PRIMARY HEALTH CARE IN THE VILLAGES AROUND LORE LINDU NATIONAL PARK, CENTRAL SULAWESI

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Introduction

Health care, both preventative and curative is the responsibility of the Health Department, both under the Central Government and the Governor's Office. The Central Government office has the responsibility for guidance and supervision, while the Provincial office has responsibility for implementation. A number of different vertical programmes exist dealing with specific diseases or activities, for example malaria, TB, filariasis, schistosomiasis, immunisation, nutrition. However, these are all coordinated at the community level through the PUSKESMAS. Funding also comes through dual channels of both Central Government health funds and INPRES funds disbursed by the Governor's Office.

The general pattern of service provision provides specialist and maternity hospitals at the tertiary care level, general hospitals as secondary level care, while the PUSKESMAS, PUSKESTU, POSYANDU and Village Delivery Units (POLINDES) make up the primary care facilities. A PUSKESMAS is staffed by a medical doctor (general physician), a dental surgeon, nurses, midwives, assistant pharmacist and sanitarians, alongside the necessary administrative staff. Usually the facilities of a PUSKESMAS will include a minor operations surgery, a delivery room, a dental surgery and a small inpatient ward. The PUSKESMAS may also have minor laboratory facilities, such as the capacity to diagnose malaria, helminth infection or tuberculosis. The PUSKESTU has nurses only. The Village Delivery Unit is used by both the Village Midwife (*Bidan Desa*), usually a newly qualified midwife, and the traditional midwife (*Dukun*) who may or may not be trained. Facilities are open Monday to Friday during normal office hours, with emergency cover only outside these times. Care is generally provided on a fee-for-service basis.

Currently it is the common practice for newly qualified doctors to be posted to rural PUSKESMAS where they are required to complete a period of 2 or 3 years' service. The turnover among them is therefore quite high. This system ensures that rural facilities are staffed, but also results in there being few well-experienced medical personnel available to rural populations. Nurses are more likely to stay in one post for a number of years but may have little in the way of career prospects.

Each PUSKESMAS has an outreach service using a mobile unit that makes regular visits to outlying villages, providing clinical outpatient care within the village. Thus for minor or chronic health problems it is not always necessary to travel to the Puskesmas itself. A programme of school health and dental checks (UKS and UKGS[1]) is also maintained covering all schools within the catchment area.

Preventative care is undertaken through the Posyandu system. This is a community activity with technical support from nursing staff occurring on a monthly basis. Services provided are, amongst others, immunisation, antenatal care, family planning and nutrition related. Currently, there is also a nationally coordinated campaign for polio eradication with two annual immunisation days each year during 1995, 1996 and 1997 (Dept. of Health).

Health education is undertaken by a range of staff usually involving health talks to which people are attracted by screening of popular entertainment films. Health staff also cooperate with teachers in the provision of school health education.

In Central Sulawesi there is ADB funded project in the villages around the Lore Lindu National Parks, the project is an integrated project named Central Sulawesi Integrated Area Development and Conservation Project (CSIAD&CP). The project aimed to the development of the area with the general objective of increasing the community welfare and Conservation of the LLNP. The project included among others: health aspect and control of schistsomiasis, which is endemic in the area. In this relation this study was made.

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Background
Health Facilities Within the Project Area

The current distribution of health service facilities is shown in Table 1. For the catchment areas of facilities visited, 90 percent of communities are within 5 km/1 hour of a Puskesmas/Puskestu or have their own Village Midwife.

The five most common reasons for attendance at health facilities within the two Kabupatens of the Project area over for 1993 and 1994 are shown in Table 2. Table 3 shows the top five causes of death in hospital by age group for 1993, 1994 and 1995. Central Sulawesi has the second highest infant mortality rate (IMR) in the country at 75 per 1000 live births. Maternal mortality (MMR) is also high at 450 per 100,000 live births.

