

March 2021

# Improving uptake for non-communicable disease screening: policy brief

## Key Policy Considerations

Non-communicable diseases and risk factors prioritised in India's Comprehensive Primary Health Care program such as diabetes, hypertension, oral, breast and cervical cancer pose a significant health burden. To expand the services and bring them closer to the community, Universal Screening of common Non-Communicable Diseases (NCDs) was launched in 2016. This included screening of individuals aged 30 years and above for five common NCDs i.e. hypertension, diabetes, cancers of the oral cavity, cervix and breast. The key components of this initiative include population enumeration, assessment of risk factors, community mobilisation for screening in urban areas, health promotion, initiation of treatment at a primary health centre (PHC) and follow up at household level to ensure treatment compliance. Early detection, through screening can significantly decrease burden and disease progression. While evidence on the broader range of NCDs is limited, policy considerations to improve screening uptake in Low- and Middle-Income Countries, and particularly in the Indian context are:

1. There is almost no evidence on strategies for improving uptake of screening for hypertension, diabetes and oral cancer in LMIC setting. This leaves scope for generation of evidence through conducting large-scale cluster randomised controlled trials as implementation research.
2. Community-based outreach facilities, capacity-building, and integration of screening services within existing health services should be considered to improve screening uptake.
3. Health education (contextually tailored, in local languages), along with integration of screening into existing health system, demand-side

### What is a policy brief?

A policy brief is a summary of global research evidence to inform decision-making. This policy brief is based on two rapid evidence synthesis conducted in 6 weeks. They are available as technical supplement to the brief.

### Why was this rapid policy brief developed?

This was prepared on request from the National Health Systems and Resource Centre (NHSRC), India.

### Suggested citation

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financial incentives (e.g. vouchers for transport costs, free cancer screening services), and public awareness (including in mass media) may increase screening uptake for cervical and breast cancer sustainably.

4. Improving access to screening services through various initiatives such as financial incentives (e.g. transport costs) or providing transportation could help create awareness and uptake.
5. Short messaging services (SMS) as reminder for cervical cancer screening has been shown to improve screening rates for cervical cancer in LMICs. The use of Health technologies such as the use of NCD application by Auxiliary Nurse Midwives (ANMs) and Accredited Social Health Activists (ASHAs) for population based screening could help improve screening rates.
6. Ensuring privacy and having female health care workers or providers available at health facilities can address embarrassment related to the screening procedures. In addition, standard protocols to be followed.
7. Encouragement to attend screening by other women in the community (particularly for cancers) or health care workers has been identified as an important facilitator for accessing and availing screening services.
8. Health facilities-based opportunistic screening with community outreach services should be continued to increase access to screening services to reduce travel time. This will continue to promote and improve screening uptake..

