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## Creating a culture of health: hygiene behaviour change in community health clubs through knowledge and positive peer pressure

Juliet Anne Waterkeyn and Anthony James Waterkeyn

### ABSTRACT

Understanding the mechanisms that trigger behaviour change to overcome risky hygiene is critical to improving family health. Research in an integrated health promotion programme in 382 Community Health Clubs (CHCs) in three districts of Zimbabwe showed clearly the value members attached to gaining 'knowledge', which was their strongest motivation for joining CHCs. In these rural areas, where only 38% had completed primary school, randomly sampled CHCs ranked the 'Need for Knowledge' second highest after 'Safety'. A survey of 880 CHC members showed that an average of 80% of CHC members who had 'full knowledge of diarrhoea', also practised ten recommended hygiene practices ( $P > 0.001$ ), compared to 17% who had 'some knowledge', and 6% who had safe hygiene, but 'no knowledge'. In the control group only 50% with 'full knowledge' of diarrhoea, also practised safe hygiene, 30% fewer than the CHCs. Therefore, thorough training is needed to ensure a critical mass have 'full knowledge'. This justifies the CHC Model with 24 weekly sessions reinforcing key messages over a six month period. Positive peer pressure through shared knowledge, understanding and experience, combines to change group values ensuring that even uninformed individuals adopt safe hygiene practices through the adoption of a 'Culture of Health'.

**Key words** | Africa, community health club, hygiene behaviour change, knowledge, women

Juliet Anne Waterkeyn (corresponding author)  
Anthony James Waterkeyn  
Africa AHEAD,  
95 Dorries Drive,  
Simons Town,  
Cape Town,  
Western Cape 7075,  
South Africa  
E-mail: [juliet@afrikaahead.com](mailto:juliet@afrikaahead.com)

### INTRODUCTION

Hygiene behaviour change is critical to prevent diseases and reduce infant and child mortality and morbidity in developing countries (Feachem 1984). It is therefore important to find a mechanism for behaviour change that can reliably trigger and sustain improved hygiene at village level to augment the benefits of safe water and sanitation. It has also been well established in the literature that the level of a child's health and welfare is indeed correlated with the level of the mother's education (Caldwell 1979). Unicef (2010) has demonstrated how most of the six million children that die annually of malaria, diarrhoea, acute respiratory infections, poor birthing and infant care could have been saved if the mother had been better informed and had practised safer home hygiene. Even if a mother is uneducated and illiterate, she is still capable of

understanding the causes and prevention of common diseases and this knowledge is critical if her children are to survive and grow properly. However many practitioners today are purposely disregarding this cognitive need in the under-educated, pursuing strategies that are counter intuitive. The trend in the public health sector shows that practitioners' belief in the critical importance of knowledge as a prerequisite for safe behaviour has in fact been diminishing over the past few decades and that current 'wisdom' is gravitating against the use of information. This trend has prompted the publication of this case-study from Zimbabwe which amply demonstrates the value and importance that mothers themselves attach to knowledge and how, if these cognitive needs are met, safe hygiene, at scale, can be achieved.

## Trends in public health

Going back to the beginning of community development as a discipline in the 1960s, we find the well articulated 'Health Belief Model' (Janz & Becker 1984) which worked on the assumption that the variance of an individual's behaviour is based on their attitudes and belief, which in turn is predicted on the levels of health knowledge. Paolo Friere's, (1970) liberalising approach emphasised the importance of '*humanising the oppressed*' uneducated masses and '*empowering*' them with a sense of worth and a confidence to change. Many more 'bottom up' programmes developed to provide 'beneficiaries' with more sense of ownership using VLOMM (Village level operation management and maintenance) during the Water Decade of the 1980s. However, by 1990, a review (Loevinsohn 1990) found a very limited number of rigorous studies to prove that there had been much improved health or changed behaviour. By the 1990s, the emphasis had already shifted to 'community empowerment' as 'best practice' to fully engage the beneficiaries and the Water Sanitation and Hygiene (WASH) sector had begun to use the more 'participatory methodology' of 'Participatory Hygiene and Sanitation Transformation' (PHAST) to enable communities to manage their own projects (Srinivasan 1990). Despite significant training and expense in PHAST projects in East and Central Africa, studies a decade later (Palmer Development Group 2005; Malebo *et al.* 2007), confirmed that there was, once again, minimal hygiene improvement using PHAST. The perceived failure of the participatory methods of PHAST to improve hygiene, again prompted a rethink on the mechanism of behaviour change and there was a reaction, which was largely academic, against the use of knowledge as a motivator for hygiene change.

With a new millennium, came fresh thinking, and 'Social Marketing' was perceived as a breakthrough in traditional 'development' by applying the more commercial principles of advertising. This theory asserted that people change more easily through *emotional* triggers such as 'disgust', rather than *rational* understanding of benefits to health. Social Marketing proponents teamed up with soap manufacturers in 'Public Private Partnerships', to sway target populations by using the appeal of status on a subliminal level to pinpoint specific behaviours such as

handwashing with soap (Borghi *et al.* 2002). Another approach to ignore the cognitive need, known as Community Led Total Sanitation (CLTS) made use of the very human emotion of 'shame' to trigger a process to achieve Open Defecation Free (ODF) villages (Kar 2003). However both approaches were narrowly focused on a few key messages (handwashing or sanitation) rather than a holistic approach with multiple messages, as is needed by the community to address a whole raft of diseases.

