# The Well Person's Health Check: a population screening program in indigenous communities in north Queensland

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## Abstract

*The National Indigenous Australians Sexual Health Strategy 1996-97 to 1998-99 provided the impetus and resources to assess the health of the large population of Aboriginal and Torres Strait Islander people living in rural and remote communities in northern Queensland, Australia. This paper describes the development, implementation and results of a community based screening program designed to detect and treat sexually transmissible infections and a range of non-communicable conditions and attendant risk factors. The Well Person's Health Check, conducted between March 1998 and December 2000, demonstrated a high prevalence of largely preventable health problems and initiated the development of a sustainable early detection strategy for the region.*

## Background

In 1997 Australia's Commonwealth Department of Health and Family Services (now Health and Aging, DHA) made funding available through the Office of Aboriginal and Torres Strait Islander Health (OATSIH) for the development of the North Queensland Indigenous Sexual Health Strategy (NQISHS) as part of the *National Indigenous Australians Sexual Health Strategy 1996-97 to 1998-99 (Commonwealth Department of Health and Family Services, 1997)*. Queensland Health (QH) supported the strategy with additional funding.

The rationale for establishing the NQISHS was the known endemicity of sexually transmissible infections (STI) among indigenous populations in central Australia (Bowden, 1996; Skov, 1997), and indications of concern about the sexual health of the large population of Aboriginal and Torres Strait Islander people living in north Queensland - 51,122 persons, according to the Australian Bureau of Statistics (1999).

Notification rates in north Queensland for chlamydia and gonorrhoea were consistently three times higher than the rest of the state (Queensland Health, 1998), hospital separations for pelvic inflammatory disease among indigenous women continued at nine times that of other Queensland women (Queensland Health, 2001a) and continuing cases of congenital syphilis (Humphrey, 1996) indicated that north Queensland indigenous communities harboured a significant burden of undiagnosed and untreated STI.

A principal aim of the NQISHS was to identify and treat STI (including HIV), reduce the incidence of STI, and thereby minimise associated morbidity and the incursion of HIV into indigenous communities across the region.

Technological advances, in particular urinary Polymerase Chain Reaction (PCR) (Roche Amplicor CT/NG, Branchburg, NJ) testing and single dose STI treatments, combined with the experience of the Tristate Project in Central Australia (Arabena, 1997) and Nganampa Health Service's successful STI screening program in the Northern Territory (Miller, 1999), provided the impetus for developing an active case finding component within the NQISHS. A community based screening program, the Well Person's Health Check (WPHC), was developed by QH and Apunipima Cape York Health Council (ACYHC) in consultation with health service providers and consumer groups.

The WPHC was developed to comply with the World Health Organisation's criteria for an effective screening program (Wilson, 1968). The aims were to detect and treat STI, detect and intervene early in cases of diabetes, renal and cardiovascular disease, identify risk factors for chronic disease and provide information to communities about disease and risk factor prevalence to enable planning for community-based primary prevention. WPHC would also assist in introducing urinary PCR testing into primary health care centres across the region.

A PCR laboratory was established at Cairns Base Hospital and the DHA agreed to provide free medications for treatment of prevalent STI.

TPHUN recruited a survey team comprising a coordinator, a public health medical officer and a public health nutritionist to implement the program. This team was supported by key staff from TPHUN and ACYHC.

WPHC complied with the National Health and Medical Research Council (NH&MRC) guidelines for research in Aboriginal and Torres Strait Islander Health (National Health and Medical Research Council, 1991) and ethics approval was granted by the Cairns Base Hospital Ethics Committee in March 1998.

## Indigenous communities in north Queensland

There are 45 rural and remote indigenous communities in north Queensland, a geographic area of 750,000 square kilometres from Mackay in the south to the Northern Territory border in the west and the islands of the Torres Strait in the north. Communities vary in size from less than 100 to around 1500 residents and most receive primary health care services from Queensland Health.

Some of these communities are extremely isolated and the health of residents is affected by inadequate housing, low levels of education, underemployment and poverty (Queensland Health, 2001a). These factors contribute to the excess morbidity and mortality and the high prevalence of STI and other communicable diseases in many of these communities (Queensland Health, 2001a; Miller, 2002).

