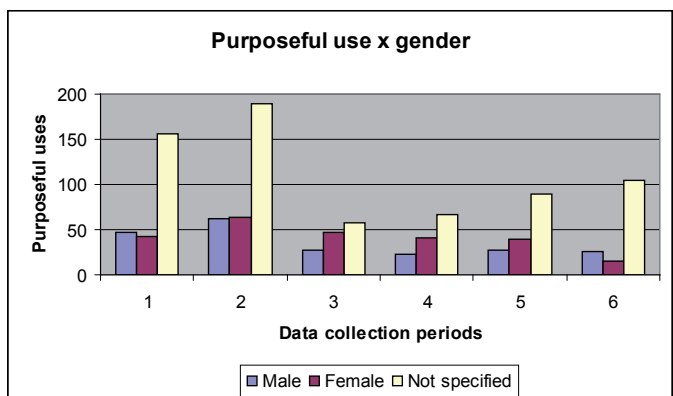
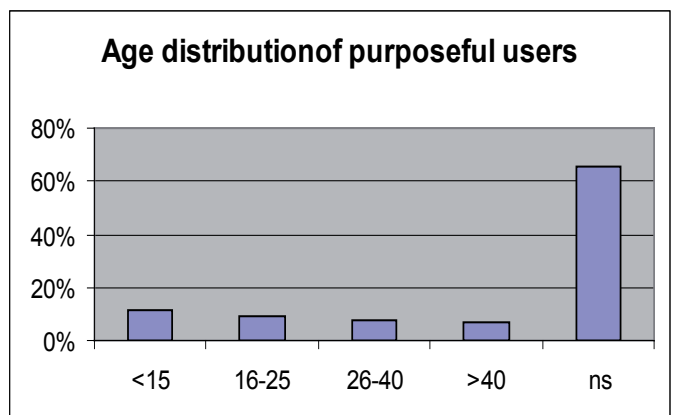


Figure 17. Age distribution (<15, 16-25, 26-40, >40 and not specified) for 4 sites by data collection period.



This interpretation of the change in session numbers is supported by an increase in session duration after 'Put it on' deployment (Figure 15).

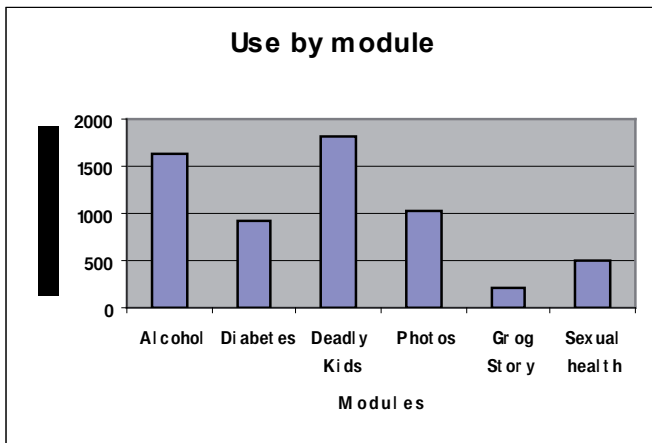


These records suggest consistent use across the sites with a predictable increase in session duration following activation of the multimedia modules. User self-identification is only one third, but suggests similar proportions by gender. The age distribution indicates use across the age span but it is likely (on the basis of common sense supported by observation) that a greater proportion of those users who did not specify age were children and youth.

### 7.5.3.2 Module Use

A total of 6118 purposeful uses were recorded across the six data collection periods. The distribution by module selected is demonstrated in Figure 18.

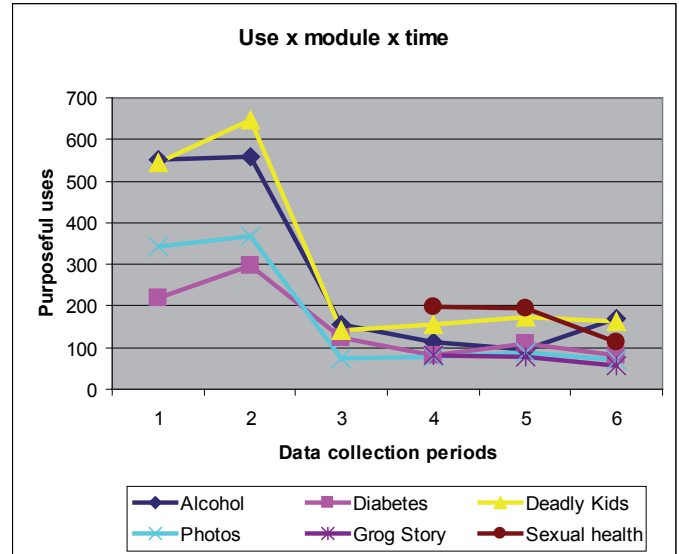
Figure 18. Total purposeful uses by module selected.



Because the interactive multimedia modules ('Grog Story' and 'Put it on') were introduced after data collection point 3 with a change thereafter in session definition, the trace data indicates an obvious fall in the total number of purposeful uses across the following three data collection periods.

The fall in period 3 itself reflects operational problems (particularly, as noted above, in Kowanyama and Lockhart River) and the transitioning process to accommodate the interactive multimedia modules. Module use by data collection period is shown in Figure 19.

Figure 19. Purposeful use by module topic by data collection period.



### 7.5.3.3 Diabetes Module Use

The Diabetes module has been present on the kiosks in each site since they were first activated. Figure 20 shows purposeful uses of this module by time across the six data collection periods in Napranum (which was not affected by the operational difficulties in data collection period 3).

There appears to be a relatively stable number of purposeful uses across the first three data collection periods and an obvious fall across the subsequent periods. This fall is almost certainly an artifact of the change in definition of purposeful use (a "session") that resulted from deployment of the interactive multimedia modules (see Section 5.3).

Figure 21 shows the pattern of purposeful use by submenu selection within the diabetes module for the 908 purposeful uses occurring across the six data collection periods. Use was distributed quite evenly across the four content areas with slightly greater interest in those areas that were about actions rather than simply content information regarding the condition itself.



Figure 20. Diabetes module activation in the enhancement community (Napranum) by data collection period.

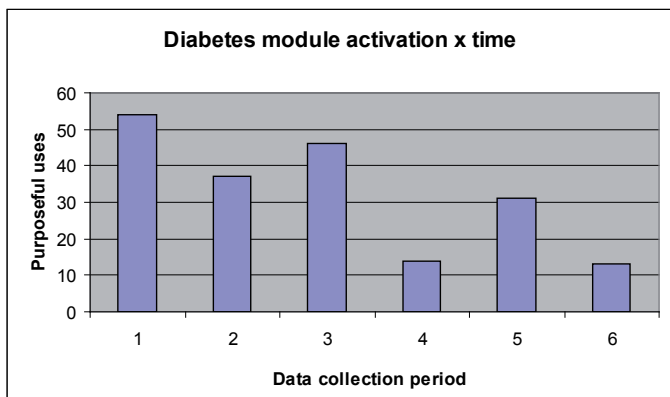


Figure 22. Deadly Kids: distribution of purposeful uses by module submenu topic.

