

Case Study

Hygiene in Three Communities.

A Case Study of Behaviour Related to Hygiene*

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ABSTRACT

The purpose of the sociological study was to look at behaviour related to hygiene in some detail. Because of the difficulties of obtaining information about something as private as hygienic practices, the study could focus only on a few families, looking for descriptive qualitative, rather than quantitative, data - even in the few cases studied, there were severe limitations to what could be observed. This article describes what was observed, and relates it to some of the data collected in the microbiological study.

Introduction

This study took place in conjunction with a microbiological study on the practice and effectiveness of different forms of hand-washing. In particular, the researchers wished to see the effect of distributing *mukombes*, a water container which delivers 200 ml of water for hand-washing when tipped. The study was conducted in three areas: a traditional village in Chihota Communal Land, a peri-urban area (Epworth, near Harare), and three selected commercial farms. Those involved in the microbiological study also administered a survey questionnaire, in which informants were asked to respond to a number of questions relating to hygiene and general background, to which the researchers added their own observations.

The research assistants spent three weeks continuously in the field in December 1987. In each case five or six families were selected for detailed observation. The families were chosen because they were thought to be of interest by the microbiological researchers, and to represent a wide range of styles of living. After a preliminary visit and interviews, the research assistant spent three full days with the family concerned, to observe and learn about practices related to hygiene. The evenings and early mornings remained outside the scope of direct

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observation. In Epworth, the period of observation was shorter. The research assistant returned to Epworth in March for a week. At the end of May, after the *mukombes* had been installed for some time, all three returned to their respective areas for a week of further observation.

The traditional village

In an earlier study of a number of areas in Zimbabwe, it was observed that 80% of the members of 52 households bathed daily. In only three of these families did any members fail to wash their hands before observed meals. No one washed after defecation (Government of Zimbabwe, 1985). The observations in the present study suggest that bathing is less regular in all three communities; that hand washing before meals is only very rarely missed; and that hand washing after toilet use has in the past been very rare. Comparing the three areas in the present study, hygiene practices were more regular in the traditional village than in the other two areas. The microbiological study showed coliform counts from hands to be significantly lower in the traditional village than in the other two areas.

Nyamungaya Village is situated approximately 60 kms by road from Harare. Field observations were for the most part confined to one section of it, comprising 34 homesteads. Each homestead comprises of a number of single-room houses used as bedrooms or kitchens, and sometimes also a two-roomed dwelling occupied by the household head. The buildings are for the most part built of plastered brick, with cement floors and corrugated iron or thatch roofing. The homesteads are usually fenced, and include an acre or two of gardens for fresh vegetables and a little grain, and are spaced roughly 150m from each other.

Buses to and from Harare pass along a nearby road, and also give access to the nearest clinic, which is a 20 minute ride away. The economy is based on a combination of wage labour and subsistence agriculture. It was difficult to contact household heads other than at weekends, when many came home from their work in Harare to visit their families. Differences in wealth are apparent from house styles, and ownership of livestock and agricultural equipment.

In December, thirteen of the thirty-four homesteads had pit toilets, all but one recently built according to the improved 'Blair' design. A further seven families were planning to build toilets, and had at least got so far as to dig a hole. Others simply used the surrounding bush. With two exceptions, the toilets that had been built were clean and in good condition in December, and the two exceptions were clean in May. In one case, the holes were kept covered, which in the Blair design increases the possibility of contamination by flies.

Generally, the wealthier people in the village have toilets. Although government supplied cement, many could not afford the bricks nor the cost of hiring a builder. No cement was supplied between December and May, when cement was generally in short supply, and no new toilets were completed, although some progress had been made on some of those that had been started.

Near one part of the village is a shallow pan which holds surface water during the rainy season. In the dry season, the water table in the pan is sufficiently high for a series of shallow wells to be dug in the sandy soil to collect water. These are moved towards the centre of the

pan as the water table falls. Between December and May a borehole was drilled to serve those far away from the traditional wells.