The indigenous population of north Queensland is made up of two main ethnic groups. Aborigines comprise the majority of residents in mainland communities, and Torres Strait Islanders the majority of residents on the islands of the Torres Strait and Northern Peninsula Area of Cape York.

# Methods

## Community consultation

WPHC promotional resources (a general information pamphlet, clinical booklet and video) were distributed to communities throughout north Queensland. Interested communities then invited members of the WPHC team to visit, inform and consult with the community about the program prior to possible implementation. This consultation generally occurred over a 3-6 month period and involved a number of community visits by team members.

The consultation process engaged a wide spectrum of representative community groups and individuals. Meetings involved indigenous corporations, community councils, health action groups, men's and women's groups and justice committees.

Qualitative feasibility studies were conducted in most communities to ensure information about the WPHC was widely disseminated and to assess barriers to participation. Information from these studies assisted in determining the location and timing of WPHC, the level of involvement of local and visiting staff, and logistic issues such as transport to the screening site. Qualitative analyses also provided information about health perceptions and priorities in the community that was useful in tailoring local promotional activities.

The extensive consultation process ensured community awareness of how the WPHC would be implemented, what testing would be conducted, how the results would be presented and what might be the implications of some results. The community was then able to make an informed decision about proceeding (or not) with the WPHC.

In communities that invited the WPHC to proceed, rules were established about ownership and distribution of information. The program was implemented as a partnership between QH, ACYHC, Torres Strait and Northern Peninsula Area Health Council (TSNPAHC) and relevant local community organisations.

## Subjects

The WPHC was a cross-sectional survey conducted in 26 rural and remote indigenous communities in the Bowen, Cairns, Cape York, Torres Strait and Mount Isa Health Service Districts in north Queensland between March 1998 and December 2000.

The target population for the WPHC was indigenous people aged 13 years and older. Participation was voluntary and was open to all persons resident in the community.

Local census data were used to determine the eligible population resident in each community during the screening period. These data were obtained from clinic and council records and updated during the screening period through consultation with local indigenous Health Workers (IHW).

## Promotion

The WPHC was advertised through printed media (posters, pamphlets), local radio, and word of mouth via the health service, community council and community groups. Community events (concerts, barbecues, sports events, art competitions) were conducted in many communities to promote the screen. A local artist was engaged in each participating community to design a logo for the screen unique to that community. The logo was then printed onto t-shirts for distribution to screening participants. In most communities local primary school students painted a promotional banner to encourage attendance.

A successful strategy for recruiting young people was the use of personal invitations. At the halfway point of each screen a list was compiled from the local census of those under the age of 35 who had not attended. Invitations providing details of the check (where, when, what to do) were distributed and around 60% of those receiving invitations participated.

### Screening

The emphasis of WPHC was 'wellness' and screening was generally conducted at a central community location away from the clinic. A series of 'stations' were set up at the screening site. This provided visual privacy for each component of the check, and facilitated the steady flow of participants, avoiding unnecessary delays. Whenever possible, participants were attended by a team member of the same gender for all components of the screen.

The necessity for fasting prior to the check was advertised and WPHC commenced early (usually 7.00am) each weekday. A nutritious breakfast was offered to participants following completion of the survey. Participants who had not fasted were asked to fast and return the following day for their blood test. The duration of each survey was between one and four weeks determined by the population size.

A standardised proforma was used for data collection. Face-to-face interviews were conducted using a structured questionnaire. Interviews, body measurements and specimen collection were performed by a multidisciplinary team of trained staff from TPHUN, the health service District, the local health service and the local community.

Members of the survey team transferred data from the survey forms into an Access (Microsoft Corporation, 1996) database daily. This provided a quality assurance process, and regular team meetings regarding standardisation of interview technique, anthropometry and specimen collection and processing were held.

On attendance, participants received a detailed explanation of all components of the screen and provided informed written consent prior to participation (including parental consent for minors). Participants were given the option of withdrawing from the screen at any time. Local translators were engaged to overcome language difficulties. Participants were advised about how and when their results would be returned. They were also asked if they would be away from the community in the weeks following the screen, and if so, how they could be contacted.

## Screening protocol

### Demography

Participants provided their full name, date of birth, residential address, and self-identified as indigenous (Aboriginal, Torres Strait Islander, Aboriginal and Torres Strait Islander) or non-indigenous (Caucasian, South Sea Islander, Papua New Guinean, other).

