

Health Hardware for Housing for Rural and Remote Indigenous Communities

Vicki Taylor (MAppSc, MPHTM)

Executive Officer, Central Australian Division of General Practice, PO Box 8223 Alice Springs NT 0871.
tayland@ozemail.com.au.

The links between housing and health are well recognized. The National Aboriginal Health Strategy called for suitable accommodation so that Aboriginal people could have a healthy lifestyle (NHSWP, 1989). This recommendation was based on the high prevalence of diseases, such as hepatitis B, gastroenteritis, scabies, trachoma and upper respiratory tract infections, in Aboriginal communities that are spread by overcrowding, inadequate water supplies, poor sanitation, and poor control of environmental conditions. Housing is also the first in a chain of other interdependencies that include water, sanitation and access to other services that are necessary for health improvement.

Culturally, Aboriginal communities acknowledge the importance of housing to health (Golds et al., 1997). Aboriginal people have identified a healthy community as having better housing suited to their families needs, access to clean water, and to employment.

Research has demonstrated clear links between better housing, better education, better employment opportunities, better access to justice and less trouble to police.

Current Indigenous Housing Stock

Meeting the housing need has proven difficult. In 1988, an estimated 30% of Aboriginal people still required housing (NHSWP, 1992). In 1994, the shortfall in housing stock for Aboriginal people was estimated at \$1.4 billion (EC, 1994) and little progress had been made in overcoming the housing backlog.

The focus for housing programs has been reducing the backlog through new housing projects. However, the Northern Territory government has estimated that an additional 200 houses were needed annually to replace poor quality housing stock in that Territory (CAEPR, 1997). Increasingly indigenous housing programs are required to look at the life and function of a house (CAEPR, 1997). A number of reports have speculated on the reasons for poor quality housing stock citing overcrowding, vandalism, inadequate maintenance and poor management (Lovejoy, 1972; ATSIHP, 1977; Reser, 1979; Wigley and Wigley, 1994). The lack of skilled labor, overloading of facilities by the sheer numbers of users and the irregular provision of necessary services (power, water, sanitation) have also been implicated in the reduced functioning of indigenous houses in rural and remote communities (Reser, 1979).

However, the evidence now suggests that there are other factors that significantly affect housing quality (NHC, 1987; Pholeros et al., 1993; Pormpuraaw Community Council et al., 1997). In fact, the Nganampa Health Council (1987) speculated that the total number of habitable houses might not increase in five years because of the following factors:

- The timing of funding to communities and its administration is poor.
- Known design failures continue to be funded and built.
- Poor documentation is available to assess design faults, materials appropriateness, tender prices,

- and construction on site.
- Letting of difficult-to-perform contracts continue to be provided to inappropriate builders to achieve the lowest tender price.
- There remains poor-on-the-ground supervision.
- Housing budgets do not include a maintenance component or landscaping or yard components.

One of the propositions made by the authors of this evidence based work was that housing programs with an aim of "culturally appropriateness" in fact provided a mechanism for service agencies to avoid their responsibility in providing houses that have functioning health hardware. This arises from the consultation processes that characterize culturally appropriate housing programs. Rarely do these consultations include the following obvious issues with regard to housing for Aboriginal and Torres Strait Islander peoples.

- The house was safe.
- The house had water.
- The toilet would work.
- It is possible to maintain the house

There are a number of differences in the way Aboriginal people use housing and the skills that are available to housing and maintenance programs. These aspects coupled with continuing political changes in Aboriginal communities mean that housing programs must be adaptive and flexible to accommodate these differences.

The use of permanent dwellings is a significant lifestyle for Aboriginal peoples and it has meant significant reorientations for Aboriginal people (Reser, 1979). This includes the acquisition of new sets of skills (Reser, 1979; Wigley and Wigley, 1994:

- Women have had to learn a new range of domestic skills aimed at maintaining a healthy household environment.
- Good housekeeping is often difficult because of the climate, and inadequate housing design.
- Other new skills require familiarity with electricity, plumbing, appliances, so basic repair services can be undertaken by householders.
- In addition, there are significant differences in the way housing is used in Aboriginal communities compared to the general community.

