

Dramatic rise in sanitation uptake in Zambia

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Access to water and sanitation and uptake of good hygiene practices can reduce the risk of getting diarrhoea by an estimated 30%. Since diarrhoea is the world's second leading cause of death and the leading cause of malnutrition and stunting in children under five [1-3], finding ways to reduce the diarrheal burden is essential to the health and wellbeing of Zambians.

Community-Led Total Sanitation (CLTS) is used in developing contexts around the world to improve sanitation in rural communities. Under the CLTS model, communities take stock of their own defecation practices and collectively make a decision to end open defecation by building and using household latrines. Under the CLTS model, communities work together to build low-cost latrines using locally sourced materials and are responsible for maintaining these latrines.

The CLTS model can be powerful in terms of driving behavior change. However, the data collection systems typically used to monitor whether communities are building and maintaining latrines are slow and error prone; the resulting information is insufficient to measure progress. The lack of timely and reliable data makes it nearly impossible to follow-up with communities that are lagging behind and/or champion communities that have embraced the use of latrines. In Zambia, Akros has supported the former Ministry of Local Government and Housing (MLGH) and UNICEF to resolve this data issue.

In 2014 the MLGH introduced a Mobile to Web (M2W) platform to collect and aggregate the CLTS data. Using simple technology, volunteer community champions submit latrine construction data using a mobile phone on a monthly basis. These data

are creating the ability for government, chiefs



Chief Singani of Zambia's Choma district shows the tablet he uses to keep tabs on his chiefdom's sanitation progress. The leadership of chiefs and chieftainesses in Zambia equipped with real-time data has helped drive the country's sanitation agenda

and communities to see their progress towards better sanitation practices. The platform has expanded to include water access monitoring so that government officials can take monthly stock of community-level water access and know when pump minders are needed in the field.

One key component of the CLTS M2W model is the Chief's Visualizer Tool. Chiefs are provided tablets equipped with a widget or mobile application that delivers sanitation reports of the Chief's land. Since the chiefs are the key agents of behavior change in rural Zambia, being equipped with real-time data on the performance of the villages within their chiefdom allows them to make judicious use of limited fuel and monitoring resources to place pressure on villages that may be underperforming [4]. This goes hand-in-hand with one of the main CLTS principals of

communal resolve to improve the health of yourself and your neighbour.

In Zambia, the introduction of CLTS M2W saw 1.5 million new users of sanitation in the first 18 months of implementation and has helped to declare three districts as open defecation free. This level of sanitation uptake is such a short period of time is unprecedented [5].

Akros has continued to work with the MLGH (now called the Ministry of Water Development, Sanitation and Environment Protection) to support roll-out of the system in Zambia. The system currently receives data from over 1,900 community champions across 67 districts. Although the CLTS platform is the largest of its kind in Zambia, Akros has also supported the design and implementation of information systems for health, education and agriculture in Zambia. For more information about Akros in Zambia, please visit www.akros.com.

References

1. Bhutta ZA, Ahmed T, Black RE, Cousens S, Dewey K, Giugliani E, et al. What works? Interventions for maternal and child undernutrition and survival. *Lancet*. 2008;371(9610):417–40.
2. Fewtrell L, Kaufmann RB, Kay D, Enanoria W, Haller L, Colford JM Jr. Water, sanitation, and hygiene interventions to reduce diarrhoea in less developed countries: a systematic review and meta-analysis. *Lancet Infect Dis*. 2005;5(10):42–52.
3. Black RE, Cousens S, Johnson HL, Lawn JE, Rudan I, Bassani DG, et al. Global, regional, and national causes of child mortality in 2008: a systematic analysis. *Lancet*. 2010;375(9730) :1969-87.
4. Zimba R, Ngulube V, Lukama C, Manangi A, Tiwari A, Osbert N, et al. Chiengi district, Zambia open defecation free after 1 year of community-led total sanitation. *Am J Trop Med Hyg*. 2016;95(4):925-7.
5. Markle L, Maganani A, Katooka O, Tiwari A, Osbert N, Larsen D, Winters B. A mobile platform enables unprecedented sanitation uptake in Zambia. *PLoS Negl Trop Dis*. 2017; 11(1): e0005131. <https://doi.org/10.1371/journal.pntd.0005131>.

PERSPECTIVES

Annual Tuberculosis screening for Health Care Workers - A strategy to ensure a healthy workforce in Zambia

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The incidence of Tuberculosis (TB) in Health Care Workers (HCWs) can be as high as twice that in the general population. One undiagnosed TB patient can infect up to 10 individuals each year. Undiagnosed TB among HCWs may result in the transmission of infection to family members, colleagues, and patients. Annual screening of TB in a HCW can identify 76% more cases and prevent 35% more secondary cases.