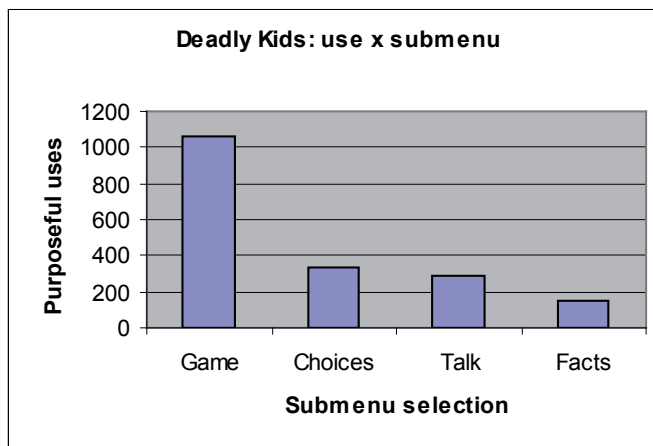
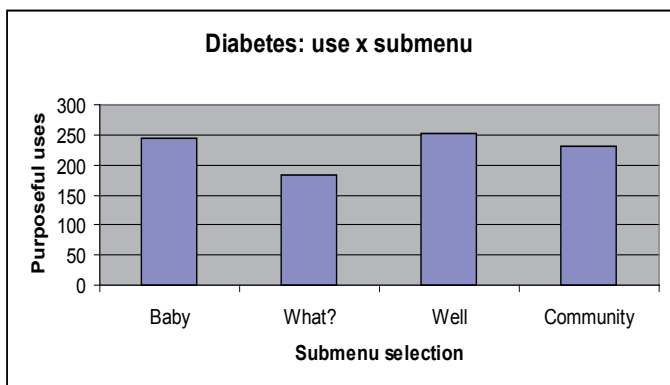


Figure 21. Distribution of Diabetes module submenu selection for purposeful uses for all four communities across the six data collection periods.



- Baby = Taking care of yourself and your baby
- What? = What is diabetes?
- Well = Staying well
- Community = What can my community do?

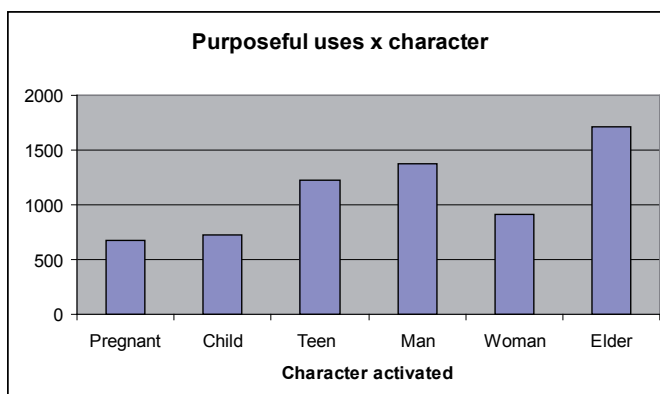
### 7.5.3.5 Alcohol Module Use

For the six data collection periods there were 1643 purposeful uses recorded. However, for this section, aggregate data captured across the following periods is used:

Kowanyama	11 October 2005	to 4 August 2006
Lockhart River	11 July 2005	to 6 September 2006
Napranum	14 October 2005	to 6 September 2006
Pompuraaw	19 September 2005	to 6 September 2006

During the time periods specified, 6,514 purposeful uses involved activation of the alcohol module and progression to select a 'character' about which information was sought. The distribution by character is shown in Figure 23.

Figure 23. Alcohol module, purposeful use x character activation.



### 7.5.3.4 Deadly Kids Module Use

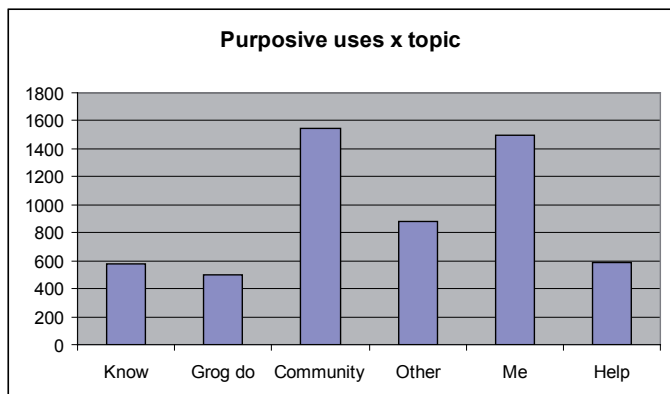
There were 1825 purposeful activations of the Deadly Kids module during the six data collection periods for the four communities. The distribution by submenu selection is shown in Figure 22.

Clearly the game is particularly attractive but, again, activity/solution oriented selections are more frequently accessed than descriptive options.

Once within the alcohol module the user opts to access a set of main menu topics. The distribution by main menu topic across 5,586 purposeful uses is as in Figure 24.



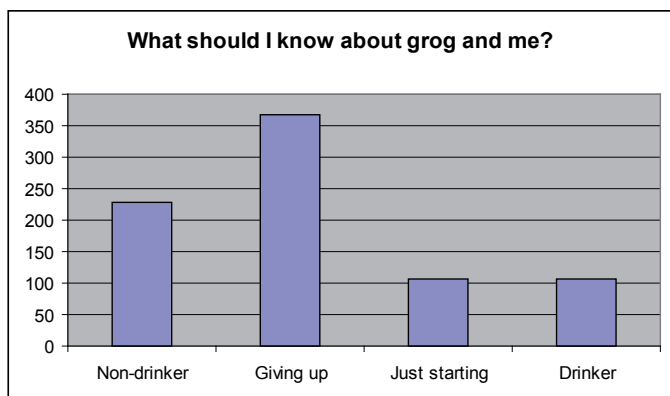
Figure 24. Alcohol module, purposeful use x topic



- Know = What should I know about grog and me?
- Grog do = What can grog do to me and my family?
- Community = What is my community doing?
- Other = Other drug information
- Me = Do I drink too much?
- Help = Where to get help?

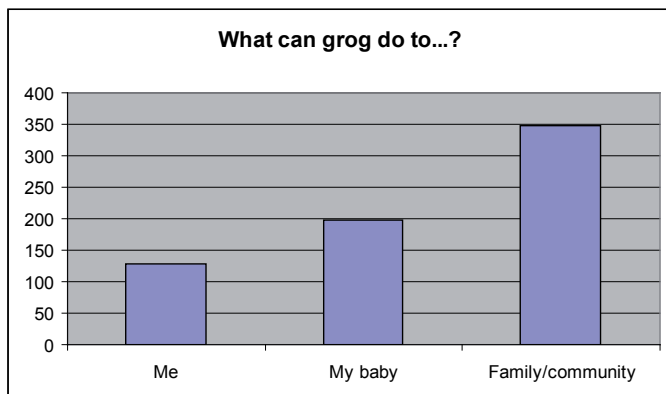
Of the 809 purposeful uses that activated the “What should I know about grog and me?” button (while most of these activations are through the main menu, some also result from activation through other submenu choices), users went on to activate the following options (Figure 25).

Figure 25: Distribution of purposeful uses to Question ...



Of the 664 purposeful uses that activated the “What can grog do to me and my family?” button (while most of these activations are through the main menu, some also result from activation through other submenu choices), users went on to activate the following options (Figure 26).

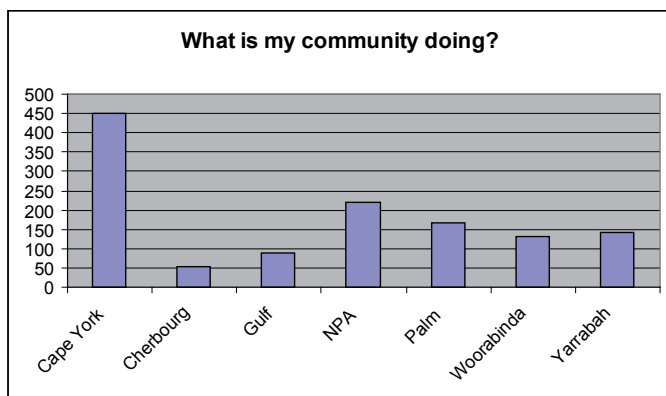
Figure 26. Distribution of purposeful uses to Question ...



- Me = How alcohol affects me
- My baby = My unborn baby
- Family/community = My family & community

Of the 1,247 purposeful uses that activated the “What is my community doing” button (while most of these activations are through the main menu, some also result from activation through other submenu choices), users went on to activate the following options (Figure 27).

Figure 27. Distribution of purposeful uses to Question ...