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## THE COMMUNITY HEALTH CLUB MODEL OF DEVELOPMENT

During the same period that Social Marketing and CLTS were being developed, an alternative community mobilisation strategy was developing known as the Community Health Club (CHC) Model (Waterkeyn & Cairncross 2005). The CHC Model is based on the same assumption as the Health Belief Model, i.e. that knowledge is indeed critical as a prelude to change of behaviour. However, in recognition that knowledge *alone* is not enough, it also draws on the Theory of Reasoned Action and Planned Behaviour and Social Learning (Ajzen & Fishbein 1980) which emphasises, in addition to knowledge, the importance of '*social pressure*' to effect individual change. From this perspective, behaviour is understood to be determined by a combination of '*personal belief*', '*subjective norms*' (the assurance of the support for the action from relevant individuals) and '*perceived personal control*'. The Social Learning Theory (Bandura 1986) also contributes to the CHC Model which recognises the importance of '*self efficacy*' (confidence in one's ability to change). The CHC Model reinforces knowledge with *positive* peer pressure to enhance an individual's self-efficacy. The concept of *Social Capital* (the level of trust and reciprocity) (Kawachi & Berman 2003) reinforces the CHC rationale for targeting the group rather than the individual. Recent research on social network densities, again illustrate the mechanism of human interactions in groups (Christaki & Fowler 2012) further strengthening the underlying assumptions of the CHC approach.

On a practical level the CHC approach is an integrated model of development, providing maximum opportunity for

community cohesion with at least 20 sessions with the same people in a consistent group for at least six months, during which time the whole group progresses together in a common unity of understanding and joint action. A membership card is designed for each programme, with a 'syllabus' of relevant topics (Figure 1). When members join the 'club' they are given their own 'membership card' which is signed by the facilitator upon attendance of each training topic. The main activity is a weekly health promotion session which provides information through participatory activities using a 'Toolkit' of over 300 illustrated cards to provoke debate on all issues relevant to each community. By the end of the training, committed members can easily identify the causes, transmission and prevention of most common preventable diseases (e.g. acute respiratory infections (ARI), diarrhoeal diseases, skin/eye disease, malaria, schistosomiasis, worms, HIV/AIDS, and tuberculosis). The CHC uses many of the same activities as PHAST but is much more holistic dealing with more than just water and sanitation-related issues. Whereas PHAST training had only seven stages (training

days) and targeted the whole population of the village at loose gatherings (where the same people may never come twice), the CHC provides a structured membership which meet at least 20 times, so all members can progress together with 'common-unity' making the community more functional.

The reward for full attendance of 20 sessions is simply the public recognition in a formal 'Graduation Ceremony' where dedicated CHC members are honoured with a certificate. As with adult literacy classes (Auret 1990), CHC training appeals particularly to women often with over 80% of members being female, although men are strongly encouraged to join. The CHC is dedicated to creating a 'Culture of Health' and resonates with human needs in the same way as the Scout Movement succeeds in developing 'values' of community service among the youth (Waterkeyn 2006). Not unlike a congregation of a Church, a committed CHC membership develops at the weekly meetings. The CHC training recommends specific practices to be attained each week as shown on the membership card (Figure 1) in the form of 'homework' to be completed by the next session

| No. | Topics                   | Signature | Date | Homework                    |
|-----|--------------------------|-----------|------|-----------------------------|
| 1   | Mapping of Village       |           |      | Clean swept yard            |
| 2   | Solid Waste Disposal     |           |      | Rubbish pit managed         |
| 3   | Balanced Diet            |           |      | Fruit trees grown           |
| 4   | Nutrition Plans          |           |      | Home nutrition garden       |
| 5   | Diarrhoea                |           |      | Knowledge of 5 Fs*          |
| 6   | Dehydration              |           |      | Knowledge of SSS / ORS**    |
| 7   | Home Hygiene             |           |      | Upgraded kitchen            |
| 8   | Water Sources            |           |      | Protected water source      |
| 9   | Drinking Water           |           |      | Use of ladle to take water  |
| 10  | Water Storage            |           |      | Covered clean containers    |
| 11  | Hand Washing             |           |      | Hand washing facility /soap |
| 12  | Bilharzia                |           |      | Washing room                |
| 13  | Skin and Eye Diseases    |           |      | Cure skin diseases at home  |
| 14  | Worms                    |           |      | Take de-worming medicine    |
| 15  | Sanitation Ladder        |           |      | Zero open defecation        |
| 16  | Sanitation Story : Plans |           |      | Clean household latrine     |
| 17  | Malaria                  |           |      | Use of mosquito net         |
| 18  | Respiratory Diseases     |           |      | Sneeze into shoulder        |
| 19  | Tuberculosis             |           |      | Individual plates and cups  |
| 20  | AIDS and STDs            |           |      | Use of condom               |

\*5 F's: faecal-oral transmission of diarrhoea by flies, fluids, fingers, fields and fruit

\*\* SSS / ORS: Sugar Salt Solution / Oral Rehydration Solution

Figure 1 | Example of one side of the CHC Membership card used in Zimbabwe, 2000.

