

**PRIMARY SCHOOL IN-SERVICE EDUCATORS'
PERCEPTIONS OF CHOLERA**

By

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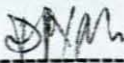
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DEDICATION

I dedicate this study to my four sisters and my family particularly our mother who risked her life in order for all the girls to receive basic education.

DECLARATION

I declare that the information on *The primary school educators' perceptions of cholera* is my own work and that all sources that I have used or quoted have been indicated and acknowledged by means of complete references.



P.N. MHLONGO

ABSTRACT

The study was conceived after the incidence of cholera outbreak that disrupted or seriously disturbed the normal running of many schools. The learners were moving in and out of hospitals in great numbers in certain areas in the Northern parts of KwaZulu Natal. The curriculum was difficult to follow, particularly the programme of the year's specific outcomes was hardly achievable because of the high level of absence of learners. I was one of the educators that experienced this disruption of learning by learners through ill health. Many schools in Esikhawini cater for many children from informal settlements.

The study was therefore designed to find out the level of information or knowledge educators have about cholera. The researcher wondered what role educators could play in educating learners about cholera. It was observed that educators, particularly in rural areas, could be major players in bringing light where there is none. Long time ago teachers were respected as sources of useful knowledge. The researcher thought that if educators are knowledgeable in cholera issues their knowledge could filter to the learners and assist in the lowering of cholera incidents resulting in the lack of ignorance about the disease.

The researcher therefore decided to explore and find out answers to the following:-

- To explore the level of information and understanding of cholera among primary school teachers.
- To discover misconceptions that primary teachers have about cholera and its management.
- To explore the kind of accommodation and living conditions teachers in rural areas experience, which might give light to the periodic epidemics of cholera in KwaZulu-Natal.

Data was collected using a questionnaire. A questionnaire was found to be the most suitable instrument for the study, because it gave the respondents enough time to think over about their environment that could lead to the spread of cholera and give appropriate responses. The interview could have been a better tool to use because it would allow probing, but the large number of teachers would not have made it possible.

The main findings of the study are presented below:-

The respondents did not have any difficulty in responding to the questionnaire, since it was within their level of comprehension. The responses of educators in the study, however, showed lack of conceptual understanding or misconceptions about the nature of cholera. For instance, some educators did not realise the need to protect themselves at all when handling the soiled clothes of the infected persons or when nursing them. Possible infection could come from handling clothes soiled with faecal

matter and washing one's hands in infected water. This would cause a vicious cycle of infection and re-infection.

There seemed to be a lack of understanding among 21.37% respondents on how to handle soiled clothes of infected people. Unless handled hygienically, soiled clothes could be a source of infection or re-infection. Other respondents realised that one had to protect one's hands with gloves or disinfect the soiled clothes with jik or boil them. These are some methods of disinfection suggested by various media, which some in-service teachers seem to have picked up (see appendix 2). This question of handling soiled clothes of the infected needed the educator to think critically. For instance, while boiling the clothes might be fine; jik would work but probably spoil coloured clothes. People in rural areas are poverty stricken and would not appreciate a method that would spoil the few clothes they have. Sustainability and economic use of our resources is important in rural areas.

In some cases it was difficult for the educators to come up with a clear expression of their thoughts because of language problems. English is a second language to all the educators but for 15.17% of them there was a problem of understanding English language. This led to confused responses. For instance, one respondent said, "Handle clothes on the side where there is no soil". Soil in this case did not refer to the top layer of the land surface of the earth but referred to making something dirty. Another candidate underlined soiled and said, "I don't know", conveying that the meaning of "soiled" was not understood. A few respondents thought soaking the clothes for the whole day or putting starsoft might kill cholera vibrio. It is such misconceptions made by teachers, which highlight the importance of giving

relevant contextualised in-service training to educators. If the educators are to make a difference in the lives of children of cholera infested areas, the government needs to conduct effective in-service programmes so that educators are empowered with accurate information.

A very high percentage of the educators knew about the signs and symptoms of cholera and the first aid that is given to the infected person. Good hygiene was reported to be practised by all the respondents. Ninety five percent (95%) in the study acknowledged the need to wash hands after using the toilet. Only 5% of the respondents thought washing hands once a day was enough. The five percent of teachers who did not place any significance in washing hands regularly is significant because teachers are in contact with many children and they need to pass on accurate information to their learners.

A number of the respondents (40.74%) had attended formal workshops in hospital or clinics in the rural areas. However, a higher number of respondents (59.26%) had not had any formal training in cholera. From the responses of the whole group it was, however, clear that the respondents had picked up some information on cholera from other sources. Some 24.53% teachers still live in one or two-roomed houses alone or with their families. Such conditions do not promote good health conditions. Overcrowding leads to the quick spread of diseases. Poor housing of teachers in rural areas underlies the general poverty that is experienced by rural communities. Such poverty leads to poor sanitation and easy spread of diseases.

Dehydration is the main killer of cholera patients. Unfortunately only 24.53% of the respondents knew at least one symptom of dehydration. In schools where cholera is prevalent, it is important for educators to be able to identify a dehydrated child. A good 75.47% respondents had no clue about symptoms of dehydration. Many of the respondents (54.72%), however, knew how to make a rehydration solution as a first aid measure before taking the patient to hospital. Knowing what solution to use to rehydrate an individual is not enough if you cannot identify people who need this kind of assistance. Many parents of learners in rural areas are illiterate and may not pick up signs of dehydration in their children, but educators must be able to do so.

The study showed that primary school educators have a patchy knowledge base about cholera with a high percentage being well informed only on the symptoms of cholera. Educators can form a very effective tool of informing learners about the dangers of cholera and how it can be prevented and managed once one is infected. In KwaZulu-Natal, in particular, with its prevalent episodes of cholera, it is important that educators are literate on issues around cholera infection. The educators can play an active role of educating learners who in turn can educate their families. For lessons on cholera to be effective, the teachers themselves must have accurate information on cholera issues.

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CHAPTER ONE

1.1 INTRODUCTION

People living in poverty stricken areas of South Africa are now and then affected by bouts of Cholera. Cholera is a bacterial infection of the intestine. In acute cases, it causes severe diarrhoea, leading to severe dehydration and death (Anderson, 1975). Cholera is a water-borne disease which is contracted by drinking contaminated water or by eating food which has been in contact with contaminated water flies or soiled hands. The pathogens (*vibrato cholerae*) responsible for cholera are found in the stools of human beings. That is why health workers who spread education against contracting cholera, emphasize good hygiene practices. For instance they stress the importance of having toilets in rural areas and the washing of hands after using the toilet. For first world people, this maybe a situation they do not understand, since they have modern flushing toilets. Many rural areas still respond to the call of nature by going to the bush. The potential hazard is that some of the contaminated fecal matter can be washed down to the wells and result in the outbreak of cholera infection.

According to Anderson (1975) cholera is a very serious infection involving the lower part of the small bowel. The disease is caused by a short, curved rod shaped germ which produces a powerful endotoxin. Cholera is spread mostly by contaminated water and various foods that have been contaminated either by patients, and flies. Cholera is a major killer in time of over crowding and poor sanitation. According to a cholera Education Supplement by Bayside Aluminium in Richards Bay, when cholera occurs in unprepared community the case fatality rates may be as high as 50% usually because of lack of facilities to treat those affected.

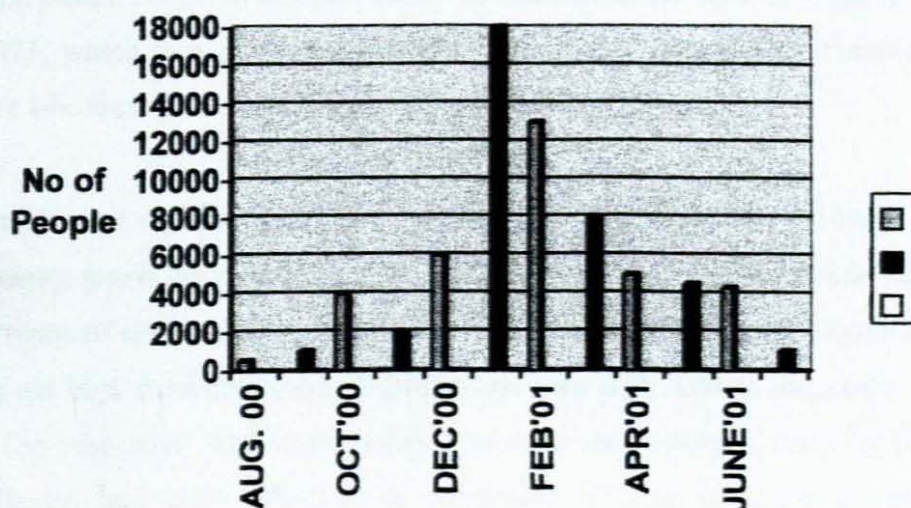
Without treatment the duration of non-fatal cholera is 3-5 days Vlok (1998). According to the Department of Environmental Health (2001) an infected person takes about six to four hours to die if he/she does not receive any health care or proper first aid. That is how dangerous cholera is for an infected person. Death is brought about by dehydration.

Because of the lack of fluids in the body, the blood pressure falls and the temperature may be subnormal. Most of the victims of cholera are women and children especially the school going age (Tarimo, 1991:4). The school children contract the virus in the rivers where they swim and drink water on their way home (Department of Environmental Health 2001).

1.2 BACKGROUND TO THE CHOLERA PROBLEM IN KWAZULU-NATAL

The Department of Health in KwaZulu-Natal states that cholera started in Empangeni around Ngwelezane Township on the 14 August 2000. By the end of August 311 cases of the patients were reported as seriously ill. At the end of September about 1 069 were reported in the lower Umfolozi District (Department of Environmental Health, 2002). The following data obtained from the Department of Health in KwaZulu-Natal. It shows the progress of cholera in the Lower Umfolozi/Habisa District during 2000 and 2001.

Graph 1 : Cholera Incidence in Lower Umfolozi/Hlabisa



The graph shows that the outbreak of cholera started in August 2000 and gradually increased peaking between December and February. This means cholera was spreading because people were not taking precautions they should take to prevent the spread of this disease. The question arises whether people in rural areas without running water know how to manage cholera-infected people and minimize the spread of the disease to other people.

Considering that we are living in a technological age, these are alarming numbers. They point out to the neglect of uplifting the poverty stricken lives of rural people. The fast increase of cholera infection also pointed out to the lack of potable purified water. Also the timing of cholera outbreaks corresponds to the beginning of summer with warm temperatures and frequent rain. However, if people follow simple hygiene precautions they could still escape cholera.

1.3 MOTIVATION OF THE STUDY

The researcher was motivated by the following factors to undertake the study

According to Vlok (1980 : 386) cholera is not a new endemic disease in South Africa especially KwaZulu-Natal. People in this province were infected as far back as 1980 after an outbreak in 1973, which took place in the South African gold mines. This outbreak was due to migrant labourers from other African cholera infected countries.

The second outbreak was in January 1981. The fact that there has been subsequent cholera in our country made the researcher very curious to explore the conditions that promote the recurrence of cholera outbreak in South Africa. The researcher developed an interest in finding out how the Department of Health has dealt with cholera outbreaks in KwaZulu-Natal. The researcher wished to evaluate whether the strategies used by the Department of Health had been effective in combating cholera infection or not. Documents were subsequently collected to study the impact of the strategies of the Department of Health in fighting cholera. This was then abandoned when it was realised

that there were too many missing links in the documents that were given. There had also been a very poor return of the questionnaires given to people already infected with cholera. It was realised that the questionnaire in the appendix one (1) could be used that the Department of Health had made to test educators' knowledge about cholera. This was used to find out if educators were themselves literate on cholera issues which affect their learners.