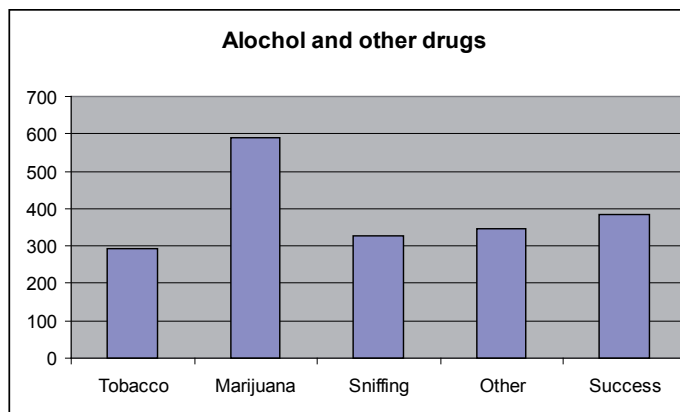


Predictably the most common area for which information was sought was for the local region – Cape York. It is notable that for the area for which information was next most frequently sought, the Northern Peninsula Area (NPA), 87% of uses were from Napranum and Lockhart, the two communities with strongest family and cultural ties to the NPA. Of uses in which information was sought regarding community provisions, 36% went on to seek information regarding penalties for breaches of AMPs.



Of the 1,943 purposive uses that activated the button to provide information regarding “Other drugs” (while most of these activations are through the main menu, some also result from activation through other submenu choices), users went on to activate the following options (Figure 28). Through the time of data collection the “success story” had not been deployed, however the results still reflect information sought.

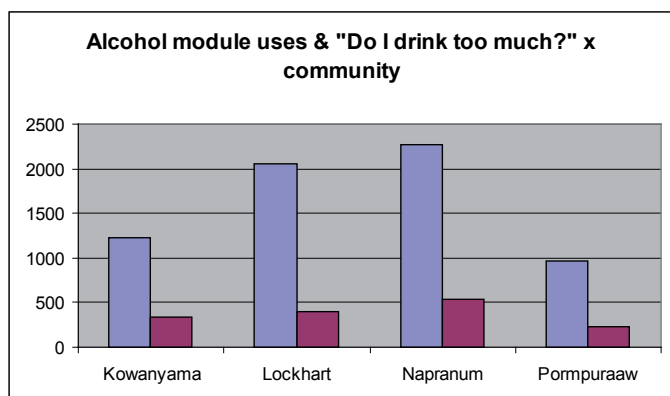
Figure 28. Distribution of purposeful uses to Question...



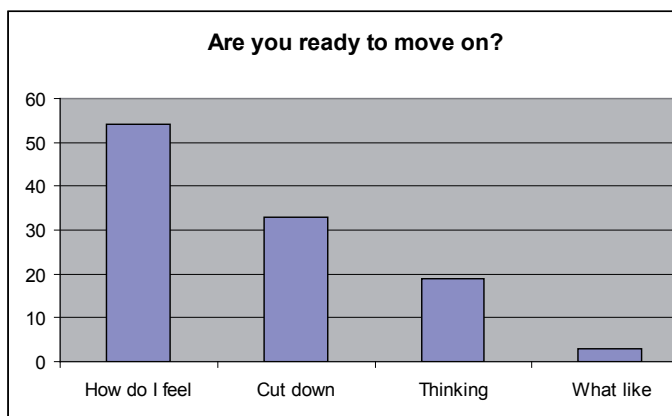
Other = Speed, LSD & other drugs  
 Success = Success story (was not deployed).

Of the 6,514 purposive users who entered the alcohol module through the main menu, 1499 (23%) activated the “Do I drink too much?” button which led to the AUDIT sequence. The proportion by community was broadly similar across the four sites (Figure 29). Only 109 uses (7% of those accessing the AUDIT) involved activation of the Brief Intervention section of the alcohol module with the distribution by submenu activation shown in Figure 30.

Figure 29. Distribution of purposeful uses x community to Question...



Blue = Total alcohol module uses  
 Maroon = Activation of “Do I drink too much?”  
 Figure 30. Distribution of purposive uses to Question...

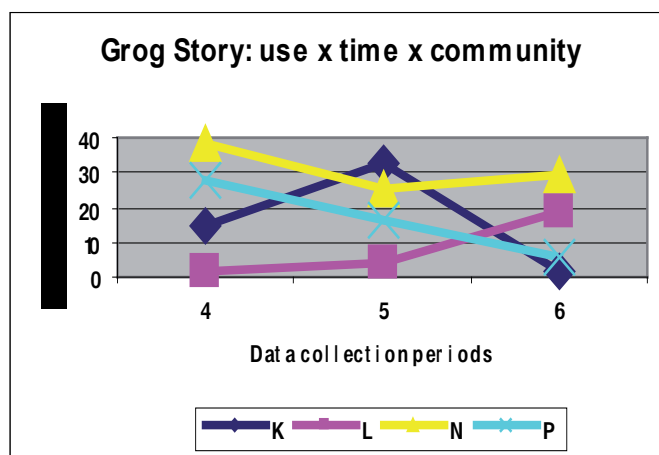


How do I feel = How do I feel about my drinking?  
 Cut down = I want to cut down or give up  
 Thinking = I'm thinking about cutting down or giving up  
 What like = What do you like about grog?

### 7.5.3.6 Multimedia Module Use

From the foregoing it will be clear that the introduction of interactive multimedia modules complicated trace data analysis, but has also introduced different attractions and patterns of use. ‘Grog Story’ and ‘Put it on’ were accessible across the four sites for the last three data collection periods and purposeful use by time and community is shown in Figures 31 and 32. Through the course of the project one segment of trace data captured is a snapshot of ten randomly

Figure 31. ‘Grog Story’: purposeful use by community by data collection period.



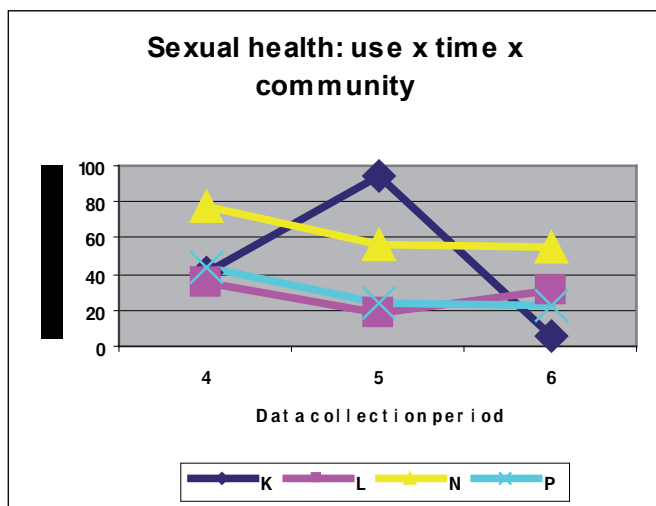


Figure 32. 'Put it on': purposeful use by community by data collection period.

accessed usage records (collected weekly) in which each of the content areas activated is tracked.

This provides a means to identify depth of module penetration and changing patterns over time. Two examples of this information for the enhancement community, Napranum, are presented below. Before (Figure 33) and after (Figure 34) deployment of the interactive multimedia modules.

Figure 33. Session tracking for 10 random subjects: Napranum – before deployment of interactive multimedia modules.