The Problem

TB is an ongoing public health problem that is easily spread from person to person. The source of infection stems from an untreated person with TB. Reducing TB transmission in hospital or clinical settings occurs by improving ventilation, isolating patients with TB, and ensuring that all patients who may have TB are screened and put on treatment [1]. TB is common in Zambia: approximately 6 out of every 1,000 Zambians has TB (0.6%). In 2014 the National TB Program reported 37,931 cases of TB. However, the World Health Organization has estimated

84,000 TB cases in Zambia [2], meaning that there are many undiagnosed TB cases in the community. Notably, the prevalence of TB among HCWs is 1.5 to 3 times higher than the general population. A study done in the University Teaching Hospital in Lusaka in 2005 [3] showed that 1.8% of the nurses were treated for TB while another study that screened HCW in Ndola found that 1.02% had TB [4].

Policy options

Implementing a mandatory annual TB screening program for all HCW will ensure the early diagnosis and treatment of disease, improve the outcome of treatment, reduce the possibility of transmission of TB to other HCWs and/or patients, and helps maintain a healthy workforce.

Annual TB Screening for Health Care Workers

WHAT: The intervention would require re-establishing occupational health clinics, access to x-ray facilities, and access to laboratory testing for sputum using the GeneXpert. Providing this for all health care workers will have a large cost, yet also an impact in terms of numbers of cases of TB diagnosed. Using a 3-step process to identify those who are most likely to have TB will reduce the number of HCWs needing chest x-ray and sputum tests. After a screening questionnaire, HCW with the presence of any symptoms typically associated with TB will have a chest x-ray, and those with an abnormal x-ray will give a sputum sample (secretions from the lungs) to test for TB.

WHY: The costs associated with implementing a mandatory screening program for all HCWs are **\$66,000**, while in the absence of a screening program, the costs associated with diagnosing and treating TB among HCW are **\$204,983**. Implementation of the screening program will result in fewer missed cases of TB than associated with the status quo (168 compared to 259), thus leading to fewer additional TB cases.

The opportunity costs associated with implementation of the screening program are much greater than those associated with TB diagnosis and treatment in the absence of a screening program (\$526,352 compared to \$131,509). Although the cost of missing TB patients are not included in these calculations, a potential additional 910 new TB case will occur under the no screening program compared to the mandatory annual screening program

Table 1. Epidemiological and economic outcome of comparing a no screening program to a mandatory annual screening program for all healthcare workers in Zambia

| | No Screening Program | Mandatory Annual Screening | Percent Change |
|--|---------------------------------------|---------------------------------------|----------------|
| Zambia HCW | 31,962 | | |
| TB cases detected and treated | 124 | 215 | 76% |
| False positive TB cases detected and treated | 121 | 8 | -93% |
| TB cases missed** | 260 | 169 | -35% |
| Number of averted cases | 5200 in 12 months 2600 in 6 months | 3360 in 12 months 1680 in 6 months | -35% |
| Program costs (cost/patient detected) | \$204,983 (\$1,653) | \$66,000 (\$307) | -68% (-81%) |
| Operational costs* | \$131,509 | \$526,352 | 300% |
| Total Cost | \$336,192 | \$592,352 | 76% |

* Includes the time and cost for a healthcare worker to participate in the screening and treatment
 ** Does not include the cost of not identifying and treating these patients.

FEASIBILITY: Annual health screening is already a requirement for health workers. However, currently, there is no systematic enforcement of this requirement. We suggest linking TB screening to staff's annual appraisal as a way of ensuring that HCWs undergo the TB screening. This strategy will thus use existing facilities and staff, and take advantage of staff gatherings at healthcare facilities, such as at workshops, trainings and meetings to provide the screening.

Mandatory health screenings should be presented in a manner to avoid stigmatization of staff found with TB.

Recommendations

We recommend screening of all HCWs. This strategy will make it possible to identify TB cases earlier than the current situation, thus reducing transmission of infection and secondary TB cases.

The Policy will be presented to the National TB Program for feedback. We will also request this strategy to be included in the 2017 -2021 National TB Strategic Plan currently being developed.

The policy brief will be presented to Senior Management of MOH and other stakeholders

such as the General Nursing Council, the Health Professions Council, and the Zambia Medical Association to obtain approval and support.

Implementation of the program can begin with an initial pilot targeting the nurses in Lusaka, as a way of understanding implementation challenges in order to guide a wider national rollout.

Available literature

- 1.Claassens MM, van Schalkwyk C, du Toit E, Roest E, Lombard CJ, et al. (2013) Tuberculosis in Healthcare Workers and Infection Control Measures at Primary Healthcare Facilities in South Africa. PLoS ONE 2013 8(10): e76272.
- 2.WHO Global Tuberculosis Report 2015
- 3.Chanda, D., Gosnell, D., (January 31, 2006). "The Impact of Tuberculosis on Zambia and the Zambian Nursing Workforce". Online Journal of Issues in Nursing. Vol. 11, No. 1, Manuscript 3.
- 4.Ndola District TB IC Project Demonstration Project Final Report. October 2014