1.4 STATEMENT OF THE PROBLEM

Acute diarrhoeal disease in the form of cholera constitutes one of the greatest social evils and not only does it kill women and children in the developing countries but also retards the progress of education and impairs the quality of life of those who survive. It is for these reasons that the researcher decided to undertake the study to find out if teachers in rural areas could serve as reliable sources of information about cholera for their communities. Teachers and ministers of religion still serve as respected sources of information for illiterate people in rural areas.

1.5 PURPOSE OF THE STUDY

The purpose of the study was to ascertain how much the educator in KwaZulu-Natal Province knows about cholera and its management.

1.6 OBJECTIVES OF THE STUDY

- To explore the level of information in-service teachers in rural areas have about cholera.
- To discover any misconceptions teachers in a rural area have about cholera, that is, symptoms, signs of dehydration and management and care of those infected.
- To explore living conditions of teachers in rural areas as an indicator of poverty in those areas.

1.7 ASSUMPTION

The researcher assumes that health topics involving cholera and other diarrhoeal diseases should be included in the teaching of some subjects in the school curriculum. This normally would be of great assistance in the alleviation of cholera if learners have knowledge about causes of cholera and could make informed decisions about their health. Some informal education on health and hygiene to rural men and women would also assist in the provision of first aid to infected people, which would eventually reduce the death rates due to cholera. One assumes that if teachers are well informed about cholera they could teach the learners effectively about the dangers of cholera and about its management once one is infected.

1.8 HYPOTHESIS

Primary school educators have accurate knowledge about cholera because the subject has been public information for a long time.

1.9 IDENTIFICATION OF VARIABLES

1.9.1 Dependent variable

Cholera

1.9.2 Independent variable

Educator's responses indicating how they could respond to challenges of cholera depending on their literacy level on cholera issues.

1.9.2.1 *Application of scientific knowledge to cholera prevention in rural communities.*

People should use free information that is available to educate themselves about how one contracts cholera and how to manage it once one has contracted the disease. A questionnaire could be used to establish whether people do get accurate, working and useful knowledge from informal and formal sources that are available to them. For instance pamphlets like the one in appendix 2 shows an example of cholera education Supplement which was freely available in public places. One of the methods to teach about cholera has been drama, a form of art enjoyed by many people.

1.10 **SIGNIFICANCE OF THE STUDY**

Teachers can play a significant role in educating learners about the dangers of cholera. However, there are no studies that have investigated how much teachers know about the causes and management of cholera. If teachers are found to have adequate knowledge about cholera then there is hope that learners would get sound instruction on the causes and ways of minimizing infection with cholera. If teachers have misconceptions about cholera, they could be helped to understand the nature, control and management of infected patients and pass on accurate information to learners and members of the community in which they serve.

1.10.1 **Feasibility**

The study was feasible because it was taken from a group of in-service teachers doing an Advanced Certificate course in Mathematics and Science Education. There were fifty-four teachers both males and females. It was easy to reach them because they were asked to fill the survey forms when they had come for a contact session of lectures. All the teachers live in Jozini and surrounding areas. Jozini is a rural area with a huge dam but not all people have access to potable water. Some students came from Pongola, Mkhuze and Mbazwana.

1.10.2 Researchability

The topic is researchable because teachers who attend an in-service programme in Mathematics, Science and Technology were given a questionnaire to fill in. The questionnaire is the same questionnaire (see appendix 1) that was used by the Health Department personnel to find out what the rural women and children know about cholera. The researcher used the information given by children and women as a pilot study. This was because the sample of willing people to fill the questionnaire was very limited. It was, however, used to see if people would understand the questions. The research tool of the Health Department could be used by educators because they are more educated than the patients who were interviewed in the pilot study. The educators are familiar with English language through which they mediate their teaching.

Some rural people already infected with cholera had filled in the questionnaire and in general the health worker had said even those who could read English did have major problems answering the questions. The researcher also felt the questions were simple and straight-forward and could be used for educators because each of them could understand English.

With education, people are encouraged to make informed decisions. For instance, they should be aware that if they do not boil water from a well or river they are opting to get cholera and even death. The fact that schools are encountering problems of learners, who are away from school for many days while recovering from cholera, makes this study more relevant to the school curriculum. Curriculum planners who may get hold of this research can get a wake up call of the importance of including cholera in the Life Orientation syllabus (Bennett, 1973). One believes that the school curricula should respond to the needs of the community.

1.11 LIMITATIONS

This study has the following limitations:

The study was limited to in-service primary school teachers who were enrolled for the Advanced Certificate in Science, Mathematics and Technology Education. The respondents were, therefore, homogenous in the sense that they all came from the same area Jozini and surrounding areas. They were all teachers and there were no representatives of non-educational members of their communities.

1.12 DEFINITION OF TERMS

1.12.1 Cholera

Cholera is a bacterial infection which is caused by vibrio cholerae transmitted through food or water contaminated with infected feces.

1.12.2 Dehydration

An abnormal loss of body fluids.

1.12.2.3 Immigrant

Immigrant is a person from another country who comes to live in a new country.

1.12.4 Infection

Infection is the state produced by the establishment of a pathogen in a susceptible host.

1.12.4 Sanitation

Sanitation refers to the principles and practices relating to the collection, removal and disposal of human excreta and wastewater as they impact upon uses and the environment.

1.12.6 Toxin

A poisonous substance produced by the action of micro organisms.

CHAPTER TWO

LITERATURE REVIEW

2.1 INTRODUCTION

This chapter explores the history, causes and problems which lead to the spread of cholera. A brief discussion on approaches to cholera prevention programmes follows, and against this background a review of literature on the management of environmental issues is included.

2.2 HISTORY OF CHOLERA

According to Conewatt (1986:116) cholera is of Asian or Indian origin. In India it was endemic, and caused epidemics following each pilgrimage to the Ganges River. During the 18th and 19th centuries it spread slowly north and east by land. Sailors and colonialists picked up and carried it rapidly by ship. It reached Moscow in 1830, causing panic as inhabitants fled the city. It then spread by land through the Russian states, Poland and into Western Europe. Spreading by ship, it reached North America in 1832 in Quebec.

According to Vlok (1980:386) until recently, cholera was not endemic in South Africa. It was declared a notifiable disease in 1965. However, it was also endemic in Malawi, Angola and Mozambique which were thus a potential threat to other parts of Africa. In 1973 there was an outbreak on the South African goldmines as a result of the southward spread of the disease by migrant mine labourers from declared cholera-affected countries, that is, Angola and Mozambique, in particular.

2.3 PROBLEMS WHICH LEAD TO THE SPREAD OF CHOLERA

Vlok (1980:386) tabulated the following factors as problems which lead to the spreading of cholera especially in rural areas.

- Inadequate clean water supplies
- Poor sanitation
- Overpopulation
- High emigration
- Lack of health education

2.4 SCIENTIFIC FINDINGS ABOUT THE CAUSATIVE ORGANISM OF CHOLERA

The causative organism, *vibrio cholerae*, colonizes the gut and secretes a toxin which causes massive fluid and electrolyte loss through diarrhoea. Cholera is not spread directly from person to person but can be contracted through drinking contaminated water, eating raw to uncooked shellfish from contaminated areas (Cronenwett, 1986 : 118).

2.5 CLINICAL PICTURE

According to Mellish, J.M. (1984) the following are the clinical indicators of cholera to a patient:-

- Headache giddiness
- Severe vomiting
- Violent, painless diarrhoea with rice-water stools
- Severe cramps of extremities
- Very feeble pulse
- Skin cold and clammy
- Sunken eyes
- Coma leading to death

2.6 CHOLERA PREVENTION PROGRAMMES

i) Surveillance Programme

A surveillance program was instituted in South Africa in November 1973 and through this the outbreak of cholera was actually anticipated by the detection of vibro-cholerae in a main sewer of the goldmine, 10 days before the first case of cholera occurred. Prompt prophylactic and therapeutic measures were taken to contain the local outbreak which affected 32 recognized carriers and 37 cases. There were no deaths and the disease did not spread beyond the confines of gold mines (Vlok, 1980).

ii) How the KwaZulu- Natal (KZN) public was made aware of cholera and how it can be prevented

The Department of Environmental Health (DEH) collaborated with other Departments like the Department of Water Affairs and Forestry (DWAF) and other Non-Governmental Organisations (NGO's) in order to fight cholera. These are the strategies that were used:-

- The Red Cross Organization conducted some awareness programmes and assisted the communities by building toilets to encourage appropriate sanitation.
- Radio Ukhozi which operates in isiZulu opened special education programmes during the day where people were taught about good hygiene in order to prevent the spread of cholera. The use of the radio was strategic because many more rural people do have radios and the language used is one they can understand

- The Department of Water Affairs and Forestry (DWAF) supplied purified water to the communities that were affected by cholera.
- The Department of Health opened mobile clinics where people received medication and awareness programmes.
- Uthungulu Regional Council used its consultants to see to it that there were some trucks that delivered water to the affected communities.
- The Environmental Health Officers (EHS) were spread all over the area to educate communities about better ways of preventing cholera and assisting the infected people.
- The South African Military Services (SAMS) brought its nurses to the most affected areas to assist with first aid and management of cholera.
- Linda and Doli (LIDO) which is an Non-Governmental Organisation (NGO) promoted toilet user education in the areas affected. They worked together with another NGO called Aqua Amanzi. Aqua Amanzi erected Ventilated Improved Pit Latrines (VIP) and educated people about how to use them in a way that would keep them safe and hygienic.
- Another NGO called Community Action Programme (CAP) organized a stage play which was on community awareness. This play had a very good impact for it changed people's attitudes towards using toilets and the water that was provided freely by different organizations.

i) Oral Dehydration Therapy Programme

The World Health Organization (WHO) developed a programme of dehydration therapy. The recent development of an appropriate solution

has made it possible to undertake immediately a common programme for reducing deaths from this acute disease. These efforts continued to enhance the long-term objective of combating cholera prevention and control. The solution contains glucose and essential electrolytes which when administered orally are absorbed in the small intestines even in the presence of copious diarrhoea. The solution helps the patient to regain strength as the body fluid is returned. The solution is made of fluids that are available in hospitals and treatment centres. There are costly and aseptic precautions that have to be taken in the preparation and administration of the solution. However, the good news is that local communities have a recipe to prepare their own solutions for a rehydration therapy.

2.7 HOW CAN PEOPLE THEMSELVES PREVENT CHOLERA?

According to Bennett, (1973) people living in high risk areas can protect themselves by following a few simple rules of good hygiene and safe food preparation. These include the scrupulous washing of hands, especially before food preparation and eating, thorough the cooking of food and consumption while hot and boiling or treatment of drinking water.

2.8 MODEL FOR THE TRANSMISSION OF VIBRO CHOLERA

Scientific information from NASA's Cermes Research Centre and the University of Maryland Biotechnology Institute have researched the link between cholera outbreaks and climate (Chubb, 2000). Using satellite information they discovered that sea surface temperature shows an annual cycle similar to the rise of cholera infection. The research states that a rise in sea temperatures and ocean levels near the coast of Bangladesh often comes before blooms of plankton and subsequent outbreaks of cholera. Sea temperature is thought to be important because according to the researchers, plankton that blooms in the Bay of Bengal depends on warm ocean water. Sea heights is also a factor since higher

water levels can carry potentially infected water further inland, where more people would drink it or bath in it and become sick. If the cholera detection model is extended to other countries, it might serve as an early warning system enabling effective deployment of resources to minimize or prevent cholera epidemics in cholera endemic regions like South Africa and neighboring countries.

2.9 CONCLUSION

The researcher considered it necessary to review the literature from other countries as well as other parts of our country. This was done for the purpose of setting a background against which the province KwaZulu-Natal system of management could be compared with other countries which have also experienced cholera epidemics.