<b>Napranum: Week 1 Dec 05 V2</b>										
Subject	1	2	3	4	5	6	7	8	9	10
<b>Modules Accessed by Individual Users</b>										
<b>Alcohol:</b>	27	0	0	0	0	3	0	0	0	0
Which person in my family is most like you?										
Kids	0	0	0	0	0	0	0	0	0	0
Men	2	0	0	0	0	0	0	0	0	0
Women	2	0	0	0	0	1	0	0	0	0
Pregnant Women	1	0	0	0	0	0	0	0	0	0
Elders	0	0	0	0	0	0	0	0	0	0
Teenagers	5	0	0	0	0	0	0	0	0	0
<b>Alcohol Main Menu</b>										
Do I drink too much?	10	0	0	0	0	0	0	0	0	0
What can Grog do to me and my family?	0	0	0	0	0	0	0	0	0	0
Where to get help	1	0	0	0	0	0	0	0	0	0
What is my community doing?	0	0	0	0	0	0	0	0	0	0
What should I know about alcohol and me?	5	0	0	0	0	2	0	0	0	0
Other drugs	1	0	0	0	0	0	0	0	0	0
<b>Diabetes</b>										
Taking Care of yourself and your baby	2	0	0	0	0	0	3	7	0	0
What is Diabetes?	1	1	0	1	0	0	1	0	0	0
Staying Well	2	0	0	0	0	0	3	1	0	0
What can my community do?	1	2	0	0	0	0	2	1	0	0
<b>Deadly Kids</b>										
Deadly Game	17	2	0	0	0	0	2	0	0	1
Deadly Choices	13	0	0	0	0	0	3	0	0	0
Who can I talk to?	3	0	0	0	0	0	0	1	1	0
Deadly Facts	5	0	0	0	0	0	0	0	0	0
<b>Napranum Photos</b>	8	1	0	2	1	0	1	2	0	0



From Figure 33 it can be seen that of these 10 sessions before the interactive multimedia modules were deployed, two users accessed information regarding alcohol (one in considerable depth using the AUDIT), five subjects accessed information on diabetes (two being in depth), six activated 'Deadly Kids' (three accessing 'Who can I talk to?') and six examined local photographs. Across the ten subjects in the post deployment sample (Figure 34), three entered the alcohol module, two the diabetes module (one in depth), five activated 'Deadly Kids' and five the local photographs. However 'Grog Story' was activated by five users 'Put it on' by

seven (two in depth). This suggests quite different patterns of use, not only by subject area and across different users, but as a consequence of introducing new and engaging delivery options. Clearly, some individuals are motivated to spend significant periods exploring the options so presented. Because of the nature of the interactive multimedia modules additional approaches to understanding individual use are necessary. The crude data are the individual traces of module use, two examples of which for the sexual health module. 'Put it on' are presented in Figure 35. In Example 1 the user interacts with this module for twelve minutes. One scenario (seduction

Figure 34. Session tracking for 10 random subjects: Napranum – after deployment of interactive multimedia modules.

<b>Napranum: Week 1 June 06 V2</b>										
Subject	1	2	3	4	5	6	7	8	9	10
<b>Modules Accessed by Individual Users</b>										
<b>Alcohol:</b>	0	0	0	3	0	1	0	2	2	0
Which person in my family is most like you?										
Kids	0	0	0	1	0	0	0	0	0	0
Men	0	0	0	1	0	0	0	2	0	0
Women	0	0	0	0	0	0	0	0	0	0
Pregnant Women	0	0	0	0	0	0	0	0	0	0
Elders	0	0	0	0	0	1	0	0	2	0
Teenagers	0	0	0	0	0	0	0	0	0	0
Alcohol Main Menu										
Do I drink too much?	0	0	0	0	0	0	0	0	0	0
What can Grog do to me and my family?	0	0	0	0	0	0	0	0	0	0
Where to get help	0	0	0	0	0	0	0	0	0	0
What is my community doing?	0	0	0	0	0	0	0	0	0	0
What should I know about alcohol and me?	0	0	0	0	0	0	0	0	0	0
Other drugs	0	0	0	1	0	0	0	0	0	0
<b>Diabetes</b>										
Taking Care of yourself and your baby	0	0	0	0	0	0	0	0	2	0
What is Diabetes?	0	0	0	1	0	0	0	0	3	0
Staying Well	0	0	0	0	0	0	0	0	5	0
What can my community do?	0	0	0	0	0	0	0	0	2	0
<b>Deadly Kids</b>										
Deadly Game	4	0	2	6	0	0	0	0	8	0
Deadly Choices	0	0	0	3	0	0	0	0	0	0
Who can I talk to?	0	0	0	0	0	0	0	0	0	0
Deadly Facts	0	0	0	0	0	0	0	0	0	1
<b>Napranum Photos</b>	1	0	1	2	0	0	0	0	1	1
<b>Grog Story</b>	0	0	1	0	1	1	0	1	2	0
<b>Sexual Health</b>	2	1	5	3	0	0	0	1	3	1



leading to sex with a condom) is activated and the user leaves the session..Example 2 is quite different. This user (presumed on the basis of sequence

and timing) is engaged with the module for over half-an-hour and explores three options – seduction but decision not to have sex; sex without a condom and having a checkup; and sex using a condom. This pattern of use suggests exploring behaviour and consequences.

Figure 35. Individual session tracking – two examples.  
Example 1

28/04/2006 10:59:33	follow_on.8	Welcome to the Kiosk.2.1.s0_rapScene
28/04/2006 11:00:28	follow_on.12	Welcome to the Kiosk.2.10.s1_gangChatting
28/04/2006 11:01:18	follow_on.3	Welcome to the Kiosk.2.12.s2w_girlsTalk
28/04/2006 11:03:43	follow_on.15	Welcome to the Kiosk.2.3.s3_partyIntro
28/04/2006 11:04:48	follow_on.4	Welcome to the Kiosk.2.15.s4w_girlsAtParty
28/04/2006 11:06:08	follow_on.18	Welcome to the Kiosk.2.4.s5_danceScene
28/04/2006 11:06:31	follow_on.20	Welcome to the Kiosk.2.18.s6w_negotiatingSex
28/04/2006 11:06:56	follow_on.23	Welcome to the Kiosk.2.2.s7_foreplay
28/04/2006 11:08:24	follow_on.27	Welcome to the Kiosk.2.25.s8_backToParty
28/04/2006 11:09:34	follow_on.41	Welcome to the Kiosk.2.31.s9bw_hadSexWithCondom
28/04/2006 11:11:24	follow_on.6	Welcome to the Kiosk.2.41.s11_rapEnd
28/04/2006 11:11:34	chrome.home	Welcome to the Kiosk.2.6.outro_w

Example 2

1/05/2006 9:09:16	follow_on.8	Welcome to the Kiosk.2.1.s0_rapScene
1/05/2006 9:10:15	follow_on.12	Welcome to the Kiosk.2.10.s1_gangChatting
1/05/2006 9:11:05	follow_on.3	Welcome to the Kiosk.2.12.s2w_girlsTalk
1/05/2006 9:13:30	follow_on.15	Welcome to the Kiosk.2.3.s3_partyIntro
1/05/2006 9:14:35	follow_on.4	Welcome to the Kiosk.2.15.s4w_girlsAtParty
1/05/2006 9:15:55	follow_on.18	Welcome to the Kiosk.2.4.s5_danceScene
1/05/2006 9:16:17	follow_on.20	Welcome to the Kiosk.2.18.s6w_negotiatingSex
1/05/2006 9:17:50	follow_on.27	Welcome to the Kiosk.2.25.s8_backToParty
1/05/2006 9:18:54	follow_on.41	Welcome to the Kiosk.2.29.s9aw_didntHaveSex
1/05/2006 9:20:44	follow_on.6	Welcome to the Kiosk.2.41.s11_rapEnd
1/05/2006 9:20:54	button.001	Welcome to the Kiosk.2.6.outro_w
1/05/2006 9:22:14	follow_on.18	Welcome to the Kiosk.2.4.s5_danceScene
1/05/2006 9:22:37	follow_on.20	Welcome to the Kiosk.2.18.s6w_negotiatingSex
1/05/2006 9:23:15	follow_on.23	Welcome to the Kiosk.2.2.s7_foreplay
1/05/2006 9:24:53	follow_on.27	Welcome to the Kiosk.2.25.s8_backToParty
1/05/2006 9:26:16	follow_on.35	Welcome to the Kiosk.2.32.s9cw_hadSexNoCondom
1/05/2006 9:28:56	follow_on.41	Welcome to the Kiosk.2.37.s10aw_gotchecked
1/05/2006 9:30:46	follow_on.6	Welcome to the Kiosk.2.41.s11_rapEnd
1/05/2006 9:31:10	button.001	Welcome to the Kiosk.2.6.outro_w
1/05/2006 9:32:30	follow_on.18	Welcome to the Kiosk.2.4.s5_danceScene
1/05/2006 9:32:53	follow_on.20	Welcome to the Kiosk.2.18.s6w_negotiatingSex
1/05/2006 9:34:36	follow_on.27	Welcome to the Kiosk.2.25.s8_backToParty
1/05/2006 9:35:40	follow_on.41	Welcome to the Kiosk.2.29.s9aw_didntHaveSex
1/05/2006 9:37:30	follow_on.6	Welcome to the Kiosk.2.41.s11_rapEnd
1/05/2006 9:38:07	button.001	Welcome to the Kiosk.2.6.outro_w
1/05/2006 9:39:27	follow_on.18	Welcome to the Kiosk.2.4.s5_danceScene
1/05/2006 9:39:50	follow_on.20	Welcome to the Kiosk.2.18.s6w_negotiatingSex
1/05/2006 9:40:28	follow_on.23	Welcome to the Kiosk.2.2.s7_foreplay
1/05/2006 9:42:06	follow_on.27	Welcome to the Kiosk.2.25.s8_backToParty
1/05/2006 9:43:16	follow_on.41	Welcome to the Kiosk.2.31.s9bw_hadSexWithCondom
1/05/2006 9:45:07	follow_on.6	Welcome to the Kiosk.2.41.s11_rapEnd