New housing is usually allocated to a designated householder or tenant although in reality the householder is often a 'family' and those who can claim to be family can demand their right to enter, use and remove property from the house. The size and composition of Aboriginal households are markedly different to non-Aboriginal households (Wigley and Wigley, 1994). Aboriginal households consist of residents who are core members, short-term visitors and those who stay for specific periods. For example, in surveys of the Aboriginal population in Katherine in the NT, it has been found that up to one third of the Aboriginal population were visitors. Aboriginal people are a larger proportion of the rural and remote population and housing to cater for this population needs to take into account the rigors of these isolated communities. However, in much of indigenous housing, standard building hardware has been used that was more appropriate for urban communities (Reser, 1979). This has resulted in continuing failure of certain building elements and components. Window systems, plumbing systems and fixtures, electrical fittings and appliances, door hardware and door systems are the components that frequently fail and these failures occur in all communities.

The political changes in Aboriginal communities, has meant increased community management as part of a desire for self-determination (Reser, 1979). There have been suggestions that poor management has

contributed to poor quality housing stock (ACEPR, 1997). However, given appropriate design and construction, housing maintenance can be substantially reduced to a point where management by Aboriginal communities is possible (Pholeros et al., 1993). It requires attention to detail in housing construction rather than broad principles espoused behind the shibboleth of culturally appropriate housing. And the detail is in the health hardware.

What is Health Hardware

Health hardware refers to those items in a house that assist in maintaining the health of the occupants (NHC, 1987). From a health hardware perspective, the assumption is that a house is inherently worthless unless it can deliver good health. For example, a power point is useless unless it can provide power to a variety of appliances.

In methodology developed by the Nganampa Health Council (1987) to assess health hardware, nine essential healthy living practices were developed:

1. Washing people;
2. Washing clothes/bedding
3. Waste removal
4. Nutrition
5. Reduce crowding
6. Separation of dogs and children
7. Dust control
8. Temperature control
9. Reduced trauma.

Surveys of Health Hardware in Aboriginal communities

There have been three surveys of communities to specifically look at housing health hardware, its operation and any failures. In 1986 and 1992/93, surveys were undertaken in the Anangu Pitjantjatjara (AP) Lands in the North West corner of South Australia and in 1996 in the remote community of Pormpuraaw, in Cape York. The underpinning philosophy for these surveys was

Look, test, record, fix and report.

Test protocols were developed to assess the housing capacity in the areas of:

• Shower	• Tub/basin
• Laundry	• Main drainage
• Hot water	• Flush toilet
• Dry toilet	• Grey water sump
• Tap quality	• Kitchen

Anangu Pitjantjatjara Lands

The 1986 survey considered the living conditions and facilities in ten Aboriginal (Anangu) communities (NHC, 1987):

- Safety (electrical, structural)
- Services provided by the outside living areas;
- Services provided by the house
- Population and demand placed on the services of house and yard.

The findings indicated housing and services construction was substandard and inadequate. It was found that most people (80%) did not use the main body of the house. Even the few houses in good repair were not used more. In fact there was preliminary evidence to suggest that the better developed the surrounding yard (water taps, security, wind protection, shade trees), the better the condition of the house and health hardware in it.

The review made a number of recommendations.

- That the services and maintenance arm within each community for example, essential services, building erection and rubbish management be amalgamated into a local public health unit under the control of the local community council;
- A regional building policy be developed that addressed *inter alia* maintenance, cost and environmental effectiveness including particular attention to soft waste disposal systems;
- Budgets include a maintenance factor that covers the two years immediately following the construction of a house.
- Housing funding needed to include financing health hardware.
- Essential services (i.e. environmental health hardware should be matched in sophistication to the level of maintenance available).
- The maintenance be financially linked to the construction of any structure.