In general the health status of the population is good. Communities are usually able to afford the services they require. Obviously the more peripheral communities are disadvantaged, but the outreach programmes of the PUSKESMAS and POSYANDU help to counteract this. The capacity of the health facilities is currently under-utilised in terms of outpatient attendances and inpatient-to-bed ratio. However, this is a result of the generally small catchment population rather than any failure within the system.

Table 1
Distribution of Health Facilities by Kabupaten (1994 figures).

Kabupaten/ Kecamatan	Specialist Hospital	Maternity Hospital	General Hospital	Puskesmas	Puskestu
Poso	0	0	4	35	158
Lore Utara	0	0	0	2	8
Lore Sel.	0	0	0	1	4
Donggala	0	0	1	32	131
S.Biromaru	0	0	0	4	19
Kulawi	0	0	0	2	11

Report of Kabupatens Dept. of Health

Table 2
Top Five Reasons for Attendance at Health Facility by Kabupaten.

Kabupaten	1993	1994
Poso	Malaria Breathing ache Enteritis Bronchitis Pulmonary TB	Malaria Breathing ache Diarrhoea Bronchitis Skin Disease
Donggala	Malaria Enteritis Pulmonary TB Bronchitis Breathing ache	Breathing ache Malaria Diarrhoea Anaemia Hypertension

Report of Kabupatens Dept. of Health.

Table 3.
Top Five Causes of Death in Hospital by Age Group

Age Group	1993	1994	1995
0 - 1 year	Bronchitis Diarrhoea Neonatal tetanus Pneumonia Broncho-pneumonia	Diarrhoea Pneumonia Neonatal tetanus Hepatitis	Pneumonia Diarrhoea Neonatal tetanus Hepatitis Low birth weight
1 - 4 years	Diarrhoea Malaria Broncho-pneumonia Pneumonia Accident	Pneumonia Tetanus Measles Nutrition deficiency Accident	Pneumonia Tetanus Measles Nutrition deficiency Accident
5 + years	Pulmonary TB Hypertension Diarrhoea Malaria Bronchitis	Diarrhoea Pulmonary TB Pneumonia Accidents Hypertension	Accident Diarrhoea Hypertension Pneumonia Pulmonary TB

Report Kabupaten Dept. of Health

Table 4.
Preventative Health Services Coverage by Kabupaten 1994

Kabupaten	Immunisation %					Family Planning	Nutrition
	BCG	DPT3	POL3	Meas	TT2	Current Users as % of Eligible Couples	% Severely Malnourished Under 5's
Poso	87	71.6	80.7	79.2	71.4	89.6	0.31
Donggala	90.2	84.4	85.5	85.2	40.5	62.4	0.6

Report Kabupatens Dept. of Health

Coverage for preventative health programmes, immunisation, nutrition and family planning for 1994 is shown in Table 4. Given the causes of death above, coverage or efficacy of measles and tetanus immunisation may be questioned.

In relation to administration of the health services regular supplies of drugs and other equipment are received by the peripheral facilities which report very few instances of out of stock drugs. Each Puskesmas is provided with a set of manuals which give guidelines and treatment protocols for dealing with various diseases such as malaria, diarrhoea, filariasis. The walls of the facility are well utilised in displaying current statistics relating to the various programmes and catchment area of the Puskesmas. A number of educational materials are also displayed. Payment of staff is regular and punctual, although the general opinion among staff is that pay should be at a higher rate.

Provision of water supply and sanitation also comes under the auspices of the Health Department, both Central Government and Governor's Office. The general nature of water supplies and sanitation provision in 1995 (draft figures only) within the Project area is shown in Table 5.

Table 5
Population (%) with Water Supply and Sanitation; by Type.