CHAPTER THREE

TEACHING ADULT LEARNERS

3.1 INTRODUCTION

The methods of instruction that may be used to teach a rural community about cholera are varied and cater for different learning styles. They can either be formal or informal depending on the individuals who are the recipients of particular information. According to O'Donoghue, and Janse van Rensburg (1995) successful instruction must blend the two so that practice is based on theoretical knowledge that gives direction to the absolute minimization of the problem. Preparation for instruction must not only center around the lecture method, but should also focus on the level of education of the group and their concentration span. This must be flexible enough to allow for modification when particular difficulties are encountered with the group, but rigid enough to ensure that the total program is covered within the desired time schedule (Cornbleth, 1990). One also needs to be aware of the literacy level of the participants so that instruction does not go above the level of some of the learners.

3.2 FORMAL TEACHING STRATEGIES

3.2.1 Lecture Method

A lecture is a formal presentation of the problem topic by the lecturer. It is not necessarily a teaching method, a simple lecture, or a presentation of a problem before a large group may have an element of teaching in it, but this method is more specifically planned and aimed at teaching, thus enabling the members of the group to learn (Cornbleth, 1990)). Lecturing consists of a prepared presentation in which the lecturer talks more or less continuously for a specified time to members of the audience, who listen, and may take down notes which they feel might be of particular importance. The lecture could for instance, give

details of cholera pandemic, like the causes, signs and symptoms and some precautionary measures. The audience learns facts and can ask questions at specific times during the lecture or at the end. The opportunity to ask questions is crucial so that any misconceptions developed during the lecture are cleared and explained adequately.

The lecture as an instructional method should incorporate the following:

- Information presented should aim at explaining relationships or general precautionary measures, but different opinions should be also highlighted. However, accuracy of the information must be maintained all the time.
- The presentation should be of an original manner so that interest in the subject is stimulated and the student is motivated to research for more information independently. The skill of being able to find information and use it appropriately embraces the concept of life-long learning.
- The lecture is a challenge to the audience by arousing curiosity, stimulating the imagination, engendering the spirit of enquiry and leading to creative thoughts.

O'Donoghue, and Van Rensberg (1995) indicated the following as the common advantages and disadvantages of the lecture method:-

i) Advantages

- Large groups can be reached. The method can be used to present the relevant information about cholera or suggest interpretations to a very large number of people at the same time. The number could be limited only by the size of the room and the efficiency of the public address system. The greatest advantage of the lecture method is its ability to reach

a wide audience and empowering a greater number of people with knowledge.

- Orientation to a whole programme is possible: A lecture which has been well planned can be used to orientate the audience, pointing out what they would be expected to know at the end of lecture and the relevant basic knowledge one needs to survive in the environment.
- Ability to present organized information in an inspirational manner and special skills when delivering the lecture is one of the attributes which some lecturers possess. The lecture method can be combined easily and effectively with many other methods of instruction. One is, for instance able to break the lecture and give participants time to discuss some points and then share their views. Adults enjoy sharing their views based on their experience in life.

ii) Disadvantages of the lecture method

- It may be boring especially to a community of people who are illiterate. This again, will depend on the style of presentation by the lecturer. An unenthusiastic, ill-prepared presenter, who speaks badly or inaudibly in a droning, monotonous voice, would be boring and should not lecture.
- Boredom also occurs if the lecture gets little feedback from the group. This can to some extent be obviated by the judicious use of questions and by an alert lecturer watching the reactions of the audience. It is also true that some people have a flair of speaking and can make the most boring lecture interesting. With some effort and proper planning, it is possible to make a lecture appeal to one's audience.

3.2.2 Group discussion method of teaching

A group discussion is a valuable teaching strategy for adult learners. The emphasis is on participation, which entails that the group must not be large. The average size suggested could be between ten and fifteen people. The larger the group the more talking will be done by the same person. Like in the project method, group discussion aims at encouraging an exchange of views among the group. For this exchange of ideas face-to-face contact is desirable (Beringer & Stapp, 1990).

Group discussion is not teaching per se but the instruction plays a facilitating role. It is particularly useful in stimulating extension of knowledge and developing critical thinking. It encourages people to think for themselves, and to develop confidence in their ability to come up with ideas and express them to others. It encourages people to look at a problem in a non-judgmental way and to interact with colleagues in active problem solving.

According to Boyle (1997) group discussion is primarily a process in which ordinary people play a leading role, with government, experts and the elite playing a facilitating role. Because group discussion is grassroots-oriented, the development efforts are small, simple and address the basic need that of finding solutions to the issue addressed. Simplicity is the word of success; complexity should be avoided at all costs.

3.2.3 Environmental Issues

There are many ways one can organise discussion around environmental issues. For instance, people can be divided into groups and given an opportunity to discuss indigenous everyday knowledge around the following issues.

- The way rubbish is disposed, that is, faecal or other rubbish;

- How they responded to the call of nature (for people in rural areas where toilets may not be available);
- How mothers try to protect their babies from *ukuhabula* (the breathing of bad air/bad spirits). This has to do with beliefs people have about the environment;
- How men and women were served Zulu beer;
- What they do before eating their food;
- Indigenous ways of purifying water.

The groups can be given some guiding questions that could make things easier while trying to come up with ideas, like for an example, one could consider the following ideas for stimulating thinking:-

- It appears that people could not shake hands with their enemies in the old days because they were afraid of being bewitched. How has this myth assisted in the prevention of cholera? What are the disadvantages of the above practice in terms of creating relationships with others?
- If one were living with these people, how would one make sure that one followed health safety practices, but at the same time maintaining a good relationship with them?
- What do people do to clean water after they have realized that it is dirty?

After having demonstrated their understanding about the indigenous practices they could then discuss how these practices contribute to the prevention of cholera.

It is in these discussions that people do not only realize their environmental problems, but also learn to organize their environment more effectively and their leadership structures develop accordingly. The result is that ordinary citizens

could gain environmental literacy, theoretical competencies about the environment and improve their ability to apply their newly found knowledge to solve environmental problems.

3.2.4 Demonstration Strategy

This is the best method in teaching people of different levels of education, that is, from low levels to high education levels, especially in teaching the basis of practical skills. The origin of the word is the Latin *de-monstrare*, meaning to show, so that demonstration becomes a means of showing something, and in nursing of the infected and preparation of the first aid context (Cornbleth, 1990). It is said people learn better by doing. In showing mastery of a skill one is able to demonstrate competency or lack of competency in a skill.

In teaching the practice of nursing the infected person entails much more than mere demonstration of a procedure and it cannot serve any purpose if it is presented in a vacuum. It is very important to know how to carry out a technique. For an example, how to mix the sugar and salt solution to rehydrate the infected person; but it is equally important to know why the procedure is being carried out. For an example, rehydration therapy will help in retaining the lost fluids and enable the infected person to regain strength, and also to realise the dangers inherent to losing a lot of water. Imagine what would happen if one mixed the correct amount of sugar and salt in water that is directly from the river. This could only make the situation worse by re-infecting the patient.

Demonstrations are employed for the purpose of showing how to carry out various actions as in the following cases:-

- Showing the group the correct measurements of water and salt.

- Illustrating the application of fundamental principles during nursing like, for an example, the correct sitting position of the infected when given the solution.
- Showing how to do something which is concerned with the total care of the patient, but which does not require his/her physical presence.

The essentials of a good demonstration.

- A demonstration shows how things are done.
- Everyone attending should be able to see what is being demonstrated, thus groups should be small to facilitate interaction and ability to see the demonstration.
- The demonstrator must be able to carry out the technique completely and competently.
- Equipment should be assembled and tested prior to the demonstration to make sure they work.
- The setting should be as true to life as possible. If a patient is used, then he/she must be informed of the purpose of the demonstration and his consent obtained beforehand. This is an issue of human rights and respect of human dignity.
- The audience should be given an opportunity for practice sessions following the demonstration, so that they may become proficient in the technique. Demonstration can be done formally or informally depending on the situation at a point in time.

Advantages of demonstration

It is ultimately important that the demonstration is given in the real life situation, using the participants as part of their everyday practice with their infected family members. The care of a patient is of paramount importance and should be done in the way it would have been in a real situation.

Demonstration permits discussion and questions as it is carried out. This leads to repetition or stopping where necessary to illustrate certain points that seem not to be clear. It can produce a practice area where students can become more familiar with handling equipment before actually attempting to carry out the technique on the patient.

The atmosphere may be more relaxed and thus the audience would ask questions there and then. The outcome of a good demonstration could be observed when people go out there and organize themselves into appropriate, effective and efficient groups that aim at improving the attitude of their members towards cholera. In this case new linkages between leaders, between individuals and between the institutions are developed and the existing ones are improved. Existing leaders are enabled to lead more effectively and new leaders are thrust to the fore through community activities that focus on improving their environment for their better health.

3.2.5 The Constructivist Approach

According to Martin, Sexton, Wagner and Gerlovich (1997) constructivism is the general name of the dominant perspective on learning in science education. Constructivism emphasizes the active role of the learner mentally, physically and socially. This theory emphasizes that knowledge is not outside the learner but is a construct of the young or adult learner.

In this approach the group would create or construct meaning for themselves (Bodner, 1986). The current trend is to help adults learners to make meaning from their discussion about the previous practices and try to pick up some relevant ideas that could contribute towards controlling the current situation of the speedy spreading of cholera in the area. Constructivism means learners of any age have their own personal interpretations of occurrences in their environments and have to devise appropriate actions to problems.

According to Bodner (1986), the constructivist approach is used where people in the learning curve would be active constructors of meaning as they encounter and observe the demonstration by other groups. This is supported by Piaget (1986) in his work, in which children actively manipulated and explained their reasoning for each situation. That is proof that people are active constructors of meaning as they encounter and manipulate their environment. The participants learn better when they relate to their previous knowledge to gain new knowledge. This would in a way teach them not to look down upon their original beliefs for other people's beliefs but will teach them to evaluate new information against prior knowledge. Eventually a person accommodates new scientific knowledge and then we say a person has learned. He/she would also alter his behaviour according to the dictates of what has been learnt.

Within the constructive perspective, the facilitator is neither a top-down authority nor social engineer, nor a background facilitator, but an active mediator of knowledge and values with the group (Bodner, 1986).

3.3 INFORMAL METHODS OF TEACHING/LEARNING

3.3.1 Projects

A project entails the investigation of some problem which leads to learning activity and usually requires a visual presentation of the findings which may take the form of a scrap book, when it is individual work. Project work is designed to bring the community face to face with reality. It involves a great deal of participation from all concerned who, by the very nature of their involvement, learn not only from their own research, but also from that of others participating in the project (Wals, Beringer & Stapp, 1990).

According to Walls, Beringer and Stapp (1990) participants learn to use independent thought and action, and yet to cooperate as a group. They also learn to evaluate their own efforts, as well as those of others. The project method provides for the purposeful activity and is audience centred. If projects are approached with thought and are well planned, their use as a teaching strategy could be invaluable. For instance, rural communities can work on projects to build suitable enclosures around their wells of water to protect them from contamination by animals. They could also work on projects to build toilets for one another. Among some Africans such ways of doing things are traditional but modern capitalistic ways of doing things are killing the spirit that existed in olden days, of helping one another.

In the use of projects, not only do people realize self sufficiency, self-reliance, and dignity with taking part in the projects, but they also learn to organize more effectively and their leadership structures develop accordingly. Once the project is blessed by the positive response of the community leader, it grabs the opportunity of running without stopping because the leader follows it up. For projects to work effectively in a community, the element of inclusivity is very important because it leads to ownership of the project.

Effects of a successful project

People who have been involved in a project experience a change in attitude. A successful project usually broadcasts its success far and wide and others quickly become aware of changes for the better. For example, the acquired skills to help their community members who never received such empowerment as they did to save lives of the infected and affected, to try to stop the further spreading of cholera in the area. The difference is noticed in communities which stand and work together after receiving knowledge. The immediate use of knowledge is empowering because it ensures that literacy about issues involved continue.

