

# Reaching the Unreached Through Corporate Social Responsibility

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**Abstract:** The paper discusses the role of corporate social responsibility in addressing the existing gaps in healthcare delivery banking on technological and process innovation. India is witnessing a change in epidemiological shift from communicable to non-communicable diseases to which the government has come up with NCD screening program under National Health Mission. The NCD screening program from NHM is unable to reach out to the industrial workers as these are working throughout day and are usually missed out by the frontline workers. The recent advances in medical technology enabled us to take the screening from clinics to the communities. Narayana Health CSR had developed a comprehensive screening solution kit that screens for Height, Weight, Blood pressure, Anemia, Random blood sugar, 6-lead ECG, oxygen saturation, oral cancer & Breast cancer in less than 10 minutes. The paper describes the outcomes, learnings and challenges in NCD screening among the industrial workers.

**Keywords:** Corporate Social Responsibility, Health screening, Non-Communicable Disease.

## 1. Introduction

Promoting healthcare including preventive healthcare has been adopted by many a company as a constituent of their CSR Policy. Within this, Non-Communicable Diseases (NCD) have been targeted owing to their rising mortality and morbidity burden. According to data by the World Health Organization, every year roughly 5.8 million Indians die from heart and lung diseases, stroke, cancer and diabetes. One in four Indians is at the risk of dying from an NCD before they reach the age of seventy. Concurrent with WHO's Global action plan for the prevention and control of NCDs 2013-2020, India is the first country to develop specific national targets and indicators aimed at reducing the number of global premature deaths from NCDs by 25% by 2025. Similarly, Sustainable Development Goal (SDG) 3.4 aims by 2030 to reduce by one-third pre-mature mortality from non-communicable diseases (NCDs) through prevention and treatment.[1]

Screening programs are a basic tool in public health that have been in application for several decades. Screening has been defined by the WHO as the use of simple tests across an apparently healthy population in order to identify individuals who have risk factors,[2] or early stages of disease, but do not yet have symptoms. The government of India had envisaged National Program for Prevention and Control of Cancer,

Diabetes, CVD and Stroke (NPCDCS). The NPCDCS program has two components viz. (i) Cancer (ii) Diabetes, CVDs and Stroke. The opportunistic screening is done at the sub center level after disseminating information through the promotional material on Non-communicable diseases. The aim is to reduce mortality and morbidity of NCDs by 25% by 2020.[3]

### A. Industrial Workers – the unreached in NCD screening

Annually 12.2 million people, mostly in developing countries, die from noncommunicable diseases while still of active working age. Research has demonstrated that workplace health initiatives can help reduce sick leave absenteeism by 27% and health-care costs for companies by 26%.[4] In India it is currently estimated that 52% of the labor force is in agriculture, 14% is in industry and 34% is in services.[5] The population in industries and services are usually missed in opportunistic screening due work timing. The workers in the industrial areas are more prone to the risk due to their nature of work and access to healthcare.

Employee State Insurance Corporation (ESIC) in India is the largest health insurance scheme that has over 40 million beneficiaries or about 3.5% of the national population. It directly provides medical services through its chain of hospitals/clinics and it covers the medical cost of the insured workers making less than Rs.10,000/month (~\$200/ month) as well as their families. Population who falls under the ESIC were lost to opportunistic screening from NHM and ESI clinics does not have opportunistic screening.

### B. The approach

Corporate Social Responsibility is an act that helps a company be socially accountable and achieve the balance between economic, environment and social imperatives. India was the first country to make Corporate Social Responsibility mandatory following an amendment to the Companies Act 2013 which came into force from April 2014. Schedule VII of the act enumerates the genres which may be included by a company as its Corporate Social Responsibility Policy.

India had spent 13,200 crores under CSR act in the financial year 2018-2019 of which 38.6% is spent under education and health related sectors. [6] There is a need to focus on the existing gaps in the healthcare and Education rather than

implementing parallel programs with the government. CSR is an opportunity to reach out to the unreached through innovations in process and leveraging on the existing medical technologies.

Narayana Health CSR had developed a screening solution kit that eases the screening of diseases mentioned under the NPPCDCS program. The screening kit is portable and can be used by everyone irrespective of their medical knowledge with a basic prior training.

## 2. Materials & Methods

A pilot screening program was conducted in the industrial areas of Bommasandra in urban Bangalore to understand the feasibility of the screening solution to address the existing gaps NCD screening under the NPCDCS. The population targeted for NCD screening were laborers in factories. These people do not have access to screening/diagnostic facilities and could not afford it. To reach out to this population, the Labor Ministry was approached, this facilitated collaboration with a huge number of industries in Bengaluru. In addition, other stakeholders such as Grassroot organizations, NGOs and local government authorities were taken on board to increase the reach of the screening camps.