**Enablers and barriers of note in the policymaking context are:**

### ***Barriers***

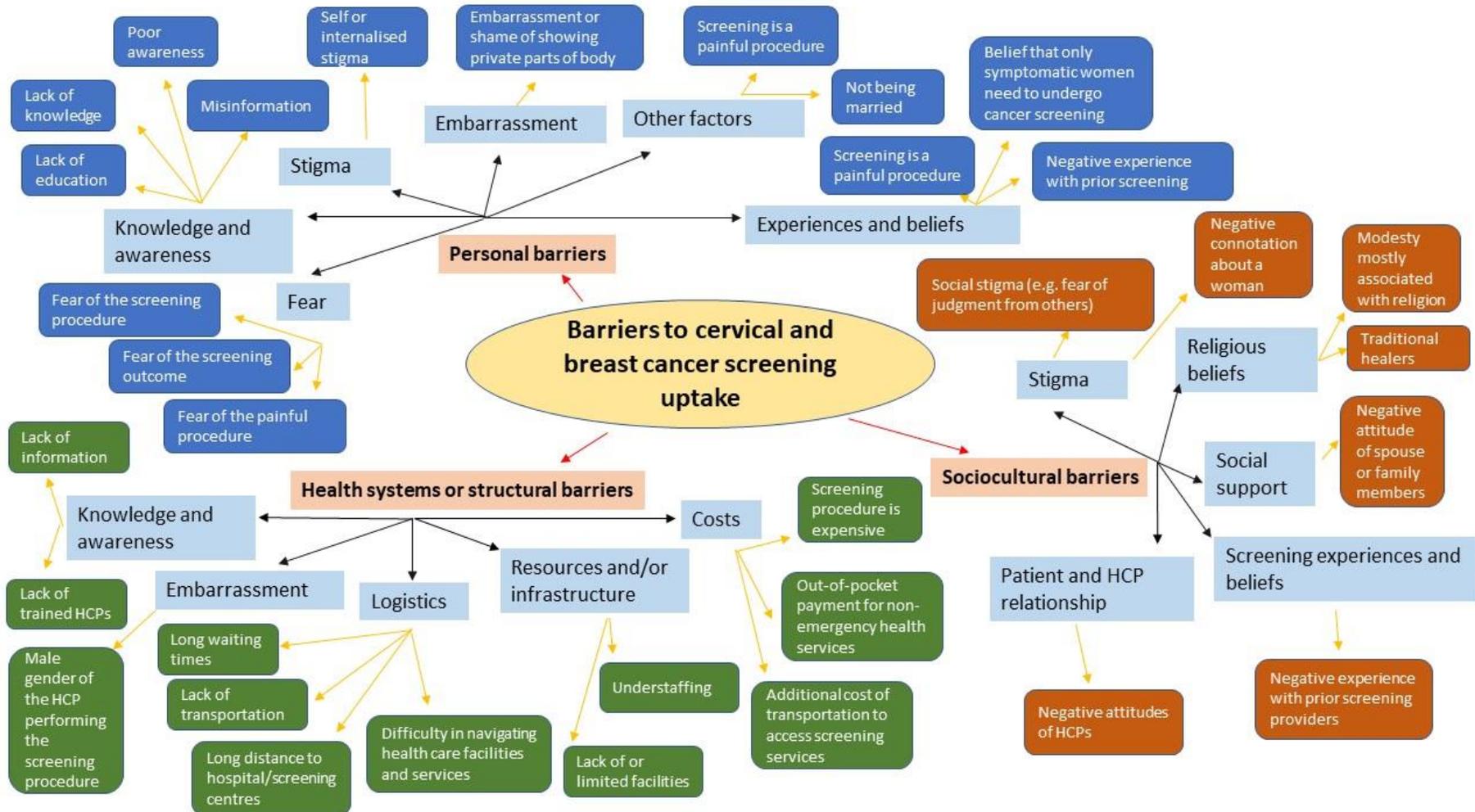
**Figure 1** presents a map of the barriers to the uptake of cervical and breast cancer screening services, with the overarching categories and the major themes identified from the systematic reviews and primary studies. Lack of knowledge and awareness, fear, embarrassment, stigma, lack of privacy were some of the main personal barriers. Sociocultural barriers included social stigma, social support, and poor patient and health care worker relationship. In terms of structural or health systems barriers, screening costs, long waiting times, transportation, and supply side inadequacies were identified as some of the main barriers.

### ***Enablers***

1. Personal: adequate knowledge, and greater perceived susceptibility of NCDs, mainly cervical and breast cancer.

2. Sociocultural: encouragement from friends and family members or other women in the community to attend screening, and educational sessions at health facilities or messages about cancer through various media could facilitate screening uptake.
3. Structural or health systems: encouragement to attend screening by health care workers, providing transportation costs, free screening opportunities and integration of screening services with other existing health services.

Figure 1 A map of the identified barriers to cervical and breast cancer screening uptake



## Methodology

This rapid policy brief is based on two rapid evidence syntheses that examined: first, evidence on interventions to improve screening uptake for chronic diseases (component 1); and second, barriers and enablers for screening uptake for chronic diseases (component 2). We conducted rapid evidence syntheses and comprehensively searched three databases (PubMed, Embase and Health Systems Evidence databases) in November 2020 to identify systematic reviews and primary studies which met our eligibility criteria (see Box A). Standard rapid evidence synthesis processes were used for study selection, data extraction and synthesis of data; detailed information on methods is reported in the accompanying supplement documents.

### Box A. Eligibility criteria

- **Population:** adults aged 30 years or older screened for the following NCDs: breast cancer, cervical cancer, oral cancer, diabetes, and hypertension.
- **Interventions:** Interventions that seek to increase screening uptake for NCDs of interest.
- **Outcome:** Increase in screening uptake/screening rates.
- **Context/setting:** Low- and middle-income countries (LMICs) and urban settings.
- **Study design:**
  - For component 1, systematic reviews of randomised controlled trials (RCTs), non-randomised studies such as controlled before and after studies (CBAs), interrupted time series (ITS) studies and cohort studies were included. In the absence of systematic reviews on any of the NCDs or interventions of interest, primary studies (aforementioned study designs) were considered for inclusion.
  - For component 2, mixed-methods systematic reviews including before and after studies, cohort studies, cross-sectional studies, qualitative studies and mixed-methods studies were considered.
- **Study selection:** The 2020-2021 World Bank country income classification was used to identify and include relevant studies from LMICs.(1)

## Summary of the evidence

Based on pre-specified inclusion criteria, five systematic reviews and five primary studies were considered eligible for inclusion for component 1. For component 2, eight systematic reviews and five primary studies were included. A brief summary for each component is provided below; detailed findings are available in supplement 1.

