

# An Analysis of the Services Provided by Municipal Ward Based Primary Health Care Outreach Teams in an Urban District in South Africa: A Key Contribution Towards Universal Access to Care.

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## Research

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# Abstract

## Introduction:

Municipal Ward based PHC Outreach Teams are potential game-changers in ensuring access to care in vulnerable communities. *Who* are they? *What* do they actually do? Can they help South Africa realize universal health coverage?

## Methods:

Descriptive secondary data analysis of team activities in the Ekurhuleni health district, South Africa covering approximately 280 000 households with one million people. This was part of a larger study exploring the effectiveness of these teams.

## Results:

Study findings illustrated that CHWs in these teams provided early screening and referrals for pregnant women and malnourished children. They distributed condoms and chronic medication to homes. They screened and referred for hypertension, diabetes mellitus, HIV and TB. The teams also undertook defaulter and contact tracing, the majority of which was for HIV & TB clients. Psychosocial support provided was in the form of access to social grants, access to child and gender based violence protection services, food parcels and other services.

## Conclusion:

Community Health Workers form the core of these teams and perform several health and psychosocial services in households and to poor communities in South Africa, in addition to general health education. The teams studied provided a range of activities across many health conditions (mother & child related, HIV & TB, non-communicable diseases), as well as social services. Ward based outreach teams provided comprehensive care in a large-scale urban setting and can improve access to care.

# Introduction

South Africa has to deliver on its Sustainable Development Goals, and as with many other countries around the world, seeks to transform its health system in order to attain Universal Health Coverage.<sup>[1]</sup> Its National Health Insurance initiative is a means to achieve this.<sup>[2]</sup> One intervention to transform the health system is to re-organize and re-prioritize primary health care and district health services in the country, emphasizing disease prevention and control as well as health promotion. This is through a multi-pronged approach which includes municipal ward based Primary Health Care Outreach teams (WBPHCOT), Integrated School Health Services, District Clinical Specialist Teams; and the contracting of private providers such as General Practitioners. This is the Primary Health Care re-engineering strategy for South Africa.<sup>[3]</sup>

WBPHCOTs are fundamental 'game changers' in this regard.<sup>[4]</sup> These teams are the proactive arm of the health service, visiting households and communities; screening for diseases, risk factors and educating on basic health issues. WBPHCOTs, together with school health services, environmental health services, and health promotion play a critical role in strengthening community based health services.

The 2020 corona virus pandemic highlighted the important role Community Health Workers (CHWs) can play in South Africa.<sup>[5, 6]</sup> CHWs are a means to provide equitable, affordable access to quality basic health services directly to the client.<sup>[7]</sup> Low and middle-income countries are increasingly strengthening their CHW programmes, viewing this as an affordable and critical intervention in attaining universal health coverage.<sup>[8, 9]</sup>

## Background

In 2010, South Africa (SA) launched the Primary Health Care (PHC) re-engineering strategy, of which the establishment of ward based PHC Outreach Teams (WBPHCOT) was a critical component.<sup>[10]</sup> The strategy emanated from a ministerial technical task team's visit to Brazil, where 'Family health' community-based teams had had a significant impact on health outcomes of the sick and vulnerable.<sup>[11, 12]</sup>

In 2011, the National Department of Health released a PHC re-engineering toolkit, linking Ward based PHC Outreach Teams to specific clinics; an interface between health services and community.<sup>[3]</sup> Each clinic had a defined number of PHC outreach teams dependent on the population in a municipal ward. A municipal ward is the smallest political geographical demarcation in a district. The local political ward representative would support these teams with community entry and engagement.<sup>[13]</sup> Each of the PHC outreach teams would be responsible for 1500 to 2000 households (approximately 6 000 population) in a ward. Each clinic supported a minimum of four to five PHC outreach teams, depending on ward population. National guidelines stipulated that each PHC Outreach team would ideally consist of six CHWs recruited from the local community and a staff/enrolled nurse or a professional nurse. The nurse would be the Outreach Team Leader (OTL). The teams would be supported by other district resources such as health promoters, PHC trained clinicians, social workers and environmental health workers.<sup>[14]</sup> In each PHC Outreach team, a CHW would be responsible for 250 households. WBPHCOTs would provide a range of comprehensive health and psychosocial services to the households, focusing on screening, disease prevention and health education of the mother and child (MCH), those with HIV/AIDS or Tuberculosis, chronic conditions such as Hypertension or Diabetes, and to orphan headed households. They would trace defaulters and contacts referring back to the clinic to re-start treatment.

The Ekurhuleni health district where this study took place is one of three urban metropolitan municipalities in Gauteng province, a national economic hub.<sup>[15]</sup> Its population of approximately four million people live densely in a mix of affluent and vulnerable areas with formal and informal housing; 75% of the population are medically uninsured and dependent on the public health sector. It has a quadruple burden of disease, similar to the rest of South Africa, with high rates of maternal and infant mortality, HIV/AIDS, TB, chronic diseases of lifestyle, and violence related conditions.<sup>[16]</sup>

CHWs are individuals who have a general understanding of their own communities' language and culture; require shorter training than health professionals and can provide culturally appropriate health services to the community.<sup>[17]</sup> In Ekurhuleni, the CHWs in the ward based outreach teams studied were paid a minimum wage, on fixed long term contracts and had been trained for a few months.

During apartheid in South Africa, there were limited numbers of CHW programmes and the roles of CHWs, while diverse, were restricted to few health conditions and programmes; these were not formally part of the health system, and may have been used as an excuse to not provide integrated appropriate health care.<sup>[18]</sup> Due to a lack of support from the apartheid government, these cadres could not be sustained effectively.<sup>[19]</sup> Later, during the HIV

epidemic in the early 1990s, their focus was technical and disease oriented; which reduced the value these resources could have had on broader health and socio-economic outcomes. They had limited contributions to local health systems, funded through non-governmental organisations and government subsidies.

The national policy on CHWs has evolved and their roles have progressed since 2010-11 with the introduction of WBPHCOTs. The CHW role now includes a more comprehensive range of simple activities, across health conditions. However, there is no detailed analysis of what these CHWs do and their potential contribution to the health system, beyond their impact on HIV and TB programmes. Routine district health information reporting in SA does not electronically capture all such data and is therefore officially unavailable; this study includes other health conditions and contributes to local evidence in this regard.

The Ekurhuleni health district had 118 teams in 2016 which expanded to 177 teams by March 2019. The 177 teams consisted of 1108 CHWs providing approximately one million people in 280 000 households with health education, early screening, tracing, referrals and linkage to care. Population coverage was approximately 25% of the district.

## Study Objective & Methods

To describe the routine activities of WBPHCOTs in the Ekurhuleni health district.

Paper based tools developed in the district in 2016 captured data on health activities from each CHW and team; with aggregates reported monthly. Linkage to care is where defaulters and contacts, once returned to the clinics, were either diagnosed, started on treatment or put back on treatment.

Secondary data analysis of Ekurhuleni district WBPHCOT output activities was conducted over the period 2016/17-2018/19.