One of the most important gains in a cholera project is the awareness that the community develops. People become aware of themselves and their environment, of their needs and their resources. This does not mean that a community lacks awareness as such but development projects awaken communities to embark on an achievable goal to address existing environmental problems.

When a community that is trapped by a disease like the cholera problem, it sees itself, not as a suffering entity, but as an active organism able to change its environment. That community would have freed itself from the deprivation trap, even if the manifestation of cholera is still evident in its midst.

3.3.2 Action Group

Community health people sometimes fall into trying to organize the whole community for which they are responsible. This is sometimes impossible and therefore could waste a lot of time. An alternative attempt is to organize a small group which would spare a lot of unnecessary work and frustration by starting with small groups that would be successful and spread the vision of the action group.

It is difficult to educate the entire community simultaneously; this means that for community empowerment on cholera, a group within the larger community interlocking communities must be identified. The identified group would then take the necessary action and would become what we call an *action group*. It is not that those who are well versed in the theory of empowering other community members with the necessary skills would be useful, but also the assistance from the outside personnel, like environmental health and department of health would be working closely with them.

The project of bringing awareness to the community about cholera is a difficult one and requires considerable attention. Giving the first chance to the existing interest group, that is, a group of people in the community that shows interest in the project, would lead to the attainment of goals in a smooth and easy way. Such a group would function as the subgroup of the executive and report to it at regular intervals.

The advantage of the existing interest group is that it is already established, in other words it is already organized and has a way of doing things. The community including the affected and infected has confidence in them for they know their contribution in the community. The members of the interest group also know each other and are used to working together which minimizes the problem of trust. It will not be necessary to go through an initial period of finding and accepting each other as would be the case with newly formed groups. Secondly, groups in the community would understand the culture and world view of the people.

The aim of the health facilitator is to enhance the people's processes and to help them gain meaningful empowerment. For this reason, they are present primarily to enable the people to do what should be done in order to assist the infected and to prevent the further spread of cholera in the area. In their enabling role the facilitators must remove obstacles, steer clear trouble and provide the know-how to make it possible for people to act. Most importantly they should create a climate for people to act, like for an example, provide gloves to protect themselves from infection, like jik for sterilizing water, water tanks, sorol and many more.

The facilitator would help them to make rational decisions, help them to discover their resources and to help them to plan and act. It is through such experience that the action group would be exposed in a learning process in which they would gain self reliance, empowerment and self-esteem. The action groups are called

onompilo by the Department of Health. This is a Zulu word that describes people who take care of health issues.

3.3.3 Further Project Development

The moment people get the skills of dealing with cholera in their environment; further environmentally related development projects spark off further activity. This means that, the groups that are established through the Cholera education project, must be managed and maintained. They must be used for and adapted to changing needs. The people, therefore, stay involved and remain responsible.

It is very likely that the attainment of their objectives might lead to further needs being identified. These are needs like the erection of toilets in the area, the supply of running water from the tap, environmental clean-up campaigns would be in their new list of needs that come up, the new objectives would be set to up and further action to be taken to accomplish those objectives. Apart from the confidence people acquire through empowerment, they demonstrate an enthusiasm to tackle further problems and they become aware of needs in their area.

3.3.4 Committees

After the needs have been identified, people would see that they need a steering committee. The facilitator must in this case provide opportunities for the action group to learn how to choose people for the committee. The role of the facilitator should stay as that of a supporter and an advisor and must not take decisions in a top-down fashion.

The action group members are the people who know the people and the situation better, in that way they may have a clearer notion of who could lead a further development project under their specific circumstances. The facilitator must be

prepared to guide poor choices that may result in a lack of progress in achieving goals of the project. The function of the facilitator is to teach action groups to integrate with the concerned departments for the achievement of their needs especially their immediate need of preventing cholera from spreading. It is important that they are taught how to prioritize their work (Boyle, 1997).

Because the committee is the encapsulation of leadership, it can only prosper in a group where communication channels are open, that is, the doors of all the departments that provide their felt needs should always be opened for the community. When communication is vibrant, a certain cyclical dynamism is created between leadership and the rest of the group (Chambers, 1983).

3.4 SYMPOSIA

This is another form of group activity although it could be used with biggest groups, and there is less individual participation.

The word symposium comes from the Latin form of the Greek word *symposion*, *syn*, meaning with and *posis*, meaning drinking (Chambers, 1983). It, therefore, technically means drinking together. In the sense it is used today, perhaps drinking together of knowledge would be a correct interpretation or perhaps the sharing of knowledge.

The method of presentation is for two or more speakers from different departments, for an example, one speaker would be from the Department of Health, and another speaker from the Department of Water Affairs and Forestry, at another from an Non Governmental Organisation (NGO) and yet another one from Environmental affairs. These would present important facets of the same general theme or topic, (treatment and management of cholera patient with some time at the end of the scheduled session provided for questions from the audience. The beauty of the symposium is that one gets different viewpoints about the same topic. The audience gains from the interaction and whatever is said carries credibility because it comes from different people.

3.4 COMPETITIONS

The topic is divided into different phases, like for an example the Department of Health could focus on the importance of good hygiene, the Department of Environmental Affairs might focus on the importance of clean environment, the Department of Water Affairs could focus on the proper use of water tanks and the Non-Governmental Organisation could focus on the proper use of toilet facilities. All these are presented in the form of a lecture, one speaker following the other. A chairman introduces all the speakers and may make transitional statements.

A symposium could bring experts together; it could be presented to a large group of people, make economical use of time and is varied by the change of speakers. It often broadens the perspective of those taking part in presentation as well as those listening (Boyle, 1997).

3.5 GAMES

Games are an indirect strategy of teaching. People are given instructions to read and understand. Some steps are given that lead towards playing a game with the rules that need to be obeyed. The penalties are awarded to people who fail to follow the instructions and prizes are won by those who succeed (Christian, 1995). Games provide an interesting way of learning interactively. One needs to think and understand what one is doing. Young learners in particular like this method of learning.

The main aim of games is to prove that anyone can contribute towards the prevention of the further spread of cholera. Games are open to learners, teachers and community. Both adults and their children can use games to reinforce any idea about the environment such games could also serve for parents to spend quality time with their children while also helping them to learn about their environment.

3.6 COMPETITIONS

An important strategy to get community involvement is to organize competitions for the rural schools and communities. Competitions can be an exciting way of encouraging learners and the community to engage in an environmental project (bringing awareness to rural community). Although it is easy to enter competitions, it is advisable to teach the action group to organize its own competitions. That is possible and it brings a sense of belonging and ownership to the group. Success of their own competition would boost their morale and encourage them to go on. In terms of cholera one could organize competitions of communities with more toilets with lids.

Competitions could be conducted either formally or informally depending on the group. The organizer should evaluate the outcome in order to determine the way forward. The facilitator's role is to teach the group about the ways of attracting people towards the competition and also the ways of getting outside help. Help could be with regard to finding funds or any kind of resources that could make the competition a success (Christian, 1995). Competitions must put the emphasis on the value of the activity and not on the monetary value that may be obtained by those who win.

3.7 COMMUNITY CITIZENSHIP AND PASTORAL ROLE

Among the roles the educator in a school should play is to demonstrate an ability to develop a supporting and empowering environment for the learner and to respond to the education and other needs of the learners and fellow educators. This role is spelled out in the norms and standards guiding teacher education. In terms of cholera education an educator can play a role in giving learners accurate information about what is cholera and how to manage it. Appendix three (3) shows some lessons which appeared in the Observer Supplement that helped teachers on learning programmes about cholera.

3.8 REFLECTIVE THINKING

One of the aims of professional development among teachers is to develop the skill of reflection. Educators are supposed to exercise reflective thinking all the time. According to Dewey (1938) the concept of reflection is described as "...being critical thinking, problem solving, inquiry, and reflective judgement". He stated that reflection begins with a real-life-problem for, instance, a cholera epidemic and ends with a judgement that provides are solution to the problem. Educators therefore have to reflect on issues affecting their classrooms as well as about environmental problems affecting learners.

Teaching learners reflection skills develops their ability to think critically about whatever they have done and aim at providing the best solution to a problem. Chamberlain (1992 : 35) provides a list of 5 planing processes that can be used to help learners to develop higher level thinking skills. These steps are also appropriate for adult learners. The steps are as follows:

- Set realistic goals that can be accomplished within a reasonable time.
- Form a plan. This involves decision on what needs to be done. For instance, in cholera infested area the priority could be to build toilets and to determine what materials could be used.
- Act. Carry out the plan and enlist the help of all the members of the community. Ownership of the project is important so that the community is committed to its sustainability.
- Follow up. An element, of reflection is needed to evaluate the impact of the project and to decide what could have been done differently.

The world we live in is besotted with many problems which require people to reflect constantly and find ways of living sustainably so that problems are minimized. Some problems are caused by poverty, poor environmental management practices, while others are caused by ignorance. Ware and Bart (1978) state that educators have a responsibility to help people not just to be healthy but to have something to be healthy for, whether or

not this relates to health status. One of the goals of Environmental Education is, "Health for all". This means people must be healthy not just by being free from disease but to reach a state of complete physical and mental wellness which can help them reach their maximum potential in life. Many of the disease affecting people in Africa, for example, cholera, sleeping sickness and AIDS drain their energy and prevent individuals from reaching their potential. If many people in Africa do not reach their potential because of debilitating diseases, then development and progress will be very slow and Africa will remain as a third world for a long time to come.

3.9 THE ROLE OF ENVIRONMENTAL EDUCATORS

One asks why people suffer from illnesses that can be prevented, the big question is why people do not use health knowledge that is available. Educators need to diagnose people's careless actions that lead to illness and death and help people understand that prevention is better than cure. There is a great need to address health issues from birth to adulthood, a life-long process with emphasis on educators presenting information in an accessible way for different communities. The context in which you present information is very important because it determines how you will present it. According to Greene and Simons-Morton (1984), sometimes lack of information keeps the public from taking needed action to protect themselves from diseases. The role of the primary school educator could be to translate scientific knowledge into simple language that can be understood by learners and unsophisticated communities. The material can be presented in an interesting and animated way.

3.10 CONCLUSION

This chapter has highlighted the importance of using effective methods to teach learners and adult communities on how to take care of their health. It was highlighted that people must be healthy not just to be free from disease but to reach a state of complete physical and mental wellness which can help them to reach their maximum potential in life. The above methods of instruction have been discussed to highlight the different methods that

could be used to reach adults. Some methods are formal, others are informal, indicating a wide spectrum of sources of knowledge. The value of having different ways of mediating knowledge caters for different learning styles and literacy levels.

2.1. INTRODUCTION

This research was part of a community development project in 1992. The project was aimed at the elderly population in the City of London. I was a volunteer and I experienced the project as a learning experience. I was involved in a variety of activities, including the development of a community resource centre, the organisation of a health survey, and the development of a health promotion programme. I was also involved in the development of a health promotion programme for the elderly. The project was funded by the City of London Council and the Department of Health. The project was a success and it was a valuable experience for me. I was able to learn a great deal about the needs of the elderly and the importance of community development. I was also able to develop my own skills and experience. The project was a great experience and it was a valuable learning experience for me.

Data was collected as part of a survey which was carried out by the project. The questionnaire was aimed at the elderly population and it was a valuable learning experience for me. I was able to learn a great deal about the needs of the elderly and the importance of community development. I was also able to develop my own skills and experience. The project was a great experience and it was a valuable learning experience for me.

CHAPTER FOUR

METHODOLOGY

4.1 INTRODUCTION

This research arose out of a concern about the number of children that missed school when the cholera outbreak occurred in KwaZulu-Natal. Being a primary school teacher myself, I experienced the problem of learner absenteeism and wondered how much we as educators know about cholera and what we could do to break the cholera endemic cycle. , I therefore undertook to visit an Environmental Health Officer from the Department of Health of Ngwelezana Hospital. He showed me shocking figures of people who were affected by cholera. The officer also showed the researcher a survey instrument he had used to collect data about ordinary people's perception about cholera. The process of collecting information had not been very successful because the instrument was in English and most victims were semi-literate. Some people were both skeptical and suspicious about filling in forms. At that point the researcher decided to use the instrument from the Department of Health (appendix 1) to investigate primary school educators' perceptions of cholera. One could easily assume that educators know everything there is to know about cholera. Carrying out a research would present a more accurate picture about what educators know.