There are a number of ways in which Nyamungaya village is not typical of the remoter villages of rural Zimbabwe. As a result of its relative proximity to Harare, a large number of household heads can work in the city, coming home at weekends with a regular wage to supplement the subsistence agriculture of the rural area, at the same time minimising their expenses in the city. This is readily seen in the number of good quality brick houses in the village, and the number of toilets that have been built.

Related to economic factors are the higher educational levels in the village. At least fourteen out of 23 husbands had received secondary education. The education of men in the peri-urban and farm areas were similar to each other and significantly lower than in the traditional village: 16 out of 50 male household heads in Epworth and on the farms were reported to have received secondary education, with 15 cases unknown¹. There was little difference between the three areas in terms of the education of women: marginally fewer farm wives had received secondary education than in the other two areas. There is no evidence that education is related to good hygiene on an individual basis: there was no correlation between coliform counts and education. But possibly education on the part of household heads generally results in more receptivity to new ideas in the community as a whole.

A third distinctive characteristic of Nyamungaya village is its village health worker². This lady is enthusiastic about her job, and the relatively high standard of education among the people makes them willing to accept the practices she advocates. This contrasts with the many cases in poorer areas in which the choice between women with sufficient education for the role is extremely limited, and the person who acquires the post often does so largely to advance her status and for financial advantage. Consequently, she is likely to arouse only envy in the eyes of other women. In Nyamungaya by contrast, the village health worker is respected, and expressions of envy, though occasionally heard, are minimal. The low levels of faecal coliforms encountered in the village seem partly due to good health education.

Fourthly, the neighbouring pan means that water is more readily available to many of the villagers than is usual in communal lands. Since the water comes directly from the ground, there is little danger of bilharzia. And since the wells dry out and are moved seasonally, contamination, should it occur, is relatively short term.

Nevertheless, the wells are not protected, even in the wet season when the water level is high and they could attract animals looking for drinking water. People do their laundry a short distance from the wells to prevent direct drainage into them; nevertheless, the distance is often not great and contamination is possible. In December, some people had to walk over half a kilometre to fetch their water (not a great distance in comparison to some rural areas³).

Three families were observed for four days each in December, and a fourth family was added in the May exercise on account of the high coliform counts recorded for its members.

In all cases, hands were regularly washed before meals, even in the case of small children. This traditional practice was never omitted during the observational research. It appears to be so automatic that 11 of the 27 respondents (in contrast with 10 out of 53 in other areas where the practice was not so regular) did not bother to mention before meals as a time when hands are washed in the unprompted question about hand washing! Also faces and hands were

regularly washed first thing in the morning in all households. In the exceptionally clean household, hand washing was regularly practised after toilet use, and sometimes in the case of a family with a high coliform count. In two cases, this was never the practice; nor in these two cases was it the practice to wash hands before breast-feeding, or after dealing with infants' toiletry or nappies. In three of the cases, hand-washing was regular before and during food preparation - and the one exception had a low coliform count. With the exception of this family, practice corresponded closely with the responses to the unprompted question on hand-washing in the questionnaire.

Bathing was irregular in the same family, and daily for everybody only in one family. Small children are bathed more frequently than adults, perhaps every other day. And girls, who go to water sources to fetch water and do laundry, bathe more often than boys. Soap is widely used for bathing, rarely for hand-washing. Responses to the questionnaire on frequency of bathing were totally unreliable.

In May, the research assistant went around all the houses in the section of the village under study, and where mukombes had been installed asked children questions about them. In all but one case the mukombe appeared to be used regularly, and children were invariably knowledgeable on their purpose and use - possibly further evidence of the efficiency of the village health worker.