A team of 3 qualified Auxiliary Nurse Midwife and a Medico Social Worker were given training on the point of care devices, the use of application to enter the data and conducting awareness sessions at the camp locations.

### A. The screening solution kit

The screening kit has the following point of care devices hemoglobinometer, Glucometer, 6- Lead ECG, Digital Blood Pressure, Digital height device, hand held breast cancer screening device and pulse oximetry.

- Blood Pressure: A digital blood pressure monitoring device that operates on oscillometric method with an accuracy of  $\pm 3$ mmhg is used to capture the blood pressure reading.[7]
- Random Blood Sugar: The device uses glucose dehydrogenase/flavin dinucleotide chemistry, automatic test strip calibration, and auto compensation for hematocrit. 0.6micro liter of capillary blood is collected through the strip to analyze the RBS.
- Hemoglobin: The device uses broad spectrum photometry to analyze the Hb reading from a cuvette that collected 10 micro liters of blood. The reading is displayed within 2-3 secs.[8]
- Digital Height device: IR method is used to estimate the height in Centimeters and the same is recorded.
- Digital Weighing scale: The device uses strain gauge loaded cell and the reading are displayed which are recorded.
- 6-Lead ECG: A 6 lead ECG with AI interpretation as per the Glasgow algorithm is used.
- Screening app for capturing the data on demographics,

past medical history, habit history, the point of care test readings and printing the results with risk stratification.

- Hand held breast cancer screening device: The devices uses tactile sensor technology using piezoelectric sensor for breast imaging. [9]
- Male workers were screened within 5minutes while female workers were screened within 14 minutes (breast cancer screening 7-9 minutes). The cost of each screening test was 30 rupees for male workers and 50 rupees for female workers (breast cancer screening)

## 3. Results

A total of 5495 factory workers were screened for non-communicable diseases in Bommasandra industrial area of Anekal. The screening were done in the month of May 2019 over 30 days from morning 10 am to evening 4 pm. There are 41% (n=2256) males and 59%(n=3239) females in the screening population divided based on the age as young adults (18-34yrs), adults(35-54yrs) and older adults(>55yrs). The mean age among young adults is 26.12 yrs (SD=4.3yrs), adults is 40.54yrs(SD=4.8yrs) and young adults is 63.57 yrs (SD =

Table 1  
Mean values across age groups and gender

Younger adults		
	Women (n=2236)	Men(n=1578)
<b>BMI</b>	22.50 (4.5)	21.90(3.7)
<b>SBP</b>	111.35(12.8)	119.7(12.4)
<b>HB</b>	11.32(1.9)	14.6(1.6)
<b>RBS</b>	113.14(29.4)	110.3(27.9)
Adults		
	Women (n=939)	Men(n=613)
<b>BMI</b>	25.11(4.8)	34.16(3.7)
<b>SBP</b>	120.8(15.2)	127.2(14.9)
<b>HB</b>	11.84(1.9)	14.39(1.6)
<b>RBS</b>	126.74(45.9)	127.8(49.1)
Older adults		
	Women (n=72)	Men(n=65)
<b>BMI</b>	23.53(4.9)	22.6(3.8)
<b>SBP</b>	123.6(19.9)	127.8(16.8)
<b>HB</b>	12.23(1.6)	132.79(1.6)
<b>RBS</b>	140.24(62.4)	141.92(60.5)

7.2yrs).

The table 1 shows that there is high prevalence of anemia among women in younger adults and adults compared to their male counter parts. The adults are at risk for overweight and obese whereas the older adults are at higher risk for diabetes.

### A. Breast Cancer Screening

All women underwent clinical breast examination and the suspected were screened by hand held screening device. Of the 3239 women 894 women were screened by hand held device and 63 were referred for further diagnosis. No breast cancer case was detected among the women screened.