The survey concluded that maintaining the asset and those health hardware facilities was as important if not more important than providing the original asset. A poorly maintained building could be a health hazard.

The second survey report in 1992/93 reasserted the fundamental nature of maintenance to sustain health hardware in remote communities (Pholeros et al., 1993). The report reiterated its previous findings: for health hardware to be developed and sustained, funding, planning, monitoring and performing of health hardware maintenance would have to be addressed.

This survey reported that health hardware was being used by Anangu people with minimal wastage throughout the year. Routine maintenance was found to be possible with a basic level of skill and at an affordable cost. Better housing design and construction of the living environment, meant that ongoing maintenance was managed by local Aboriginal people. Information collected from the two surveys (Table 1) demonstrated improvements in housing that could be attributed to sustained work on design, supervision of construction quality and ongoing maintenance largely by local Aboriginal people (CAEPR, 1997).

In addition, the 1992/93 survey could not link high house population and the failure of health hardware, or high house population and increased requirements for health hardware or general maintenance.

The major health hardware maintenance cost items were concerned with waste removal and particularly underground work as opposed to the appliances or the user end of the system (Pholeros et al., 1993). Causes of failure were occasionally poor design, regularly poor initial construction, particularly below ground (i.e. poor grades, poor joints or connections, no pipe installed, no rodding or inspection points.

A number of examples were cited where poor design had contributed to hardware failure or poor functioning (Pholeros et al., 1993). Lights had the poorest electrical performance. This was due to bulbs not being fitted or bulbs blowing out on fitting probably due to the quality of the generated power. The most common fault in showers were no working lights, lack of simple shelves or rails, poor ventilation and poor floor grading.

Simplified drainage recommended from a previous study had been installed and the result was lower drainage failures (8%). These failures were not due to poorly functioning drains but from the flush floor wastes being covered by cardboard from used washing powder packets.

As an area with poor water quality, higher capacity heating elements attracted more mineral salts to the element and reduced the heating capacity. Reducing the wattage of the elements resulted in no appreciable operating differences and longer life for the elements. Problems noted in toilets in the older style units included lack of ventilation and natural light, and missing toilet roll holders.

Table 1 Results of health hardware failures on the AP Lands, 1986, 1992/3.

Health Hardware	UPK survey 1986	Survey Repair 1992/3
Total Houses	23	37
Housing pop/density	17	10
Cold water	70%	100%
Hot water	45%	80%
Waste removal	35%	70%
Working houses	8	26
Real population density affecting health (people per functioning house)	50	15

Maintaining adequate toilet rolls in the cubicle was considered a personal health hardware issue although adequate hardware was necessary to hold and store toilet rolls. Lack of toilet rolls resulted in rags being used and this clogged the toilets and septic systems.

Dry toilets had been recommended in a previous study. However there was community opposition to pit toilets because:

- They were not "proper" toilets.
- They were too dark and people were scared of snakes.
- They were not used and therefore a waste of resources.

Grey water sumps were originally seen as providing a silt trap for dirt from the shower block, an open trap between the shower block and septic tank, and as a grease arrester for the high levels of soap to protect the septic tank. However, poor quality construction and design meant that the sumps were unable to meet their original purpose.

Pormpuraaw

Survey methodology for the AP Lands was used in Pormpuraaw, a community on the Cape (Pormpuraaw Community Council et al., 1997). Its successful transfer to another very different community demonstrated the robust nature of the project methodology and the potential for its use in other

locations.

In Pormpuraaw, a survey of houses in the community found that no house less than 2 years old passed all function tests. There was negligible evidence of vandalism to essential health hardware. For example, there was no evidence of deliberate physical damage to tap ware, spouts, toilet cisterns and pans; minimal evidence of blockage of drainage lines with foreign objects; and very limited damage to solar hot water system collector panels. Some physical damage to walls, doors, windows (particularly new horizontal sliding windows in block work houses), light fixtures and other building fabric was noted.