### Anthropometry

Participants were asked to remove any heavy clothing (jackets, etc) and footwear and were weighed to the nearest 0.1kg (UC300 digital electronic scales; A.N.D., Tokyo, Japan) and measured for height to the nearest centimetre (Harpenden anthropometer; Holtain Ltd, Crymych, UK). Waist and hip circumference was measured to the nearest centimetre.

Waist to hip ratio (WHR) was calculated as waist circumference divided by hip circumference. High waist to hip ratio was defined as greater than 0.90 for men and 0.80 for women. Body mass index (BMI) was calculated as weight (kg) divided by height squared ($m^2$). Overweight was defined as BMI 25 to less than 30kg/ $m^2$ and obesity BMI equal to or greater than 30kg/ $m^2$ (Ball, 1993).

### Blood pressure

Participants were seated comfortably with their arm outstretched and supported at chest height. An inflatable cuff appropriate to the participants arm size was applied just above the elbow centred over the radial artery. Blood pressure was measured using a Dinamap model 800 automated blood pressure monitor (Critikon; Tampa FL, US). Three separate measurements were recorded over approximately a 10-minute period. The mean systolic and diastolic measurement was calculated from the three systolic and diastolic measurements. Hypertension was defined as systolic blood pressure >=140 mmHg and/or diastolic blood pressure >=90 mmHg and/or current anti-hypertensive medication (World Health Organisation, 1999). Blood pressure was always measured prior to phlebotomy.

## Interview questions

Participants were assisted to recall all food eaten in the 24 hours prior to the screen, and the number of serves of fruit and vegetables was recorded. A serve was defined as being one piece of fruit, half a cup of vegetables, or one cup of salad. This is approximately 150g of fruit or 75g of vegetables. This 24-hour recall method of assessing food intake has been validated elsewhere (Johansson, 2001; Knutsen, 2001; Subar, 2001).

Physical activity was measured using a seven day recall method, where the participant was asked to recall all physical activity performed in the week prior to the interview. The interviewer assessed the intensity and duration of that physical activity. The interviewer recorded the number of days in the past week where the participant was deemed to have undertaken moderate physical activity for 20 minutes or more.

Participants were asked if they had diabetes diagnosed by a doctor (self-reported diabetes), chronic heart, lung or kidney conditions, and the year in which these conditions were diagnosed. Female participants were asked if they used oral contraceptives, were currently pregnant or had been diagnosed with diabetes during pregnancy. All participants were asked if they were taking vitamin supplements, any medication and whether they had symptoms indicative of STI (eg dysuria or discharge). Those with STI symptoms were asked to return to the clinic at the earliest opportunity where the clinician conducted a full sexual health consultation including treatment where indicated. Vaccination status for influenza and pneumococcal polysaccharide vaccine was assessed according to NH&MRC recommendations (National Health and Medical Research Council, 2000).

Participants were asked if they currently smoked tobacco. Smokers were asked how many cigarettes they smoked daily. Non-smokers were asked if they had ever smoked and if so, when they had ceased smoking. Recent smokers were those who had ceased smoking within the past 12 months. The same questions were asked with respect to alcohol consumption, with drinkers being asked to recall the types and quantities of alcohol consumed in the previous seven days. Alcohol consumption was translated into daily and weekly standard drink totals and categorised as safe, hazardous or harmful using NH&MRC guidelines (National Health and Medical Research Council, 2001). Recent drinkers were those who had consumed alcohol within the past 12 months.

These methods of collecting information regarding exercise, tobacco smoking, and alcohol consumption have been widely used elsewhere (Australian Bureau of Statistics, 1997; From Attebring, 2001; Harada, 2001; International Diabetes Institute, 2001).

## Specimen collection and analysis

Fasting venous blood samples were collected by a medical officer, registered nurse or trained phlebotomist. Blood was collected in a four-millilitre ethylenediamine tetra-acetic acid (EDTA) vacuum tube and an eight point five millilitre clotted (SST) vacuum tube. The clotted tube was spun for 10 minutes in a portable centrifuge within one hour of collection.

The following biochemical measurements were made: triglycerides, total cholesterol, high density lipoprotein C (HDLC), low density lipoprotein (LDL), gamma-glutamyl transferase (GGT), red cell folate (RCF), fasting glucose and rapid plasma reagin (RPR).