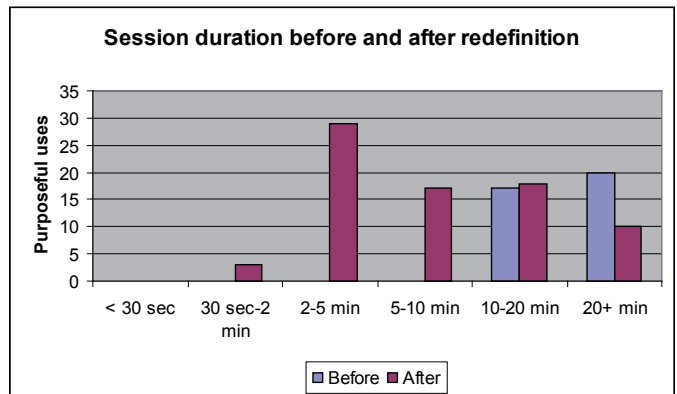
The interactive multimedia modules have introduced two further collateral outcomes. As noted earlier, the interactive DVD produced from the touchscreen module has been utilised for group sexual health promotion workshops across the outer island groups of the Torres Strait. The sexual health workers conducting the workshops (facilitated by a sexual health physician and one of the employees of HITnet [DL]) and the clinicians attending have provided feedback regarding this use of the product. The DVD was also entered into the ‘Deadly Awards’ judged at the Sydney Opera House. Not only did this put Indigenous people addressing complex health issues into a national forum, it was also a source of pride locally – in Napranum.

**7.5.3.7 Problem Solving: Differential ‘Time Out’**

As mentioned in section 5.3 and at the beginning of this section, trace data analysis was complicated by the introduction of narrative multimedia modules that confounded the definition of ‘time out’. This was eventually resolved with the introduction of differential, non-activation time out periods. With this solution the time out period for the original modules (alcohol, ‘Deadly Kids’ and diabetes) is 90 seconds (of non-activation), and that for the interactive multimedia modules (‘Grog Story’ and ‘Put it on’) is 7 minutes.

This results in a significant increase in the number of sessions and a shift in key characteristics. For instance, for the kiosk located at Wuchopperen (the first in which this solution was implemented in December 2006) this resulted not only in an increase in the number of sessions (from 33 to 77), but also a shift in modal and average session duration (Figure 36). Before the session redefinition the mode was over 20 minutes and average session duration 41 minutes and 55 seconds. Following redefinition the mode was 2 to 5 minutes and the average 10 minutes and 28 seconds.

Figure 36. Session duration by purposeful uses for one week before (November 06) and one week after (December 06) introduction of differential non-activation time out, Wuchopperen kiosk.



This explains and resolves the problem leading to the apparent dramatic fall in the total number of sessions and increase in session duration (for instance as suggested in figures 13, 14 and 19) it does NOT impact the data presented describing user characteristics of submenu selections as this is based on activations rather than sessions (sections 7.5.3.3 to 7.5.3.5).

These findings also suggest that the kiosk use is varied. During the Phase 1 (proof of concept) study the session times were normally distributed with a mean of five minutes. The modal time period of 2 to 5 minutes and average of 10 minutes suggests this pattern persists. However, it is now not a normal distribution with some 22% of sessions over ten minutes – indicating a separate and quite different pattern of much longer use, presumably engaging the narrative multimedia resources.

**7.5.4 Integration**

In relation to addressing alcohol misuse, interviews with Indigenous Health Workers generated contradictory comments regarding their involvement in activities (including Brief Intervention) with community members, with difficulties noted in terms of how they incorporate what they elicit versus what they know about patients’ drinking into records and practice. There is also a perception that IHWs’ roles in health promotion are not prioritised and may have lessened in recent years. This has implications for the use of both touchscreens which, while acknowledged as a good and engaging idea, appear to have



infrequently been incorporated into IHW activities, which was also the case for the 'Grog Kit'.

As a consequence there appeared to be limited IHW facilitation or mediation. There does not appear to have been a change in these issues between the interim and final interviews.

Nurses also commented on the lack of involvement in preventative activities in settings in which the priority was immediate clinical care. This contributed to limited engagement with both the TS and the 'Grog Kit' despite positive perceptions of content relevance and of its use by clinic attendees. These resources were not incorporated into clinic practice and programs and, in the community in which staff involvement was least (and the primary care context least stable), this resulted in significant periods of TS non-operation DESPITE local demonstration of maintenance processes and informal identification of responsibility for same.

Clinic users were aware of the touchscreens and reported use, with males appearing more personally engaged and women thinking of its relevance to children and families. While the interviews indicated a persistent perception that the touchscreen is for children, and while comprehension appeared reasonable, there were suggestions for improvement regarding presentation (in terms of speed of information provision and language), content (more 'graphic' representations) and localised content. Constructive engagement appears to relate to different issues with different people – some drawn by entertainment, some by curiosity (particularly the community photos), others by personal conditions and some by community priorities.

Other informants' comments suggest a differential impact of privacy concerns which appear more important with young males (this is consistent with the observations of the first author [EH] who noted, repeatedly, young adult males using the kiosks at night while waiting for a patient to be attended to – that is, while the waiting room was empty). Concerns were raised by an allied health professional about the TS as a 'stand alone' initiative. Regardless, the interactive multimedia content appears to have greater interest and impact than the straight information provision modules in terms of production participants (particularly in relation to self-esteem),

local and other project site TS use, and as a tool for group health promotion activities with a wider (non-Aboriginal) population (in this case in the Torres Strait).

Group interviews with clinicians supported the above findings with awareness of the resource itself not matched by awareness of content in depth, save for the interactive module 'Put it on'. There was very limited clinician-mediated or facilitated patient use save for this last module, and the degree to which staff were engaged at all appeared to reflect the 'functionality' of the wider primary care service context. In the absence of integration into local programs and protocols, and service limitations (service load, turnover ...), ongoing local education is critical in supporting use, but appears dependent on the suasive ability ('power') of the instructor.

Comprehensive trace data was not available until late in the life of the project. The increasing complexity of the product and shift in IT providers compromised the depth of data available for analysis. However, what has been demonstrated is that despite these challenges data can be extracted in real time. The challenge that now presents is to develop the systems that incorporate relevant data capture at the production stage, to develop systems to manage the increasing amount of information now becoming available, and to support meaningful data analysis.