It is important to note that the items of health hardware that required the most repair and maintenance were those that had been poorly constructed and those that had been poorly specified: For example:

- Rotting of the timber structure of bathroom floors and walls was due to inadequate waterproofing and failed plumbing fixtures.
- Toilet blockages were due to poor pipe work and septic system failure or to incorrect installation of cisterns and subsequent limited flush capacity.
- Broken doors or door hardware were due to the use of hollow core doors which make it difficult to properly secure door hardware. This is exacerbated by the absence of doorstops, so that doors and handles constantly struck against the walls.
- Failure and blockage of the septic tanks and grease traps was due in part to design and no irregular desludging (pump out) being carried out.

It was concluded that a backlog of housing problems and repairs in Pormpuraaw had led to inefficient “crisis management” of repairs and maintenance activities rather than pro-active and preventative management.

The water was also found to have a high proportion of salt that proved to be corrosive. This was a significant factor on the life of the plumbing and the steel used in buildings particularly wet areas and hot water units. Solar panels had been corroded and the water leaking from the panels had also corroded the roof.

The survey team recommended a housing management program. The program was to be based upon regular maintenance carried out by local work teams and visiting tradesman. The works included desludging septic tanks, servicing hot water units, checking and repairing electrical wiring and fixtures and maintaining plumbing. The program also included a system that allowed householders to report faults, and annual housing surveys to monitor house functioning so that ongoing repairs and upgrades could be prioritized.

Housing and Health

These studies also looked at the impact of the housing program on reported illnesses such eye and skin infections. Over the time of the project, when there were demonstrated improvements in the health hardware of housing in these communities, skin and eye infections were halved (NHC, 1987; Pholeros et al., 1993; Pormpuraaw Community Council et al., 1997). This is shown in Table 2 that provides information on the reported incidence of both diseases in 1991 and 1993 in the AP Lands.

Table 2 Incidence of Eye infections in the AP Lands in 1991 and 1993.

	1991	1993
Eye infections		

<15 years	59	29
all ages	157	98
Skin Infections		
<15 years	95	42
all ages	220	104

Information on reported cases of pneumonia and diarrhea were also provided but the numbers of new cases were too small to demonstrate change (Pholeros et al., 1993). In fact, the number of contacts for pneumonia and diarrhea actually increased during the first three months in 1993 compared to the first three months in 1991. This may have been the result of under-reporting in 1991 rather than any real increase.

Where Policy direction is now going

ATSIC and the States share responsibility for Aboriginal and Torres Strait Islander housing. Ongoing negotiations between these bodies are leading to co-operative approaches to Indigenous housing. It is therefore important to note policy directions in housing policy guidelines articulated by one of the responsible parties, ATSIC. The ATSIC Community Housing and Infrastructure Program (1997-2000) details the following key strategies (ATSIHC, 1997):

- Effective use of appropriate technical standards, design and materials; and
- The contribution to the long term sustainability of funded organization and communities by ensuring that constructed assets are able to be managed and maintained from identified government agency assistance and resources.

The guidelines also identify the necessity for infrastructure to meet community needs for water, power, housing and essential services as well as address the specific cultural needs or circumstances of the communities. Along with this emphasis on design and construction to meet community sustainability needs, future housing surveys are to be designed to focus on housing deficiencies rather than housing backlogs. This will assist in the development of programs that include specific remedial actions (CAEPR, 1997).

Other discussions on Aboriginal housing at a national level, have acknowledged the work in the AP Lands and Pormpuraaw. The need to monitor outcomes on a continuing basis, to ensure that adequate building standards have been met, and maintenance and management issues are properly addressed, are now emerging issues at a local, state and national level.

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