(protecting water, building a washing room, a hand-wash facility, a rubbish pit, a hygienic latrine etc.). Monitoring these changes is undertaken by the CHC committee who keep a 'Household Inventory' of all facilities in each house of CHC members. This may also contribute a '*Hawthorne effect*' (Landsberger 1958) which recognises that subjects respond more when they are under observation. The weekly meetings and home visits between members reinforce hygiene practices and enlarge the social network, developing solidarity and positive reinforcement by peers, which increases levels of trust and reciprocity in an area resulting in higher levels of Social Capital (Waterkeyn 2010).

The CHC Model was field tested in Zimbabwe from 1994 to 1997, and by 2001 there were 17,282 CHC members in 5 districts. Since 2002, approximately 1,768 CHCs have been started by Africa AHEAD (Applied Health Education and Development) in many countries in Africa, in partnership with other non-governmental organisations (NGOs), with around one million beneficiaries: Moslem post-conflict resettlement villages in Sierra Leone (CARE International 2005), Internally Displaced Peoples' (IDP) camps in Uganda (Okot *et al.* 2005), rural villages in Guinea Bissau (King & dos Santos 2007), informal settlements (Maksimowski & Waterkeyn 2008) and rural areas of South Africa (Waterkeyn & Rosenfeld 2009). In Asia, the Ministry of Health in Vietnam has piloted the CHC approach in four districts (Waterkeyn & Nga 2011). By mid-2011, two countries had taken the CHC approach to scale: virtually all 14,000 villages in Rwanda had registered CHCs through the Ministry of Health (Ministry of Health 2011) and in Zimbabwe the CHC Approach was being used by 22 NGOs in 37 of the 62 districts (Zimbabwe AHEAD 2011).

## THE INTERVENTION

The first large CHC programme was started in three districts in Zimbabwe: Makoni (Manicaland), Gutu (Mashonaland) and Tsholotsho (Matebeleland North) between 1999 and 2001, implemented by the Zimbabwe AHEAD Organisation (funded by the Department for International Development (DFID) and Danida and managed by the authors). By the end of the project there were 382 CHCs with 17,778 members and a total number of 6,287 health sessions had been

**Table 1** | Summary of the CHC Programme in Makoni, Gutu and Tsholotsho, Zimbabwe, 2001

|   | Makoni  | Gutu           | Tsholotsho | Total   |
|---|---------|----------------|------------|---------|
| Population of district                                  | 358,733 | 198,130        | 142,713    | 699,576 |
| Sanitation coverage before project                      | 24%     | 54%            | 16%        | 20%     |
| CHC wards in a district                                 | 21      | 16             | 3          | 40      |
| Environmental health technicians                        | 14      | 12             | 3          | 29      |
| Community health clubs                                  | 265     | 85             | 32         | 382     |
| CHC members   | 11,450  | 4,505          | 1,823      | 17,778  |
| Average size of CHC                                     | 43      | 53             | 54         | 50      |
| Number of beneficiaries                                 | 68,700  | 27,030         | 10,938     | 106,668 |
| Health sessions (March 1999–August 2000)                | 3,731   | 1,724          | 832        | 6,287   |
| Cost of training per beneficiary per annum US\$         | 35c     | 22c            | 33c        | 30c     |
| VIP latrines built (with subsidy) during project        | 2,400   | 0 <sup>a</sup> | 1,200      | 3,600   |
| VIP latrines built self supply in one year <sup>b</sup> | 194     | 111            | 15         | 320     |

<sup>a</sup>No sanitation component in the Gutu project.

<sup>b</sup>As sampled out of 1,127 respondents.

run in the three districts over two years (Table 1). The field cost of this intervention to the donors, with a total of 29 Environmental Health Technicians (subsidised by MoH) running the training, was only 30c (US\$) per beneficiary per annum.

## METHOD

The quantitative data was collected for PhD research by one of the authors (Waterkeyn 2006), and the results for two of the three districts (Makoni and Tsholotsho), were analysed and published (Waterkeyn & Cairncross 2005). The following data includes the third district, Gutu and provides new analysis, with particular emphasis on exploring the value of knowledge as a motivator for behaviour change in more depth.



## Random sampling

Between 2000–2001, approximately one year after the end of the programme, a survey was conducted on the knowledge and levels of behaviour change within the CHCs and this was contrasted with that of a control group of non-CHC areas. A random sample of 76, being one third of the total number of clubs were taken from the three Districts of Makoni, Gutu and Tsholotsho. Within each club, a random sample of 15 members was individually surveyed, giving 1,124 CHC respondents interviewed in total, with 492 respondents from Makoni, 219 from Gutu and 413 from Tsholotsho. The control groups were matched with similar communities adjacent to the project areas, with a further 276 respondents: 142 from Makoni, 75 from Gutu and 59 from Tsholotsho (Table 2). Whilst the control group, living in adjacent areas, had not been exposed to the programme, Health Club members had attended an average of 17 health sessions: 26% had not yet completed the training, 24% had completed the training less than a year ago, and 50% over a year ago.