## Component 1

Overall, this RES highlighted the limited evidence base for strategies to improve screening uptake from an LMIC perspective. While there is some evidence of positive impact of health education interventions and mHealth technologies, the evidence is generally inadequate given the small number of relevant studies. Except for studies published in sub-Saharan Africa region,(2-10) very little research has been carried out in other LMICs in other regions, particularly in South Asia and in some parts of Central America. The objective of this rapid review was not to explore the reasons for the lack of evidence, but to review the existing evidence within a LMIC context. Therefore, we provide a summary of and gaps within the existing evidence base.

Evidence from systematic reviews and primary studies that examined multicomponent health education interventions reported potential benefits such as an increase in cervical and breast cancer screening uptake and an increase in knowledge and awareness of screening services. Health education interventions that included one-to-one education sessions with trained health providers and printed media with reminders improved Cervical Cancer Screening (CCS) uptake, as compared to passive education interventions such as providing educational booklets or materials and pamphlets.(2, 3) Further, the evidence highlighted the need for culturally tailored, simpler language health educational materials about cervical cancer and benefits of early screening to increase CCS uptake.(2, 3) The use of lecture, pamphlets, flip charts and demonstration of Breast Self Examination (BSE) using audio-visual materials increased BSE uptake by 90.7% compared to 0% pre-intervention in a study from India.(11) A community-based training initiative in Malawi involving laywomen to deliver breast cancer educational talks and conduct clinical breast examination (CBE) showed that 82% of the participants (1000/1220) participants underwent CBE following the intervention .(4) However, this finding is based only on the conference abstract, as no full text was available.(4)

Reviews found that health education interventions on their own may improve overall awareness of early screening, which may or may not translate into increased uptake. Therefore, as suggested by Johnson et al in their review, integration (e.g. of cancer screening with other existing services), and financial incentives (e.g. providing vouchers for transportation costs to screening services) may be considered to provide necessary organisational support for effective implementation to increase screening uptake in resource-limited settings.(5) Restructuring and integrating screening services with other health services such as existing maternal health programs or preventive services may be more beneficial in improving screening uptake, instead of stand-alone interventions.(2, 5, 6, 10) Health education through community outreach with the help of trained laypersons / frontline functionaries (such as creche or

*anganwadi* workers) could be a potential culturally sensitive approach for cancer screening in certain contexts.(4, 5, 12) The effectiveness of community-based group education programs increased when additional supports, such as assistance in attending screening services were provided. mHealth applications such as use of mobile phones for text messages and reminders focussed on engaging patients and encouraging change in behaviours may be beneficial and feasible in improving screening uptake for cervical cancer.(10) Evidence from two studies (conducted in Nigeria and Uganda) showed that direct home mailing of Human Papilloma Virus (HPV) self-sampling kit was associated with twice the likelihood of attending screening compared with patients who underwent screening at clinics.(9)

Overall, these findings were based on a small number of studies from LMICs that included small sample sizes. Rigorous search strategies were used to identify relevant literature; however, only a small number of studies were identified that evaluated interventions designed to improve screening uptake for the NCDs of interest. The review also identified a lack of evidence on interventions designed to increase screening uptake for NCDs such as oral cancer, diabetes and hypertension, particularly from LMICs. There were no systematic reviews or primary studies of relevance from LMICs, with all the identified studies conducted in high-income and upper-middle income countries, mostly from the US, followed by UK, Canada, Australia, Iran and Turkey.

## Component 2

This review identified barriers and enablers to screening uptake among adults living in LMICs to obtain a better understanding of the reasons behind NCD screening uptake. Similar to component 1, majority of the primary studies, including those in the systematic reviews were conducted in sub-Saharan Africa region,(13-20) very little research was carried out in countries from South Asia, mainly from India.(14-16, 21-23) Although various countries with differing cultural contexts were represented among the included studies in the systematic reviews, there were similarities and common themes in barriers and enablers to cervical and breast cancer screening among included studies.(13-17, 19-21) In contrast, evidence for oral cancer, diabetes and hypertension was very limited to draw any meaningful conclusions.(18, 22-25) Thus, emphasis in this component was placed on cervical and breast cancers. Systematic reviews and primary studies mainly reported on barriers to screening uptake. Enablers and facilitators were sparsely reported.