Regardless, the information obtained by the conclusion of the HPQ project demonstrates that these kiosks are used and that this use relates to the predictable patterns of activity associated with the clinic-based sites. That is, there is periodicity by day of week that relates to both the activity cycles of the communities and the clinics. While a minority of users identify age and gender, the information from those that do indicates a broad range of users with greater use among young people – which accords with observation and interview information.

While there is clearly some 'spurious' use the vast majority of uses result in the access of health-related content (purposeful uses or sessions). There is a very broad range of content accessed and the introduction of new content is associated with increased use. Within this broad range of accessed information content (the information provision mod-



ules rather than the interactive, narrative multimedia modules) there appears to be preferential access of material that is 'action oriented' – that is, there seems to be more interest in what to do (be it on individual, family or community levels) than in what a particular content issue 'does' (for instance, more interest in 'where can I get help' or 'what my community can do' than 'what alcohol does to me'). There is also particular interest in material that is localised – be it community photos, information about local areas (such as the AMPs), local product (such as inclusion of multimedia product created by the school at Yarrabah) and locally generated module content ('Grog Story' and 'Put it on'). Interest in local issues is also reflected in the choices made regarding other substance use, the most commonly activated option being marijuana (a substance use problem of enormous significance in the project communities).

The modules that contain alcohol content are frequently used and users enter through the range of 'characters' around which submenu information is structured (in order – elder, man, teen, woman, child, pregnant). Again, interest appears drawn to action-oriented options and to the effects of alcohol on the family and social systems. However, among those accessing information that relates to the drinker him/herself by activating 'what should I know about grog and me', there is also an action-oriented tendency as almost half proceed to activate information regarding 'giving up'. Twenty-three per cent of those entering the alcohol module went on to activate the screening tool – the interactive AUDIT. This probably reflects module architecture in that the AUDIT sits within a submenu – unfortunately this was not recognised as an issue until after the module was deployed. Information is NOT available at this point regarding scoring. Of the total who entered the AUDIT, only 7% proceed the brief intervention section. This indicates that AT LEAST this proportion of those entering the AUDIT complete the quantity/frequency sections with which the first three questions of the AUDIT deal and on which the critical feedback is based. While it is LIKELY that this proportion is significantly higher, the data are not currently available. Furthermore, the tendency for selection of 'action oriented' or solution-focused options across TS modules generally (including the alcohol module) whereas the brief intervention section is NOT accessed frequently may also relate to module architecture (penetration necessary to

access the BI option).

Finally, the project has demonstrated that interactive multimedia product is popular and has particular salience in the communities in which these resources were produced. While this introduced problems in data analysis (session definition) this has been overcome. The trace data suggests not only what appears to be 'curiosity driven' use which may not be systematic or in depth, but also what are clearly patterns of module exploration that, as was the intent in design and production, show purposeful and systematic exploration of choices and consequences. In the following sections the interview and trace data material will be integrated across the four outcome areas as noted in section 7.1.

#### 7.5.4.1 Health Literacy

Outcome data in relation to health literacy are indirect. The interview data indicate that health literacy in relation to the health issues under consideration (diabetes, alcohol, sexual health) is quite variable and, for alcohol and sexual health, other than the clinical nursing staff, was not good. At the present time there is only anecdotal information that this has been improved by this intervention. This appears to have been more the case in terms of the effect on those directly involved in module creation during the production of the interactive, multimedia modules. However, while this was evident in interviews immediately afterwards it was NOT elicited some months later. The trace data reveal consistent patterns of use which suggest purposeful use. Action- and solution-oriented content seeking is evident across module topics and systematic exploration of interactive, multimedia modules occur supporting interrogation of content possibilities in depth.

#### 7.5.4.2 Health Outcomes

Outcome data in relation to health outcomes is also indirect. As is the case for health literacy in relation to alcohol, related activity in terms of practitioner intervention is similarly variable. While there appears to be familiarity with the IDEA of brief intervention and some understanding of the PRINCIPLES, PRACTICE seems to be ill-understood and, at best, ad hoc. This accords with observation over time (EH as a practitioner working with all practitioner groups across all of the project sites). There thus seems



to be a gulf between the RHETORIC of primary care and chronic disease management (at least in relation to addressing alcohol misuse) and the REALITY at the clinical interface. This appears to relate to a series of service issues which, as is clear from the interviews, includes the priority accorded to preventive interventions in the face of pressing clinical demands and the high turnover of staff in these remote locations. These activities do not appear to have been increased through this project. However, interview data do suggest that in the clinics where there is greater service stability, project understanding and support are greater and some practitioners reported mediating kiosk use with patients (by contrast, in that clinic in which the service was most chaotic not only did this not occur but basic hardware support was an ongoing challenge).

Data regarding individual health outcome data from the project are only anecdotal (the comments of some nurses and clinic attendees) and there are no population level health outcome data. Furthermore it is almost certainly the case that, were reliable data available at the population level in terms of alcohol consumption and related behaviours, no conclusions could be drawn (for social policy reasons outlined in section 5). The clinical information system supporting QH primary care activity and the Chronic Disease Strategy (FERRET) in the project sites has not, as yet, lived up to expectations and information regarding consumption and related behaviours (for instance alcohol-related accidents and injuries) is inconsistent (indeed it is not certain at the time of writing that FERRET will be retained in the long-term).

While directly measurable health outcomes have not been demonstrated, there is evidence from interviews, observation and, indirectly, from trace data that the community enhancement approach – in-community content development – has consequences in terms of awareness and self-esteem, both for participants but also for the wider community.

#### 7.5.4.3 IT Capacity

Capacity enhancement is evident at several levels. Despite the major challenges of new technology and applications, and remoteness, the HPQ project network is operating. This has demanded capacity development at the level of the program, the health

system, and the communities. The issues at the level of the program have been discussed in some detail earlier (section 7.4). This includes the development of knowledge, skills and protocols in relation to community engagement.

In terms of the health system (QH), as noted above, at the local level this has been driven by local issues. However, while formal incorporation into primary care protocols had not occurred by project completion, the kiosks were operating in all communities (including the one community in which, earlier, there had been difficulties). Furthermore, formal arrangements had been developed both with the District and with QH information management services that in collaboration with the industry partner, Abuzz, was delivering effective technical support. This was achieved despite the very significant obstacles presented by the lack of broadband connectivity. IT support capacity has thus been demonstrated to be sufficient to the needs of this technology and project despite the very real challenges of technical limitations and remoteness. This has been enabled by the development of clear protocols.

Computer literacy among nurses is high and among IHWs related to occupational exposure (home computers in these communities being extremely uncommon). Information from the interviews indicates that for both of these groups there is a desire to be more involved in health promotion and to take advantage of appropriate IT-based resources – this includes both the TS and ‘Grog Kit’. However, the evidence to suggest that this has happened is limited and the failure of uptake is attributed among nurses to clinic factors (crisis-oriented demands, low priority given to health promotion and the high turnover of staff). Among IHWs this is also the case but is also influenced (to different degrees across the four sites) by the roles and responsibilities allocated to IHWs in clinical activities (including access to computer-based resources).

Trace data and interviews suggest that for clinic attendees operational demands of the TS kiosks were not obstacles to use although some informants indicated the need for encouragement to engage with the technology. Because the project shifted from working through community-controlled IT providers to working within QH systems it was not possible



to demonstrate capacity growth at that level (communication with the CYDN continues and remains a HITnet goal). The project has demonstrated the ability to harness community expertise and capacity to produce relevant health content, and the importance of enabling systems and protocols. This is now being expanded with three local production projects for 2007 in Lockhart (nutrition and traditional activities), Kowanyama (petrol sniffing) and Yarrabah (self-harm).

