

## Integrating cervical cancer screening and preventive therapy into reproductive health networks: Notes for the field

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### Abstract

**Background:** The Cervical Cancer Screening and Preventative Therapy (CCS&PT) partnership brings together Marie Stopes International, Population Services International, the International Planned Parenthood Federation, and Society for Family Health to integrate CCS&PT services into existing Reproductive Health Networks (RHNs). The partnership intends to rapidly scale up CCS&PT services through existing infrastructure in some of Africa's most underserved communities. Since 2012, the partnership has been delivering CCS&PT services in Nigeria, Kenya, Tanzania and Uganda.

**Objective:** To measure the increase, between November 2012 and April 2015, in (a) cervical cancer screening services provided and (b) cryotherapy delivered to eligible clients who tested positive for pre-cancerous lesions of the cervix.

**Methods:** Services are provided using varied models and channels. Screening is targeted at women aged 30–49 years. Data were collected through routine management information systems, which include information on client demographics, service use, first time screening status, HIV status, and screening results.

**Results:** From November 2012 to April 2015, the CCS&PT partnership provided 911,501 screenings and 7,234 treatments. Uptake of quarterly screenings and treatments have showed an increasing trend, though fewer treatments were delivered than anticipated. The loss to follow up has decreased steadily since the beginning of the project from 87% to 35%.

**Discussion:** The partnership has rapidly scaled-up screening services, but increasing preventive treatments has proven more challenging. Substantial progress has been made in creating institutional capacity, establishing protocols, developing training materials, conducting provider training and embedding CCS&PT services within our respective RHNs. This process has also produced greater awareness of CCS&PT services among clients and in their communities. Improving quality of service provision, referral linkages and referral tracking are priority areas for improvement.

**Conclusion:** Sustained integration of CCS&PT services has been more complex than originally anticipated, and requires adaptation and continual strengthening of systems. The lessons learnt are useful for new or expanding CCS&PT programmes in Africa and other regions.

**Key words:** Cervical cancer, Reproductive health, Integration, Visual inspection with acetic acid screening, Cryotherapy

### Introduction

Cervical cancer is the leading cause of death from cancer among women in developing countries, where over 80% of global deaths from cervical cancer occur (1). Sub-Saharan Africa is particularly hard hit, with an estimated 92,000 (2) new cases of invasive cervical cancer occurring annually, constituting one quarter of all female cancers in the region. In 2012, cervical cancer was responsible for 266,000 deaths globally – 228,760 in developing countries and 57,000 in Africa (3).

Unlike other cancers, cervical cancer is largely preventable due to slow development, early detectability and pre-cancers treatment. Recent evidence proves the safety and effectiveness of visual inspection with acetic acid (VIA) screening for cervical cancer (4) and cryotherapy for treatment of precancerous lesions in low-resource settings (5,6). Despite strong evidence for the effectiveness of screening and treatment, screening coverage rates are low in developing countries: in sub-Saharan Africa, an estimated 20–40% of HIV positive women are screened for cervical cancer, and fewer than 10% receive appropriate treatment (7).

The Cervical Cancer Screening and Preventative Therapy (CCS&PT) partnership brings together Marie Stopes International (MSI), Population Services International (PSI), International Planned Parenthood Federation (IPPF) and Society for Family Health Nigeria. The partnership's objectives are to increase the number of cervical cancer screening services the partners provide, and the number of cryotherapy treatments delivered to eligible clients who test positive for pre-cancerous lesions of the cervix. In line with World Health Organisation (WHO) guidelines, screenings are targeted at women aged 30–49 years, the group most at risk of developing cervical cancer. This article describes the degree to which the CCS&PT partnership has scaled-up services in Nigeria, Kenya, Tanzania, and Uganda between November 2012 and April 2015 (8-10).

## Materials and Methods

*Service delivery channels:* Working through existing Reproductive Health Networks (RHNs) in Nigeria, Kenya, Tanzania, and Uganda, CCS&PT services are provided alongside Sexual and Reproductive Health (SRH) services. This enables expansion of the basket of health services available to women by increasing access to cervical cancer screening and treatment of precancerous lesions. CCS&PT partners offer services through three service delivery channels: static clinics, mobile outreach and social franchises (the implementing organisations' private sector partners).

Static clinics owned and operated by MSI and IPPF are located in cities, towns and peri-urban areas. Similarly, CCS&PT services are delivered through RHN mobile outreach programmes that bring services directly to clients, and often operate in underserved areas, such as rural or remote locations or urban slums. A variety of outreach models are used: dedicated CCS&PT services, combined CCS&PT and SRH services, and outreach within public health facilities. No user fees are charged for services on outreach. MSI and PSI also operate through networks of privately operated and owned social franchises. Typically these involve a format, under which franchisees use the franchisor's brand and business practices to grow the client base and increase local access to affordable health care services.