In the case of the family with a particularly high coliform count, generally their hygiene practices were superior to one of the families in the original study and inferior to another. In the family in question, hands were not washed after toilet use, nor after changing the baby's nappies. The baby and a three-year old child were reported to have virtually chronic diarrhoea, and the four year old had frequent diarrhoea. With such health problems, the high coliform count is not surprising, and with such counts the diarrhoea is not surprising.

The farms

The labourers on commercial farms comprise a very mixed collection of people, ranging from local people temporarily employed on farms near their homes to immigrants of long standing whose only experience of Zimbabwe comes from farm life. Educationally, the survey revealed no differences between the farms and the peri-urban areas in the schooling of husbands, although marginally fewer farm wives had received more than six years of primary education.

The housing and facilities provided by farms is equally varied. The study took samples from three farms in the Marondera District, situated around 60 kms from Harare, and 15-25 kms by road from the smaller town of Marondera. The housing provided on each farm was of relatively good quality: built in brick, plastered on the inside, and with asbestos roofs. Sanitary facilities, however, varied greatly, as did the general setting and lay-out of the compounds. I shall comment on each of the three farms in turn.

Notwithstanding the differences, water sources on all farms are considerably more accessible than are the water sources in Nyamungaya Village. Nevertheless the coliform counts on the farms are significantly higher than in Nyamungaya village.

Farm 'A'

This is a mixed agricultural farm, producing maize, dairy products, sheep and angora goats for wool and mohair, and chicken products. Apart from agriculture, the farm operates a hand weaving factory, employing women from the compound on an hourly basis to spin and weave wool and mohair.

In December, the compound had 33 families resident in it, and 32 in May. It is well situated, rambling under many shady trees, with some space for small gardens. Most of the houses have some flowers growing around them, and some have elaborate arrangements of flower beds and pots and hanging plants for decoration. This suggests a degree of permanence among the workers who regard their compound residences as in some sense home. Indeed some adults were born on farms owned by their present employers, and their children comprise the third generation in the environment.

The houses are mostly two roomed dwellings, well built in brick, with metal doors, asbestos or corrugated iron roofs and walls plastered and white-washed on the inside. The rooms are, however, small: one is approximately 4m squared and the other about 3m squared. Rather than use one of these rooms for cooking in, most families build a round pole-and-dagga kitchen with a thatched roof. Just before the research began, sixteen Blair toilets had been built, though as so often happens, minor modifications were made to the design which results in less efficiency in eliminating smells and flies. In this case the vents were placed on the opposite side to the door instead of the same side. Each toilet has a shower inside, which helps to keep it clean, and a tap and washing facilities on the outside. There had long been running water and washing facilities all over the compound. In practice, the fact that the toilets are nearly always damp from frequent use of the shower and washing facilities, together with the relative absence of light, makes them an ideal breeding ground for micro-organisms and may partly explain the particularly high faecal coliform counts which were observed on this farm.

The farm owner employs one of the women in the compound as a health worker, and she administers common drugs. It is generally thought in the compound, however, that she gets extra money for doing virtually nothing. There was a move by the farm workers to stop her receiving the standard increase when government legislated for general increases in May. There is a government sponsored clinic on the borders of the communal land, only a couple of kilometres from the farm compound.

There is a store about 3 kms away, but most shopping is done in Marondera, about 25 kms away, where things are much cheaper. Beer is brewed and sold on the farm compound.

There is a cheerful and happy air about the compound, among men, women and children. The researchers were welcomed. Although women liked the attention given to them by researchers, they were not keen to lose too much profitable weaving time.

In May, 25 of the 32 male employees were of Malawian origin. Ten of these were interlinked in a network of kinship and marriage which illustrates a degree of stability of the core labour force under this employer. In the sample of 11 families from this farm selected for the microbiological study, there were eight Malawian household heads, with the origins of the remaining three unknown to the researchers. Of the families chosen, the majority had infants in the household (which partly accounts for the high coliform counts). This must be partly a

chance factor, but could also partly be explained in terms of the fact that many farm workers have no other home where infants could be sent to for help in rearing and upbringing. In Farm 'C', by contrast, where the majority of workers are from the neighbouring communal areas, a mother is likely to go to her family or her in-laws for help in coping with infants.