## Observation of proxy indicators of hygiene behaviour change and survey of health knowledge

A household survey was undertaken which included spot observations of proxy indicators of safe hygiene behaviour,

related to the recommended practices known as ‘homework’ on the membership card (Figure 1). Questions to ascertain the knowledge of transmission and prevention of common diseases were also asked. The household survey took approximately 45 minutes for each home, and was analysed using an SPSS computer program.

## Structured interviews

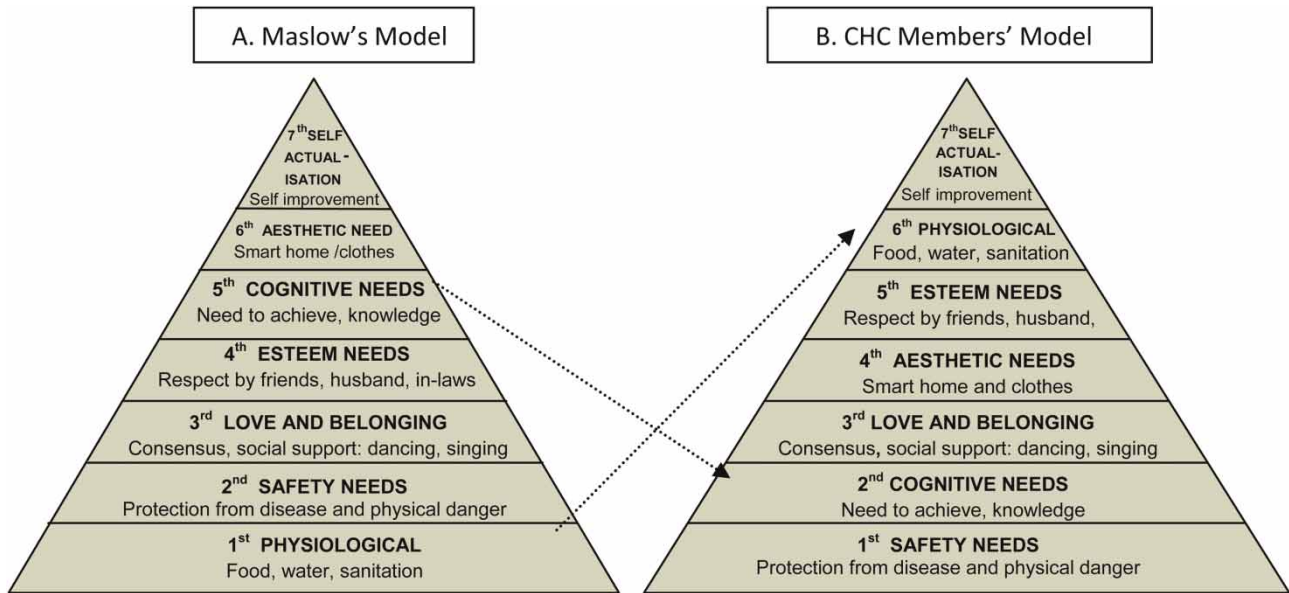
The qualitative data was conducted in 2004, three years after the end of the training. In 10 wards of Makoni District there were 87 CHCs which had been started between 1994 and 1999 known as the ‘old clubs’. These CHCs had been exposed not only to the health promotion training, but also to a range of other activities, such as sanitation, literacy classes, nutrition gardens, and many types of income generating projects. To ascertain which of these activities were the most valued by CHCs members, individual interviews and participatory group evaluation were undertaken. Makoni District was selected as it had the oldest clubs and a random sample was taken of one CHC from each of the 10 ‘old’ wards. In each of these CHCs, two members were randomly selected, and each respondent was interviewed individually in Shona through a translator, each taking about 30 minutes. The responses and simultaneous translation into English were recorded, transcribed and coded, and the content was analysed.

## Pair-wise ranking

In order to explore ‘group’ as well as ‘individual’ ideas, pair-wise ranking exercises were done in each of the 10 clubs to enable the group to rank suggestions in a participatory way. Each Health Club of 50–100 members (a total of approximately 750 people) was split into groups of around 10 people, and the groups were asked to provide at least 10 ‘suggestions’ written on pieces of card in answer to the following question which had also been asked in the individual interviews: *What has changed in your life since joining the Health Club?* The ‘responses’ were then classified into the same categories as those used in the Hierarchy of Needs (Maslow 1954), a classic typology which ranks human needs in order of importance (Figure 2). A matrix was drawn on the ground and the seven options in

**Table 2** | Demographic information on the CHC and control respondents in Makoni, Gutu and Tsholotsho districts, Zimbabwe, 2001

| Respondents    |                             | CHC members<br>n = 1,124 (%) | Control<br>n = 276 (%) |
|----------------|-----------------------------|------------------------------|------------------------|
| Sex            | Female                      | 72                           | 91                     |
| Education      | Less than 2 years school    | 15                           | 13                     |
|                | 2–4 years primary school    | 20                           | 21                     |
|                | Completed primary school    | 36                           | 37                     |
|                | Secondary education or more | 29                           | 29                     |
| Religion       | Denominational christian    | 59                           | 62                     |
|                | Apostolic christian         | 36                           | 31                     |
| Marital status | Married                     | 77                           | 78                     |



