

Original Research Article

Swasth Saarthi Abhiyan for public transport drivers, filling fuel at Indraprastha gas limited stations in Delhi and National Capital Region

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ABSTRACT

Background: A public transport driver (Saarthi) if sick thinks twice before taking a day off. The community health department (CHD) of a tertiary care hospital started a 'Swasth Saarthi (healthy drivers) Abhiyaan' (SSA) for the public transport drivers (PTDs) for one year. The objectives of the study were to conduct 220 health check-up camps at selected compressed natural gas (CNG) stations in Delhi and National Capital Region; to improve health awareness and early detection of diseases in drivers and getting treated at base hospital.

Methods: A cross-sectional study carried out from 15th March 2017 to 14th March 2018 at 36 Indraprastha Gas Limited (IGL) stations for all public transport drivers coming to IGL stations. Health camps conducted were - general health camp at IGL stations, NCD camps at community health department and clinical camps at the base hospital.

Results: A total of 408 camps were held in which 14,945 drivers came for health check-up. The PTDs with Eye problems 5981 (40%), over-weight 5315 (35.56%), tobacco/gutka chewing 4687 (31.36%), drinking 3734 (24.98%), smoking 3616 (24.20%), obesity 1655 (11%), hypertension 1433 (9.59%) and diabetes 1057 (7.07%). Health awareness was improved through health education. Surgeries for cataract 20/155 and sleep apnoea 4/122, and de-addiction drugs for 15 drivers of 'addiction' were started at base hospital.

Conclusions: The health check-up camps under SSA revealed that a large number of public transport drivers are at risk of various health related disorders. Innovative programme like ours is good to reduce "Treatment Gap" and is a step towards achieving Universal "Health for All".

Keywords: Addiction, Cataract, Health education, Non-communicable diseases, Swasth saarthies

INTRODUCTION

Public transport drivers (PTDs)/ (saarthies) are crucial workforce and are the backbone of day-to-day business in the city. They do not have a regular, secure and permanent job. They usually get into the habit of chewing tobacco, smoking and/or drinking.

They are constantly exposed to hazards of pollution, accidents and stress. Driving a motor vehicle is a

complex task requiring perception, good judgment. It adds additional demands associated with the vehicle itself, the responsibility to passengers and the demands of work schedules.¹

Harmful lifestyle is practised like irregularity of meals, awful quality of toilets, bad posture while driving and stressful occupational conditions during their working hours.² Such working parameters may be associated with various gastro-intestinal, musculo-skeletal, cardio-

vascular, respiratory, hearing and other problems which can hardly compromise with driving safety issues.³

The community health department (CHD) of a tertiary care hospital started a 'Swasth Saarthi Abhiyaan' (SSA) for the PTDs for one year i.e. from 15th March 2017 to 14th March 2018. This unit worked 5 days a week at IGL gas stations under tents. This paper describes the intervention carried out to improve PTDs health status.

The following objectives were set to conduct 220 health check-up camps at selected compressed natural gas (CNG) stations in Delhi and National Capital Region (NCR), to improve awareness on health related issues and early detection of diseases- like cataract, non communicable diseases (NCDs), sleep apnoea and addiction in drivers and getting them treated at base hospital.

METHODS

Study design and study area

Our study is a cross-sectional study which was carried out by community health department (CHD) of a tertiary care hospital of Delhi. It was over a period of one year from 15th March 2017 to 14th March 2018 at 36 Indraprastha gas limited (IGL) stations in Delhi and NCR. These stations were visited from 1 to 13 times in a year.

Study participants and sample size

All public transport drivers coming for gas to IGL stations were included in the study.

General Health Camp (5x44=220)	
• Doctor	2
• Health Assistant	3 (1 for Lab)
• Optometrist	1
• Pharmacist	1
• Driver	1
• Data Entry Operator	1

NCD Camps at 2 Places (80+80=160)	
A. At Community Health Dept: Twice a week (2x40=80)	
• Doctor	1(Part time)
• Health Assistant	1
• Lab Technician	1 (Part time)
• Optometrist	1 (Part time)
• Pharmacist	1(Part time)
B. At St. Stephen's Hospital: Twice a week (2x40=80)	
• Health Assistant	1
• Psychologist	1(Part time)

Figure 1: (A) The team for IGL stations; (B): Health teams for CHD and base hospital.