## Results

Each CHW was allocated a designated number of households and provided services in these homes. Approximately 1.7 million headcount activities on screening, tracing, referrals and linkages to care services were provided in the 280 000 households over the study period. As seen in the results for annual averages per activity, most services provided by CHWs were to identify risks and problems early. (Figs. 1–12)

As part of a broad range of health education activities, and to reduce the risk of HIV and sexually transmitted diseases, condoms were delivered to households. Figure 1 illustrates an increase in condom distribution over the given period by more than double for male condoms and a five-fold increase for female condoms over the same period.

District clinics have many clients with chronic diseases: HIV, TB, hypertension, diabetes and/or other morbidities. WBPHCOTs delivered chronic medications to identified households within their catchment areas, especially to clients who were not mobile. The number of clients who received this service grew from 3411 in 2016-17 to 9494 in 2018-19 (Fig. 2).

Screening was conducted in homes using standardized national forms; for infectious diseases (TB, HIV and STIs), non-communicable diseases/NCD (hypertension, diabetes, cervical cancer) and child health (immunization, malnutrition) issues.

During household visits, CHWs identified children under five and reviewed their immunization and nutrition status. Children were screened for malnutrition and referred to the nearest clinic if needed. CHWs used a coloured mid-upper arm circumference tape to determine if a child was malnourished or not. Figure 3 illustrated a reduction in the number of malnourished children identified in households covered by WBPHCOTs, from 1630 to 80 malnourished children, over the three-year period as the numbers of teams increased in the district and more households were reached.

CHWs conducted household screening activities across several health conditions; Fig. 4 illustrates this range. Although TB and HIV constituted much of the screening, non-communicable diseases contributed significantly too.

CHWs aim to reduce the burden of mother and child health problems through early household screening for pregnancy (at less than 20 weeks' gestation) and identification of un-immunized children; Fig. 4 shows that pregnancy screened improved to approximately 10% of all screening activities in 2018-19. Women of childbearing age were asked if they had had a missed period or signs of pregnancy and if so CHWs conducted a rapid urine pregnancy test in the household. Over the period, there was a three-fold increase in the overall number of women tested for pregnancy in households, in an attempt to get those at less than 20 weeks gestation. An average of 90% of those testing positive for pregnancy (< 20 weeks gestation) in households reported to clinics, leading to early referrals for antenatal care; Fig. 5.

CHWs checked the health cards of children to ensure all immunizations were up to date as per national immunization schedules. In CHW supported households, as more children were screened and immunized over the years, there was less need to refer; Fig. 5 shows that in 2018-19 just 15% of children screened had to be referred for incomplete immunization, much lower than previous years. Once mothers and children were referred; 80% reported to the clinics and over 95% were given the required immunization (linked to care). This was due to the emphasis on MCH issues by CHWs in households.

Figure 4 showed that approximately 50% of those screened in households were for HIV & TB; reflecting the emphasis on the priority disease burden in poor communities. TB screening was based on symptoms of chronic cough, weight loss and night sweats; over the three years, fewer clients required referrals for TB symptoms. HIV screening was based on awareness of HIV status or not. Of those screened and referred for HIV & TB, 60–80% did report to the clinic; improving access to care in vulnerable communities.

Clients were asked if they had any genital sores or discharges, to determine if they had any sexually transmitted diseases (STIs). More than 70% of those who did, reported to clinics and were put on treatment.

To improve cervical cancer screening, women over 30 years were asked if they had had a pap smear done or not. This resulted in over 65% of referred women presenting to clinics for a pap smear, Fig. 7. Hypertension (HPT) and Diabetes (DM) screening similarly increased over the period under review; contributing to 30 to 40% of health conditions screened using clinical symptoms and/or digital BP and glucometer machines. Again, once referred; the proportion of clients who reported to clinics was high, approximately 80%.

Once CHWs refer clients to clinics and they report there, an important conclusion of the referral process is that the clients must be linked to care. If this does not happen, the hard efforts of CHWs will not improve follow up or adherence. As clients reported to clinics, the assumption was that the health service responded to their needs, either in the form of further investigations, or diagnosis and/or management of conditions. Over the three-year period,

linkage to care in the clinics was good for pregnancy, immunization, STIs and cervical cancer, but less so (< 50%) for those screened for HIV, TB, DM and HPT; Fig. 6 and Fig. 8.

Tracing of clients was another important activity by WBPHCOTs. The clinic head or the OTL gave teams lists of clients who initially had attended the clinic and then did not come back for either diagnosis and/or start of treatment or for continuing care. These clients were largely defaulters but also clients who were contacts of those with newly diagnosed TB or HIV. They then had to be traced by the CHWs; many were outside of CHW allocated households. Figure 9 illustrated that over 90% of the clients were HIV and/or TB treatment defaulters.

Figure 10 illustrates the proportion of clients successfully traced by the CHWs, from the lists provided by the clinics, including clients for whom incorrect contact details were provided. For immunization, cervical cancer and non-communicable disease 70 to 80% of clients were traced on average, despite incorrect addresses and a mobile population, while for TB this was 75% and HIV 60%.

Of those clients traced, most clients returned to the clinics for further treatment, Fig. 11. For TB clients and those with chronic conditions (hypertension and diabetes) reporting back steadily improved over the period, on average over 75%; while with HIV an average of 55% of clients returned to the clinics.

The linkage to care of defaulters and contacts successfully traced was high, above 75%, across all the health conditions; Fig. 12. This showed that with clinic initiated activities staff were ready for returning defaulters and doing the needful for them, especially for HIV and TB clients.

Although quantitative data is not available, WBPHCOTs also provided psychosocial support with grants and referrals to other services as illustrated below.

## Discussion

Countries in Africa, such as South Africa, must consider the contribution large numbers of CHWs can provide towards achieving universal health coverage.<sup>[20]</sup> Much of the existing research on WBPHCOT programmes in SA, explored processes and barriers to implementation.<sup>[21-24]</sup> Current health service indicators that inform routine monitoring for WBPHCOTs largely document input and process indicators such as numbers of teams, compliance, supervision coverage and households registered.<sup>[25]</sup> There is little published local evidence on the outputs of WBPHCOT (the what) in households in South Africa. This study shows the extensive outputs of CHWs in the Ekurhuleni district.

The increased pregnancy screening, especially in early pregnancy and the reduction of malnourished children in households supported by WBPHCOTs from 2016 to 2019 demonstrates the vital contributions to MCH. The reduction in malnourished children over time, in households supported by CHWs was due to early screening, referrals, access to birth certificates, social grants and food parcels. The role of CHWs in early identification and referrals contributing to the reduction of child malnutrition has been documented in several countries.<sup>[26]</sup>

ASHAs, the CHW equivalent in India demonstrated an impact on improving early antenatal care in poor communities.<sup>[27]</sup> Ekurhuleni was one of 25 districts in the country with high maternal mortality; therefore, the successful emphasis of WBPHCOTs on improving antenatal care reflects this important part of their daily activities.