**Figure 2** | A. Categorisation and definition using Maslow's Hierarchy of Needs (1954), B. Ranking of Maslow's Needs according to CHC Members importance (Waterkeyn 2010).

the Hierarchy of Needs were placed along the  $x$  and along the  $y$  axis. Each pair was called out, whilst the respondents voted orally which was the most important of each pair. The majority choice was put in each square of the matrix and the number of each of the different options counted. The score was ranked firstly from each Health Club and then combined to give a final ranking for the whole 10 CHCs.

### Possible sources of bias

The survey was supervised by Zimbabwe AHEAD, the indigenous NGO which pioneered and implemented the CHC Programme, therefore it is reasonable to assume there may be some positive interpretation. However, the enumerators for the household surveys were not project staff, so there was minimal interviewer bias in the responses. The coding of the responses from the interviews was done by two people, the author and the translator, and the raw data has been peer-reviewed and transcripts are available for verification (Waterkeyn 2006). Precautions were taken to ensure random sampling. The number in the control groups should have been larger, but as political violence escalated in the run up to elections in 2002, there was suspicion of outsiders in the control areas where the programme was unknown, and the safety of the enumerators was at

stake. For this reason, once a pattern of response was evident, data collection of controls was terminated.

## RESULTS

### Quantitative findings

The comparative data between the CHC members and the non-CHC member control group was highly significant ( $P > 0.001$ ) as measured in the 10 important proxy indicators of safe sanitation and hygiene as shown in Table 3.

### Hygiene behaviour change

Diarrhoeal disease is an issue that has been consistently addressed within communities, particularly in Zimbabwe for the past 30 years, so there is little new information provided at CHC training. Knowledge of diarrhoea can demonstrate the link between knowledge and action, as multiple concrete behaviours need to be changed in response to the multiple transmission routes of this disease. As Table 4 shows, most respondents, whether CHC members or not, have *some* knowledge of the transmission and prevention of diarrhoea. There was a difference of only

**Table 3** | Respondents with 'Full Knowledge' and 'Some Knowledge' of diarrhoea correlated with 10 proxy indicators of good home hygiene in Makoni, Gutu and Tsholotsho Districts, Zimbabwe, 2001

| Proxy Indicators of good hygiene <sup>a</sup> | % Respondents with knowledge of diarrhoea (n = 1,127) |                        |                                   |                        |                                  |                        |
|---|---|------------------------|-----------------------------------|------------------------|----------------------------------|------------------------|
|   | % respondents with Full Knowledge                     |                        | % respondents with some Knowledge |                        | Combined full and some knowledge |                        |
|   | CHC members<br>n = 880                                | Non-members<br>n = 247 | CHC members<br>n = 880            | Non-members<br>n = 247 | CHC members<br>n = 880           | Non-members<br>n = 247 |
| Covered water                                 | 74.0  | 40.4                   | 21.2                              | 42.6                   | 95.2                             | 83.0                   |
| Pour to waste hand wash                       | 78.0  | 59.2                   | 16.4                              | 24.2                   | 94.4                             | 83.4                   |
| Use hand wash facility                        | 83.1  | 31.8                   | 12.8                              | 40.9                   | 95.9                             | 72.7                   |
| Use soap for hand wash                        | 85.6  | 40.0                   | 10.7                              | 50.0                   | 96.3                             | 90.0                   |
| Permanent pot rack                            | 85.4  | 65.2                   | 10.6                              | 16.0                   | 96.0                             | 81.2                   |
| Managed rubbish pit                           | 76.1  | 57.6                   | 18.9                              | 29.7                   | 96.0                             | 87.3                   |
| Clean swept yard                              | 76.1  | 56.8                   | 17.0                              | 28.8                   | 93.1                             | 85.6                   |
| Rubbish pit used                              | 76.1  | 57.1                   | 18.9                              | 29.7                   | 95.0                             | 86.8                   |
| No open defecation                            | 79.8  | 39.4                   | 14.6                              | 39.4                   | 94.4                             | 78.8                   |
| Home nutrition garden                         | 74.0  | 57.2                   | 19.9                              | 30.1                   | 93.9                             | 84.7                   |
| Average of all 10 indicators                  | 80%   | 50%                    | 17%                               | 27%                    | 95%                              | 83%                    |

<sup>a</sup>P > 0.0001 for all indicators.