Study methodology

The CHD appointed health teams to run this intervention. There were three different teams for three places to provide health services (Figures 1A and 1B). The teams consisted of three doctors, one Psychologist, two lab technicians, two pharmacists, two optometrists and five Health Assistants. There was one driver too. The Health Assistants were twelfth class pass men and women with good communication skills. The staff was recruited for one year after proper interview.

General health camps at CNG stations

After reaching the IGL CNG gas station by the Mobile Vehicle the team set up three tents. They called public transport drivers (PTDs) who come for petrol/diesel/gas, for health check-up. As the PTDs (saarthies) arrived, they were registered. A health card with carbon copy was filled that contained information: name, age, sex, address, height, weight, BMI (body mass index)- helps to determine if the person is overweight or underweight. Formula= Weight (kg)/Height (m²), Underweight ≤ 18.5 , Normal weight= 18.5–24.9, Overweight= 25–29.9 and Obesity= 30 or >30), and Blood pressure measured.¹

A health check-up was done by doctors. History of past illnesses and allergy was noted. History of addiction and any family history of NCDs were noted. Counselling was done for de-addiction. OPD based consultation was given for presenting complaint. Near and distant vision was tested and accordingly spectacles were issued for refractive errors. The drivers having cataract were motivated to undergo cataract surgery.

Random blood sugar (RBS), blood group and haemoglobin were tested as per advice of doctors. PTDs were provided with the carbon copy of health card as well as a smaller card (containing blood group). The next date of IGL camp at the same IGL station was told to drivers and they were advised to bring their health card on next visit. PTDs having high RBS and high blood pressure were called for follow-up NCD camps at community health department in trans Yamuna, on Mondays and Thursdays.

The drivers were screened for sleep apnoea through a 'questionnaire'. Obstructive sleep apnoea (OSA) is a sleep disorder characterized by pauses in breathing or periods of shallow breathing during sleep. Usually the symptoms of OSA include excessive daytime sleepiness, loud snoring, observed episodes of breathing cessation during sleep, abrupt awakenings accompanied by gasping or choking, awakening with a dry mouth or sore throat, morning headache and difficulty concentrating during the day.¹ History of accidents was helpful in raising suspicion of sleep apnoea.

Medicines were dispensed in the camp as per doctor's prescription.

The health awareness-building program included health education, nukkad nataks (street plays) and majmas (1) at CNG gas stations, (2) at CHD and (3) at the base hospital. Flex posters were used and booklets and pamphlets were distributed. For body aches and pains they were told to use correct posture while sitting or bending, reduce weight-lifting, sitting on floor or squatting and avoid prolonged sitting and driving simultaneously. The underweight and anaemics were told to increase consumption of green leafy vegetables, pulses-daal, milk and soybean and timely intake of balanced diet. They were explained about the harmful effects of tobacco and alcohol. Those who needed therapeutic support and who had reached advanced stage of diseases or needed detailed evaluation and specialist's intervention, were counselled and referred to base hospital. Drivers with cataract were told that they pose hazard to road safety and were motivated for surgery.

After each nukkad natak (street play) drivers were given time to ask questions. Thereafter doctors explained about the life-long treatment for NCDs and motivated them to start de-addiction medication. Thus some of the drivers agreed to show at CHD and some others to show to consultants at the base hospital.

First aid training was given through demonstration. It covered topics like Road traffic accident, Wound care, Fracture of bones, Safe ambulation of patients, burns, dog bite, natural disasters, road rage, and cardio-pulmonary resuscitation.