Data was collected using a survey method which took the form of a written questionnaire. The questionnaire was found to be the most suitable tool to extract information from educators. First, because these informants are literate and secondly because they read and write English. It was also thought the survey was suitable because it gave respondents enough time to think things over about their environment and how it has affected them, and then formulate their individual responses. An advantage of this survey was that the sample of teachers who come from Pongola, Mkhuze, Mbazwana, uBombo and Jozini areas were all members of the same class. The instrument was administered

during a contact session. The respondents were given an hour to complete the questionnaire which was collected immediately at the end of the hour. The hour gave everybody enough time to complete questionnaires even those who could have been slow in reading and writing.

The sample consisted of 66.4% females and 33.96% males. This was no surprise because gender stereotypes are still prevalent, where the males perceive primary school educators as more suitable for females. Some people also have the perception that even if one is very highly qualified one's status is low if one is a primary school educator. Gradually, however, people are learning that teaching qualifications are of equal status what is different is the level one chooses to teach.

4.2 ETHICAL CONSIDERATION

The researcher was fortunate to have a supervisor who teaches part-time in-service students reading for an Advanced Certificate in Mathematics and Science. I therefore obtained her permission to administer the questionnaire to the students. The students were told that the questionnaire was not a test and therefore did not have to write their names. They were, however, requested to give honest answers because the survey would give valuable information on whether primary school educators could be used as facilitators to teach about cholera or not. They were also told that they would be given a summary of the results of this survey. If there was a need for them to get a workshop on cholera that could be arranged. In a way this could be action research in which a need is identified and action would be taken to remedy the situation.

4.3 THE RESEARCH INSTRUMENT

The questionnaire used to investigate the in-service educators perceptions of cholera consisted of parts A and B. Part A consisted of twelve questions on gender, age group, type of accommodation, toilet system used and questions related to cholera and personal hygiene. The questions on part A were meant to show the kind of living conditions

primary school educators experience in rural areas and how these could contribute to the spread of cholera. The different wealth of people shows in their ability to afford adequate food and water, education, health care and proper housing. Squatter camps are rising in numbers in South Africa an indication on the growing numbers of people living under poverty. People live in overcrowded conditions and disease is an almost inevitable result. In many rural areas in South Africa, water is a scarce commodity whose shortage infection diseases such as cholera can result in epidemics on a huge scale if necessary precautions are not taken.

Secondly, the questions sought to discover if personal choices of educators in terms of behaviour would protect them from cholera infection. Personal responsibilities for making decisions that would enhance one's life are becoming more and important for individuals. This is why literacy in health issues is important so that people could make informed decisions and choices.

The second part of the instrument, section B, had open-ended questions, which were to be answered freely by the respondents. This section had six questions based on a range of issues that educators need to understand about cholera. These issues were as follows:-

- The first aid to be given to cholera infected people.
- How to handle soiled clothes of people with cholera.
- Precautions one needs to take before using water from a river or well.
- Knowledge of symptoms of cholera.
- Identifying symptoms of dehydration.
- Knowing an accurate recipe for a rehydration solution.

The nature of responses would give the researcher a picture of perceptions each respondent had about cholera. There is no doubt that most people including educators who live in areas that experience periodic bouts of cholera need accurate personal knowledge on how to protect them from infection.

4.4 CONCLUSION

The aim of the study was to use a simple instrument develop by the Department of Health to find out what in-service educators know about cholera. Educators are lucky to have a captive audience everyday, they could thus be effectively used to teach about cholera and how learners can service in cholera infested areas.

5.1 DEMOGRAPHICS

The sample consisted of 33 respondents who included males and females. Of the sample, 23 which is 69.7% of the respondents were females and 10 which is 30.3% were males. All the respondents were educators in the district, with 10 being at Advanced Diploma to Primary Teacher Education level. There was a high percentage of women as compared to males due to the fact that teaching is predominantly a female career particularly at the primary school level. All being educators and upgrading their qualifications because the work they had taught within schools was becoming

CHAPTER FIVE

DATA ANALYSIS

5.1 INTRODUCTION

In this chapter the researcher presents the results of the study. The primary aim of the study was to investigate how much educators from rural areas in KwaZulu Natal understand about cholera infection and its management. The first part of the presentation gives a brief outline of the sample. The second part deals with the educators responses to the questionnaire on their sanitary amenities nature of housing and their knowledge about cholera. Sanitary amenities have an impact on cholera which is a waterborne disease. The nature of housing conditions and non-availability of potable water impacts on health standards that families can maintain. In terms of literacy or level of knowledge of the teachers about cholera, the researcher believed that if teachers are literate on issues of cholera then learners could receive accurate information about cholera from their educators.

5.2 DEMOGRAPHICS

The sample consisted of 53 respondents, who included males and females. Of the sample, 35 which is 66.04% of the respondents were females and 18 which is 33.96% were males. All the respondents were educators in the Jozini area, reading for an Advanced Diploma in Primary Science Education (ACE). There was a high percentage of women as compared to males due to the fact that teaching is predominantly a female career particularly at the primary school level. All these teachers are upgrading their qualifications because for years they had taught without adequate qualification.

Considering the fact that the respondents' ages ranged from 25 years to 47 years of age and are still undergoing an educational upgrading programme proves how important education is to women, regardless of the patriarchal forces at play. There are those that feel educating women is educating the nation because women play a significant role in raising up children. Women are forced to leave school as early as grade seven levels to give chance to men/boys to reach their potential. This opens up a wide gender gap in education between males and females. The women as a result of traditional options to give priority to seeing boys through higher education over girls, end up with poor education. Kyomuhendo (1997) writing on education of girls in Uganda highlights the household gender inequities that result in low enrollment for girls. She, for instance, attend to the fact that although women indicate greater willingness than men to enrol female children for higher education, household gender inequalities, especially their powerlessness in issues relating to finances and productive economic activities, ensures that they are unable to actively and financially support the empowerment of female-children.

It was impossible to get hold of educators whose ages ranged between 47 and 65 because they no longer attend upgrading classes since they are close to their exit points in their teaching career. This, of course, does not mean that old people nearing retirement should not upgrade their skills. What it means is that for donors, there are serious financial implications in educating a person who is about to exit the system. All the educators in the in-service programme have scholarships from the government.

5.3 RESEARCH FINDINGS

5.3.1 Family Accommodation

The houses where the respondents live vary from a one roomed house to two-roomed, four roomed house to a five roomed house. The accommodation type was

put in as an indication of the level of poverty even educators find themselves living in, in rural areas.

About 35,9% of the respondents live in the five roomed houses, 39,6% live in four roomed houses, 11,32% live in two roomed houses and 13,21% live in one roomed houses. A significant 24.53% of teachers still live in one or two roomed houses, highlighting the battle the South African government still faces in having to provide proper housing to all its citizens. In some developing countries for example, Swaziland, efforts are made to build proper housing for educators.

The participants who live in one roomed houses are vulnerable to pollution, quick spreading of germs and easy contraction of infectious diseases because there is no clear ventilation for the whole family. The family practice all the household activities in one and the same room. For example, they cook, bath, eat and sleep in the same room. They can hardly isolate a family member who is infected with cholera.

These educators are forced to live in such small houses by poverty even though they are educators. The fact that they are on a development programme indicated beyond doubt that they are underqualified and still get salaries that are far below the living wage. Some teachers come from houses that are very far from their work stations. They, therefore, find themselves having to rent one-roomed houses in order to cope with rent. In most cases the one-roomed house is in a home with no running water. These conditions make one realise why many well-qualified teachers do not want to teach in schools situated in rural areas. A taste of good life in hostels makes qualified educators who originally came from rural areas to shun these areas without electricity and running water after getting their professional qualifications.

4.3.2 Sources of Drinking Water

There are three sources of drinking water that are used in the area of Northern KwaZulu-Natal. These are water from the river, tap-water and from boreholes. About 50% of the respondents depend on the river for their drinking water, 30% depend on the borehole and 20% use tap for their drinking water.

Muller, the Managing Director for the Department of Water Affairs and Forestry (DWAF) (2000) confirmed that the government’s commitment to provide adequate provision of water to rural areas fell short of the targets for areas worst affected by cholera. The department states further that the progress with the provision of water services has been slower than originally anticipated due to the lower level of funding relative to the need.

The Department of Water Affairs and Forestry gave out the table below which indicates the backlog of water supply in the uThungulu Region in Northern KwaZulu-Natal.

TABLE : 1

WATER SERVICES (KZN) BACKLOG (WATER AND SANITATION) IN YEAR 2000

Regional Council	POPULATION IN THOUSANDS			
	Total		Without Adequate Water Supply	
Umzinyathi	890	10.6%	492	55.4%
Uthukela	797	9.5%	600	75.4%
Uthungulu	1 341	16.0%	1 172	87.4%
Zululand	618	7.3%	5.34	86.5%
Total	8,L			

Water from taps or standpipes is transported, stored and handled before it is consumed for drinking or preparing food. There is ample opportunity for contamination during these intermediary steps but chemicals used to purify water kills most of the germs rendering tap water safe to drink.

5.3.2.1 Implication of using the river as the source of drinking water.

Water moves all the time. The water that we find in rivers near us flows down a stream from its source and will continue to flow downwards to the sea. What we do to the water affects not only us but all the people who use it after us. Unfortunately people in rural areas still do not understand the principle of community ownership where they take care of their own resources and do not expect the government to take care of their wells and rivers. The cholera germ spreads quickly in water, therefore people who drink water that comes into contact with cholera infected faeces will contract the virus easily and spread it to a number of people they live with. As long as the rural poor do not have access to a permanent supply of portable water, the emergency measures to compensate for existing deficiencies and endemic diseases will be a constant threat.

5.3.2.2 Perspectives on the source of cholera outbreak

The research took time to explain to some communities in Northern KwaZulu-Natal to convince their minds and thoughts on the cholera problem. The result was that four perspectives on the outbreak of cholera were identified. These are discussed as follows:

5.3.2.3 The contamination perspective

According to Induna Madida, the township (Ngwelezana) is a problem. Before the township was built there were no diseases. The Induna suggests that diseases came when the township was built. The implication is that putting people in living conditions very close to one another has encouraged the spread of diseases.

The significance of the Induna's statement can be understood in conjunction with the Madlebe Tribal Authority Business Plan (1988). This plan reported that owing to the contamination by the effluent community from Ngwelezane, there is a cultural perception amongst the community members that water from Empangeni stream and lake is unsuitable for drinking. Obviously the stream is polluted by the densely populated township – the community is not doing anything to improve the situation. Any attempt to use this water, even with purification is likely to meet resistance from the community who might believe that the water is permanently polluted. There is a great challenge for Environmental Education students to empower rural communities and help these communities to understand their environment.

When looking at the geography of Ngwelezana area, more particularly Nqutshini and Ngqolothi areas, the contamination thesis makes sense. As previously pointed out that, these areas were the first to be affected by cholera in August 2000. Dr Mngero of the World Health Organisation (WHO) reported that the lake was tested for cholera but tests were negative, positive, negative, respectively. However, he explained that as the source has been water borne and since cholera is a water- borne disease, it was concluded that it was the uMhlathuze River which carried cholera germs.

5.2.3.4 The dormancy perspective

It is not clear whether cholera was imported from the northern to the southern region of KwaZulu-Natal or vice-versa. Researchers believe that cholera spread has been activated by flooding and humidity. According to the Zululand Observer Health Supplement (2001) cholera is fuelled by heavy rains and bad sanitation. The faecal-oral route infection occurs when a water source is contaminated by human faeces and the water is then drunk or consumed by humans without adequate measures to kill the germs by boiling.