Participants were asked to provide urine from the first morning void or to delay providing the sample for at least two hours from the most recent void. First catch urine samples were self-collected in a sterile 50ml container. All urine specimens were refrigerated at four to eight degrees centigrade immediately following collection.

A five to ten millilitre sample from the collection jar was transferred into a ten-millilitre tube. Dipstick urinalysis (Combur-test, Roche) was performed on the remaining sample and the results for protein, pH, nitrites, leucocytes and blood recorded.

Between March 1998 and May 1999 albumin creatinine ratio (ACR) testing was performed when the participants' urine contained protein (detected on urinalysis) or they were known to have diabetes, hypertension or had a BMI over 30kg/m$^2$. After May 1999 ACR testing was performed routinely on all urine specimens.

Polymerase Chain Reaction (PCR) testing (Roche Amplicor CT/NG, Branchburg NJ) for *Chlamydia Trachomatis* (chlamydia), and *Neiseria Gonorrhoea* (gonorrhoea) was conducted on all urine specimens. PCR testing of urine for *Trichomonas Vaginalis* (trichomonas) was introduced in October 1999 supported by NH&MRC funding.

Urine and blood tubes were sealed, packed in refrigerated eskies, and transported by air, in most cases reaching Cairns within 24 hours of collection. All pathology testing was conducted at the Cairns Base Hospital with the exception of RCF (Royal Brisbane Hospital) and trichomonas (Royal Melbourne Hospital).

### Initial feedback, follow-up and treatment

On the day of attendance all participants received immediate feedback with respect to weight, nutrition, exercise, blood pressure, alcohol intake and smoking. Appropriate brief interventions were conducted by the survey team clinician where lifestyle-related risk factors were identified.

When STI symptoms were declared at screening, treatment usually occurred on the same day. PCR, RPR and blood glucose results were usually available within seven to 10 days of testing.

One to two weeks after the survey, the team clinician, with the assistance of district and local staff initiated the follow-up of several groups of participants:

- Those with a positive STI diagnosis were recalled for treatment. They were offered a comprehensive sexual health check that included HIV testing and contact tracing for all named contacts. If individuals were not in the community at this time, district sexual health services initiated treatment as soon as the person could be contacted.
- Participants with a fasting glucose concentration of five point five mmol/l or greater with no prior history of diabetes were tested with a 75g oral glucose tolerance test (OGTT).
- Those eligible for influenza and pneumococcal polysaccharide vaccine.

### Individual and community feedback of health results

Feedback of all results took place four to eight weeks after the screen. It occurred at two levels - individual and community.

Members of the survey team returned to the community and worked with local health staff to return each participant's results. Training was provided to all staff prior to feedback commencing.

Participants were invited to one-to-one feedback and received a booklet containing their results and plain language health advice. Participants received brief interventions supported by culturally specific education resources about healthy eating, exercise, alcohol consumption, smoking tobacco and safe sex. Appropriate referrals were made.

Those who did not attend had their results posted or filed in their clinic record for feedback by local health staff at the earliest opportunity. No STI results were reported in the booklets given to individuals.

The health service was provided with a hard copy summary of each participant's results for filing in their clinic record, and chronic disease registers were updated.

The feedback to individuals was coordinated with the presentation of a report of the aggregated community results. This report was presented to meetings of local health staff, the community council, the health action group and a public meeting. The community report provided a snapshot of the (physical) health of the community by quantifying the prevalence of major health problems, risk conditions and STI.

## Results

### Participation

A total of 3507 people (1809 females and 1698 males) participated in WPHC, 3033 (86.5%) of whom were indigenous. Thirteen and fourteen year olds were excluded from this analysis as were 451 non-indigenous participants leaving a cohort of 2862 Indigenous participants (1602 Aborigines, 1074 Torres Strait Islanders and 186 people of joint descent) 15 years and over. Approximately 50% (1420/2862) of participants were aged 15-34 years.

Females (51.7%) and persons 35 years and over (50.3%) comprised the majority of survey participants. Community response ranged from 20.7% to 91.5%. Overall, 44.5% (2862/6431) of the indigenous population

(>=15 years) resident in 26 communities during the time of the surveys participated in WPHC. The participation among people 15-34 years was 42.5% (1420/3339). Ninety-eight point four percent of indigenous participants (2817/2862) provided urine specimens and 97.4% (2789/2862) provided fasting venous blood specimens.