**Table 4** | Sanitation behaviour of CHC and non-CHC members after one year of health promotion sessions in Makoni, Gutu and Tsholotsho districts of Zimbabwe, 2002

| Respondents | Types of Sanitation Practice |                    |                  |                    |                     |
|-------------|------------------------------|--------------------|------------------|--------------------|---------------------|
|             | OD                           | Cat san            | Temp latrine     | VIP                |                     |
| CHC member  | 57 (6.6%)                    | 298 (34.3%)        | 48 (5.5%)        | 465 (53.6%)        | <b>868 (100%)</b>   |
| Non-member  | 105 (40.5%)                  | 37 (14.3%)         | 5 (1.9%)         | 112 (43.2%)        | <b>259 (100%)</b>   |
| Total       | <b>162 (14.4%)</b>           | <b>335 (29.7%)</b> | <b>53 (4.7%)</b> | <b>577 (51.2%)</b> | <b>1,127 (100%)</b> |

12% in *some* knowledge of diarrhoea and safe hygiene practice between Community Health Club members, (who had received an average of 17 sessions of health education and hygiene promotion), and the control, non-CHC members who had received little, or no health education in the past year. A difference of 12% between the two groups may seem minimal, but to unpick the dynamics, we should note how the ratio between CHC and non-CHC members increases to 30% when we test those who have *'full knowledge'*. Of those CHC members that practiced good hygiene, 80% could demonstrate *'full'* knowledge of diarrhoea, whilst only 50% of the control could demonstrate *'full'* knowledge. This underlines an extremely important dynamic in the nature of human behaviour related to knowledge. It appears that to have *'partial*

*knowledge'* does not act as a strong trigger for compliance, whereas *'full knowledge'* achieves significantly higher *'buy in'* in terms of actively putting theoretical recommendations into practice. The CHC method was the only intervention in the year under scrutiny in the three areas of Makoni, Gutu and Tsholotsho, and it is therefore surmised that it is the CHC training which makes the difference between hazy knowledge and full knowledge. However, more than the increase in knowledge, it would appear that it is the peer pressure, which cements this belief in good hygiene practice. It is surmised that this is achieved through the constant reinforcement of key messages with repetition over a period of 20 sessions in six months and it is this thoroughness which appears to make the difference between behaviour change or non-response.



Full knowledge of diarrhoea in the CHC was 75.3% and 59.1% in the control – a 16% difference. However, when taking an average of 10 topics, we find an even larger difference of 30% between the two groups with CHC ‘full knowledge’ at 68.3% compared to 38.24% in non-CHC respondents ( $P > 0.001$ ). For example, in child care CHCs demonstrated 66.9% of ‘full’ knowledge as opposed to 25.9% in the control group; schistosomiasis was 59.5% in CHCs compared to 38.9% in control; knowledge of parasitic worms was 47.4% in the CHC and 22.3% in the control; skin disease was 54% in CHC and 25.5% in the control group, malaria was 71% in CHC and 52% in control, and even HIV/AIDS (which has had the most input in recent years) showed a difference of 64%:40%, whilst knowledge of tuberculosis in CHCs was 43%, compared to only 18.2% in the control group.

### Sanitation behaviour change

In the control group of 259 non-CHC members, 105 (40.5%) were still practising open defecation whilst only 57 (6.6%) of CHC members were still open defecators, making a 33.9% difference in burial of faeces between the two groups. Whilst 298 (34.3%) of CHC members used cat sanitation, only 37 (14.3%) of the control used this safe method of burial of faeces (See [Table 4](#)).

In addition, 48 (5.5%) of CHC members were using temporary latrines whilst 465 (53.6%) had built permanent latrines in the past year. By contrast, non-CHC respondents had only 5 (1.9%) temporary latrines and 112 (43.2%) VIPs. Safe sanitation (a combined total of cat sanitation, temporary and permanent latrines) is therefore being practised by 811 (93.4%) of CHC members as opposed to 154 (43.2%) of the control group ( $P < 0.001$ ) – a difference of 50.2% between the two groups. To avoid confounding with previous projects, only the VIPS (ventilated and improved pit latrines) which had been constructed in the past year were counted, and this correlated with those who had received subsidies specifically for sanitation.

The ability of a community to supply themselves with sanitation is now becoming a topical issue, and ‘self supply’ is seen as proof of ‘buy-in’ and therefore ‘best practice’. In 2000, cement subsidies for latrines was government policy and it was considered an achievement that in Makoni and Tsholotsho Districts, a total of 3,600 VIPs had been

constructed in two years by CHC members in the project. However Gutu, with a higher level of sanitation of 54% was not provided with subsidies. Of most interest are the 647 respondents who did not receive subsidies, 71 latrines had built VIPs by ‘self supply’ in the previous year, and of this number, 84% were CHC members. Therefore, it is surmised that health promotion training in Community Health Clubs actively stimulates construction of latrines, although, as recently demonstrated, ability to pay is a constraint and therefore latrines are more readily built when there is even a minimal subsidy ([Whaley & Webster 2011](#)).

### Qualitative findings

Whilst statistical data can prove a hypothesis numerically, the insight gained from qualitative data is critical in order to understand the perceptions of the targeted population. The group activity, as recorded in the pair-wise ranking, resonated strongly with the 20 individual responses in the structured interviews.

### Pair-wise ranking

The results fell into two main groups ([Figure 2](#)). The more salient needs were: ‘Need for Safety’ (21%) indicating protection of life (from danger and disease); ‘Cognitive Need’ (being knowledgeable) with 20%, and the ‘Need for Belonging’ in third place with 17%.