5.2.3.5 Poverty perspective

Poverty is at the root of cholera outbreak in KwaZulu-Natal. This tragedy could be directly linked to the problems that people still have in accessing safe and clean drinking water. The most vulnerable even among the educators are women because most of the families are headed by them.

5.4. TYPES OF TOILETS USED

Access to proper toilet facilities remains poor. This is evident in that a high percentage of respondents still use the pit system types of toilets. The fact that there is a percentage that does not have any toilets at all, makes things even worse, in as far as health promotion practices are concerned. It remains obvious that some people still respond to the call of nature in the bushes. When it rains, contaminated faecal matter draws into the river. Some 83.02% of the respondents use the pit system of toilets and 1.89% do not have toilets at all. They still depend on the bushes to respond to the call of nature. This is a recipe for the spread of cholera during rainy periods.

5.4.1 Implications for poor toilets

Pit toilets that are not handled hygienically can be the main source of cholera infection. This happens when flies feed on cholera germ infected faeces and then fly to the food in the house. The person who happens to eat such food becomes infected. The majority of respondents reported that they do not even have toilet seat covers and this perpetuates the spread of germs. Some toilets are very close to the houses which contribute to pollution and disease. The percentage of people without toilets contribute to the main reason for the uncontrollable spread of the cholera pandemic in the rural areas in which educators live.

5.5 HOW SOILED CLOTHES ARE HANDLED

It is always difficult to administer a questionnaire written in a second language of the respondents. This became clear during the analysis of responses. Some respondents did not understand what is meant by “soiled” clothes. This constituted 15.71% of the respondents. Some of the answers they gave were the following:

“Handle clothes on the side where there is no soil.” This obviously referred to handling the clothes where they are not contaminated. However, once the clothes are wet completely contamination occurs if the one washing the clothes is not wearing some form of protection on the hands.

One subject responded by saying, “I don’t know” where the word soiled was underlined, which indicated the non-understanding of the word’s meaning. Some respondents did not realise the significance of killing germs while washing the soiled clothes or protecting one’s hands from contamination.

Some of the answers given by respondents were:

- “Soak the clothes in water the whole day.”

- “Put stasoft on the clothes.” That would soften the clothes but not kill the germs.
- “Dump clothes in the toilet.” This is a sensible suggestion but unlikely to happen in poverty stricken communities.
- “Wash immediately.” This was another prevalent response among those who do not know how to deal with soiled clothes. While it would be good to deal with the soiled clothes immediately the aspect of trying to kill germs and protecting the individual doing the washing is crucial.

It was difficult to come up with an accurate record of knowledge about handling soiled clothes because about 15.71% respondents misunderstood the language and came up with vague responses. Respondents who knew what to do with soiled clothes responded in two ways. Some 54.72% of the respondents were aware that they have to protect their hands with gloves or plastic bags before touching the soiled clothes. These respondents were concerned about protecting their hands from contamination with the germs. Other respondents, 24.91%, were concerned about killing the germs in the water they were using. They therefore suggested boiling water or adding jik. A few respondents (5.66%) had no response at all. That is, they skipped the question and gave no response to it.

In terms of teaching, the question on what to do with soiled clothes is a good question that should stimulate thinking. Even respondents who have not had experience in dealing with contaminated clothing should know what to do. A good education should lead learners to use what knowledge they have to solve a new problem. Application of knowledge one has to a new situation testifies useful learning. It was, therefore, good to see some respondents coming up with some improvisation of wearing plastic bags around one's hands when washing soiled clothes if one does not have gloves.

A vicious circle occurs when soiled clothes are washed in the river. Lack of water facilities makes domestic provision in the area a burdensome activity for women, and because of this case, they resort to taking their washing to the river. This practice saves time and energy as they do not carry a lot of twenty-five liter containers full of washing

water for the whole day; but this does not solve the problem of repeated water contamination. Poor sanitation is one of the major reasons or contributors to the deterioration of health and the quality of life of people in the area.

Poor sanitation could result in the following unfortunate situations in the lives of the communities affected:-

- Infected adults lose their jobs.
- There is no income in various families while the breadwinner is hospitalised
- Infected learners drop out from school.
- The economy is also affected because there is loss of production.
- The environment is degraded in the sense of there being unusable river water.
- Human excreta is eventually washed down to the river during heavy rains, thus contaminating water and rendering it useless for consumption and for recreation purposes.

The cholera epidemic in certain areas of KwaZulu-Natal impacts very negatively on issues of sustainable development. When parents die of cholera the families are affected economically and emotionally. According to Lohrens (2001) the concept of sustainable development is a process of consensus based decision making in which the impact of economic activities, the environment and the health of society are integrated and balanced, without compromising the ability of present and future generations to meet their needs.

This is to enable all three-the economy, the environment, and the health of society to interact in a circle as shown below.



The triangle above represents the integrated, balanced, and a consensus-based-decision-making process, which is sustainable in a global context, as represented by the circle. The circle represents the ecosystems, the continuous natural ecological cycles of the biosphere, and the harmony of the environment, the economy of a society. When water is polluted by faecal matter. This affects the health of communities using such water and lowers their quality of life.

The respondents fortunately understood the need to wash hands frequently after visiting the toilet, since 95% of the respondents acknowledged washing their hands always after using the toilet. Only 5% of the respondents felt washing the hands once a day was adequate. The response showed that the respondents do not appreciate the value of washing hands each time they visit the toilet.

5.5.1 Implications of the respondents' habits

Some of the participants highlighted that once a member in the family contracts cholera, the majority of the other members become infected as well. This is due to nursing the infected person with bare hands and also in turn the infected person not washing his/her hands after using the toilet. Poor sanitation naturally leads to a spiral of infections involving the whole family.

Pouring jeyes fluid into the pit toilet system kills the good bacteria which are advantageous in the toilet.

5.5.2 Infection with cholera

Because teachers are found in rural areas, it was no surprise that 30% of the respondents are survivors of the cholera pandemic. The rest of the respondents have not been infected but had been affected by this disease in their immediate or extended families.

5.5.3 Opportunities to learn about cholera

For people who are literate there have been opportunities to learn about the nature of cholera. The Department of Health in collaboration with companies like the Sugar Association have made pamphlets on cholera available in different languages. The research found that 40.74% of the respondents had attended workshops on cholera in places like Mayiseni Clinic, Pongola Clinic, Tshelejuba Hospital, Mbazwana Resource Centre and Mosvold Hospital. The availability of information on cholera in various centres shows the concern the Health Department is placing on cholera education. A good number (59.26%) of respondents have not had formal education on cholera. However, their responses on cholera questions shows that they have had some information through other sources. Most of the respondents, for instance, know how to prepare a rehydration solution. The radio has also been active in promoting education on cholera and must have reached a lot of people.

5.5.4 Respondents knowledge of Dehydration Symptoms and Making a Rehydration Solution

Prompt fluid therapy is necessary for a person who suffers from cholera. The usual rehydration solution consists of eight teaspoons of sugar mixed with $\frac{1}{2}$ a teaspoon of salt dissolved in one litre of water. Serious dehydrated patients may need electrolytes administered intravenously in a hospital. The symptoms of dehydration are the following:

- Tongue white and dry
- Cheeks hollow.
- Intense thirst and dry mouth;
- very little urine (wee) and it is dark yellow;
- skin loses elasticity and spring. If one lifts some skin up between two fingers it does not fall straight back to its normal place;
- sunken soft spot (*ukhakhayi*);
- sunken eyes and very little tears when crying.

Only 24.53% of the respondents knew at least one symptom of dehydration. A considerable majority of respondents 75.47% had no clue about how they could tell if a child is dehydrated. In terms of making the rehydration solution, 54.72% of the respondents knew how to make a rehydration solution using accurate amounts of water, sugar and salt. The rest of the respondents (45.28%) knew that the patient must be given a liquid of some kind. Some referred to a sugar and salt solution; one referred to jik or boiled water. The rehydration solution has been public knowledge for a long time and it is, therefore, important for teachers to know how to make it. It is also important that the quantities of sugar and water added to the rehydration solution are accurate because we need to preserve the salt water balance, that is, osmoregulation in the body. In terms of symptoms of cholera, all the respondents knew the symptoms of cholera. The respondents are

therefore in a position to identify learners suffering from cholera and to give them first aid.

5.6 CONCLUSION

This chapter presented results on the findings on respondents' knowledge about cholera as well as their living conditions in areas where they work. It was found that the sample consisted mainly of women which is an indication that it is mostly women who are upgrading their qualifications because of the preference of men over women to get higher education. A significant number of educators were reported to be still living in one or two-roomed houses. The pit system was found to be the dominant type of toilet in rural areas. The question of difficulty in asking questions using a language different from that of respondents, presented problems of understanding one question. Had the questionnaire been followed by interviews such language difficulties would have been picked up and explained in the educator's first language. All the respondents were found to be literate about symptoms of cholera but not all could make a rehydration solution. Very few respondents understood or could say how one can identify symptoms of dehydration.

The researcher underscores the importance of having solid environmental education knowledge both for learners and educators if our country is to reach sustainable development for various communities. An extract from materials developed by the North American Association for Environmental Education states that environmental education is good education. For instance, it states that environmental education fosters skills and habits that people can use throughout their lives to understand and act on *environmental issues*. It not only emphasizes critical and creative thinking skills but also builds the capacity of learners to work individually as well as co-operatively to improve environmental conditions.

CHAPTER SIX

RECOMMENDATIONS AND CONCLUSION

6.1 INTRODUCTION

This study has focused on finding out how much educators know about cholera and its effect/impact on the community's health. The aim of the researcher was to determine whether primary school teachers are reliable resource persons to inform and teach learners about dangers of cholera infection, how to manage infection and how to prevent it. After all prevention is better than cure.

The study also wished to establish whether the educators have their own misconceptions about cholera. Information gathered on housing and toilet system used aimed at finding out whether housing for teachers is adequate or not and whether they have running water. All these factors impact on people's ability to maintain health standards. The idea is that if educators have poor housing, it is also very likely that communities around them live under poor conditions as well. The government has a huge backlog in providing basic amenities for its citizens. The lack of basic needs has increasingly been used as an indication of poverty (Robinson, 1996). "Basic needs are those things that an individual must have in order to survive as a human being. Essentially, these are clean (unpolluted) air and water, adequate and balanced food, physical and emotional security, physical and mental rest, culturally and climatically appropriate clothing and shelter. Climate indeed has an impact in the spread of cholera because it is when the rains, hot and humid climate comes that cholera thrives. Conclusions drawn from the study are as follows:-

6.2 WOMEN EDUCATORS

Most of the educators in the study were women who had not completed their professional training because of bearing children and some might have had husbands who may not have encouraged them to complete their training. Empowering such women with the necessary skills and literacy on health issues so that they are always alert and cautious would be empowering the whole nation and that on its own would reduce the further spread of cholera. There is an expression which highlights the role of women in the family by saying if we educate a man, we educate an individual, but if we educate a woman, we educate the nation.

6.2.1 Educators

The educators can play a major role in changing the lives of people for the better through enlightenment. If they could include cholera education in the curriculum, learners would take that information to their parents at home. Learners would make informed decisions about their daily activities, like not drinking river water on their way to and from school and swimming in infected rivers on hot days. However, it is important for educators to have a sound knowledge of cholera without serious misconceptions so that they could pass accurate information to the learners. A school subject like Life Skills could address issues of health to help the learners to make informed decisions about their lives. The school curriculum in the Outcomes Based Education is very flexible and educators ought to be able to respond to the needs of the community. For instance, educators could always respond to cholera outbreaks by teaching learners how to recognize symptoms of cholera infection and how to protect themselves from infection.