### Findings

Table 1 provides a summary of the main WPHC findings for indigenous participants, including the prevalence of chronic illness, metabolic risk factors, and STI.

In detailed analyses of these data, STI prevalence among indigenous participants was found to be 3-6 times that of non-indigenous survey participants with no statistically significant differences between cultural groups (Miller, 2002). The majority of infections were asymptomatic with less than 10% of those treated declaring symptoms at the initial screen (Fagan, 2001).

Cardiovascular risk conditions were identified at 2-6 times that of non-indigenous Queenslanders with some variation in prevalence between cultural groups (McCulloch, 2002). In total 4.6% (127/2789) of indigenous WPHC participants were newly diagnosed with diabetes.

Overall, crude prevalence among indigenous participants of any STI (excluding trichomonas) was 16.2%, diabetes 17.5%, hypertension 30.1%, renal dysfunction – proteinuria 33.6%, ACR>3.4 30.8%, and overweight/obese (BMI>=25) 61.2%.

### Treatment and feedback

Five hundred and seventeen WPHC participants were identified with one or more STI. The average time to treatment was 26 days from the day of screening (range 0-482 days). Treatment of a number of highly mobile individuals involved sexual health services across north Queensland.

HIV testing was included as part of a comprehensive sexual health examination offered to all positive cases. Among those known to have been offered HIV testing, only 13% proceeded with a test. Forty-six percent of participants (1609/3507) received their results via one-to-one feedback from a member of the survey team or local health service.

## Discussion

The aims of the WPHC were to detect and treat STI, detect and intervene early in cases of diabetes, renal and cardiovascular disease, identify risk factors for chronic disease, and provide information to communities about disease and risk factor prevalence to enable planning for community-based primary prevention.

The WPHC was able to introduce screening for STI in a way that proved acceptable to people living in north Queensland indigenous communities. WPHC assisted in the introduction of urinary PCR testing in many communities and played an important role in facilitating the uptake of PCR testing across the region.

STI findings from WPHC are comparable to that reported in other Australian indigenous communities (Skov, 1997; Bowden, 1999; Miller, 1999) and confirm the potential vulnerability of these populations to HIV.

**Table 1. Risk behaviours, nutrition indicators, anthropometry, cardiovascular risk conditions and sexually transmissible infections among indigenous WPHC participants**

| | MALE | | | FEMALE | | |
|---|---|---|---|---|---|---|
| | 15-34 | 35+ | TOTAL | 15-34 | 35+ | TOTAL |
| **Risk behaviours and nutrition indicators** | | | | | | |
| Tobacco smoker (1) | 72% | 60% | 66% | 64% | 44% | 54% |
| Alcohol consumer (2) | 85% | 74% | 79% | 70% | 45% | 58% |
| Unsafe alcohol (3) | 90% | 86% | 88% | 80% | 81% | 80% |
| Inadequate fruit (4) | 75% | 76% | 76% | 77% | 68% | 72% |
| Inadequate veg (5) | 97% | 98% | 98% | 97% | 96% | 97% |
| Low RCF (6) | 46% | 43% | 44% | 43% | 29% | 36% |
| Inadequate physical act (7) | 39% | 50% | 45% | 58% | 60% | 59% |
| **Anthropometry** | | | | | | |
| Raised WHR(8) | 49% | 89% | 69% | 76% | 93% | 84% |
| BMI>=25 | 51% | 65% | 58% | 56% | 73% | 65% |
| **Cardiovascular risk conditions** | | | | | | |
| Diabetes | 4% | 25% | 15% | 5% | 35% | 20% |
| IGT/IFG(9) | 2% | 4% | 3% | 1% | 4% | 3% |
| Dyslipidaemia(10) | 56% | 77% | 66% | 56% | 67% | 62% |
| Hypertension(11) | 17% | 49% | 33% | 5% | 49% | 27% |
| Raised Gamma GT(12) | 29% | 41% | 35% | 10% | 21% | 16% |
| Proteinuria (13) | 29% | 37% | 33% | 31% | 38% | 34% |
| ACR>3.4(14) | 12% | 44% | 29% | 15% | 47% | 32% |
| **Sexually transmissible infections** | | | | | | |
| Chlamydia | 12% | 3% | 7% | 15% | 4% | 9% |
| Gonorrhoea | 4% | 1% | 2% | 5% | 0.4% | 3% |
| Trichomonas(15) | 1% | 9% | 5% | 23% | 22% | 22% |
| Syphilis(16) | 4% | 8% | 6% | 2% | 8% | 5% |
| Any STI (excl Trichomonas) | 20% | 11% | 15% | 21% | 12% | 17% |