The less salient needs were: ‘Aesthetic Needs’ with 12%, ‘Need for Esteem’ with 11%, and ‘Physiological Needs’ at only 10%. Women gave little importance to their own need for self actualisation which conforming to Maslow’s Hierarchy was also last in the hierarchy, at only 9%.

The fact that Physiological Needs dropped from first in Maslow’s Hierarchy to sixth in the Community Hierarchy is an unexpected outcome, as it would be reasonable to assume, as did Maslow, that basic needs, would be the top priority for relatively poor rural householders. When questioned on their rationale, CHC members steeped in their training, argued that, safety from disease is contingent on good hygiene, which is in turn dependent on ‘Cognition’ (Understanding) and ‘Belonging’ (working together).

It could be argued that these results merely confirm the fact that people who appreciate learning would be attracted

to the CHC sessions. Given this potential bias, it is also clear that once exposed to the training CHC members are able to rationalise that basic *material comforts* (such as easy access to safe water and sanitation) are less important to survival than the *psychological* needs of Safety, Knowledge and Belonging, which were ranked first, second and third, respectively. Alternatively, it could be imagined that many CHC families have already satisfied their 'basic needs' and have now moved up the hierarchy to where the Cognitive Need is salient. However, this was not in fact the case, as the basic needs had not been met for 76% in Makoni who had no sanitation when the project began.

### Structured interviews

In the individual interviews, (Waterkeyn 2006) respondents were asked: 'What do you enjoy best about the clubs?' The content of each interview was categorised according to the most often mentioned themes, and the number of times a certain category was mentioned was counted. The most often cited theme as to why the members had joined the CHC was 'knowledge' (24%), followed by 'social interaction' (23%) and 'physical recreation' (13%). Only 4% of the members said their reason for joining CHCs was for the material inputs that might accrue, showing the members focus on personal responsibility. The *individual* interviews support the findings in *group* evaluation where women recognise the pre-eminent need for knowledge in order to protect their family as the following examples show.

'This knowledge and the discussions we have in the lessons. I enjoy it when you answer questions. You have time to laugh. Have some fun'. (female, aged 30)

'So much has changed in my life with this health club – the way I think, my village, my house. Even my husband can see a very big change. He is now seeing a woman who is able to look after the family. When I think of my parents who had not this knowledge that I have got now, I feel so sorry that they have lost something very important in their life.' (Female, aged 48)

'I am an old woman, and I never received the chance to learn. I had only my birth certificate, and expected the

only other one to be my death certificate, but now I have got this certificate. It makes me proud and now I am someone'. (Female, aged 68)

'The idea of bringing people together. You get ideas from this one and that one and that one. So you learn everything. You share your knowledge. I did enjoy it. Because to me it had a direction of the real life we are supposed to live... There is quite a change (with my wife). Because now you can be able to sit down together and discuss. You know some of the things, not only within your catchment area, but elsewhere and compare. Even world wide global.' And before? 'No, no, no! We never had such discussions. I think the health clubs came in to give us the light, because we are used to meetings now. Unlike the meetings we normally have in the village whereby we talk about what we normally do there. The health clubs give you new ideas from new people from elsewhere.' (Male, aged 56).

## DISCUSSION

The hypothesis of this research is that the appeal of the CHCs lies in the appreciation for learning, and the need for knowledge in the intellectual backwaters of a developing country such as Zimbabwe. Although the country has a higher literacy rate than most in sub-Saharan Africa, with 82% of women being nominally literate (Unicef 1999), even those who can read, have few *opportunities* for intellectual activity in the rural areas. Girls in particular, often leave school early and tend to marry young, becoming immersed in child rearing and farm work, with little time or opportunity for further study (Auret 1990). Women who are lacking education, may lack self efficacy, (the confidence to change), because, with a low risk-margin for error, they fear doing the 'wrong thing' and wasting limited resources (Gelfand 1984). However, that mothers, in particular, will take every advantage of the opportunity to improve the healthy growth of their children, is demonstrated in this research. The individual interviews and the group activities reflected the love of knowledge among rural semi-literate women who identified that of the many opportunities and activities that took place in Community Health Club

meetings, they valued 'learning' the most (24%), even ahead of the opportunity for income generation (4%). Perhaps this indicates an 'intellectual starvation' amongst semi-educated women in rural areas with few outlets for mental exertion (Tichagwa 1998) and the semi-literate in particular appreciate the opportunity for group discussion.

### The mechanism of group behaviour change

As shown above, communities do have some knowledge, but it is only with the conviction that comes with 'full' knowledge that change seems to happen. Knowledge *on its own*, does not improve health, because information must translate into improved hygiene behaviour, if the CHC Model is to claim to be effective. So how do Community Health Clubs achieve this change? It is surmised as follows: in order to progress, a peasant community has to change from a 'cyclical' mindset, which repeats the behaviour of a previous generation, and adopt a 'linear' mindset open to innovation, moving ahead to untried experiences. This step into the dark is easier to achieve when the individual is encouraged through group endorsement. The human impulse to follow fashion may well trigger change initially, but this change may not be sustained unless based on sound conviction, bolstered by peers, which in turn is contingent on correct knowledge. The mechanism for change in the CHC Model can be visualised as follows (Figure 3). At individual level, a person may have had the experience as well as the information, and

understanding of what is best to do, but may lack the energy, conviction, and self-efficacy or means to make the change. When the individual falters, the group provides the necessary positive peer pressure. This is achieved through shared experience, common knowledge and understanding. These three attributes make for a strong 'group consensus', which changes the norms and values, creating, in this case, a 'culture of health'. A 'culture' is a particular way of thinking which encourages the individual to keep within the expected norms and standards of the group, counteracting individual angst and promoting 'self efficacy'.