While there was a period in SA where most CHW screening activities were on TB & HIV, this is now expanding to other conditions such as NCDs and will increase as burden of NCDs rises too. This mix of infectious diseases and NCDs is commonly seen across South Africa, in both urban<sup>[28]</sup> and rural areas<sup>[29]</sup> related to the growing aging population and the quadruple burden of disease in the country. This illustrates the wider range of health conditions that are part of the WBPHCOT household screening activities in Ekurhuleni as compared to the past.

Early and appropriate referrals to primary health care services is also an important process that WBPHCOTs must ensure. Evidence shows that they can make appropriate referrals, especially with neonatal or pregnancy referrals.<sup>[30, 31]</sup> Fig. 4 illustrated that WBPHCOTs in the district referred across a range of conditions; initially more children were referred for immunization services, over time this dropped, possibly due to better support from the CHWs in their households. Findings from urban India also showed better immunization rates in households covered by their CHWs;<sup>[32]</sup> supporting the findings of this paper. Greater coverage of CHW supported households therefore has the potential to improve child immunization coverage in vulnerable populations.

Household referrals do not automatically translate to actual health care seeking behaviour of household members. CHWs are better and more frequently able to explain to clients the reasons for referral; this promotes the client to report to the next level of care.<sup>[33]</sup> This influences the health care seeking behaviour of the client. In this study, CHWs made a significant contribution towards 60–80% of those referred clients reporting to the primary health care clinic, demonstrating the important link between CHWs and the health service. Those with NCDs and those needing immunization had the highest levels of reporting to the clinics. Immunization coverage in the district was high, the data being based on children who present to the clinics for immunization; CHW referrals resulted in good reporting to clinics, possibly contributing to the overall district performance on immunization. CHWs influence mothers and child caregivers who take children in for health care.<sup>[33]</sup> Importantly, when household members are familiar with the CHWs and trust them; over time, they are more likely to seek health care based on their advice. Where CHWs are professional and maintain confidentiality, there is greater community acceptability for their efforts.<sup>[34]</sup> It is probable that these are the reasons for higher reporting to clinics in Ekurhuleni.

OTLs checked the daily number of CHW referrals and compared it to those who reported to the clinic; they also determined how many were seen by clinicians for linkage to care. OTLs played a vital role in completing the loop of early screening, referral and care; however not all clients screened and referred by the CHWs were given the appropriate care at health facility level, especially for NCD, HIV and TB. For pregnancy and immunization screening, linkage to care in Ekurhuleni was high over the years, possibly due to increased acceptance by other staff of the role CHWs played in early screening and referrals. There was also reasonable linkage to care for those with STIs and possible cervical cancer. This infers that CHW benefits influence and depend on support at the next level of care.<sup>[34]</sup> The capacity of the health service to respond to such referrals is therefore also important.

Physical tracing of defaulter clients in an urban setting in South Africa, is not without its challenges, especially for the majority HIV and TB defaulters. With a large migrant population, there are challenges in getting the correct contact details of clients. This problem is reiterated in studies conducted in Kenya<sup>[35]</sup> and other parts of South Africa.<sup>[36]</sup> In Ekurhuleni some patients deliberately provide false contact details, while others seemingly move around frequently for jobs and other reasons. This is mostly true when it comes to HIV defaulters, as shown in Fig. 10, where approximately 50–60% the clients are successfully traced. South Africa has one of the largest anti-retroviral programmes in the world and is struggling to achieve its 90-90-90 targets, when it comes to initiation of anti-retroviral treatment and retention in care.<sup>[37]</sup> CHWs contributed significantly in finding defaulting HIV clients in

Ekurhuleni, but to improve this further, clinics must ensure correct contact details of all clients. The stigma around a HIV diagnosis still abounds and many patients have not disclosed their status to their partners; this too must be addressed.<sup>[38]</sup> There is a need to record accurate patient information when accessing care the first time, updating information regularly and/or getting details of a second contact known to the client.<sup>[35]</sup>

In district households where the WBPHCOTs have successfully traced defaulters, many were not part of the CHW allocated households with long term CHW contact; and yet many clients still reported back to the clinic; especially so with TB, NCDs and child health defaulters. The simple reminders through these interactions were able to foster client return.<sup>[35]</sup> This implied good CHW communication skills and the contribution such interactions made in reducing defaulters. The district reviewed in this study has 90% mobile phone utilization, even in informal townships.<sup>[39]</sup> Currently, there are not enough CHWs to cover all households in the district; it may be more efficient for the district to explore telephonic tracing using other cadres such as nurses<sup>[40]</sup> and use physical tracing by CHWs as a last resort. Not as many HIV defaulters as expected reported back to the clinic, even with these physical tracing efforts;<sup>[36, 41]</sup> so the importance of adherence support through greater household coverage and known contact with WBPHCOTs may be more likely to help reduce HIV and other defaulters in the long term.

75% or more defaulters who reported to clinics were put back on treatment/care; this positive finding was possibly due to several reasons: clinic initiating tracing, awareness by clinic staff of returning patients and less clinical work-up. CHWs contributed significantly to the improved return to care.

CHWs have the opportunity to provide wider support on the psycho-social determinants of health in these communities, though not easily measured. Where households could get a birth certificate for a child or an identity document for an elderly person, it meant access to financial support through various welfare grants in South Africa. Accessing these grants would mean access to food, money for medicines, schooling and other essentials.<sup>[42]</sup> Even though South Africa emphasized the primary health care approach into its health system in 1994; the focus was more on the curative, nurse-doctor driven model of care in clinics.<sup>[43]</sup> What this study was showing was that it was not just health behaviour outputs that CHWs were influencing but social factors too.<sup>[44]</sup> The mechanisms by which CHWs influence health behaviour change are part of the puzzle of understanding their role, as illustrated in Fig. 13. Provision of social support reinforces the credibility of CHWs in households leading to improved household relationships;<sup>[45]</sup> forming the basis for influencing and changing health behaviour over time.

WBPHCOTs have been in Ekurhuleni since 2010-11; and over the years, district health facilities have realized their value as the foot soldiers of the health service within the community. This perception translates to believing that WBPHCOTs are the solution to most community related challenges affecting the health system. While the results of this study do not indicate so, evidence shows that overloading CHWs with too many activities can make them inefficient in their daily tasks.<sup>[46]</sup> The current workloads with simple tasks and simple messages across health conditions are reasonable and should be maintained. Nationally standardized scopes of practice have been critical to ensure this.

There was a reduction in performance of team activities during 2018-19. This could have been due to two issues. The district was a pilot site for a national standardized training program. Secondly, CHWs were agitating to be made permanent staff. Both these affected daily attendance in that year. Despite these, the reduction in CHW activities was not as high as expected; and it is assumed that as these issues resolve, performance will improve in subsequent years.

## Conclusion

This study illustrates the extensive contributions made through a large-scale CHW program on an estimated one million population in 280 000 households in an urban metropolitan district in South Africa. This is information not routinely available. Findings show that CHWs have managed to ease into providing a comprehensive range of services across health and social conditions, adding to local and global evidence. CHW programmes can enable greater access to care in communities; contributing towards universal health coverage in SA.

## Recommendations

This study recommends that WBPHCOTs should be significantly increased to cover wider areas in the district and country.