Non-communicable diseases (NCD) camps at CHD

One doctor and one health assistant helped drivers in carrying out various steps for their thorough check-up and care. All diabetic and hypertensive drivers were called nil orally. Registration was done. Their blood pressure, height, weight were taken, eye testing done. A fasting blood sugar sample taken and time noted then PTD asked to take breakfast. Each of whose fasting blood sugar was above 126 mg%, got a second blood sugar test done i.e. (post prandial) 2 hours after breakfast. A proper history of his disease, family history of NCD, investigations if any done, treatment being taken, complications if any, was found out by doctor.

Thorough health check-up was done by doctor. If auto-driver was already taking medicines for BP and/or diabetes and his disease was controlled, health education is given. The next date for follow-up NCD clinic was told to him. (b) If he was hypertensive but not taking medicines, he was started on treatment with proper instructions to get BP measured locally within three days and accordingly take medicines. (c) Had a raised blood sugar (fasting and/or post prandial) and not taking any medicines, he was started on medication with proper instructions to repeat test in a week and accordingly continue medicines. The next date for follow-up NCD clinic was told to him.

Nutrition education to overweight, hypertensive and diabetic PTDs

The trained health assistant gave dietary advice through diet chart - (i) reduction of saturated and total fat intake (deep fried and fast food); less oil/ghee while cooking and (ii) to take five servings of fruits and vegetables a day (iii) to increase consumption of legumes and whole grains. In-depth health education on life style changes was also given- (iv) try to maintain normal body weight and not to become overweight or obese; (v) to have regular, moderate-intensity, physical activity at least 30 minutes $\times$ 5 days a week; (vi) restricted use of alcohol i.e. intake of no more than one standard drink a day; (vii) stopping tobacco & tobacco products usage.

Importance of (a) life-long treatment for diabetes and hypertension, (b) of taking medicines regularly, (c) of regular follow-ups, (d) of exercise was told to them. Diabetic foot care was taught in detail. PTDs were told as to what to do when they have any infection/fever. All hypertensives were asked of (i) reduction of salt intake to 3 g of salt per day (just under a teaspoon); (ii) managing stress in healthy way such as through meditation, singing prayer songs, appropriate physical exercise, and positive social contacts.

Base hospital clinics/camps

Some PTDs were motivated to go to base hospital for their treatment. The health assistants (HAs) fixed-up mutually agreeable dates for showing motivated PTDs with addiction, cataract and/or sleep apnoea in the base hospital in a year.

They helped in OPD registration process at base hospital. The addiction cases (15) were shown in the psychiatry department. After the clinical examination and diagnostic evaluation the drivers were put on medication and thereafter were encouraged for compliance of medication. The Health As. continued to be with PTDs on re-visits as well.

A special OSA camp was held at the base hospital by the ENT department to make the final clinical diagnosis. The drivers suspected of OSA at general health camps in IGL stations, attended it. They were then called as per the appointment and they were subjected to necessary tests including Sleep study. There were 4 cases that underwent surgery for OSA.

In a year's time 20 cataract cases were accompanied to the base hospital where surgeries were performed for them.

In-job training of health assistants

Under the Swasth Saarthi Abhiyaan CHD organized regular training sessions for health Assistants. The training covered all the important health aspects like

understanding NCDs, their symptoms, first aid, counselling skills etc. These training programs were held on Saturdays as the team went to gas stations on 5 days a week and not on Saturdays. The training sessions were taken by the public health experts. All the participants were administered a pre-test in the beginning and post-test at the end of the training in order to assess and evaluate the quality of training.

Statistical analysis

All the information/data was entered in the SPSS 16 version and a descriptive study was carried out to analyse the results

RESULTS

The health camps planned in Delhi and National Capital Region (NCR) were 380 (Gen=220 + NCD=80 + Base Hospital=80) whereas total camps held were 408 (Gen=220 + NCD=81 + Base Hospital= 107) (Figure 2).