#### 7.5.4.4 Sustainability

Sustainability of the system has been demonstrated – the kiosks have continued to operate after completion of the HPQ project and the network is expanding (by the end of 2007 there will be AT LEAST 12 kiosks operating in Queensland). However, sustainability must be considered both in terms of technical and systems aspects, and local interest and relevance. In terms of the former this demands attention to technical management, systems administration, and installation and implementation coordination. Interest and relevance relates to the development of new content and delivery options, media and communications issues, and ongoing project research analysis and integration. From the QH perspective sustainability is reinforced by the TS system being incorporated as an enterprise project within QH ISU, and 'Grog Kit' being taken on for training and evaluation centrally. There remains the challenge of incorporating the kiosks within local service protocols and responsibilities.

Sustainability is clearly not cost neutral. Significant costs have been incurred during this project. However, with the development of a national network and of clear processes and protocols to ensure product creation and technical support, an economy of scale is now operating and enables prospective funding bodies to be provided with accurate start up and recurrent costs (Appendix 35). Within the project, sustainability as succession planning has been considered and a User Guide developed to guide systems administration of HITnet as a whole (Appendix 28).

#### 7.5.5 Outcome Evaluation Commentary

This section complements the process evaluation commentary (section 7.4.7). In summary, while the

project outcomes (Figure 2 and the headings of this section) were not achieved as envisaged at the outset of this project, much HAS been achieved. Considering the outcome elements identified in the project logic (Figure 3), for the **HIT program** itself outcomes can be considered in terms of human resources and capacity, IT systems and processes, and the critical arena of the relationships – and the systems and protocols that support them. HITnet is now operational across Queensland Health and other sites, sustainable at local and system levels and evolving in terms of content, platform, application and reach.

At the level of the **service** and **service providers** the project outcomes are less clear. As noted in the process evaluation commentary, in terms of clinical service activities this remains largely potential rather than realised benefits. While Indigenous Health Workers and primary care nurses were aware of the resources and acknowledged their clinical and health promotion relevance this did not translate to incorporation into clinical protocols and activities (to support client and practitioner health literacy). This appears to reflect earlier-mentioned primary care clinical service issues in project sites. However, with the development of the narrative, interactive, multimedia modules this is changing. This product has been taken up as a group health promotion tool ("Put it on" in the Torres Strait) and HITnet is producing a new module (nutrition and traditional activities) in Lockhart River at the request of and coordinated through health service providers. Outcomes in relation to QH technical and institutional systems and processes have been outlined in the process evaluation but it should also be noted that the system now operates with kiosks across a range of non-QH sites (Yarrabah, Wuchopperen, Stradbroke Island, and Woollangabba).

At the level of the **client** and **community** the project has not been able to demonstrate health literacy and behaviour gains. It has, however, demonstrated sustained interest and engagement with the project and use of kiosks that indicates purposeful seeking of health information across a broad range of users. It has also shown the potential of enhancing impact at a local level through drawing on local experience and creativity, and in so doing contributing to local capacity and self esteem – this around issues of health relevance defined locally.



## 8. DISCUSSION

It is fair to say that, “had we known at the beginning what...” – this project would not have emerged from the conceptual chrysalis. Had we taken the advice of our first industry partner (JSC) and resisted the recommendations of the HPQ technical review committee to expand the sophistication and complexity of the platform and product, the project would have been less fraught by ‘challenges’, but opportunities would have been missed. Had we not agreed to the national expansion remaining in-house rather than, as we had earlier recommended and instigated, transferring long-term management to the Australian Indigenous Health Infonet, the HPQ project would have been simpler, but would probably have remained unintegrated into the expanding system. If we had our time again – much would be different.

This may yet become a mantra for IT-based health promotion projects which venture into uncharted realms in terms of application and evaluation. ‘Uncharted’ in this context also applies to the site of this project – remote Indigenous Australia – in which the burden of adverse social determinants is compounded by health and other services that are manifestly struggling to contend with immediate demands let alone their social and political precursors. Indeed, over the last thirty years the major indices of Indigenous health disadvantage have NOT shown substantial improvement. [24] Tom Calma, Aboriginal and Torres Strait Islander Social Justice Commissioner, [42] pragmatically observed in the 2005 Social Justice Report that sustainable improvement will only come about with sustained commitment that, inter alia, addresses three key, historical failures:

First, governments of all persuasions have not activated their commitments by setting them within an achievable time frame...

Second, they have not matched their commitments with the necessary funds and program support to realise them...

And third, while they have accepted in health frameworks the need to address Aboriginal and Torres Strait Islander health in a holistic manner, they have not engineered their health programs consistent with this understanding nor considered the impact

of their broader policy and program approaches on Aboriginal and Torres Strait Islander health. (p. 11)

The strengths and weaknesses of this project cannot be ‘explained’ (or ‘explained away’) by these factors – but should be considered in their light.

### 8.1 Evaluation Limitations

The evolution of this project to accommodate the range of challenges that have been discussed in detail earlier (section 5) necessarily resulted in parallel shifts in the evaluation process. The evaluation strategy as originally planned did NOT eventuate. The realised evaluation structure was informed by the constraints and opportunities shaping project development. Consequently the original modified waitlist design did not occur and as the delays associated with overcoming IT and systems challenges mounted, and as social policy changes transformed the picture of alcohol use in Cape York. As the original landmarks of project success were relinquished the project team was not able to re-define performance indicators and outcome measures sufficient to definitively answer the original research questions. This remains a critical limitation of this evaluation and was identified in a draft evaluation report produced by one of the project interviewers, Dr Jennifer Catelan, who was retained near project conclusion to facilitate the evaluation and provide an external perspective. Elements of her draft have been incorporated into this report and her full draft which contains a significant critique of the project methodology is attached as Appendix 39.

### 8.2 System Issues

Also raised in that document are site and service factors that appear to have constrained the uptake of the project resources by service providers. While this report is not an evaluation of Queensland Health primary care activities there are issues raised by Dr Catelan that resonate with comments by informants throughout the project which have clearly been consequential and will remain so for the future of this and related activities. The most common issue raised by informants relates to the immediate demands of crisis-oriented clinical services and the difficulties of service settings in which

in touch with

health choices

health consequences



staff turnover is high. Unfortunately, those are the realities of the settings in which this project was undertaken. However, also repeatedly noted were both perceived restrictions in terms of a broader scope of practice to encompass preventive and health promotion activities (be it mandated or as a result of service pressures), and the limited expectations of and roles allocated to Indigenous Health Workers. Indeed, as this report documents, in relation to population health activities, certain informants (both nurses and Indigenous Health Workers) opined that this was now of lesser priority than a decade ago.

However, this also echoes other experiences and observations that suggest more than simply competing priorities. Within this project training was undertaken on a number of occasions regarding resource use (for instance the 'Grog Kit') but also kiosk monitoring and maintenance. It became very clear that there is a gulf between information (and resource) provision and incorporation into practice. This is certainly the experience of the first author (EH) who has fourteen years of regular mental health in-service provision in primary care settings across Far North Queensland. Put bluntly, while there is universal enthusiasm to participate in such activities, unless there is direct and personal responsibility in relation to the content – it seems to make no difference – even when post-workshop assessments are glowing. Indeed, there is indirect evidence from this project to support that which relates to the use of 'Put it on' in the Torres Strait.

In May of 2006 a series of four, two to three day workshops were conducted in the outer islands of the Torres Strait involving three quarters of the generalist health staff (nurses and Indigenous Health Workers) of those island clusters. The workshops incorporated the 'Put it on' DVD and involved a public health physician (with responsibility for sexual health), the District sexual health team and the HITnet Community Engagement Coordinator (DL) who was the male lead actor in 'Put it on'. The focus of this work was to increase attention to the importance of testing for sexually transmitted infections as part of a wider approach to HIV risk containment in the Torres Strait – a very important public health priority. The fifteen participants positively rated both the resource and the workshops and appeared to leave positively motivated to increase opportunistic testing. Sadly, in subsequently comparing testing

for two three months periods before and after the workshops (taking account of seasonal and other predictable issues) there was a drop of around 25% in testing across the islands involved (Dr Patricia Fagan, project report and personal communication).