(1) current/recent smokers
(2) current/ recent drinkers
(3) unsafe (hazardous and harmful) consumption among current drinkers
(4) <2 serves
(5) <5 serves
(6) <363nmol/L
(7) < 3 sesions of 20 minutes moderate exercise in previous week
(8) <=0.9 males, <=0.8 females.
(9) fasting>=6.1and <7.0mmol/L, OGTT >=7.8 and <11.1mmol/L
(10) total cholesterol > 5.5nmol/L and/or triglycerides >2.0nmol/L and/or HDL <=1mmol/L and/or LDL >=3.5
(11) >140/90 mmHg
(12) >50u/L
(13) multistix test positive >=+
(14) where used as a routine screening test
(15) where used as a routine screening test
(16) includes active, early latent and late latent

WPHC was able to detect and intervene early in cases of diabetes, renal disease and cardiovascular disease and helped to raise individual and community awareness about chronic disease and risk factors.

This survey has provided prevalence data that has been used for regional health planning (Queensland Health, 2000; Queensland Health, 2001b; Queensland Health, 2001c).

## Selection bias

A recognised limitation of this study is that the communities who participated and the individuals who participated in each community were self-selected. A number of analyses of available data were used to assess potential selection bias.

Females and older people comprised the majority of participants, but there was little difference between survey participants and the target population with respect to age and gender distribution.

Persons attending during the final week of the survey were more likely to have required greater encouragement than earlier participants. In most communities invitations were distributed to all persons 15-35 years who had not attended by the midpoint of the survey. This proved successful in encouraging participation among more hesitant people. We assume later participants, as a group, were probably less likely to access health services routinely, and probably more likely to have prevalence that closest reflects non-participants. A wave analysis of screens that ran for three and four weeks demonstrates that STI prevalence among participants in the final week of both three and four week screens was higher than prevalence in the earlier weeks, and higher than overall prevalence (Miller, 2002).

The second comparative method used was an analysis of clinic PCR results over a one-year period (2000-2001) in 17 communities that participated in WPHC (1998-2000). About 40% of persons aged 15-39 years in these communities underwent clinic initiated PCR testing and participated in WPHC. The proportion of tests found positive through clinic testing was approximately twice that of WPHC testing (Miller, 2001).

Wave analysis identified no significant trend in cardiovascular risk factors with respect to week of attendance but did note a decreasing trend in hypertension and diabetes prevalence (McCulloch, 2002).

A further analysis matching WPHC data with data from a study of Torres Strait Islander diabetes patients (McDermott, 2001) suggested that differences between diabetic participants and non-participants in WPHC were small with healthier diabetics slightly more likely to attend (McCulloch, 2002).

Our conclusion, based on these estimates, and anecdotal evidence obtained during community screens, is that prevalence measured among participants probably reflects, or in the case of bacterial STI, is probably an underestimation of true community prevalence at the time of the surveys.

## Participation

Several factors appeared to influence participation at a community level.

Residents of small communities (population less than 250) were easier to access in promoting the WPHC and were twice as likely to attend than residents of larger communities.

Participation was greater in Torres Strait Islander communities (compared to Aboriginal communities) as these tended to be smaller populations living on islands where kinship ties were greater.

Participation was greatest in communities where community input was significant and sustained. Local IHW played a vital role in recruitment and participation was highly correlated with local IHW involvement in all phases of the survey.