There should be wider implementation of nationally standardized scopes of practice in SA to enable more comprehensive roles.

Formal integration into the health system is suggested to improve support at next level of care and long term sustainability.

Household activity data being a rich source of health and socio-economic information; should be routinely captured using appropriate technology, to improve district health service planning and management.

## Declarations

*Ethics approval:* Ethical approval was obtained from the University of Pretoria Faculty of Health Sciences Research Ethics Committee, Medical Campus, Tswelopele Building, Level 4-59. Ethics Reference No: 581/2018. The Ekurhuleni health district consented to study.

*Consent for publication:* not applicable

*Availability of data:* on reasonable request after completion of doctoral studies

*Competing Interests:* The principle investigator is employed by and responsible for the WBPHCOT program in the district studied; this is part of her doctoral study. The authors declare no other competing interest.

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*Author contributions:* LT was responsible for conceptualization and data collection. LT and EB contributed to analysis and write up. YP gave additional inputs and corrections to final manuscript.

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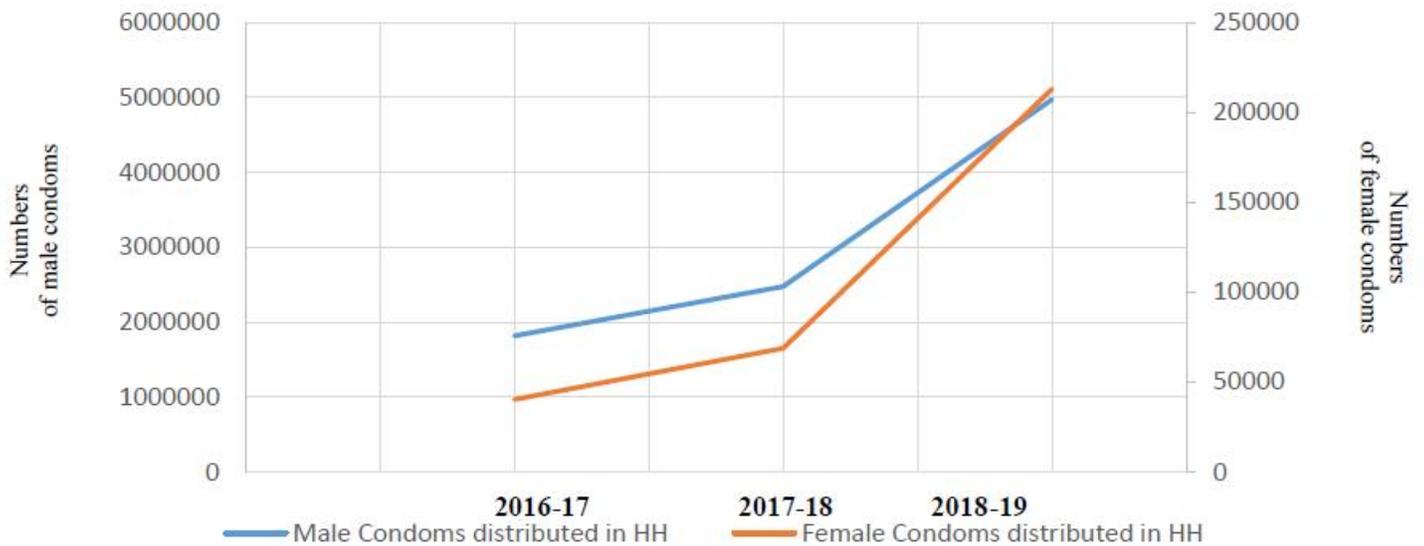
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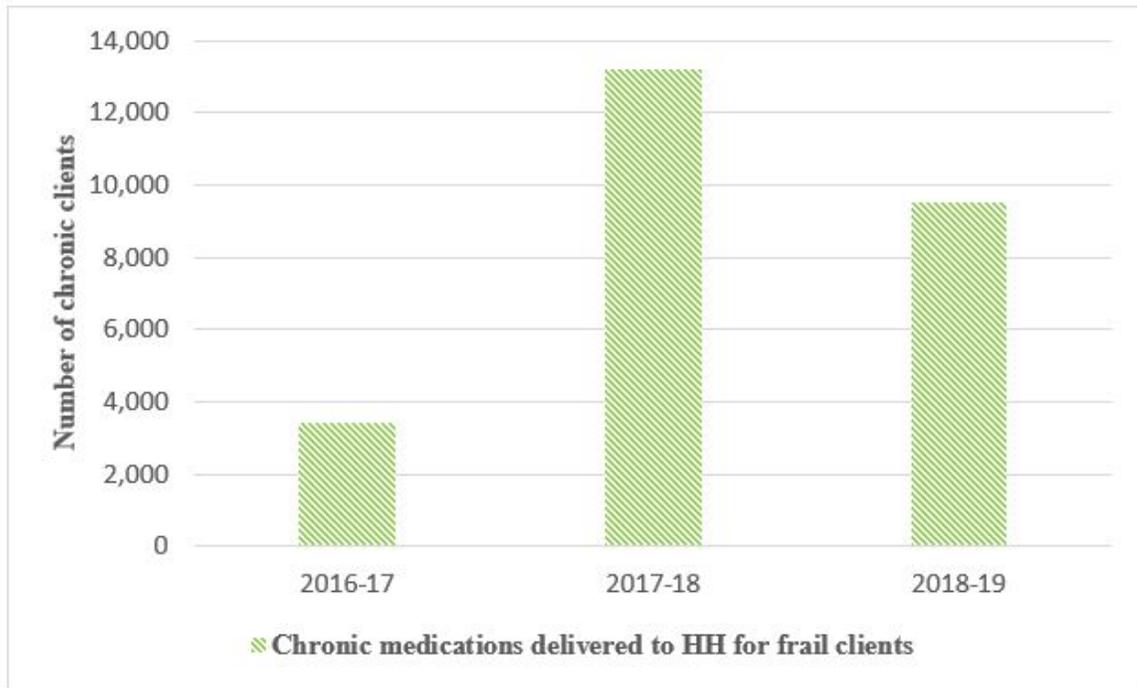
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## Figures