Farm 'B'

This farm has two main products: dairy products and tobacco. It has just under a hundred milk cows and a few beef cattle.

The main compound at this farm is a collection of brick houses stretching for just under a kilometre along the main road. On the other side of the fence are cattle kraals, a constant source of flies for the compound in the hot rainy season. There are some small mango and papaw trees growing in the compound, and some granadilla vines. But there are few shade trees scattered around the compound, and few decorative flower gardens.

The houses are of brick, roughly plastered on the inside and unpainted, with asbestos or iron roofing. Most of the houses have two rooms of approximately 4m squared, one with a smoky fire place in it. Some of the labourers have built pole-and-dagga kitchens facing the rooms. Running water for washing and drinking is available from three communal taps, which were installed in 1985. Cement slabs beneath them were installed about the time the current research project started.

Two toilets had recently been built, in Blair style but with too much light and wrongly situated vents, with the result that neither smells nor flies were effectively eliminated. A third was in the process of being built at the beginning of the research. Most people defecate in the veld nearby. They say that the farm owner prescribed a restricted area for this purpose, which is now badly polluted and smelly, and many large green flies are said to return to the houses from there. The absence of adequate toilet facilities is a frequent complaint of the compound residents.

The manager lives in superior quarters, nearer to the farm owner's residence, but also nearer to the cattle kraals. He has running water in the house. Adjacent to his house, and near the tobacco barns, are three further sets of quarters in the style of the main compound. These have a communal toilet.

Near the compound is a football field for men and boys. Another form of recreation is fishing on the farm dam, although this was stopped by the owner when the water level was low. In December, beer was brewed by one of the workers' wife and sold to all at weekends. By May, her husband had been dismissed, and workers went to Makuti Store, a couple of kilometres away, to drink at weekends. This is also the nearest facility for buying consumer goods, but since prices are very high here, workers prefer the 20c bus ride to Marondera to buy their groceries.

Fourteen of the 37 workers in May were of Malawian origin, 17 were of Zimbabwean ancestry, the remainder originating from Mozambique and Zambia. Nineteen of the workers had kin or in-laws also working on the farm, but none of the kinship/affinal networks stretched to beyond three persons. Some members have sought and found employment through kin or affines.

Eight *mukombes* were installed on the farm. When asked, workers and their wives commented on how useful they were, providing easy access to water for hand-washing, but not everyone put them to full use. By the end of May, two of the men who had been given *mukombes* had left and taken their *mukombes* with them. Of the remainder, three appeared to be in use, one had stagnant water in it and one was empty. One was placed outside a communal toilet, but was no one's responsibility, and was clearly not normally in use. The research assistant arrived at a weekend and checked them immediately: towards the end of the week, two were empty but the one with old stagnant water had been replenished; in one case the water in the *mukombes* appeared to be used only by children for play. But this was a time when women as well as men worked long hours during the week processing tobacco, and the favourable comments about the *mukombes* could have been genuine.

The women do not have regular employment as in the first farm, and in December there were complaints from some wives of having nothing to do. Nevertheless, there is frequently seasonal work which women undertake on an hourly basis to supplement their husbands' meagre incomes. At such times, they are expected to do a full day's work over and above their normal household chores, which may explain the neglect of the *mukombes* in May. When unemployed, or when unable to work on account of small children, some wives earn a little extra income by buying groceries at Marondera and selling them at a profit in the compound.

One further complaint of the workers is that their salaries were often paid late. One family was having difficulties buying food on December 11th, and claimed that this was because the husband had not been paid his November salary - though the wife also commented that the husband spent too much on beer. The point is that nutrition and general living standards may be a more important health factor than hygiene in such communities.

