A health status and health service utilization study of a peri-urban community in Kwazulu

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Summary

A community survey was undertaken in a district in Kwazulu, adjacent to Pietermaritzburg, Natal, in order to determine health status and health service utilization patterns at a local level. This low-cost survey was labour-efficient and yielded useful data for the evaluation and planning of local health services.

It was found that child health and delivery services were under-utilized while family planning and antenatal care services were comparatively well used. 'Traditional' practitioners' services were used regularly by 51% of the mothers and childminders interviewed. The use of the services of general medical practitioners was less significant. Some 36% of the children under 5 years of age were found to be malnourished, and 29% had conditions requiring medical treatment.

The findings of this study indicate that a major discrepancy exists between the local need for health services and utilization of the available services. The introduction of community health workers is proposed as a possible solution.

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Surveillance of the causes of morbidity and mortality is developed to a sophisticated degree at national and regional levels in South Africa, but very little information is available at local community level. This information is vital for health service planners in the implementation of locally appropriate and effective health services. During the last decade the importance of community surveys for the assessment of health status, attitudes towards health care and the utilization of health services has been increasingly recognized world-wide.[1]

The purpose of this study was to obtain such information as part of an evaluation of the health services offered by the Edendale Hospital health ward. An attempt was also made to examine the possible role of 'village' or 'community health' workers in this area in extending health services, as resources allocated for health care in the homelands are very limited.

The study area

Vulindlela, one of the 5 magisterial districts in the Edendale Hospital health ward, was chosen as the study area. It is part of Kwazulu and is best described as a rural, peri-urban area, spreading 15-40 km west of Pietermaritzburg, Natal, along the road to Bulwer. The Black population of Vulindlela was 169 070 according to the 1980 census.[2] Ngubeni, a village of approximately 110 households, was selected as it appeared to be representative of the other villages in Vulindlela in terms of size, infrastructure and socio-economic conditions. Concurrently, a large community survey was conducted by the Development Studies Research Group of the University of Natal, Durban.[3] A comparison of the results from these two surveys confirmed that Ngubeni was representative of the rest of Vulindlela.

Access to health services

The geographical location of Ngubeni in relation to the nearest clinic, Edendale Hospital and Pietermaritzburg, is shown in Fig. 1. A general store at Ngubeni has a telephone which could be used in emergencies. An ambulance summoned from Edendale Hospital could arrive within half an hour. Return bus services run 4 times daily; return fares were 80 cents to the clinic, R1,00 to the hospital and R1,00 to the municipal clinic in Pietermaritzburg. As the fees for these facilities were the same (60 cents), financial considerations alone did not appear to influence the utilization of these services. At the time of the survey general practitioners' fees were R6,00 for a surgery visit, including medication. The nearest general practitioner had his office next to the hospital. Most general practitioners had their offices in town.

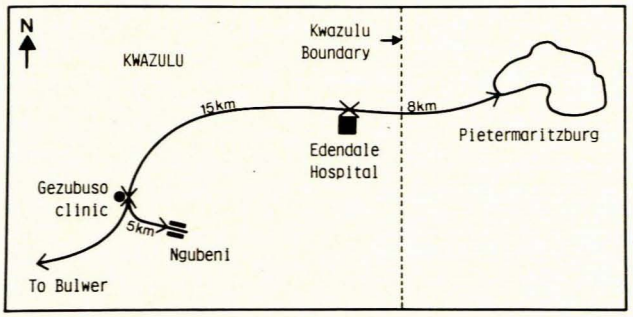

Fig. 1. Sketch map showing Ngubeni in relation to adjacent health facilities. (Adapted from Bromberger's report on Vulindlela.[3])

A mobile community nurse team visited Ngubeni once a month. They brought clinic services to the community, such as antenatal care, immunization, surveillance of the status of nutrition of children under 5 years of age, treatment of minor ailments and distribution of medicines for chronic illnesses.

Socio-economic conditions

Data from the University of Natal study of Ngubeni[3] showed that the average income per family was R205 per month with a median of R180, but 37% of the potentially economically active men and women were unemployed and 10% of households had no wage-earners. All household units incorporated a vegetable garden, 43% had fields, 27% had some type of livestock and 21% had cattle. Adults who had left school had an average of 4,5 years of education, while 23% of the adults had had no schooling. There was an average room occupancy of 1,2 persons per room.[4] All of the households visited during the survey had an outside pit latrine. Water was obtained from local springs.