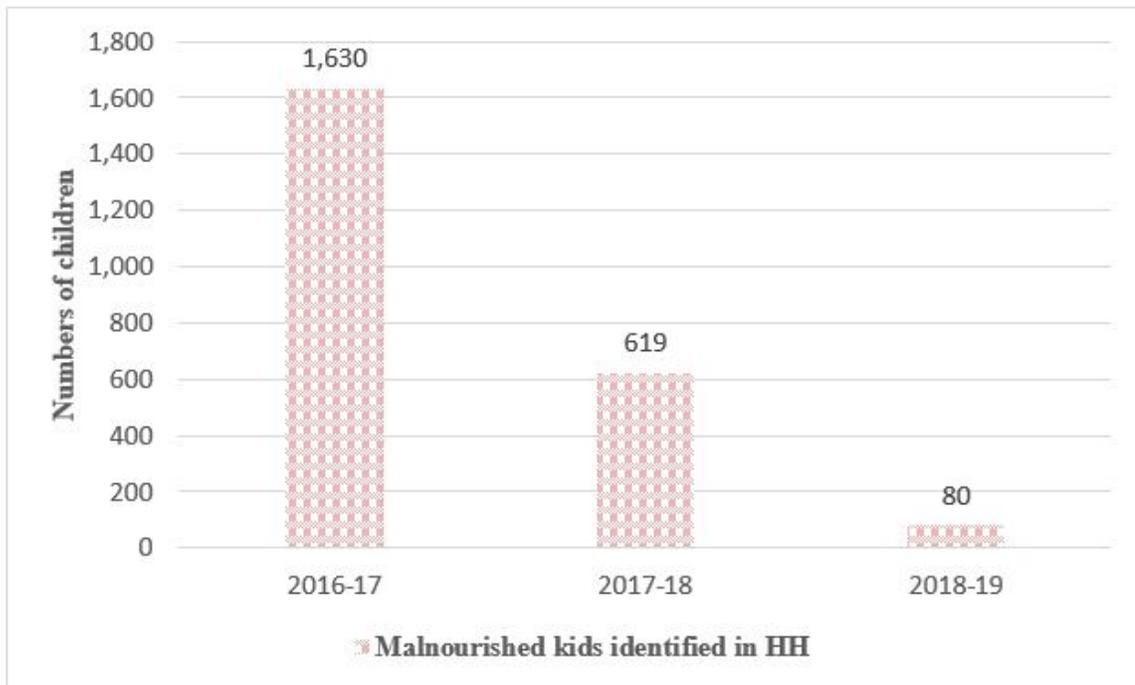
**Figure 1**

Number of condoms distributed by WBPHCOTs in households



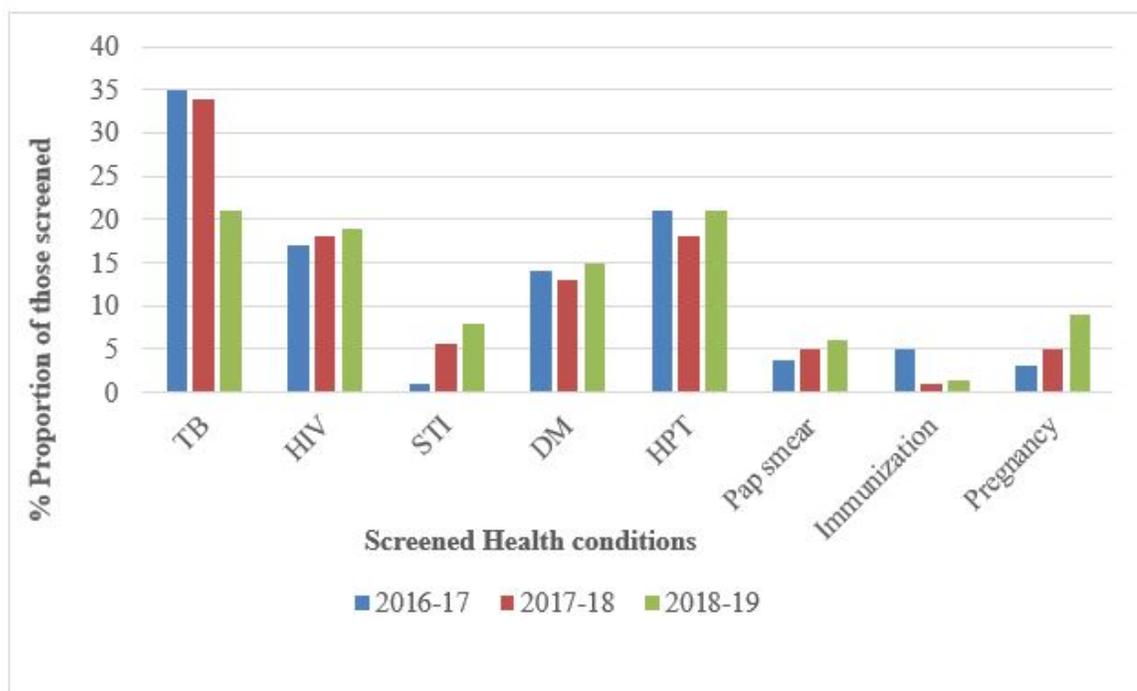
**Figure 2**

Chronic medication packages delivered in households by WBPHCOTs



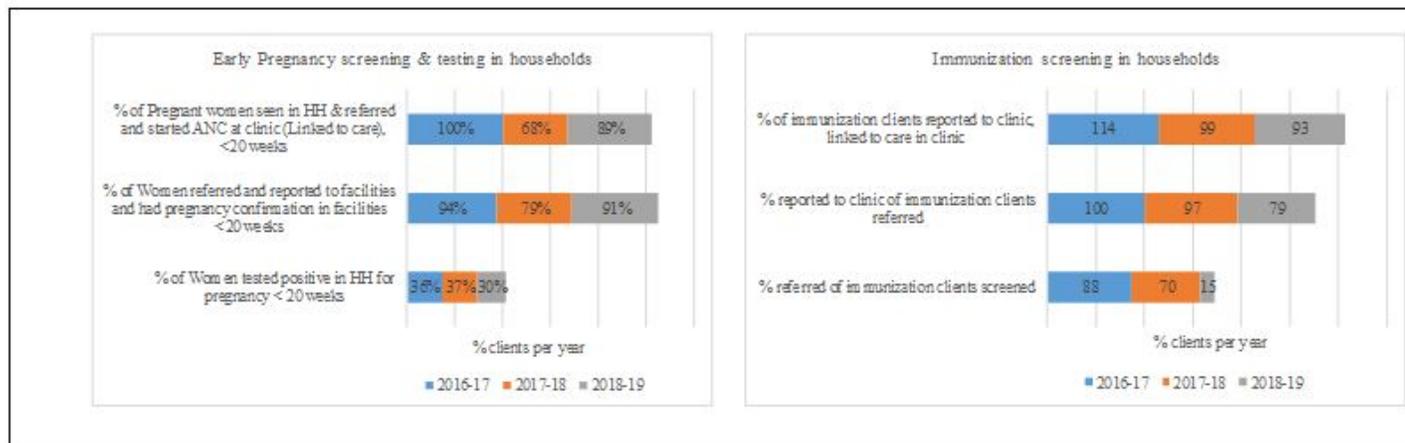
**Figure 3**

Numbers of malnourished children identified in households by WBPHCOTs