However, knowledge, on its own, does not necessarily induce change. There will, of course, always be a proportion of people who do not change, as some may decide that it is not worth the time, effort or expense, while others may fear change because they are concerned how this will be perceived by the rest of the community. However, positive peer pressure bolsters those individuals lacking self-efficacy or the will to change. Whether they appreciate the *reasons* or not, 'late adopters' can be swept along by the 'subjective norms' of the group without risk of personal decision-making. As Social Learning Theory (Bandura 1986) shows, peer pressure is obviously most effective when there are regular interactions. It is surmised that, like weekly church-going, the *enjoyment* of socialising once a week with neighbours, and the *comfort* of 'group consensus' enables old values to change, and new values of hygiene create an aspiration of healthy living.

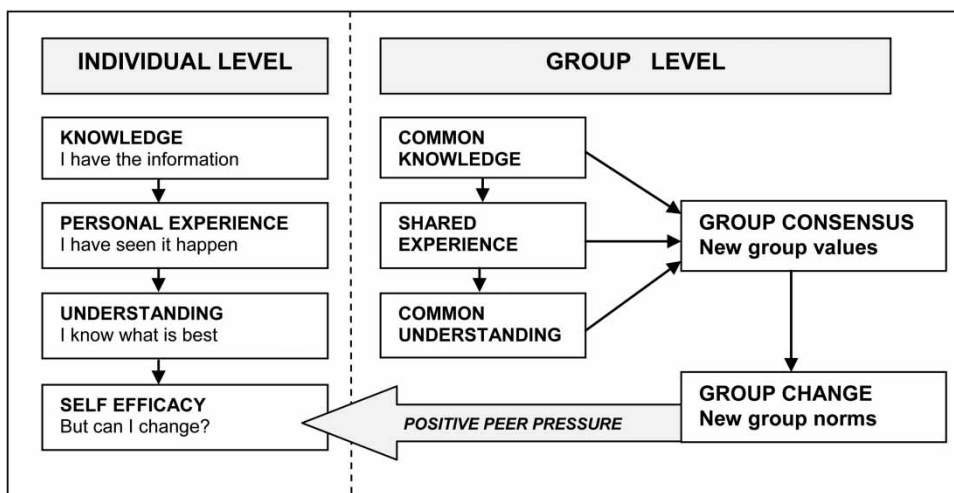


Figure 3 | The Mechanism of Group Behaviour Change in the Community Health Club Model of development.

This study demonstrates how CHC members, of which 38% have no more than primary education, can absorb extensive information and enjoy more than a few simple directives. These findings underline the obvious: correct knowledge generates understanding, which provides an impetus for improved behaviour. The more face-to-face interactions there are, the more likely and sustained is the change (Waterkeyn 2006). In addition, the CHC approach is culturally appropriate in Africa, as it resonates with the traditional coping mechanism of 'Ubuntu' which is reflected in many cultures throughout the continent. 'A person with Ubuntu is open and available to others, affirming of others, does not feel threatened that others are able and good, for he or she has a proper self-assurance that comes from knowing that he or she belongs in a greater whole...' (Tutu 1999).

## CONCLUSION

Community Health Clubs can become vehicles for change which develop *Common Unity* of understanding and purpose, ensuring an holistic 'Culture of Health' which can sustain safe hygiene practices thereby preventing communicable diseases and reducing maternal, infant, and child mortality. For survival, especially in a rural context, good neighbourliness is essential. The pre-eminence of the Cognitive Needs, Safety and Belonging, indicate that the Community Health Club Model is culturally appropriate as it provides not only knowledge but a larger safety net enhancing Social Capital which is so critical for survival in a subsistence lifestyle. These findings challenge 'health promotion' programmes that ignore the natural intelligence of the population and provide only a few simple key messages, without inducing true understanding of issues. As Friere (1970) articulated '...it is necessary to trust in the oppressed and in their ability to reason. Whoever lacks this trust will fail to initiate (or will abandon) dialogue, reflection and communication and will fall into using slogans, communiqués, monologues and instructions.' If practitioners expect people to change their traditional practice, behaviour change strategies should be based on the recognition of people's cognitive need, regardless of education level. As 2015 approaches, and the achievements of the Millennium

Development Goals are assessed, it is time for refinement of the objectives to ensure ethical behaviour change models are used. Public Health practitioners, just like doctors in the medical profession, should be required to adhere to certain standards, regarding not only people's right to enough information to maintain their health, but also more sensitivity on how this information is transferred. Using the CHC Model would ensure not only that behaviour is positively changed, but that this change is achieved in an ethical and culturally appropriate way.

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