While, taken alone, one interpretation is that this relates to the inappropriateness of the resource and process that is NOT what participants are saying. Furthermore, the comments and observations noted earlier in regard to 'participation' versus utilization of training suggest an interpretation that relates more to mandated personal responsibility – if it's not in the job description its not likely to be taken on. There is some further evidence which relates to the implementation of an alcohol resource, the National recommendation for the clinical management of alcohol-related problems in Indigenous primary care settings. [43] This resource resulted from a national consultancy and specifically targeted primary care practitioners in rural and remote settings.

After a trial implementation across all of the communities of Cape York and selected centres in the Torres Strait, the resource was distributed nationally (along with an implementation video which also addressed brief intervention) through a series of 74 workshops. [44, 45] with the authors concluding that: "distribution of clinical resources alone is not sufficient to ensure use and that, particularly for medical practitioners, appropriate introduction not only increases use but also positively influences willingness to engage with alcohol-related problems as part of primary clinical care" (p. 89).

The HPQ project sites were all included in distribution and implementation of the National recommendations. In addition to several workshops in each site, at least a dozen copies of the National recommendations and several of the implementation videos were left in each primary care centre. Within a year these resources disappeared and there does not appear to have been any enduring impact in terms of clinical practice.

What lesson should be drawn from these experiences? It is not that practice protocols will not be used; the Primary Clinical Care Manual [46] is a major contribution to quality of care in remote clinical settings. It provides a framework for practice for remote nurses and also Indigenous Health Workers who



have completed the relevant authorization process. In this it is supported by a legislative framework and systems to ensure it is updated and evidence based. Consequently it informs standard operating procedures across Queensland Health remote sites – and it is used. What the Primary Clinical Care Manual does NOT do is to address or encourage health promotion activities. What this means in relation to changing practice can perhaps be summarised as: If it's in (the mandated protocols) it's on; if its not, its not.

Consequently, it might reasonably be argued that in terms of influencing primary care practitioners to take on broader roles (including health promotion generally and the primary care management of problems relating to alcohol) this must clearly be within their expected scope of practice, written into relevant practice guidelines, and supported professionally and operationally.

### 8.3 Opportunities and Recommendations

While the challenges confronted and overcome in the course of this project resulted in the development of a resource with greater capacities than had been envisaged four year ago, these challenges were also constraining. Although the project resulted in demonstrated use and the capability to assess impact, it did not provide quantitative evidence of health outcomes.

What the HPQ project has shown is that: HITnet approaches are able to be implemented in very remote and challenging environments; the system can be maintained and the initiative sustained through Queensland Health; kiosk-based resources will be used by community members; there are collateral outcomes that flow from localising production and support, and; there is suggestive but not definitive evidence that HITnet influences health outcomes.

At the present time there is no information available regarding cost-effectiveness. This was, however, identified as a potential collateral outcome of this project. To this end, early work has begun to identify means by which to undertake such analysis (a draft paper by Dr Darrel Doessel is included as Appendix 40). Both screening and health information provision present opportunities for comparison of conventional versus IT-based delivery.

The following recommendations relevant to Queensland Health flow from the opportunities identified in the course of the project.

#### Formalising HITnet

1. To ensure long term viability in support of QH health promotion activities, HITnet must transform from a project to a program based within an appropriate organisation which has linkages both with QH and with other organisations and agencies addressing issues relating to the health of Queenslanders. The Centre for Rural and Remote Mental Health – Queensland would be suitable and would allow maintenance of a working relationship with the academic sector (UQ, which is a partner within the CRRMH-Q). QH should apply to the Board of the CRRMH-Q to identify appropriate mechanisms to support HITnet Queensland activities as a QH program within the CRRMH-Q.

#### Formalising the HITnet – Queensland Health relationship

1. To support and expand the HITnet activities within Queensland Health a formal relationship should be negotiated and defined. This should include specific consideration of:
  - a. Relevant QH sections involved;
  - b. Roles and responsibilities of parties;
  - c. Relationships to HITnet affiliates;
  - d. Ownership and use of HITnet resources and products;
  - e. Intellectual property;
1. Transition plan to allow QH to manage the QH HITnet network autonomously within the national HITnet system;
2. In order to optimise use and production of HITnet derived resources (kiosk based and other) for health promotion purposes, QH should ensure a formal agreement with Health Promotion Units at local and regional levels through the Public Health Network.



### Consolidating and Expanding the Evidence base

1. To ensure that the expanding QH HITnet activities are supported by and add to the health promotion evidence base, HPQ should ensure QH personnel and resources to support data analysis and new project evaluation;
2. To enable incorporation of cost-benefit analysis for Queensland activities, QH should support a formal linkage between the HITnet and an organisation with the appropriate skills and resources to undertake this work (for instance the Policy and Economics Group within the School of Population Health of the University of Queensland).

### Technical capacity and IT support

1. To enable extension within the QH IT environment, HITnet should be upgraded to enterprise status within the ISU environment;
2. QH should identify means by which HITnet activities can be coordinated with relevant QH IT systems (for instance FERET);
3. To support reliability and sustainability QH should ensure that technical support systems are identified and available at state, area and local levels;
4. To ensure local and system-wide support, QH should formalise a working relationship with relevant HITnet technical affiliates (TodayCorp and Abuzz);
5. QH HITnet activities should remain integrated with the wider HITnet system (both in Queensland and other states);
6. To support such coordination, HITnet should retain primary control of technical management for the expanding national system.

### Community Capacity and Support

1. To build capacity within communities QH should provide means to engage local community members in the development and production of relevant health promotion HITnet resources;

2. Given the opportunities afforded through the school system to address health promotion priority areas, QH should formalise a relationship with Education Queensland to optimise such opportunities, including to increase the kiosk network (kiosks in schools), use of other resources (interactive CD-ROMs and DVDs in health promotion), student participation in production and utilising schools as a resource for community developed material.

### Systems Capacity and Support

To optimise the technical, operational and site support for the QH HITnet system, QH should:

1. Endorse and adapt the existing HITnet procedure manual and other relevant protocols to function within the QH environment;
2. Ensure local systems and protocols for use of and maintenance of HITnet resources within QH service areas;
3. Provide the means for dissemination, implementation and ongoing training within the relevant workforce.

### Network Expansion

1. To install and implement new kiosks in QH sites and integrate these into the HITnet network, QH should formalize a working relationship with HITnet affiliates (Abuzz & TodayCorp) in addition to HITnet's Implementation Manager. This will provide the capacity to:
  - a. Liaise with sites ;
  - b. Coordinate installation (kiosk vendor, site manager, network IT manager);
  - c. Specify content, deploy content to kiosk hard drive, and check content and functionality prior to transporting to site;
  - d. Check new versions of health content for technical faults (and report to HITnet Technical Manager), and deploy to kiosks
  - e. Ensure detailed planning & scheduling;



1. To develop and implement new software (for eg. CD-ROMs) QH should identify who will approve it for testing and implementation on QH networks at State level, and identify who will provide IT support for software users;
2. To expand the reach of the HITnet system within Queensland, QH should support HITnet developing formal relationships with other relevant sectors in which kiosk-based applications appear appropriate – specifically Corrections, Juvenile Justice, Education and the Community-controlled Health Service sector.

### Content Development

1. To optimise production and use of HITnet derived resources (kiosk-based and other) for health promotion purposes, QH should ensure a formal agreement with Health Promotion Units at local and regional levels through the Public Health Network;
2. To develop new health content QH should adapt existing HITnet protocols and procedures in partnership with HITnet's Content Development and Community Development Managers;
3. To value-add to future QH health promotion resources (outside the HITnet project), QH should coordinate production activities to enable adaptation to the HITnet environment;
4. To value-add to existing QH health promotion resources, QH should enable adaptation of existing digital assets to the HITnet environment;
5. To optimise sharing of resources across the national HIT network, QH should consider IP rights and copyright that facilitate free exchange of new content across the network where appropriate.





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