Subjects and methods

The households (defined here as a group of dwellings falling under one family head) were distributed fairly evenly on either side of a dirt road 1 kilometre in length. A pair of interviewers were dropped off at the beginning and thereafter at every 200 metres on alternate sides of this road, and were asked to interview 8-10 households, starting at the nearest and then continuing to adjacent households away from the road. A total of 50 households were visited; 2 households in which no women were at home were bypassed and the nearest household to them visited instead. None of the other 48 householders refused to co-operate in answering the questionnaire.

The study was conducted on a weekday in early September (spring) 1981. The community had had no prior warning of our visit. Six teams of 2 persons conducted the interviews, 1 of the 2 being a Zulu State-registered nurse with at least 1 year of community clinic experience.

The questionnaire had been tested previously on mothers in the paediatric outpatient department of Edendale Hospital. The interviewers had been trained to introduce themselves, explain the purpose of the study and ask permission for the interview from the most senior person present. The interviews were conducted with mothers who had children under 5 years of age or another adult female if the mother was not present. In 6 of the 48 households surveyed there were no children under 5 years of age. In 3 of the households there were 2 women with children under 5 years. Thus, 45 mother/children under 5 'units' were studied.

Questions were asked about the number of occupants, their age and sex. Each mother or childminder was asked about births of children to women living in that household since August 1980, where the births occurred, whether any of the children had died, feeding practices, immunizations, past serious illnesses, where sick children were taken and about any family planning. Their attitudes to and difficulties with the available health services, their source of drinking water and the presence of pit latrines was also noted.

Children under 5 years of age were examined clinically and weighed (their weight measured by a subtraction method using adult bathroom scales standardized beforehand). The children's ages were taken from their immunization cards in 35 cases, and the remainder from the interviewee. This age was verified, if the child was present, by inspection of the teeth.[5] In these cases the 'teeth age' fell within 2 months of the given age. Each child's weight was assessed on the joint male and female expected-weight-for-age Harvard standards chart.

Results

Information was obtained from mothers in 65% of interviews, grandmothers in 30% and aunts in 5% (for convenience, all are referred to as 'mothers').

Demographic information

Forty-eight per cent of the population was below 15 years of age, 20% below 5 years, 22% women of child-bearing age and 3% older than 65 years. The 48 households surveyed had 345 members, an average of 7,2 members per household. This included persons sleeping away from home during the week, but excluded longer term migrant workers. The overall male : female ratio was 1:1,2. The university study showed an average of 7,5 persons per household and a male : female ratio of 1 : 1,2 for the whole of Vulindlela.[3]

Indices of child health

Seventy-two children had been born after August 1976. Four of these had died, 2 in the neonatal period, 1 in infancy and 1 at the age of 29 months. The causes of death of the 2 neonates were apparently gastro-enteritis in one and pneumonia in the other. The infant and child both seemed to have died from gastro-enteritis. The infant mortality rate in this community between September 1976 - August 1981 was computed to be 3/72, i.e. 42/1 000 live births. The university study found a similar rate of 40/1 000 live births in an adjacent area of Vulindlela, based on a survey of 600 households.[3]

Nutrition (Table I)

Twenty (28%) of the children were or had been only breast-fed before weaning, 17 (24%) had had a minimum of 6 months'

TABLE I. NUTRITIONAL STATUS OF CHILDREN < 5 YEARS OF AGE

Category	No.	%
Normal weight for age (> 3rd percentile for age)	**34**	**64**
Underweight (between 60-80% expected weight for age)	**15**	**28**
Kwashiorkor (between 60-80% expected weight for age with pedal oedema)	**2**	**4**
Marasmus (< 60% expected weight for age without pedal oedema)	**2**	**4**
Total*	**53**	**100**

*Nine children not available; unreliable results recorded in 6 children.

breast-feeding before supplementary bottle-feeding. Twenty-five children (35%) had received supplementary bottle-feeding before 6 months of age, and 10 children (14%) had been only bottle-fed after birth.