Kabupaten	Water Supply			Sanitation		
	Piped	Hand pump	Dug well	Septic tank	Water sealed	Pit latrine
Poso	20.8	31.1	24.7	3.2	34.8	35.7
Donggala	4.9	18.9	34.2	14.5	19.4	20.9

Report Kabupatens Dept. of Health

The provincial level Health Department is currently very active in its attempts to improve health care provision across the province. A number of proposals have been developed and submitted for funding, although funding is not yet secured for any of these. In particular an ADB Project is expected to start next year concentrating on communicable disease control (ARI, TB, malaria and immunisable diseases). Other initiatives are: the re-equipment of facilities; improvement of blood transfusion services; improvement of the referral system by establishment of an interim facility between PUSKESMAS and Hospital; safe motherhood; child survival; health education; and management and information systems. It is important for this Project to be integrated into these initiatives.

Field Surveys

Objectives

The objectives of the Field Survey were to collect base line data on health aspects in the project area. Field trips were made to the following locations: Napu Valley, Besoa Valley, Palolo Valley, and Lake Lindu. In all, 10 communities were visited and 142 community members involved in Focus Group Discussions. Additionally, meetings were held with staff at three health facilities, and other community level officials. The precise communities visited and the informants who were met with are listed in other report.

Methods of Data Collection

Three categories of data were collected during the Field Survey. Firstly, the perceptions of community members were obtained through Focus Group Discussions (FGDs), held separately with men and women. Where this proved not to be possible the Kepala Desa was interviewed or another village official. Secondly, staff of the health facilities and schistosomiasis control programme were consulted and records checked to build up a picture of the pattern of service provision and disease prevalence within the communities. Thirdly, observations were made of the environmental and hygienic conditions within the villages visited. Within the Focus Group Discussions two specific exercises were done: production of a seasonal health calendar and a ranking exercise with the health issues identified during the production of the calendar. Issues relating to environmental hygiene and sanitation were also discussed, particularly to elicit any linkages made by community members between this and disease causation. The use of health services and level of satisfaction with these was discussed.

Results

Seasonal Health Calendars

Respondents from each village were asked to draw individual calendars, and from this calendars we were able to summarise the general pattern which emerged across the communities. The health aspect is dealt with in detail below.

Rainfall is perceived to fall into two main periods of heavy rain: November to January and April to June. August to October is perceived as the driest period of the year. Temperature is generally stable throughout the year, but cold nights occur in August to October. These months have the greatest range of temperature over a 24 hour period. Monthly rainfall charts are shown in the Annex of Agriculture section on an annual basis, the Lindu are received substantially more rainfall than the Napu Valley.

Workload is perceived as reasonably steady around the year, but heaviest in December/January and July/August. These are both harvest periods.

Table 6.
Health Priorities by Village/FGD.

Village Group	Top Five Priorities in Health					Other Problems in order
	1	2	3	4	5	
Tamadue UPT (M)	Schistosomiasis	Malaria **	Diarrhoea	Severe stomach ache	Chickenpox	severe chest infection, mild chest infection, flu, headache. general weakness.
Watumaeta (F)	Schistosomiasis	Diarrhoea	Anaemia	Hypertension	Malaria	worms, flu, mild chest infection, chickenpox, heart disease.
Watumaeta (M)	Schistosomiasis	Diarrhoea	Hypertension	Heart disease	Severe chest infection	anaemia, worms, malaria, rheumatism, flu.
Winowanga (F)	Schistosomiasis	Malaria	Severe chest infection	Mild chest infection	Diarrhoea	asthma, mumps, rash, flu, eye disease, rheumatism.
Winowanga (M)	Schistosomiasis	Severe chest infection	Malaria	Worms	Mild chest infection	flu, fever, rheumatism.
Doda (F)	Diarrhoea	Hypertension	Chest infection	Malaria	Asthma	scabies, eye disease, goitre.
Doda (M)	Diarrhoea	Gastritis	Malaria	Toothache	Chest infection	fever, flu, goitre, TB, hernia, rash, hypertension, mumps.
Torire (F)	Schistosomiasis	Coughing/vomiting blood (TB?)	Diarrhoea	Gastritis	Chest infection	headache, malaria, eye disease, worms, rheumatism, toothache, goitre, diabetes.
Torire (M)	Schistosomiasis	Severe chest infection	Diarrhoea	Stomach ache	Hypertension	malaria, worms, headache, back pain, stomach ulcer, mild chest infection, flu, toothache, rash, eye disease, mumps, goitre, rheumatism, boil.