Farm 'C'

This farm borders on Seke communal land. The owner has given up growing crops, in spite of the suitability of the land, on account of his inability to control thefts by Seke residents. The farm is now entirely made over to cattle, and at the time of the research there was a small police contingent resident on one corner of the farm. At that corner there is also a store and beer garden owned by the farm, and attracting custom from residents of the compound, as well as of neighbouring farms and the communal land.

The main compound on this farm is situated not far from the store, and the main road. There are trees in the vicinity giving some privacy to the residents. The compound comprises seven houses each with three rooms and an open cooking area, roofed but with no chimney and consequently very smoky. The rooms are about 3.5m squared, plastered and white-washed on the inside. They have iron roofs and doors. Single men and small families are allocated only one room each, and have to share cooking areas. Thirteen workers reside in this compound.

The compound is served by one common tap, which provides water for drinking, cooking and washing. The water comes from a borehole and is stored in a farm reservoir. Although the owner uses the same supply for his home, residents of the compound say that it is sometimes polluted and smelly from dead animals in the tanks. There are also covered wells near the compound.

There is one Blair toilet, with flaws in the design. Five of the workers and their wives use it; the remainder, and all the children, use the surrounding bush. No-one is responsible for keeping the toilet clean, and it is dirty, with faeces on the floor.

A second compound comprises about seven pole-and-dagga huts with thatched roofs, clustered together near the store bar. The residents of this compound have to collect water from the tap at the beer garden, approximately 300m away. They are also expected to use the toilet at the garden which is not kept clean.

There are a few houses set apart, near vlei land, where the water table is so high that it is impossible to dig toilets. These are scheduled for demolition, and inhabited by temporary employees, with homes in the nearby communal lands. They are built of cement and brick, and look very old. Their water supply is from open wells in the vlei.

In May, there were 25 employees resident in the compounds, 19 permanent staff and six casual labourers. Eleven of these had non-Zimbabwean origins. There are only one pair of kin and one pair of affines among the permanent staff. A number of workers are single males, often with families maintained in nearby communal areas.

Of the four *mukombes* installed in the compound, only one appeared to be maintained in use. The one by the bar toilet had apparently been thrown away by the girl who was supposed to attend to it, and was picked up by another farm worker who said he intends to use it - but when the research assistant visited the farm, it was still empty.

Hygiene on the farms

Generally the families of farm workers are poor. They have little in the way of house furnishings, and manage to save little. Few have managed to purchase any livestock even among those who maintain farming rights in communal land. One family with a very young child, preventing the wife from working, claimed that they could not even buy sufficient maize meal for meals. Six families were selected for detailed observation in December, one from Farm 'A', two from Farm 'B' and three from Farm 'C'. Three of these families had left the farms by May, underlining the instability of communities in the farm compounds.

Clearly there is a problem with hygiene on the farms. Although generally water sources are more accessible on the farms than in the other areas under study, the average faecal coliform count was highest on the farms. Surprisingly, this was mainly due to very high counts in Farm 'A', where the facilities for hygiene are most abundant. The other two farms were comparable with Epworth, the peri-urban area, as far as coliform counts are concerned⁴.

According to a common stereotype encountered in Zimbabwe, the high coliform counts on farms would be explicable in terms of the high proportion of farm workers who are of Malawian origin. They are held to be backward, uneducated and dirty. In fact 55% of farm workers were recorded as being of Malawian descent, with a further 7% coming out of Mozambique or Zambia, although few of these admitted to being born outside Zimbabwe, an admission which would jeopardise their right to remain in the country. Indeed, in farm 'A' we found a case of the third generation of a family originating from Malawi now working for the employer on whose farm his father had been born. But there is a wide range of coliform counts among both Malawians and Zimbabweans; and in the observational exercise, some of the worst cases of poor hygiene practices were Zimbabwean families.