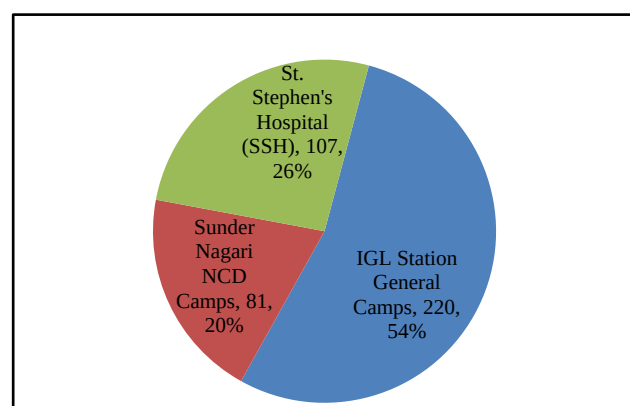


Figure 2: Total Swasth Saarthi IGL camps held in 2017-18.

There were 36 IGL stations where general camps were held. The number of camps at each station ranged from 1 to 13 (Table 1).

A total of 14,945 drivers came for health check-up in a year's time. Mean age of subjects was 39.33 (SD 10.82) years (range 17 to 85 years). The maximum number of PTDs were in the age group of 30–40 years i.e. 4915 (32.89%), closely followed by drivers in the age group of 40 – 50 years 4668 (31.23%). The minimum numbers were observed in age group <20 [129 (0.86%)] and ≥60 years [(344 (2.3%)] (Table 2).

There were 7619 (50.98%) PTDs that were married and 7326 (49.02%) were unmarried. Most of the PTDs were from Delhi and others had migrated from states like Haryana, Bihar, Jharkhand, Rajasthan and Uttar Pradesh.

Only 7080 (47%) were having normal BMI, whereas nearly an equal number were either overweight or obese 6970 (46.63%) (Table 3).

Table 1: The IGL stations site for general health camps.

S. no.	CNG station	No. of times
1	Jail road	11
2	Naglamachi	9
3	Mahipalpur	3
4	Dheerpur	13
5	Patpargunj mega	13
6	NOIDA Sect- 105	2
7	Udyan marg	9
8	Metcalfe house	12
9	Janakpuri D block	9
10	Sarai Kale Khan	11
11	Dilshad garden	6
12	New Pitampura	8
13	IP Estate	8
14	RK Puram sector 10	8
15	RK Puram sector 3	1
16	Anand Parvat	8
17	OkhlaPh- 1	8
18	Sarita vihar	7
19	NOIDA sector 122	3
20	Noida sector 82	5
21	CRRI	3
22	Dwarka sector 22	1
23	Vaishali	5
24	Nand Nagari	6
25	Kapashera	3
26	Noida sector 71	5
27	Jahangirpuri	7
28	Greater Noida Beta 2	5
29	Vaishali	5
30	Dwarka sector 20	3
31	Sarojini Nagar	4
32	NH-58	2
33	Vivek vihar	4
34	Shakurpur	4
35	Janakpuri district centre	3
36	CGO complex	2
Total		220

Table 2: Age distribution of study subjects.

Age group (in years)	Married		Unmarried		Total	
	No	%	No	%	No	%
<20	52	0.35	77	0.52	129	0.86
20 to 30	1,723	11.53	1,531	10.24	3,254	21.77
30 to 40	2,537	16.98	2,378	15.91	4,915	32.89
40 to 50	2,333	15.61	2,335	15.62	4,668	31.23
50 to 60	800	5.35	835	5.59	1,635	10.94
≥60	174	1.16	170	1.14	344	2.30
Total	7,619	50.99	7,326	49.02	14,945	100.00

Table 3: Body mass index (BMI) wise distribution of study subjects

S.No.	BMI in Kgs/(m ²)	No.	%
1	Underweight =<18.5	895	5.98
2	Normal weight =18.5–24.9	7080	47.37
3	Overweight =25–29.9	5315	35.56
4	Obesity = 30 or >30	1655	11.07
		14945	99.98

Table 4 (A): Health education in camps.