**Figure 4**

Household Screening across health conditions



**Figure 5**

Early pregnancy and child immunization screening in households

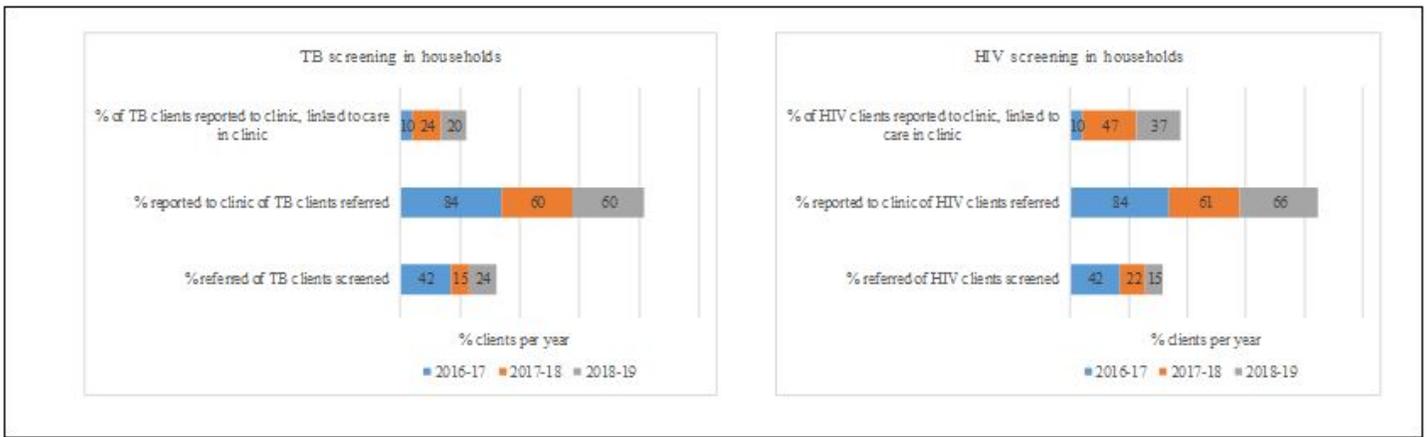


Figure 6

Screening for common infectious diseases (HIV & TB) in households

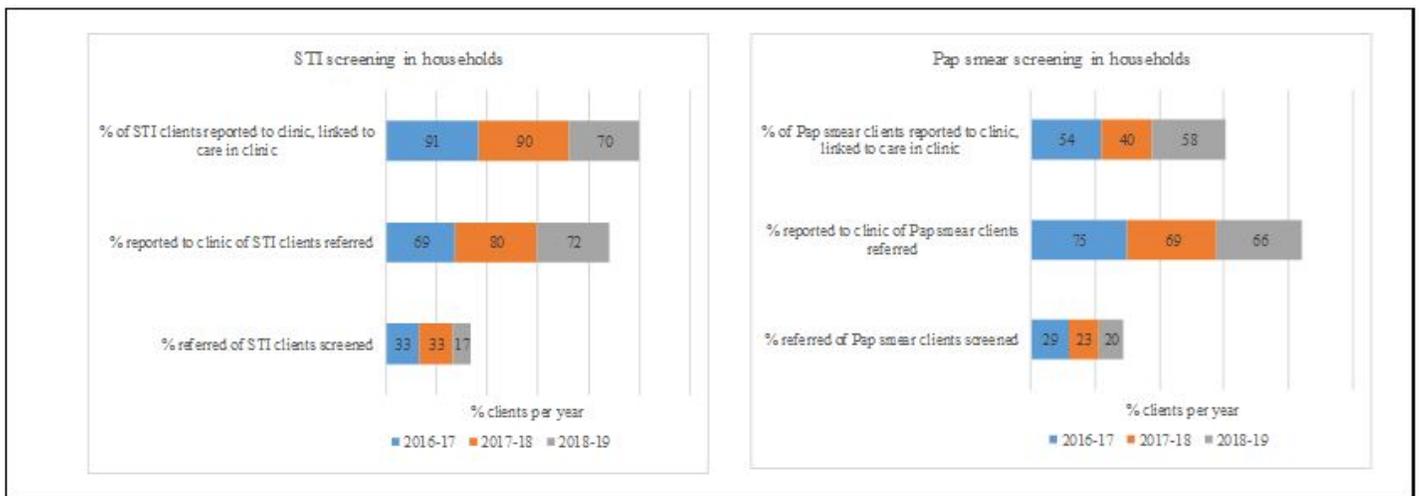
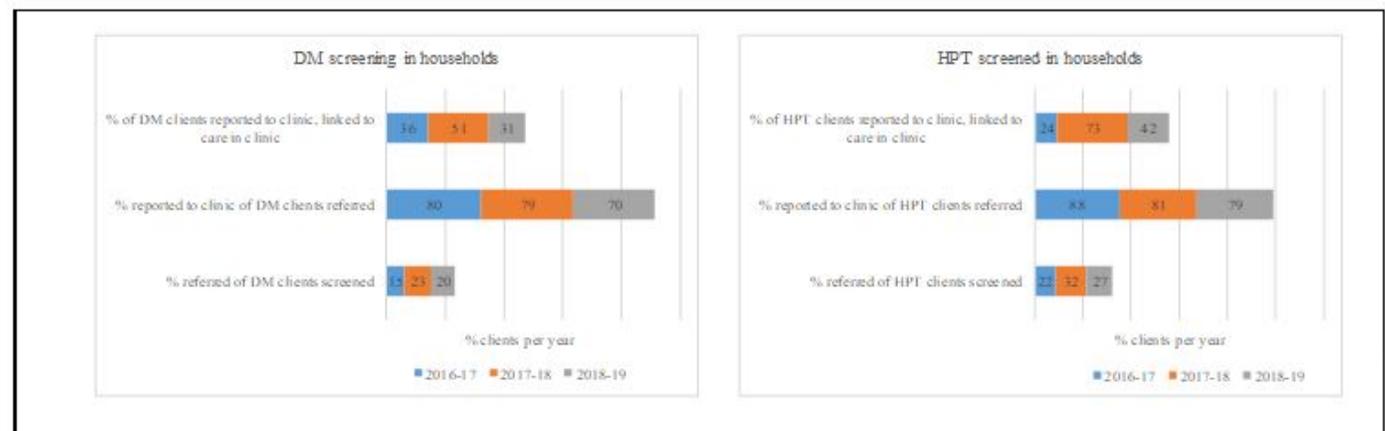