Although from replies to the questionnaire, people are generally aware of expected ideals: people responded to the questionnaire with standard times for hand-washing and body washing generally, with the exception that few mentioned washing hands after toilet use (see the table below). The practice was well below the ideal. In most families, people did not wash their hands before the untraditional meal of bread and tea in the morning, or porridge eaten with spoons (in contrast with observations in the traditional village). Occasionally, children failed to wash their hands before other meals. Frequently, children failed to wash their faces and hands in the mornings, although only four out of 27 respondents failed to mention this as a time when hands should be washed (as compared with 21 out of 53 in the other areas). In only one family was body washing a daily occurrence. It was noticed, however, that in one case, when the children went to eat with their grandmother, also on the farm, she insisted on their washing faces and hands. In some cases, hand washing was omitted before food preparation. Perhaps traditional practices, and general educational discipline, die away in the farm communities which are cut off from their traditional networks, and where mothers often have to work long hours to supplement the low incomes of their husbands.

No-one was observed to wash their hands after toilet use in December, and this corresponded with the frequent failure to mention such occasions in the unprompted question on hand-washing (see the table below). Even when hands were washed before food preparation, no further washing was deemed necessary, notwithstanding the fact that hands frequently came in contact with floors smeared with cow-dung, and even when babies' nappies were changed in the middle of food preparation. In some cases, children were observed to eat scraps of food which had dropped to the floor. There is clearly need for some education in this area.

This is not to deny the health problems arising from poor toilet facilities and problems with flies in two of the three farm compounds, which must in part account for the high coliform counts.

Epworth

The Epworth environment is peri-urban, and the links between residents there are considerably weaker than they are in the other two communities. Residents vary greatly in socioeconomic status and in life styles.

The area originally comprised three adjacent farms owned by the Methodist Church. People long established in, and working for, the church were given plots of land to settle on. Then in the late 1960s and 1970s settlement became less discriminate, and escalated without any proper planning during the war years. Now the official population of the area is around 36 000, and the actual population considerably in excess of this. Plot sizes are larger than in other high density areas around Harare, the smallest being 600 square metres, and 2000 square metres is a common size. There is no piped water supply and no articulated sewerage system.

In the early 1980s, people collected water from shallow wells, very often unprotected, and used primitive pit latrines on the same properties. To avoid the potentially catastrophic health risk, the Ministry of Health, through the Blair Research Institute, established covered wells with hand pumps at approximately 500 metre intervals, and started to subsidise the building

of improved Blair toilets. Although sometimes the wells are relatively close to the toilets on the same plot, tests show that the soil adequately filters the water for consumption purposes.

By July, a number of the pumps had been vandalised. In one case, the pump was apparently broken by women fighting over who got there first. The more usual cause of vandalism were people coming at night to collect the piping in order to make illegal stills.

The sample for the microbiological study was taken from two areas. One is a relatively poor area, furthest from Harare, and relatively recently settled. There is a secondary school situated in the area, but other services are meagre. The main shopping centre is a couple of kilometres away. The second area is nearer to the main shopping area, comprising largely wealthier households, long established in this peri-urban environment.

Six families were observed and interviewed, four householders and two families of lodgers in these households (which were omitted from the survey conducted by the microbiological team). In all families, there were clear economic problems in giving children an adequate diet, with certain types of food or occasional meals being missed. In the poorer area, none of the families had three regular meals a day, and in each there was some evidence of kwashiorkor in at least one of the children.

Hygiene

All the families chosen had a number of small children, and all reported trouble with diarrhoea in the younger children in the recent past. In the poorer area, open pit latrines were used. Even where improved Blair toilets had been built in one case children used open pits to deposit their excreta. In three of the houses, flies appeared to be a problem. At one, the external drying rack for kitchen and eating utensils was right next to the rubbish pit.

In no case, was anyone observed to wash hands after using the toilet, although three of the four mothers in interview said that they did so, and one insisted that she makes the children do so when she is about. In two cases of mothers with small children, it was evident that the mothers saw no danger of contamination from the faeces and urine of small children. The mother did not wash her hands even in one case after changing a dirty nappy in the middle of food preparation.