Village Group	Top Five Priorities in Health					Other Problems in order
Tomado (F)	Diarrhoea	Schistosomiasis	Severe chest infection	Worms	Goitre	stomach ulcer, fever, scabies, eye disease, mild chest infection, flu
Tomado (M)	Schistosomiasis	Cholera	Fever	Mild chest infection	Stomach ache	flu, headache, chickenpox, back pain, toothache, eye disease, boil
	1	**2**	**3**	**4**	**5**	
Anca/Paku (F)	Cholera	Schistosomiasis	Hypertension	Fever	Malaria	mild chest infection, goitre, heartburn, polio, flu
Anca/Paku (M)	TB	Schistosomiasis	Cholera	Hypertension	Heart disease	stomach ulcer, malaria, headache, fever,
Kanawu (F)	Schistosomiasis	Cholera	Headache	Flu	Fever	mild chest infection, stomach ulcer, malaria, asthma, rheumatism, dysentery, severe chest infection, goitre
Kanawu (M)	Schistosomiasis	Cholera	Stomach ache	Chickenpox	Fever	toothache, stomach ulcer, typhoid, kidney disease, rheumatism
OVERALL PRIORITY	Schistosomiasis	Diarrhoea	Chest infection: severe and mild	Malaria	Hypertension	

** Malaria may refer to any high fever and does not indicate a microscopic diagnosis. Similarly other conditions named are the villagers own perception rather than medical diagnosis.

For those involved in irrigated rice fields cultivation there is less seasonal pattern to the work as planting, preparing and harvesting can occur at any time. Those with rain-fed rice fields or dry-land rice tend to a more seasonal labour pattern. The main crops other than rice are corn, peanuts, coffee, cocoa, chilli, potato, soybean. A variety of fruits are also harvested. In general there is no shortage of food, although in Lake Lindu sago is harvested in August/September indicating little else is available. Collecting firewood and household crafts, such as mat weaving, make additional tasks for women. In predominantly Christian communities Easter and Christmas/New Year create additional work at already busy times: Ramadhan and Iedul Fithri do likewise for the Moslem communities. For those community members with an official role Independence Day celebrations add to the workload considerably in August.

Income and expenditure are closely related to harvest and celebrations respectively. Other significant expenditure relates to school or religious activities. Some communities perceive themselves as reasonably prosperous with the ability to save a little each year. Some more-or-less break even and a few feel that expenditure regularly outweighs income resulting in a requirement to borrow money at certain times. A secure income is linked not only to agricultural harvest of subsistence and cash crops, but to the possibility of obtaining other paid employment. For example on small construction projects, through extraction of rattan, honey or other forest products and employment with the private sector (PT Hasfarm in Napu Valley).

Priority Health Issues

Table 6 below shows the top five health priorities which emerged from each FGD, along with the other issues which were identified. The reasons for the choices made are a combination of the considerations shown in Box A. Many problems identified are not felt to be of a seasonal nature but can occur year round.

Box A.
Reasons for Prioritising Health Issues.

- A serious condition, potentially and suddenly fatal;
- A common condition affecting many members of the community;
- A condition that prevents the person from working;
- A condition that is difficult or impossible to self-diagnose;
- A condition that cannot be self-treated.

Satisfaction With Services.

In all a total of 33 different health conditions were mentioned by community members. The majority of these conditions require treatment at a health facility, be it Puskestu or Puskesmas, although some are also treated with home remedies or store-bought drugs. Satisfaction with the available services is generally high, although some community members feel prices are high when compared to incomes. For civil servants an insurance scheme exists for payment for health care services, and this was mentioned once in Watumaeta, Napu Valley. Satisfaction levels are related to the fact that attendance at and treatment from a health facility are perceived to be effective in resolving problems. In Lake Lindu services were currently unavailable due to absent staff. Table 7 shows the range of conditions mentioned in the FGDs with the place and cost of treatment. Traditional/home remedies are also detailed.