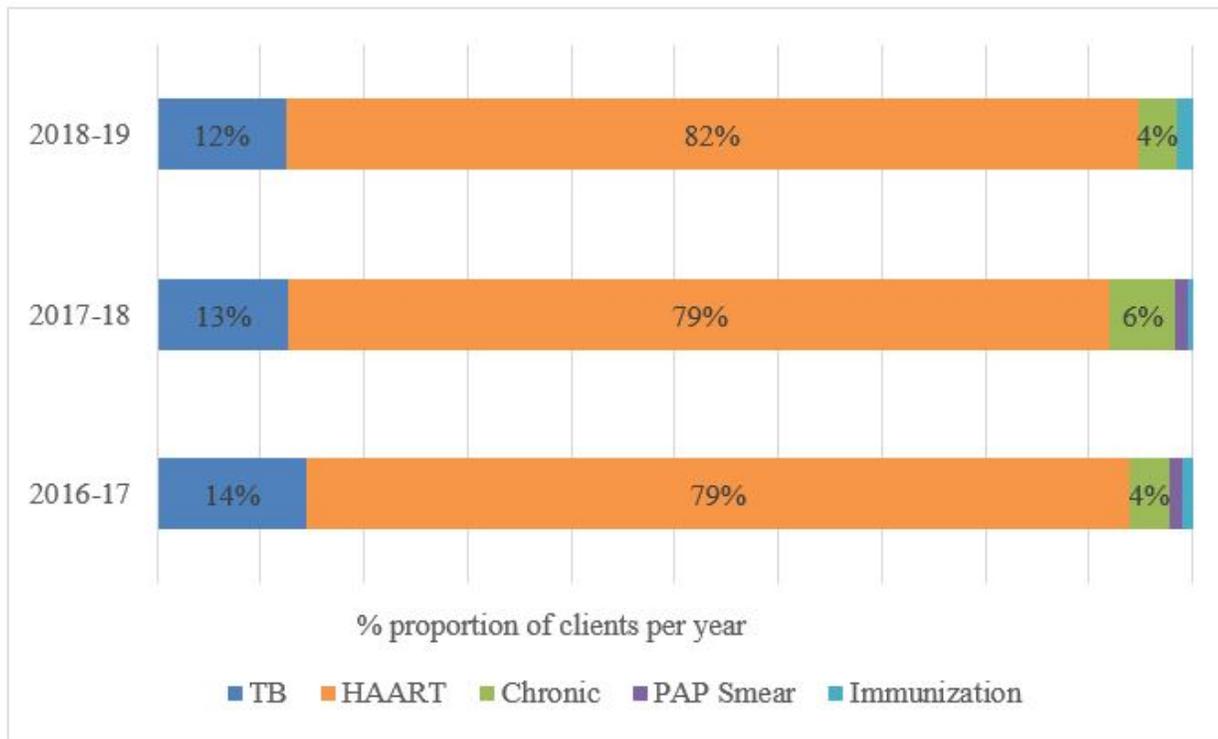
Figure 7

Screening for STI and Pap smear in households



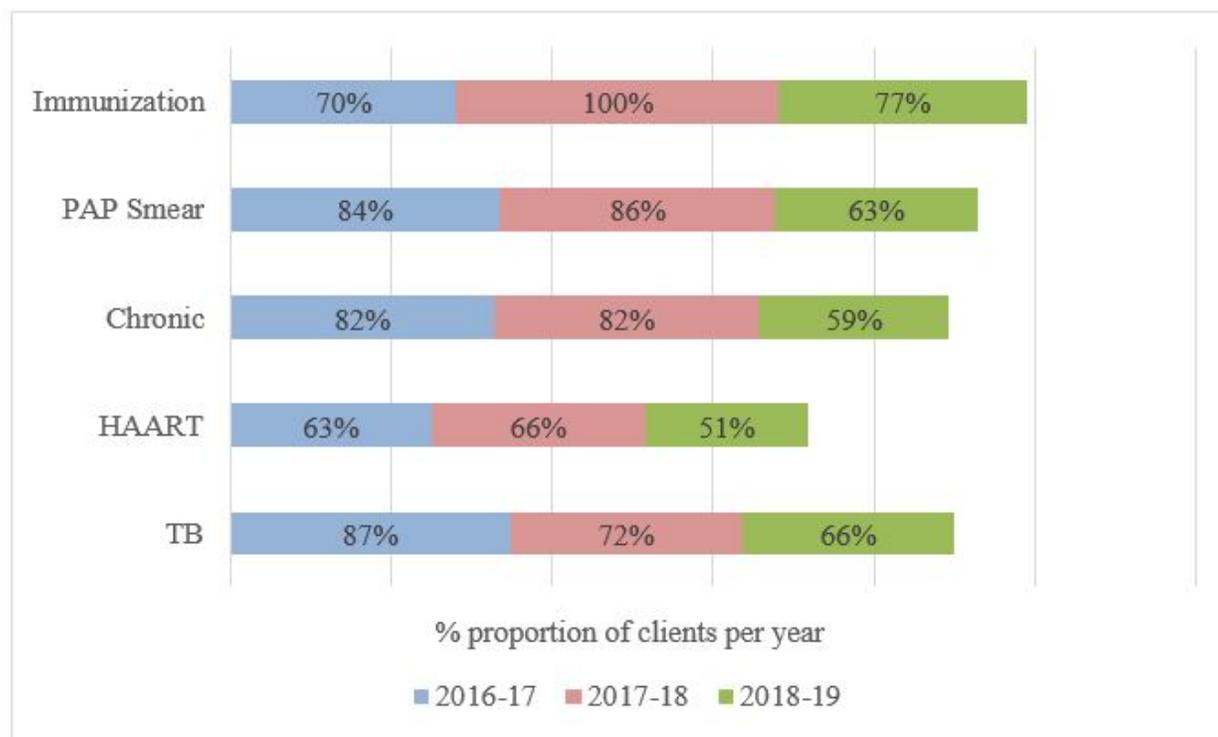
**Figure 8**

Screening for common non-communicable conditions in households



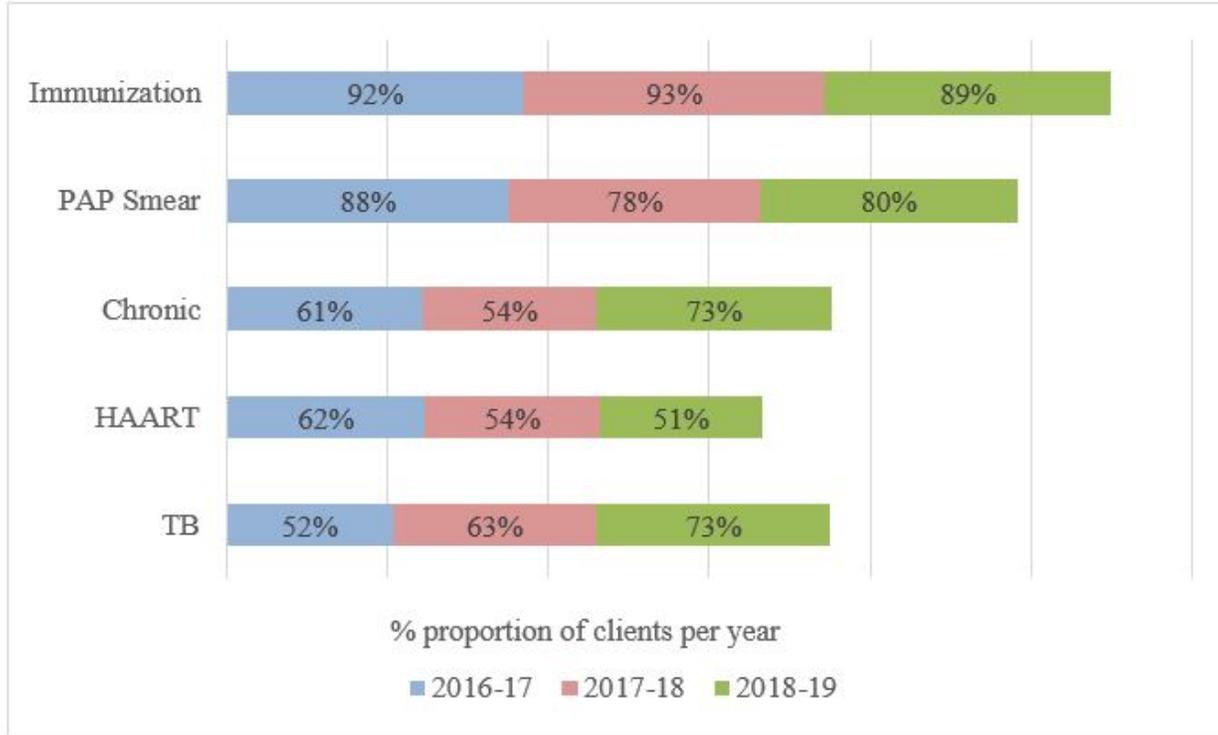
**Figure 9**

Proportion of clients for tracing by CHWs, per condition