In all observed cases, all washed their hands before and after formal meals; although in one case children often ate leftovers without washing their hands, and in another the hand-washing consisted of no more than a perfunctory dip in the water. In some other cases, the quality of the washing water was questionable.

Bathing in the afternoon seemed to be fairly regular in all households. In only one did the children appear grubby and unwashed for some time on the first visit, and they were all bathed on a subsequent visit. In most cases, toilets were used for bathing all but the smallest children.

Drinking water was always kept in a container in the living quarters, and appeared clean, although in three cases children had access to it and occasionally dipped their unwashed hands into it. In one case, the container was not even protected from poultry that occasionally entered the room.

In June-July, the research assistant visited eight of the houses that were issued with *mukombes*, and only four of these had water in them and appeared to be in use. In other cases, the mother of the family claimed that it was usually used, and that it happened to be empty by

oversight. In one such case people were observed to use the toilet without a thought of hand washing, and in another the *mukombe* was still empty on a subsequent visit. In half the cases, however, the *mukombes* were used. One woman commented on how useful they were, and that there had been no problems with diarrhoea in her family since the *mukombe* had been installed.

Some general comments on the knowledge and practice of hygiene

Although a number of interesting points have been raised, the small numbers involved in the study are insufficient for conclusive generalisations. Secondly, data on the incidence of disease was not adequate for any statistical analysis. It has been pointed out that the traditional custom of washing water containers and utensils out with sand immediately before use might effectively reduce the contamination of food and drink by coliforms which at other times are abundant on people's hands. The fact that people do not normally wash after defecation does not necessarily mean that food or drink thereby become contaminated (Government of Zimbabwe, 1985). Traditional knowledge and practices to do with health and hygiene are often effective, even when the knowledge behind them does not conform to scientific norms. Without information on the incidence of disease in relation to hygiene practices, there is a danger of ethnocentric prejudice.

The relationship between knowledge and hygienic practices remains interesting. Although observations covered only a small number of people and should be treated with caution, the responses to the unprompted question on hand-washing across the three areas, in relation to observations, bears some consideration (see Table 1).

It appears that those for whom washing before meals is automatic often fail to mention it. In areas where the practice is occasionally omitted, it comes closer to the fore in people's consciousness. In the case of washing first thing in the morning, the people most likely to mention this are those in the area where the traditional practice is not strictly observed. In these cases, the answers to the questions appear to reflect consciousness of change rather than practice.

When a new practice is being introduced, consciousness is probably related to practice. The introduced ideal of washing after using the toilet is not generally known on the farms. The infrequent mention of breast-feeding, nappy changing and helping a child with the toilet is partly explicable in terms of the irregular presence of children of the appropriate ages, but nevertheless seems to indicate the need for further education in these areas; also for education on the dangers from, and sources of, micro-organisms.

It has already been observed that people traditionally take pollution from the faeces of small children as less dangerous than those of adults. Small children are often allowed to defecate in the immediate vicinity of living quarters, and their faeces may be simply disposed of with other rubbish in a pit in the yard (Government of Zimbabwe, 1985). Observations in Epworth and the farms supported this finding. It is a common factor in human cognition that things encountered frequently are perceived to be less threatening than things which occur infrequently. In the sociology of medicine, the frequency of a disease is known to affect how seriously it is taken in any particular society. Inattention to the excreta of small children is

another example of the same phenomenon. When small children are around, contact with their faeces is a common occurrence. Accordingly, people get blasé about the danger of pollution from these; and this attitude is justified in terms of an ideology which denies the dangers of pollution from such a source.