Multiple service delivery models operate in each channel. In Tanzania, following the Tanzanian Ministry of Health and Social Welfare's *Service Delivery Guidelines for Cervical Cancer Prevention and Control*, the partnership implements a single-visit approach to screening and treatment (7). Women who test positive for pre-cancerous lesions are offered treatment with cryotherapy on the same day, at the same site. In other countries, services are provided using either a single-visit approach, in which a VIA-positive client receives treatment in the same visit, or

a hub-and-spoke approach, in which several screening sites refer clients to one cryotherapy site for treatment. *Integration:* CCS&PT partners have integrated VIA screening and cryotherapy treatment services at different levels within the RHNs:

*Management level:* This has been the most significant integration. CCS&PT has been integrated within existing activities: planning, budgeting, management and supervision of service providers. Procurement systems have been developed. Quality assurance systems, data collection and monitoring systems have been upgraded to include CCS&PT services.

*Service delivery level:* The integration at service delivery level is partial and varies by service delivery channel. At clinics and social franchises, CCS&PT services are integrated (offered to women alongside other SRH services), though special screen-and-treat events have been piloted as well. In outreach, both integrated (e.g., CCS&PT and SRH services) and dedicated services (e.g., CCS&PT alone) are provided. Clients are offered dedicated communication and educational materials – leaflets, pamphlets and flipcharts.

*National policy level:* Project partners actively participate in national technical working group meetings with their respective Ministries of Health (MOH) and other partners in cervical cancer prevention to improve co-ordination, and hold regular meetings to encourage national policy dialogue. Project lessons are disseminated at technical meetings and joint advocacy plans developed to prioritise cervical cancer prevention among MOH and political thought leaders. Project partners also work closely within existing national and district systems; for example, project data are reported into national health management information systems where these exist.

*Data systems:* CCS&PT data are collected through routine Management Information Systems (MIS). While MIS systems differ by partner, all partners collect data on client demographics, service use, first-time screening status, self-reported HIV status, and screening results. Key performance indicators are the number of screenings of women aged 30–49 years; the VIA positivity rate (the number of VIA-positive results divided by the number of screenings); number of cryotherapy treatments; and treatment rate (the number of women treated as a proportion of those who test positive and are eligible for cryotherapy). As the analysis reported herein involved only routinely collected, aggregated programmatic data, ethics approval was neither necessary nor sought.

## Results

The CCS&PT partnership provided 911,501 screenings and 7,234 treatments between November 2012 and April 2015, including 616,958 screenings (67.7%) to women aged 30–49 years (Table 1).

**Table 1:** CCS&PT screenings by country, November 2012 to January 2015

Country	Population of women aged 30-49 (2012)	VIA screenings, women aged 30-49 (per 100,000 women aged 30-49)
Kenya	8,117,840	300,589 (3,703)
Nigeria	32,240,800	68,602 (213)
Tanzania	8,695,960	41,657 (479)
Uganda	5,816,000	206,110 (3,544)
Total	54,870,600	616,958 (1,124)

*Trends in screening and treatments over time:* Screenings have showed an upward trend, more than doubling in quarters 6, 7 and 8 (February 2014-October 2014) and then stabilising at just over 72,000 screenings in quarter 10 (February 2015-April 2015). Cryotherapy treatments, which were almost non-existent at the beginning of the project, increased 65-fold from 19 in quarter 1 to over 1,200 in quarter 10. The loss to follow up rate observed reduced consistently through the project from 87% in quarter 1 (November 2012-January 2013) to 35% in quarter 10.

**Table 2:** CCS&PT screenings and cryotherapy treatments by quarter, November 2012- April 2015

Quarters	November 2012- April 2015									
	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
Time Period	Nov 2012- Jan 2013	Feb 2013- Apr 2013	May 2013- Jul 2013	Aug 2013- Oct 2013	Nov 2013- Jan 2014	Feb 2014- Apr 2014	May 2014- Jul 2014	Aug 2014- Oct 2014	Nov 2014- Jan 2015	Feb 2015- Apr 2015
VIA Screenings, women 30-49	37,158	37,596	40,557	57,659	48,146	76,163	98,995	91,309	58,690	72,036
Women screened, positive, and eligible for cryotherapy	147	600	558	822	1,138	2,244	2,407	2,130	1,771	1,904
Cryotherapy Treatments	19	53	179	367	451	1,055	1,386	1,325	1,147	1,234
Percentage of eligible women treated with cryotherapy	13%	9%	32%	45%	40%	47%	58%	62%	65%	65%