**Figure 10**

Proportion of clients, per condition, successfully traced in households



**Figure 11**

Proportion of clients traced, referred and reported to clinic

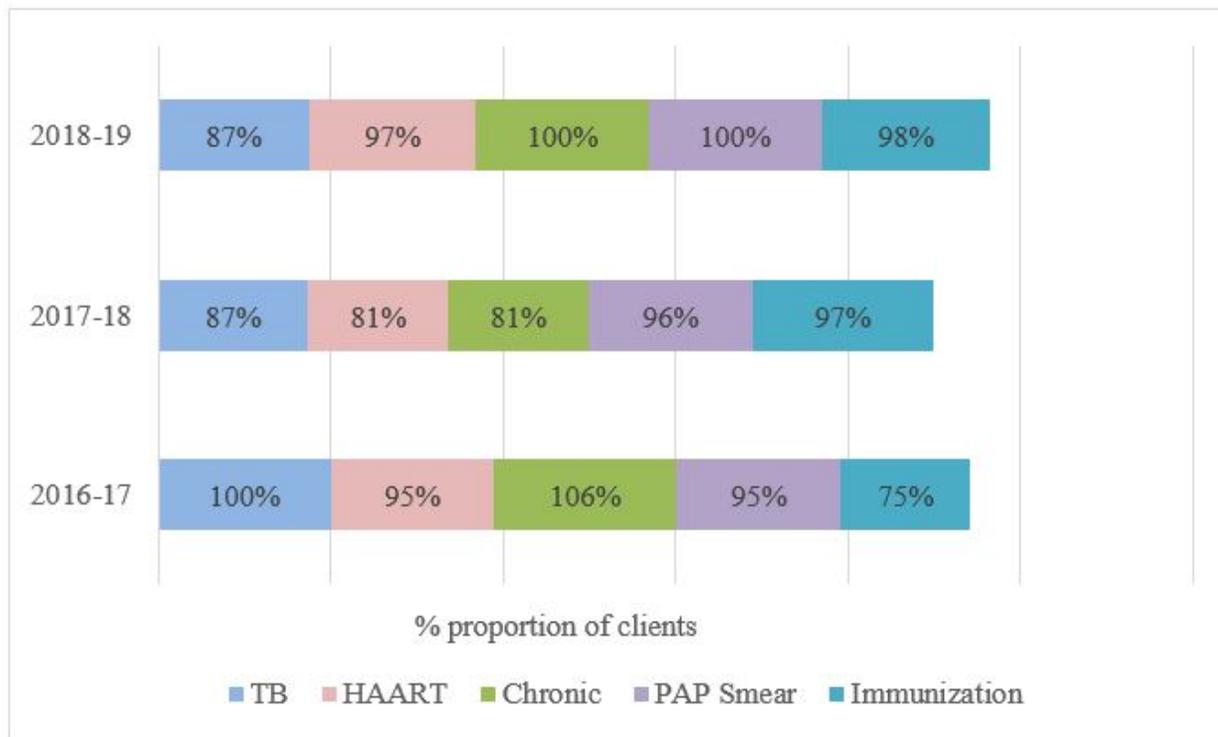


Figure 12

Proportion of traced clients linked back to care, in clinics, per condition

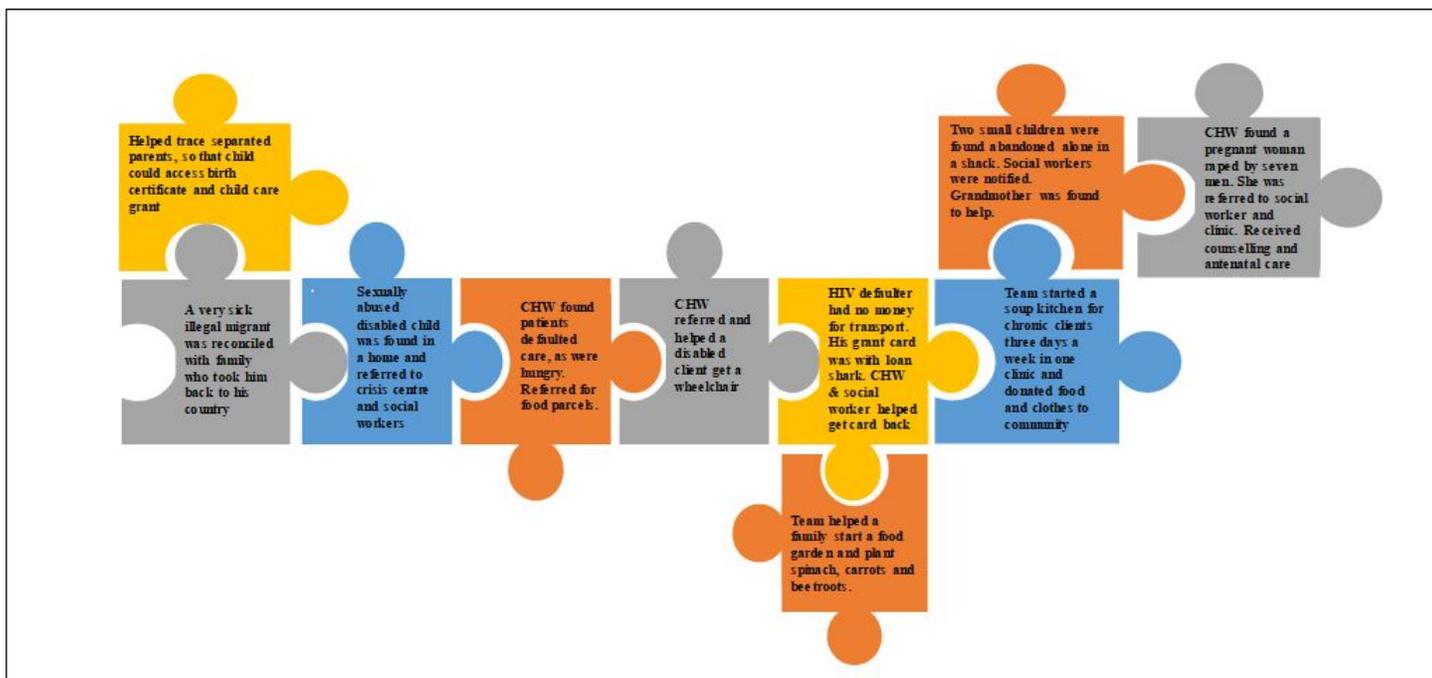


Figure 13

Psychosocial support-touching the lives of those in the communities