6.3 OUTCOMES-BASED EDUCATION

The Educators in South Africa has been battling with understanding Outcomes-Based Education (OBE) a new approach to handling the curriculum. The respondents had two

years of in-service training in which they were helped on how to handle OBE in the different Learning Areas they teach. Lohrmann (1993 : 45) discusses major concepts that can be taught throughout the curriculum. Some of these are:

- Health is essential to high quality of life.
- Individuals who value health behave in ways that promote health and around behaviours that compromise health.
- Most contemporary health problems are related to individual behaviours.
- Lifestyle is the key to both disease prevention and growth toward wellness.
- Lifestyle should be consciously chosen.

6.4 RECOMMENDATIONS

6.4.1 Building partnerships

The way the respondents answered the questionnaires, indicated that quite a number of them have an adequate basic knowledge about the signs and symptoms of cholera and the rehydration therapy that needs to be given to the victim as first aid. It was observed that some of the educators were not sure of how to handle soiled clothes of a patient, but with access to information in the form of well-structured pamphlets, teachers could be used to educate learners and local communities. Both the Department of Education and the Department of Health should network and pool resources in order to try and fight cholera together as a team. Pooling of resources and energies will produce a greater impact than isolated efforts, partnerships are therefore important. According to Phillips (1990) an estimated four to five million children die each year from dehydration usually as a result of diarrhoea. Teaching mothers how to make and administer a simple fluid replacement solution of soiled water, salt and sugar can save many lives.

6.4.2 Education for critical consciousness

Good and effective methods of teaching communities should lead to participants increasing ownership of problems in their communities and development of skills to address the problems effectively. According to Green and Simons-Morton (1984) sometimes lack of information keeps the public from taking needed action to protect themselves from diseases. The role of educators should be one of demystifying scientific and environmental issues so that they are accessible to semi-literate communities. Paulo Freire (1974) made a very critical statement when he said that once man perceives a challenge, understands it, and recognises the possibilities of response, he acts. The nature of the person's action corresponds to the nature of his understanding. According to this Brazilian educator critical understanding leads to critical action which in this case might mean eradication of cholera infections when people adopt sustainable lifestyles.

Regan and Robinson (1996) in their discussion of development education state that development education seeks to create the circumstances in which critical consciousness and the moments which underpin it can be realised. The two authors highlighted four key moments in the development of critical consciousness. These key moments seem generic and the researcher thinks they apply to any environmental problem. These key moments are described as follows:

- Naming which refers to a description of what the problem is
- Reflecting which involves giving an account of the background and causes of the problem
- Acting which refers to a set of behaviours whose purpose is to remove, solve, manage or adapt to the problem.
- Valuing which translate into a vision of the ideal situation which would exist in the absence of the problem and in the light of which the problem was defined and described in the first place.

6.5 CONCLUSION

Basic health is significant to every South African citizen. This is especially the case in rural communities, where basic amenities are inadequate. Government departments and Non Governmental Organizations (NGO's) are some of the key stakeholders in the prevention of this endemic disease. Their ability and commitment to managing the cholera problem is important. A close working relationship between the Health Department and educators could develop appropriate curriculum about health issues for the learners. Some African countries like Swaziland have successfully gone this route. Every child who leaves school after ten years of schooling, is literate on recognising symptoms of diseases prevalent in early childhood and those that occur periodically in the kingdom. They also know suitable first aid measures that should be given before the patient is taken to hospital. But more importantly, learners are taught healthy ways of running their lives to prevent infection.

Writing on changing Health Paradigms in Costa/Rica, Mohs (1991) confirms that infectious diseases like tuberculosis, diarrhoea, malaria, etc, could be reduced not only by a supply of food nutrients but also through the improvement of environmental sanitation and hygiene. Environmental education teachers have a challenge to teach learners ways of sustainable living. The educators have a responsibility to help learners maintain a state of complete physical and mental wellness which can help them reach their maximum potential in life.

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APPENDIX 1

QUESTIONNAIRE ON CHOLERA

Please make a tick in the appropriate block given on the right

1 I am a

Woman	
Man	

2. My age is between

7 and 12 yrs	
25 and 35 yrs	
37 and 47 yrs	
50 and 70 yrs	

3 My family and I live in a

1 roomed house	
2 roomed house	
3 roomed house	
Bigger than above	

4 Our toilet is a

Pit system	
Bucket system	
No toilet	

5. We wash our clothes

At home	
In the river	

6. Our drinking water is from

The river	
The tap	
Bore hole	

7 I wash my hands

Once a day	
Every time before touching and after visiting the toilet	

8. Our toilet is

Very close to the house	
Far away from the house	

9. After using the toilet we

Close the sit	
Leave it open	

10. Have you attended any cholera lessons?

Yes	
No	

If yes, where?

11. Have you ever been infected with cholera?

Yes	
No	

12. Have you lost your family member because of cholera?

Yes	
No	

If yes, how long did this take before the person died?

SECTION B

Fill in the blank spaces

1. The first thing that we do for cholera-infected members is
.....
2. How do you handle their soiled clothes?
3. If you fetch your water from a river or well, how do you prepare your water to ensure good hygiene?
4. What are the symptoms of cholera?
5. A person infected with cholera suffers from dehydration and eventually dies. How would you see that a person is dehydrated? Mention two signs you would look for?
(a)
(b)
6. How would you make a re-hydration solution for a person who has lost a lot of body fluids?

.....

.....

.....

APPENDIX 2



Did you know? ... about diarrhoea and dehydration

The main symptom of many waterborne diseases is diarrhoea (runny tummy). Sometimes people also vomit (throw up) and have stomach cramps (sore tummies). People with HIV/AIDS often suffer from diarrhoea. But if you have diarrhoea, it does not mean that you have HIV/AIDS.

Our bodies always have a lot of fluid (water and mineral salts) in them and the different systems in our body need this fluid to be able to do their jobs properly. We lose some of this water by urinating (wee-ing) and sweating. That is why we get thirsty and need to drink.

When we have diarrhoea and vomit, we lose a lot of body fluid in a very short time. Our body cannot work properly. Often we don't feel like eating or drinking. This makes the problem worse because we are not replacing the liquids that we are losing. When this happens, we get dehydrated (our body gets dry inside), because we lose more liquid than we take into our bodies. The picture of the dehydrated baby shows some of the signs of dehydration.

If we do not treat the dehydration, we can die. About three million children die from dehydration caused by diarrhoea every year.

We should re-hydrate as soon as people get diarrhoea. We should not wait until they have had diarrhoea for a while. If the diarrhoea does not get better, visit the clinic or a doctor.

Making a link to the curriculum

PHASE ORGANISER: The learner and personal development

PROGRAMME ORGANISER: Water for life

SUB-UNIT: Sanitation and hygiene

CORE SOs:

- NS SO4 (demonstrate an understanding of how scientific knowledge and skills contribute to the management, development and utilisation of natural and other resources)
- TECH SO3 (access, process and use data for technological purposes)

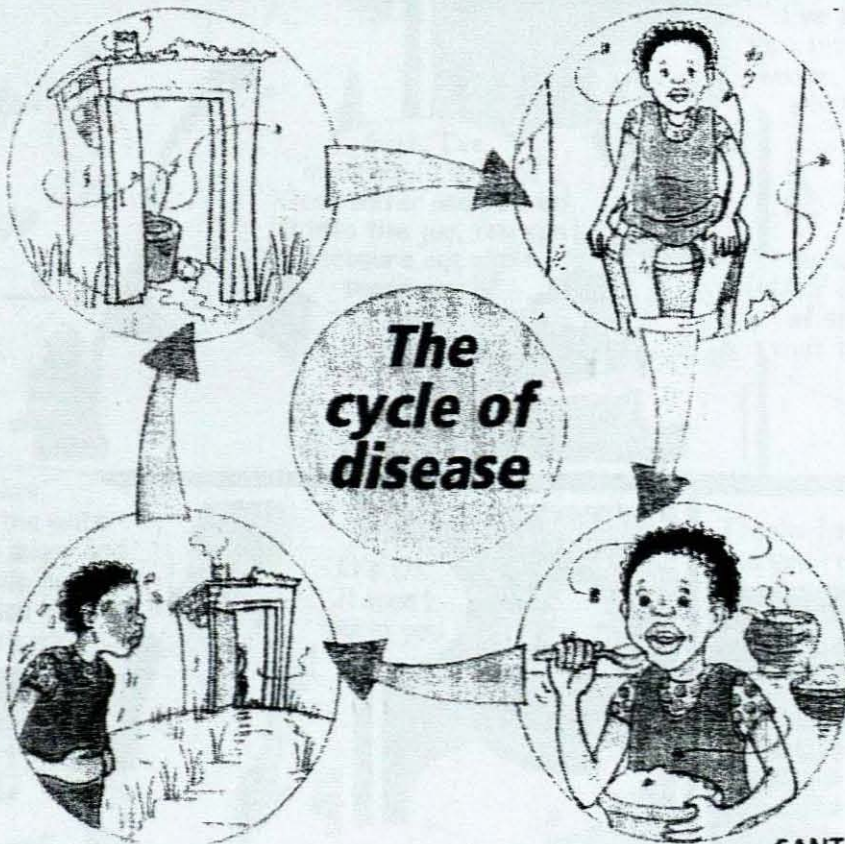
INTEGRATED SOs:

- HSS SO6 (demonstrate an understanding of the inter-relationship between society and natural development)

Signs of dehydration



- Thirst and dry mouth;
- Very little urine (weel) and it is dark yellow;
- Skin loses elasticity and spring. If you lift some skin up between two fingers it doesn't fall straight back to its normal place;
- Sunken soft spot (ukhakhayi);
- Sunken eyes and very little tears when crying.

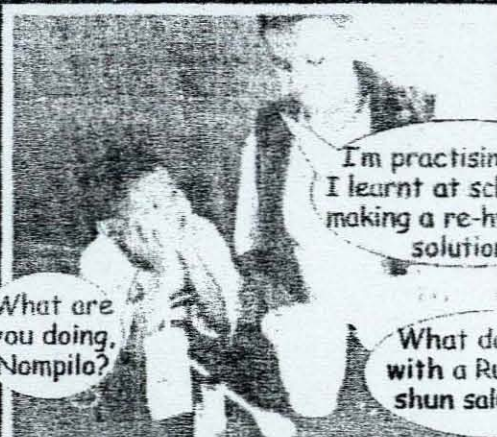


SANTAG

It's easy to make a re-hydration solution

You need:

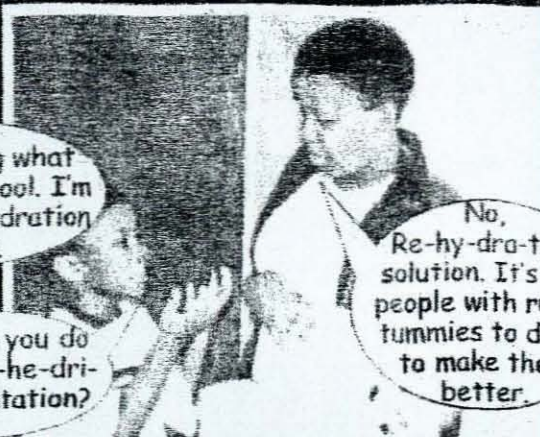
- ✓ a clean one or two litre bottle with a lid
- ✓ eight level teaspoons of sugar
- ✓ half a level teaspoon of salt
- ✓ a piece of clean paper or clean plastic funnel
- ✓ one litre of clean purified water (see the poster)
- ✓ a clean cup and teaspoon



What are you doing, Nompilo?