### B. Oral Cancer screening

All the 5495 workers were screened for pre-cancerous lesions in the oral cavity through visual examination using

Table 2  
 Prevalence of NCDs across age groups – Female workers

Prevalence of NCDs among Females workers				
	Young adults (n=2236)	Adults (n=939)	Older adults (n=72)	Total (n=3239)
<b>Systolic (&gt;140mmhg)</b>	1.2% (n=39)	7.8% (n=74)	18% (n=13)	3.9% (n=126)
<b>RBS (&gt;140mg/dl)</b>	10.4% (n=234)	20.8% (n=195)	33.3% (n=24)	13.9% (n=453)
<b>HB (&gt;12mg/dl)</b>	54% (n=1208)	42.1 (n=395)	29.1 (n=21)	50.1 (n=1624)
<b>BMI (&gt;25kg/m<sup>2</sup>)</b>	26.2% (n=587)	47.4% (n=446)	34.7% (n=25)	32.7% (n=1058)

Table 2  
 Prevalence of NCDs across age groups – Male workers

Prevalence of NCDs among Male workers				
	Young adults (n=1578)	Adults(n=613)	Older adults(n=65)	Total (n=2256)
<b>Systolic (&gt;140mmhg)</b>	2.6%(n=42)	12.7%(n=78)	21.5%(n=14)	5.9%(n=134)
<b>RBS (&gt;140mg/dl)</b>	8.1%(n=129)	24.4%(n=150)	33.8%(n=22)	13.34(n=301)
<b>HB (&gt;12mg/dl)</b>	3.6%(n=57)	4%(n=25)	4.6%(n=3)	3.7%(n=85)
<b>BMI (&gt;25kg/m<sup>2</sup>)</b>	19.1%(n=302)	40.3%(n=247)	24.6%(n=16)	25%(n=565)

tongue depressor and torch. 53 workers with keratosis and ssu mucous fibrosis were identified. 26 workers have undergone biopsies for ruling out oral cancer.

### C. Electrocardiogram (ECG)

357 workers were identified for abnormal ECG reading and were referred to primary Health care centers for further evaluation.

Among the female workers 3.9% (n=126) are hypertensive of whom 19.8% (n=25) are at high risk (>160mmhg), 13.98% (n=453) are diabetic of whom 18.9% (n=86) are at high risk (>200mg/dl), 50.1% (n=1624) are anemic of whom 21.1% (n=344) are severe to moderately anemic, 32.6% (n=1058) are overweight of whom 27.2% (n=288) are obese.

Among the male workers 5.9% (n=134) are hypertensive of which 20.1% (n=27) are at high risk (>160mmhg), 13.34% (n=301) are diabetic of whom 20.9% (n=63) are at high risk (>200mg/dl), 3.7% (n=85) are anemic of whom 7% (n=6) are severe to moderately anemic, 25% (n=565) are overweight of whom 14.5% (n=82) are obese.

### 4. Conclusion

Factory workers are difficult to access for any screening activities due to their rigid working schedule and shift timings. We were able to address this by brining consensus among the factories, communities and the directory of factories on the need for NCD screening. Using technology, it was possible to screen an individual for multiple conditions within ten minutes, this appealed to factories as their production time was not compromised on. In addition, awareness sessions ensure that the respondents understood the value and significance of the

service they were being provided. The screening model adopted was a minimum resource set up that could easily be reproduced in different geographies with scarce resources. The success of the screening program lies largely in the motivation of the team performing the screening.

The facilities are available to the industrial workers under ESIC but the challenge lies in early identification of the NCDs through opportunistic screening. The screening solution kit from NH envisages to address this gap in opportunistic screening by screening an individual in less than 10 min. Screening should be accompanied with awareness sessions in order to increase the likelihood of respondents engaging in health promotion behavior. The screening process itself addresses the issues of barriers by making the screening service available at the convenience of the person.

### References

- [1] WHO, "Global action plan for prevention and control of NCDs 2013-2020," 2013.
- [2] <https://www.healthknowledge.org.uk/public-health-textbook/disease-causation-diagnostic/2c-diagnosis-screening/principles-methods-applications>
- [3] MoFHW, "Operational guidelines," "National Program for Prevention and Control of cancer diabetes CVD and Stroke.
- [4] WHO, "Protecting worker's health," Workers health global action plan, 2017.
- [5] Mehra Rahul, Branscum Paul and Sharma Manoj, "A needs assessment of factory workers in India for health promotion programs," Journal of Community Medicine and Health Education, vol. 2, 2012.
- [6] <https://www.csr.gov.in/developmentlist.php>
- [7] <https://omronhealthcare.com/wp-content/uploads/HBP-1300-BROCH-FOR-WEBSITE.pdf>
- [8] [https://www.fresenius-kabi.com/no/documents/CompoLab\\_TS-coLXc7CR7rYSsFx8kbTGn\\_H2IHvQXQQwbzLMg8veS90.pdf](https://www.fresenius-kabi.com/no/documents/CompoLab_TS-coLXc7CR7rYSsFx8kbTGn_H2IHvQXQQwbzLMg8veS90.pdf)
- [9] <https://www.ibreastexam.com/doctors#2>