Access To Services.

Access to services is generally perceived to be

of an acceptable level, although for more peripheral communities transport costs can add a considerable burden when seeking treatment. In Torire, Napu Valley, which is located midway between two Puskesmas, these costs are between Rp.10,000 and Rp.15,000 per person. Details of access to a Puskesmas from its peripheral villages were obtained from those facilities visited. Access to hospital care is more problematic and involves considerable expense depending on distance. All communities prefer to use Palu as a referral hospital. The cost of reaching a hospital, plus the subsequent cost of care, means that those living in remote communities are reluctant to utilise hospital services even in time of need. In Besoa Valley community members stated that if the local Puskesmas staff could not treat them, they just stayed at home. The cost of hospitalisation is quoted as millions of rupiah. From Palolo transport costs to Palu for referred cases are given as Rp. 40,000 rone way. When possible the Puskesmas transport is used but this is committed to its regular programme of outreach clinics and so not freely available. From Lake Lindu to Palu costs Rp. 80,000 one way

Table 7.
Treatment of Health Conditions and Related Costs.

Condition	Treated at Health facility	Costs Given (rupiah)	Home Remedy used
Schistosomiasis	Via control programme	None	None
TB	Yes	3,500; 10,000.	Use of peppery leaves
Diarrhoea (various types)	Yes	none;1,500; 2,000; 2,500; 3,000 4,000; 5,000.	Oralit; sugar salt solution; use of guava leaves
Gastritis	Yes	2,500; 4,000.	Drugs from kiosk
Mild chest infection	Yes	600; 2,500; 3,000; 4,000; 25,000.	Drugs from kiosk; guava leaves; young alang alang root; lemon; honey; coconut sugar; ginger; herbs.
Headache	Yes	600; 2,500.	Drugs from kiosk
	Yes	600; 2,000; 2,500; 3,500; 4,000; 10,000; 1,000/tablet or 1,500/injection.	Drugs from kiosk; papaya leaf; bitter vine plant stem; papaya flower; dried gall bladder of python.
Eye disease	Yes	1,000; 1,500	Breast milk, dew from particular wild plant (type of burr seed)
Worms	Yes	2,500; 10,000.	Various garden plants
Rheumatism	Yes	2,500; 5,000; 7,500.	None
Toothache	Yes	2,500; 3,000; 4,000.	None
Goitre	Untreatable	None	Apply herbal paste
Diabetes	Yes	2,500.	None

Condition	Treated at Health facility	Costs Given (rupiah)	Home Remedy used
Hypertension	Yes	2,500; 3,000; 5,000; 10,000.	None
Severe chest infection	Yes, may require admission	1,000/tablet; 1,500/injection; 2,500; 5,000; 7,500/day; 25,000.	None
Asthma	Yes	1,500; 5,000.	None
Scabies	Yes	2,000.	None
Stomach ache	Yes	2,500; 3,500.	None
Chickenpox	Yes	None; 2,500.	None
Flu	Yes	500; 600; 2,500.	Drugs from kiosk; morning bath
General weakness	No	None	None
Mumps	Yes	1,500.	Drugs from kiosk; grass compress; massage; paste with blue & vinegar
Skin rash	Yes	3,000; 3,500.	None
Fever	Yes	5,000.	Drugs from kiosk
Hernia	No	None	Massage with coconut or cooking oil
Heart disease	Yes	5,000.	None
Anaemia	Yes	2,500.	None
Heartburn	Yes	3,000	None
Polio	untreatable	None	None
	Yes	2,500	None
Kidney disease	Yes	2,500	None
Back pain	Yes	2,500.	Herbal remedy using forest plant
Boil	Yes	None	None