The most commonly cited barrier to screening was lack of knowledge regarding cancer and screening procedures.(13-17, 19, 21-24) However, it was found that studies that were conducted in health centers with integrated cancer screening

programs had higher rates of knowledge among study participants. Lack of knowledge and lack of understanding of the role of screening were key barriers to cervical cancer screening and breast cancer screening uptake amongst women in LMICs.(13, 15, 21) Women who reportedly had higher knowledge levels of cancer and cancer screening procedures identified health care providers as their primary source of information. Health care providers could act as key facilitators for screening uptake by educating patients and increasing their awareness toward cancer and screening.

Fear and stigma around cancer screening procedures, and test results were the second most common personal factors for avoiding screening in the included reviews.(13, 15-17, 21) Low knowledge of screening procedures was a major factor for fear of screening. Stigma, including social stigma and embarrassment was reported commonly across several systematic reviews.

Screening costs were reported as other significant barriers to cancer screening in many studies. In LMICs and in resource-poor settings, nonemergency health services such as cancer screening become secondary when compared to other priority health needs.(14, 15, 17, 21) Additional costs for services such as transportation to screening centres or hospitals act as a deterrent for women from undergoing screening even if facilities exist that offer free cancer screening services.

Long waiting times in clinics and hospitals was found to be the most significant structural or health-system barrier in cancer screening among included reviews. Patients in the reviewed studies also reported not having time to wait to see a provider as a contextual barrier to screening. In many of the LMIC, many health care centers are largely under resourced or understaffed with high rates of turnover. Further, the shortage of equipment along with limited and small examination rooms (with a lack for privacy) resulted in patients waiting hours for screening.

Perceived barriers to screening for hypertension included a lack of awareness of the need to be screened, time constraints, and a lack of awareness of screening services and access, as reported in two studies conducted in Mongolia and Nepal.(24, 25) A study conducted in Northern India reported that shortage of human resources including support staff was a major barrier for oral cancer screening in public health care facilities.(22) Barriers to diabetic care services including screening were explored in a study conducted across six districts in India.(23) Most of the patients in the study reported overcrowding and long waiting times as the major barriers to receiving diabetes screening at public health facilities.(23) In two studies conducted in Malawi and Nepal, challenges to NCD prevention services including screening, as reported by

health service providers included general lack of resources and equipment, understaffing, and lack of transportation for community outreach.(18, 25)

Finally, in many LMICs, health care centers were under resourced, understaffed, and/or experienced high rates of turnover. Further, the shortage of equipment along with limited and small examination rooms (with a lack for privacy) resulted in patients waiting for hours for screening. The findings from this review reveal that there is an interplay of personal, sociocultural and health systems barriers that hinder patients from accessing screening services in LMICs.

## Policy implications

These results suggest a need for:

- Increased educational services and community outreach and the importance of promoting early screening. Increasing knowledge and awareness of cervical and breast cancer still remains a key challenge in many LMICs; thus, it becomes imperative to design optimal strategies for increasing cancer awareness.
- Linking awareness and screening to existing service delivery systems and provider relationships appears to be key.
- Health education sessions to inform women about saving for the costs associated with screening maybe useful in preparing them for the financial obligation. Moreover, if clinics offer free cancer screening services, this should be clearly communicated through appropriate channels, as it was reported in several systematic reviews that patients were not even aware of this free service.
- Educational sessions at health facilities or messages about cancer through various media could facilitate screening uptake.

## Directions for further research

- There is a dearth of research on enablers and barriers of screening related to hypertension, diabetes, and oral cancer in LMIC settings. This is a critical area of future research, particularly in contexts like India, where national programmes of population-based screening have been launched
- Further research should utilise the strengths of qualitative and quantitative methodological approaches to capture and report on the unique barriers and enablers that both prevent and enable participation in screening services. Compared to quantitative research, relatively little qualitative research has

been conducted to explore the experiences and perspectives of participants, specifically related to the barriers and enablers.

- This review has identified numerous barriers at personal, sociocultural and health systems levels that hinder the use of screening services among people with NCDs in LMICs. However, less is known about the enablers that facilitate screening in LMICs.

## Publishing notes

### Title

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### Competing interests

The authors do not have any relevant competing interests.

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### Supplement documents

*Component 1 - Moola S, Gudi N, Tyagi J, Kakoti M, Nambiar D, Bhaumik S. Dumka N, Ved RR. Improving screening uptake for oral, breast and cervical cancers, hypertension, and diabetes in adult patients in urban areas: rapid evidence synthesis. The George Institute for Global Health, India, March 2021.*

*Component 2 - Moola S, Gudi N, Tyagi J, Kakoti M, Nambiar D, Bhaumik S, Dumka N, Ved RR. Barriers and enablers to screening uptake for hypertension, diabetes, oral, breast and cervical cancers in adult patients over 30 years in urban areas: rapid evidence synthesis. The George Institute for Global Health, India, March 2021.*

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