On the importance of hand-washing, in the more traditional communities in Zimbabwe this is associated with a fad of the Whites. One of the signs that a woman is afflicted or possessed by the spirit of a white person is that she goes about washing her hands and demanding soap! Responses to the questionnaires confirm this. Grossly exaggerated accounts were given on the frequency of body washing by all communities, and positive responses were given to all the prompts on hand-washing. Also 76 out of the 80 said they always use soap for dish-washing. Although the constraint is often financial, few families in fact conform to this response. I would suggest that those with more education are likely to be more attuned to new values, and more likely to place an importance on hand-washing, without necessarily knowing the reason why.

Table 2 is interesting in this respect, although it would be difficult to find any statistical significance in the variations. It suggests a ritualistic attitude to cleanliness on the part of some people in the rural village, and surprisingly a better knowledge of reasons for cleanliness on the farms.

A suggestion has been made that the ritual status of many traditional water sources are associated with a number of traditional hygiene practices; such as the consequences which await those who might abuse communal water sources, taboos against the use of cooking vessels for water collection, and the practice of rinsing buckets with water and a handful of sand before collection (Government of Zimbabwe, 1985). If the more frequent washing in the traditional village is contrasted with better reasons for washing given on the farms and in the peri-urban area, there is a suggestion that a ritualistic approach is more effective than a knowledge of relevant causal factors. Habit and custom are more effective determinants of behaviour than rational argument; and habits are formed only through frequent and regular sanctions - such as the words of a vigilant community worker.

Custom encourages people, from childhood onwards, to conserve water. The mere provision of readily available water does not of itself create better hygiene, as the situation on the farms, and particularly on farm 'A', indicate (Saugestad, 1989). New values have to be created, and new habits formed, if hygiene is to be improved.

FOOTNOTES:

1. The difference in these figures for the rural area on the one hand, and the farms and peri-urban area on the other, gives a chi-squared value with a probability of less than 0.05 and greater than 0.02. The report by Kaltenthaler, Chawira and Waterman indicated that education was not significantly correlated with area, but in their calculations and tables they never combined Epworth and the farms in contrast to Nyamungaya.
2. Since the research was carried out, the role of the village health worker has been absorbed in the role of 'village community worker', a paid part time civil servant, responsible to her employers rather than the community.
3. A survey of 3 340 households sampled from all eight rural provinces of Zimbabwe showed the mean distance to water sources to be 718m in the wet season and 992 in the dry (Government of Zimbabwe, 1985).
4. The report by Kaltenthaler *et al* simply refers to the statistically significant correlation between 'area' and coliform count (see section 6.1.2). The authors do not comment on the fact that the data for farms was highly skewed by the data from Farm 'A', which was difficult to explain.

References

- Government of Zimbabwe (1985) **National Master Plan for Rural Water Supply and Sanitation, Vol 4,2, Social Studies**, Ministry of Water Resources and Development, NORAD.
- Kaltenthaler E, Chawira F and Waterman R (1988) **Traditional Handwashing in Zimbabwe and the Use of the Mukombe: Microbiological and Behavioural Aspects**, Blair Research Laboratory, Harare.
- Saugestad S (1989) **Patterns in Water Use: Observations from the Manicaland Integrated Rural Water Supply and Sanitation Programme**, University of Tromso, Norway.

Table 1
Responses to Question on Handwashing

	No of Positive Responses		
	Periurban	Farm	Rural
Before meals *	22	21	16
First thing in the morning *	16	23	16
After using the toilet +	15	7	15
Before preparing food #	15	20	22
Before breast feeding	1	3	1
After changing nappy	1	3	4
When they are dirty	12	8	8
After assisting child with toilet	1	2	2
Other times	5	2	3
N	26	27	27

* ,1>P>,0; + ,05>P>,03; # ,2>P>,1.

Table 2
Importance of Hand-washing

	No of Positive Responses		
	Periurban	Farm	Rural
Not important	1	2	-
Important			
-for disease prevention	11	16	10
- to clean hands *	3	3	9
- to keep food clean	9	6	7
- don't know why	1	-	-
(Missing responses)	(1)	-	(1)
N	26	27	27

* ,1>P>,05