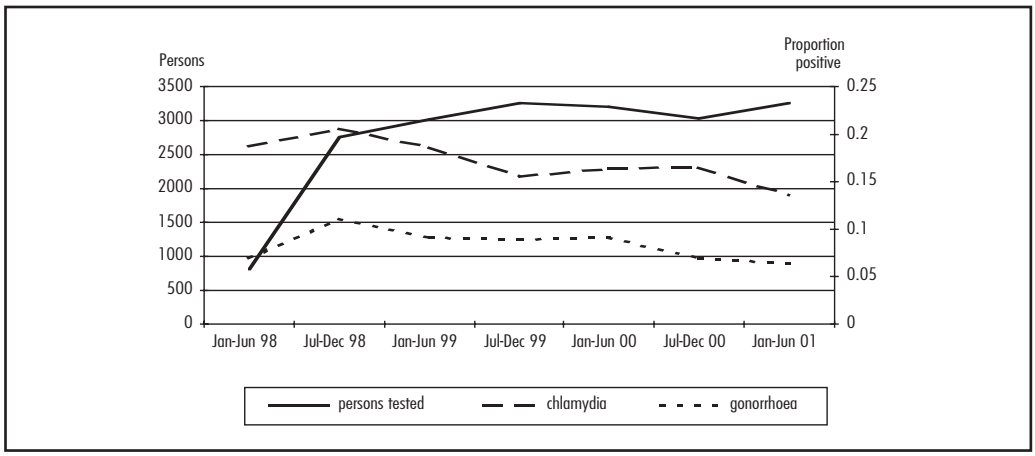
## Impact of WPHC

Follow-up screening occurred in two communities two years after the initial screen. STI prevalence appeared to be approximately halved in both these communities at follow-up screening although the reduction of prevalence was not significant due to low numbers of participants. Figure 1 demonstrates urinary PCR testing has increased steadily since its introduction in 1998 with a corresponding steady decline in the proportion of positive tests.

These crude measures are encouraging in terms of a reducing burden of infection, and support a continued emphasis on increasing and sustaining PCR coverage.

Apart from the 'life changing' effects of WPHC quoted publicly by a few individuals at meetings subsequent to their participation, little is as yet known about the impact of WPHC. An evaluation of WPHC funded by DHA is currently under way and will provide qualitative data about the impact of the program at a community level.

**Figure 1: PCR testing North Queensland 1998-2001 (persons 15-39years)**




Source: Queensland Health, Notifiable Conditions system (NOCS), Brisbane.

WPHC has provided a baseline from which the health of these populations can be monitored as health services are re-aligned to be more proactive in offering screening (Queensland Health, 2001c).

## Adult Health Check

Recognising that sustainability is dependent on local delivery, the WPHC ceased in December 2000 and has evolved into a simplified annual Adult Health Check (AHC) targeting community residents 15 years and older, delivered as core business of primary health care centres. IHW play a lead role in the AHC and receive training in delivering and monitoring the check prior to its implementation. AHC forms part of a broader chronic disease strategy which includes the introduction of population registers, electronic recall systems for management of identified illness, and community based prevention approaches to lifestyle risk factors - ie early detection strategies linked to action plans.

Critical to the impact of the AHC will be effective use of brief interventions for smoking, alcohol, nutrition, physical activity and STI, and these are being emphasised and resourced as a vital component of screening and routine management of chronic conditions.

Other lessons learned from WPHC that will be incorporated into local health services include establishing systems for the prompt treatment (and monitoring) of people with STI and their contacts, increasing community education about HIV, and encouraging increased uptake of HIV testing of at risk individuals. Self-collected swab PCR testing in preference to urinary PCR testing for women has been introduced and promoted in light of recent findings (Knox, 2002).

How screening programs are implemented will vary between communities. WPHC has demonstrated that short term mass screening is a valid approach in small communities but not in large communities. Opportunistic screening of those attending the health service and strategies targeting particular groups within the community provide further screening options.

## Conclusion

Screening is an effective strategy in populations with a high prevalence of asymptomatic STI and chronic diseases such as diabetes, heart and renal disease that usually have a long asymptomatic period, and risk conditions (smoking, excessive alcohol consumption, poor nutrition, obesity) that contribute to preventable chronic conditions. WPHC has provided community-level information on these factors in north Queensland indigenous

populations and has paved the way for establishing sustainable early detection strategies in communities. Vital to the success of such strategies will be prioritising screening within local services, strong support from district level health services and specialist outreach programs, and an emphasis on effective brief interventions.

These interventions require community-based programs that provide supportive environments to assist those wishing to act on lifestyle advice and support provided by primary care practitioners. The creation of such enabling environments is strongly influenced by factors that include education, housing, law and order and employment. This poses a challenging question - how can community groups, health services and the range of other government agencies providing services in remote communities work collaboratively to reduce the health differentials still so glaringly apparent in remote indigenous Australia?

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