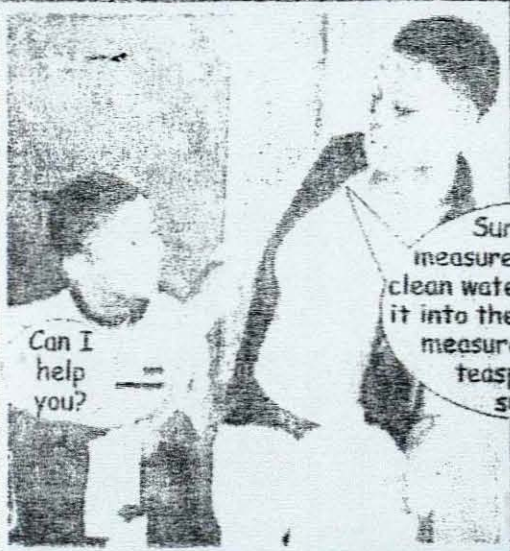
I'm practising what I learnt at school. I'm making a re-hydration solution.

What do you do with a Ru-he-dri-shun salutation?



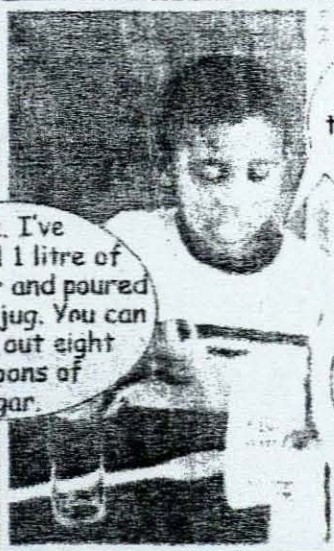
No, Re-hy-dra-tion solution. It's for people with runny tummies to drink to make them better.

One day, after school at Nathi and Nompilo's house....



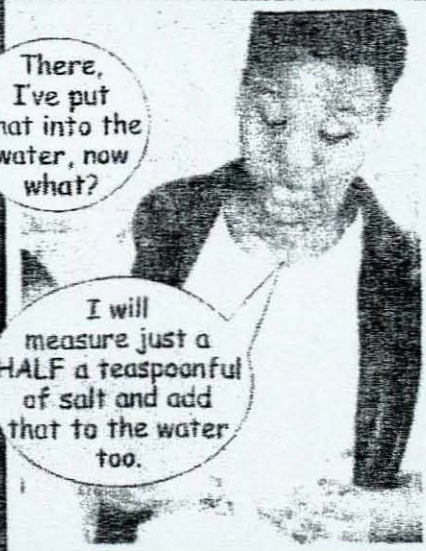
Can I help you?

Sure. I've measured 1 litre of clean water and poured it into the jug. You can measure out eight teaspoons of sugar.



There, I've put that into the water, now what?

I will measure just a HALF a teaspoonful of salt and add that to the water too.

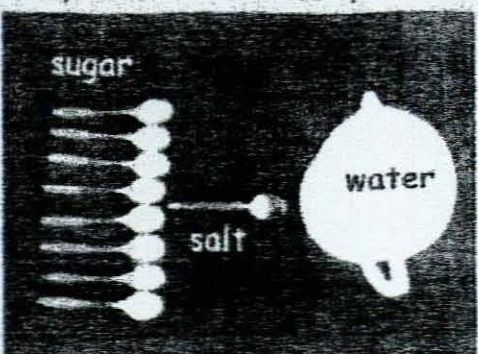


Now we stir the water until the sugar and salt have disappeared. Would you like to taste it?

It's OK, it won't harm you

Not bad, quite sweet! I can't taste the salt at all! And I feel fine....

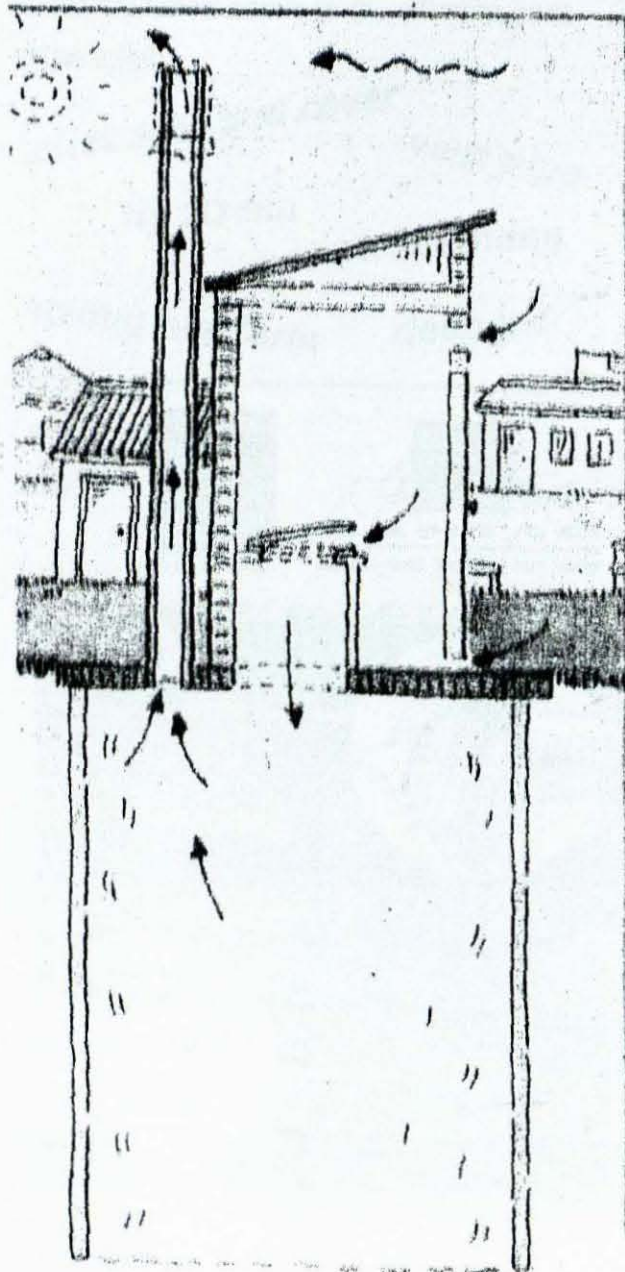
Thanks for being my helper, Nathi! Can you remember the recipe?



Easy! Eight teaspoons of sugar, half a teaspoon of salt into one litre of clean water!

APPENDIX 3

A ventilated improved pit (VIP) toilet



What is it?

In this toilet, all the waste material is kept in a pit "on site". The waste is not washed away by water through a network of pipes. It is not washed down the river. A VIP toilet is a good toilet. Disease will not spread from a VIP toilet if it is properly built and well looked after.

Look at what this toilet looks like above the ground:

- well built with no cracks in the floor, walls, door and roof to prevent insects from coming inside and breeding;
- comfortable pedestal with a lid;
- vent pipe with a wire mesh fly screen;
- door that is kept closed most of the time;
- lid on the toilet seat that is kept closed to stop children falling in and flies from getting out of the pit;
- properly ventilated so that air can flow through the system and keep smells away (the arrows show the airflow).

Look at what the toilet looks like under the ground:

- deep pit that is lined with cement so that soil does not fall in.
- concrete slab over the pit to stop rain from getting into the hole.

What happens when the toilet gets full?

Provided you don't throw water and other solid material down the toilet, it will take about five years for the pit to fill up. A special tanker truck is needed to empty it. Contact your local council to find out more about maintaining your pit toilet.

Label the toilet

Match the labels below to the different parts of the toilet.

toilet seat and cover

fly screen

concrete lining

vent pipe

strong platform

deep pit

erial
lled



Looking after your toilet

*** DON'T**

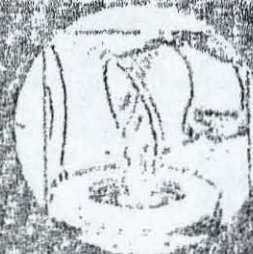


Do not pour disinfectants (Jik, Jeyes fluid, etc.) into the pit. These kill good bacteria.



Do not throw old engine oil into the pit.

Do not throw any water into the pit as it fills the pit up quickly.

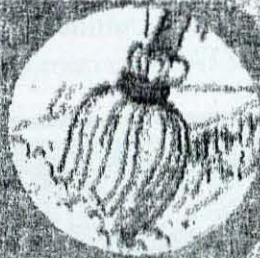


Do not throw stones, old clothes, food, plastic and other household waste in the pit.

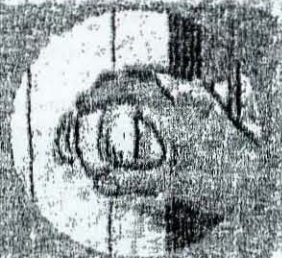


DO

Keep the area around the pit toilet clean.



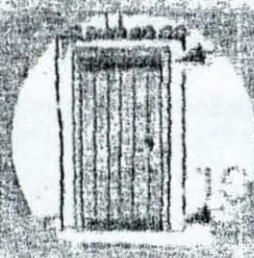
Keep the toilet door closed.



Keep a lid on the opening of the pit.



Use toilet paper.



Keep the door closed, but make sure the air can flow and blow the smells away.



Wash your hands with soap and water after using the toilet.

Using the arts to save lives

'Vukani!' (Watch Out!) the hard-hitting street theatre performance, which has been raising cholera awareness and its preventative measures, has been given an extended run. The programme has already enjoyed forty performances in schools, taxi ranks and other points where the community gathers together. An audience of almost 10 000 adults and 8 000 children has been exposed to the performance.

Thanks to the sponsorship of the South African Sugar Asso-

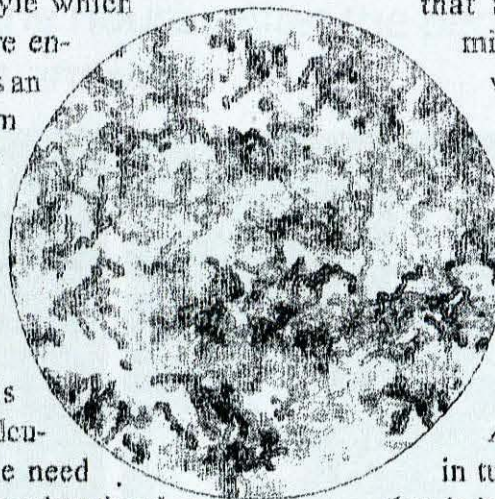
ciation the show has continued carrying its life-saving message to Nongoma, Nkandla, Hlabisa, Eshowe, Empangeni and the rural surrounds of Port Shepstone.

Initiated by KwaZulu-Natal's interdepartmental Sanitation Task Group, SANTAG, this venture forms part of the provincial cholera programme aimed at combating the latest cholera outbreak.

The co-ordinator of this street theatre project, Natasha van Niekerk of Community Awareness and Promotions (CAP) be-

lieves that the dynamic and interactive style which street theatre encapsulates is an ideal medium for community education. The full impact of the cholera epidemic is yet to be calculated but the need for innovative educational approaches is self-evident.

The co-ordinator believes that the twenty minutes of diversion 'Vukani!' gives its audiences can save lives. The South African Sugar Association in turn believes that it has a role to play in improving the lives of the communities it serves.



Sources:

- The Department of Health
- SANTAG (Sanitation Task Group)
- WHO (World Health Organisation)

SOUTH AFRICAN SUGAR ASSOCIATION



This page sponsored by:

SOUTH AFRICAN SUGAR ASSOCIATION



It deals with the disease in a light-hearted manner. A schoolgirl, her street-vendor mother and her father discuss the transmission of cholera. The stubborn father, Zondi, though getting progressively sicker remains unwilling to listen to the advice his daughter has brought from school - to retain his authority as the head of the house. After the performance the audience is tested and receives sponsored prizes for the correct answers.



Water purification

One teaspoonful (5ml or one capful if bottle has a screw cap) of household bleach to 20-25 litres of water. Thoroughly mix the solution and allow it to stand for 30 minutes before use.

Rehydration

Oral administration of a glucose-electrolyte solution to patients with diarrhoea will save many lives - Mix 8 teaspoons of sugar and 1/2 a teaspoon of salt with one litre of water. 80 - 90% of patients will recover.