Service Utilization

The number of patients seen at the health facilities is low. This is however, consistent with the population catchment of each facility. For example in the Napu valley, Wuasa Puskesmas which serves a population of just over 6,000 has approximately 350 - 500 outpatients per month. There are ten beds in the facility with an occupancy rate of approximately two patients per month. Admissions are usually for accidents or respiratory infections. There is a delivery room and postnatal room. Most births occur at home however, with only about one per month at Wuasa Puskesmas. Other services are a dental surgery; nutrition; family planning and a TB programme which is due

to start in September 1996. Similarly the more peripheral facilities also have a low utilisation rate. The Puskestu at Tamadue has approximately 100 outpatients per month and the staff attend two home deliveries per month.

Figures for Palolo PUSKESMAS, - a in more populated area with a catchment population just over 13,000, and with better road access - appear higher. Outpatient attendance is approximately 1000 per month. The eight inpatient beds have 6 - 8 occupants per month of whom half are delivery cases. For both facilities the average is one visit per head of population per year.

No figures could be obtained from Tomado Puskestu as staff were absent.

Preventative Health Services

Preventative health services are available within the villages through the monthly POSYANDU which include immunisation, nutrition and family planning related services. This includes an outreach educational programme. Uptake of these is high, particularly of family planning. Again an example from Napu Valley illustrates this point. Within the villages served by the schistosomiasis control programme there are only 204 children under 2 in a total population of 6,015 (3.4%). In relation to nutrition, villagers expressed the opinion that they had enough food all year. Staff at Wuasa PUSKESMAS confirmed that nutrition among under 5's is generally good: no serious malnutrition exists. In Lake Lindu these regular services do not appear to occur, although people knew of the National polio days, they were unaware of other immunisation. Staff were not available to confirm this.

Discussion

In order to get more objective results, FGDs were done both to men and women. Men and women need oportunities to work in seperate peer groups in a private space to identify their own priorities and actions (Gordon & Phiri, 2000).
Ranking and recording methods can be used to explore people's perceptions, elicit their criteria and understand their choices regarding a wide range of subjects, from resource allocation to wealth and well-being assessment (NN,1998).

In general, basic sanitation in the schistosomiasis endemic areas is still a serious problem, causing continued schistosomiasis transmission. Central and local Government allocated budgets to construct 200 MCK (approx. 1 MCK for 10 HH). These were not optimally used by the community and no maintenance has been done by the community, so most are now out of use. There is a noticeable level of dependency among the community in the maintenance of the MCK.

Health care provision within the Project area is generally satisfactory . Services are well distributed with the majority of the population having adequate access to primary care facilities. Secondary and tertiary access is much more limited, as would be expected given the nature of these services which are generally centralised. Further improvements will occur as infrastructure improves, specifically road access to hospital facilities. An interim measure could be the provision of a radio link up between Puskesmas and hospital personnel for consultation on serious cases. It is also possible that regular visits to Puskesmas by hospital staff could increase the utilisation of their facilities, particularly for surgery. Priority health issues also follow the common pattern for rural communities. Diarrhoeal disease and respiratory infections are the two major concerns across the Project area as a whole, with schistosomiasis taking priority in those communities which have snail foci.

The quality of service provision is somewhat variable depending on the enthusiasm and motivation of individual members of staff. In this the Project area is no different from many other rural areas where small catchment populations equal low utilization rates, coupled with a frequent turnover of medical staff. In these circumstances it is difficult to maintain a high level of interest and motivation among staff. These are minor problems, however, as is well illustrated by the high expressed satisfaction with services among community members.

While there is a widespread understanding of the connections between environmental hygiene and disease causation, there is still plenty of potential for strengthening this. Health education tends to follow the pattern of giving a talk, which is not stimulating for either the speaker or the listeners. It is important to explore the range of potential groups and activities which could be incorporated into a broad educational strategy at community level. Topics would include those relating to environmental hygiene but should also be expanded to cover a range of other relevant health issues. Emphasis should be on community level awareness and recognition of serious cases as well as improving their ability to deal with minor problems.

References

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