Nine children were not at home and for 6 children, all weighed by the same observer, very unlikely weights were recorded (double the expected weight for age). This was probably due to scale malfunction. Their weights were excluded.

Six children (9%) had earlier been admitted to the malnutrition ward of Edendale Hospital. Four of these children were still underweight, one being marasmic.

Health status of the under-fives

Fifty-nine (87%) of the 68 children were examined, and 29% were found to have a condition considered as requiring medical treatment. These were: upper respiratory infections in 5, scabies in 4, impetigo in 4, and severe malnutrition in 4 children. Three children had *Tinea capitis* infections. Treatment had not been sought for any of these conditions. None of the children had diarrhoea.

Immunization status

This was ascertained by looking at the home-based immunization card of each child. For 10 children the card could not be found and the immunization history was taken from the mother. If children had been born in the hospital or clinic we assumed that they had received a BCG vaccination at birth; mothers tended to remember how many times their children had received polio drops at a clinic, and as a diphtheria, pertussis and tetanus (DPT) immunization is always given concomitantly we felt that the receipt of these immunizations could be fairly reliably ascertained.

Our immunization schedule was: BCG at birth or within the first 3 months of life, or when first seen at a clinic; polio and DPT immunization at 3, $4^1/_2$ and 6 months; and a single measles immunization at or after 9 months of age. According to the schedule a booster dose of diphtheria/tetanus vaccine is given at 18 months, but this was not considered in this survey.

Of the 68 children investigated, 19 (28%) had been fully immunized for their age, 26 (38%) had been partially immunized for their age, and 23 (34%) had never been immunized. As regards specific immunization, 45 (66%) had received BCG vaccination, 35 (56%) had received the correct number of polio and DPT immunizations for their age, 5 (8%) had received only one dose of polio and DPT vaccine and 3 children (5%) had received two doses of polio and DPT vaccine for their age. Of the 57 children older than 1 year,only 19 (33%) had received a measles immunization.

Maternal health care

Family planning. Only mothers with children under the age of 5 years were questioned about family planning usage; 22 of the 40 women (55%) whose history was obtained were using it. When the mother was absent, this information was asked of another female family member, usually the grandmother. In 5 cases the grandmother did not know.

Antenatal care. The number of antenatal visits during the 72 pregnancies was recorded, but the history of 7 pregnancies in 5 women could not be obtained. The average number of visits per pregnancy was 3,4 with a range of 0 - 10 visits per pregnancy. In 56 of the 65 pregnancies (86%) an antenatal clinic was attended at least once.

Places where children were delivered. Although an ambulance was relatively easy to obtain, 50 of the 72 deliveries (69%) occurred at home, 11 (15%) at the local clinic and 11 at the hospital. Only complicated deliveries took place at the hospital.

Health service utilization patterns

Places where sick children were usually taken by each mother. These were found to be the local clinic in 21 cases (47%), the clinic in town in 9 cases (20%), general practitioners in 9 cases and the hospital in 6 cases (13%). Eight women stressed that it depended on the severity of the illness, the hospital and general practitioners being preferred for serious illnesses. The reasons for these preferences were not asked for, but the following information was volunteered: 4 women (9%) said that the local clinic only attended to general illnesses in the afternoons, when it was difficult to catch a bus home, 7 (16%) preferred the clinic in town as it was convenient to do their shopping at the same time, 5 (11%) preferred general practitioners as they 'gave more injections', and 7 (16%) found it easier to catch a bus home from town than from the hospital or the clinic.

Mothers' attitudes towards the local clinic. Thirty-nine (87%) said that they had used the local clinic. The main comments of each of the 39 users were as follows: 6 (15%) felt that they had to wait too long and that more staff were needed, 7 (18%) said that the clinic was too far away to use easily, 4 (10%) said that it was inconvenient to have general illnesses attended to only in the afternoons, 3 (8%) said that the clinic nurses did not give enough injections, 3 (8%) said that the clinic often ran out of medicines, and 16 (41%) said that they were satisfied with the clinic's services.

Preferences for different health services. The mothers were asked what medical service they would prefer if they were given the choice: 36 (80%) preferred a resident clinic in their village, 6 (13%) preferred a local general practitioner, 2 (4%) preferred a local hospital, and 1 woman said she preferred weekly visits by the mobile health team. Their reasons for the different preferences were not asked for directly, but it was recorded that: 5 women (11%) preferred a clinic because it was cheap, 5 preferred it because it provides a 24-hour service, and 4 (9%) because it provides 'all services'. Four of the women preferred general practitioners as they felt that they gave more injections than the other services.