*Country variations:* Screening and treatment services varied by country. In Kenya, where all partners have long-standing RHNs, we provided the most screenings. The fewest screenings in absolute numbers were provided in Tanzania, where the government mandates that screening and treatment be offered in a single visit, thereby restricting the number of screenings on offer while facilitating higher treatment uptake. On a population-adjusted basis, the fewest number of screenings per 100,000 women were in Nigeria, which is due to the relatively small-scale of operations coupled with the relatively large population. Positivity rates were highest in Tanzania and lowest in Uganda for the period of May 2014 to January 2015 (Figure 1).

During the project the overall positivity rate across the four project countries increased from 1.57% in the

period November 2012- April 2013 to 2.14% in the period May 2014- April 2015, indicating that quality and provider competency is improving. Positivity rates are a key quality indicators for this project, and project partners attempt to ensure they are correct and within expected rates.

*Treatment rates:* Between November 2012 and April 2015, 7,234 treatments were delivered across the four project countries. In the same period, 13,134 women tested positive for pre-cancerous lesions and were eligible for cryotherapy meaning that 55% of positive and eligible women have been treated over the project period. Treatment rates for positive and eligible women have increased consistently over time, from 13% in the 1st quarter to 65% in the 10th quarter, suggesting an improvement in systems for client follow up.

Treatment rates for women VIA-positive and eligible for cryotherapy vary greatly across countries. In Tanzania, the treatment rate was 100%, as the government mandates a same-site screen-and-treat model of service provision. In other countries, where partners primarily operate a hub-and-spoke model in which a single treatment hub services multiple screening sites, treatment rates are lower. Uganda currently reports the lowest positivity rates (1.49%) suggesting a lower quality of screenings in the period May 2014– April 2015. However, in the same period, a larger number of positive and eligible women were treated in Uganda (80%) compared with (43%) in Kenya where a higher positivity rate of 2.43% was observed. This suggests a lower quality of screenings in Uganda but more robust systems to follow up women and ensure cryotherapy treatment for women who are positive and eligible, compared with Kenya.

## Discussion

The CCS&PT project demonstrates that cervical cancer screening and prevention can be scale up using existing infrastructure. The case for integrating CCS&PT within existing RHN-provided SRH services is compelling: it is efficient, since most infrastructure needed to deliver services is already in place, and it provides a one-stop-shop for women, most of whom have never accessed screening services. Furthermore, service delivery capacity has been significantly increased, procurement and logistics systems created, clinical and technical protocols established, and training materials developed.

While the RHN partnership has been able to rapidly scale-up screening services, scaling up cryotherapy treatment requires greater effort. The 100% treatment rate achieved by the Tanzanian RHN indicates that the single-visit approach effectively eliminates the loss to follow-up common in other models of CCS&PT service delivery. It also eliminates the high costs and complexities of setting up referral services for preventative treatment. The success of a single-visit approach depends on strong pre-screening counselling on the risks and benefits of screening and the availability of uninterrupted cryotherapy services. Another critical success factor in Tanzania has been the strong government involvement in the training and accreditation of providers, and regular supervision.

The importance of post-training supervision and practice cannot be underestimated. Emphasis must be placed on creating a critical mass of national trainers in each country to ensure that newly trained providers

receive regular high-quality mentorship. In resource-poor settings, each woman aged 30–49 years must be screened at least once. Communication campaigns must be designed for this age group. Robust MIS systems should be established to monitor positivity rates, ensuring supplementary support for service providers who are (for instance) recording lower than expected positivity rates. National MIS systems need to be strengthened to include cervical cancer prevention. Finally, but importantly, the near-absence of higher-level treatment (such as radiotherapy, chemotherapy or palliative care) in project countries for women who have advanced cancer must be rectified.

During the remaining two years of the CCS&PT project, improving quality of services and treatment completion rates will be prioritised. This will be achieved by concentrating resources on supporting fewer service providers and increasing the number of cryotherapy sites.

## Conclusions

The CCS&PT partnership has rapidly scaled-up cervical cancer screening services in Nigeria, Kenya, Tanzania and Uganda, but the number of preventive treatments has increased more slowly. In conclusion, integrating CCS&PT has been more complex than anticipated, and requires adaptation and continual strengthening of our systems. We believe the lessons we learnt are useful for other CCS&PT programmes in Africa and globally.

**Conflict of interest:** None

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