The use of 'traditional healers'. Twenty-three (51%) of the mothers regularly used the services of either a *Sangoma, Nyanga,* herbalist or faith-healer. The following reasons were volunteered: 6 (26%) said that they used them only for witchcraft, 2 (9%) used their services only when Western medicine failed, 2 (9%) used their services only for special conditions such as a painful back or legs; in 2 households a traditional practitioner was a resident. Among the non-users of traditional healers 2 (9%) said it was against their Christian faith and 3 (14%) said that they charged high fees.

Discussion

The sample size of this study (48 households) was too small to yield statistically accurate data, but the information obtained is useful for the planning and evaluation of local services, and serves as a valuable baseline for future studies to determine trends. Fortunately, the University of Natal study[3] showed that Ngubeni was representative of the rest of Vulindlela in terms of socio-economic conditions and hence probably health status. Had this information not been available we would have had to repeat the study in other areas of Vulindlela in order to ascertain this representativeness.

Obtaining a representative sample in a community in which no listing or numbering of households exists is problematic. An initial listing of households or aerial photography of the area may overcome this, but when resources are limited one may have to resort to the less reliable systematic cluster-sampling technique such as we used.

This survey had two main shortcomings: (*i*) no provision was made for follow-up of absent mothers or children, or households yielding dubious information. Nevertheless, as this study sought to obtain information both quickly and cheaply, the benefits of increased accuracy must be weighed against the cost; (*ii*) medical personnel were employed to obtain attitudinal information on the services in which they were working, and could have been biased in favour of their service. However, every effort was made to explain to the interviewers, and through them the interviewees, that this study was a sincere attempt to ascertain their view of the available health services.

An advantage of this type of study is its low cost to the health service. The medical officer and community nurses employed in the study were involved in an in-service training course. Hence their absence was not a burden to the rest of the health service, and visiting the community in their homes was of great educational value to the participants. The only extra costs were those for stationery, the use of 2 hospital vehicles for 1 day, and 2 weeks of the medical officer's time for preparation of the survey and analysis of the results.

The child health indices indicated that the children attending the local clinic were not representative of their community: 36% of the children examined in the Ngubeni survey were found to be malnourished, compared with 32 of 218 of the children (15%) attending the local under-fives clinics during the previous month ($P < 0{,}001$). This confirmed the suspicion that many children needing medical attention were not being brought to the clinic. It was also disconcerting to find that 29% of the children in the survey needed medical attention. The average weekly income for a family of 7,2 persons was R48,00, which influences any realistic interventions for malnutrition. Most people in this community are poor. There is a differential use of the free preventive services. Antenatal care and family planning services are relatively well used, whereas child health services, including immunization and delivery services, are under-utilized. These findings require further investigation; neither ignorance nor inaccessibility seems to determine their low utilization.

The findings suggest that the following changes would immediately improve utilization: (*i*) extending the times for general illness clinics to the mornings, as children who have become sick overnight are usually brought then; (*ii*) improving the availability of return-trip buses to the community; and (*iii*) encouraging marketing and other service groups to set up businesses adjacent to the health service facilities in order to improve the convenience of attending them.

Conclusion

Low-cost community surveys can quickly yield valuable data for evaluating and planning health services. This survey showed that there is both a real and expressed need for a local health service, but it is unlikely that the Kwazulu Health Department would be able to provide each small community, such as Ngubeni, with a local clinic. The mobile clinic's monthly visits did not appear to be particularly valued by this community.

Many developing countries are using a different category of health worker to fill the gap between community clinics and the need for local medical care. Village or community health workers are being trained in the diagnosis of minor ailments, the recognition of more serious conditions necessitating referral to the health services, including childhood malnutrition, follow-up of patients known to the health services, and health and sanitation education.[6] Often the person trained for such work is a traditional healer or midwife, who, as shown in this study, usually enjoys considerable local popularity.[7] Although problems relating to the status and the payment of such workers have not been resolved, is it not time that the introduction of community health workers be given serious consideration?

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