Topics			
S.No.	Health education in general camps	No. of sessions	No. of PTDs
1	Diabetes and hypertension	61	755
2	Diabetes	41	668
3	First aid	32	362
4	Alcohol	15	333
5	Hypertension	27	285
6	Road rage	7	165
7	Diabetes and life style modification	10	129
8	Eye care and life style modification	9	109
9	Nutrition	7	75
10	Cataract and life style modification	5	73
11	Personal hygiene	4	44
12	Life style modification	1	15
13	Anaemia	1	8
	Sub-total	220	3021
Health education in NCD camps			
1	Diabetes and hypertension	32	161
2	Diabetes and life style modification	10	47
3	Diabetes	10	38
4	Diabetes and de-addiction	4	25
5	Hypertension	5	23
6	Anaemia	5	21
7	Hypertension and life style modification	2	23
8	De-addiction	2	5
	Sub-total	70	343
Health education in hospital camps			
1	Road rage	30	59
2	Cataract	25	42
3	De-addiction	16	36
4	Diabetes and hypertension	12	21
	Sub-total	83	158

The well-planned health education campaigns were conducted for PTDs. The topics covered were first aid, life style modification, road rage, NCDs, addiction, and cataract. Health education sessions were held 220 times in general camps for 3021 PTDs, in 70 NCD Camps for 343, and in base hospital 83 camps for 158 (Table 4A).

It was heartening to see 653 out of 2490 (26.2%) NCD PTDs coming repeatedly for treatment of their Non-Communicable diseases (Table 4B).

Table 4 (B): Follow-up visits.

S.No.	No. of visits	No. of PTDs
1	2	482
2	3	84
3	4	24
4	5	19
5	6	7
6	7	13
7	8	3
8	9	6
9	10	8
10	12	3
11	14	2
12	17	2
		653

Table 5 (A): Maximum numbers of drivers suffered with the following diseases.

S.No.	Disease	Numbers	%
1	Ocular/eye diseases	5981	40.02
2	Overweight	5315	35.56
3	Tobacco/gutka chewing	4687	31.36
4	Drinking	3734	24.98
5	Smoking	3616	24.2
6	Gastritis	1937	12.96
7	Musculo-skeletal system:	1868	12.5
8	Obesity	1655	11.07
9	Hypertension	1433	9.59
10	Upper respiratory tract infection (URI)	1186	7.94
11	Diabetes	1057	7.07
12	Weakness	890	5.96
13	Skin diseases	843	5.64
14	Cataract	155	1.04
15	Sleep apnoea	122	0.82

Note: Each driver had one to three problems. Per cent is out of 14945.

Table 5 (B): Age group-wise substance abuse among the drivers.

Age group (in years)	Tobacco		Smoking		Drinking	
	No	%	No	%	No	%
<20	46	0.31	26	0.17	8	0.05
20 to 30	1,113	7.45	765	5.12	746	4.99
30 to 40	1,687	11.29	1,142	7.64	1,358	9.09
40 to 50	1,400	9.37	1,177	7.88	1,157	7.74
50 to 60	385	2.58	425	2.84	393	2.63
≥60	56	0.37	81	0.54	72	0.48
Total	4,687	31.36	3,616	24.2	3,734	24.98

Early detection of diseases was done. The maximum number of PTDs suffered with the diseases like: eye problems 5981 (40%), over-weight 5315 (35.56%), tobacco/gutka chewing 4687 (31.36%), drinking 3734 (24.98%), smoking 3616 (24.20%), gastritis 1937 (12.96%), musculo-skeletal problems 1868 (12.5%), obesity 1655 (11%), hypertension 1433 (9.59%), URTI 1186 (7.94%), diabetes 1057 (7.07%), weakness 890 (5.96%), skin diseases 843 (5.64%), cataract 155 (1.04%) and sleep apnoea 122 (0.82%) (Table 5A and 5B).

Six hundred fifty three (26.2%) PTDs drivers with NCDs started coming to community health department camps on Mondays/ Thursdays for disease management. Cataract surgeries for 25/155 and sleep apnoea surgeries for 4/122 cases, were performed at the base hospital. Fifteen drivers of 'addiction' were started on de-addiction drugs from the Psychiatry department of base hospital.

DISCUSSION

Our interventional study was carried out over a period of one year at 38 Indraprastha gas limited (IGL) stations in Delhi and NCR. More than planned Health camps were performed in a year. A total of 14,945 drivers came for health checkup in one year study period. Mean age of subjects was 39.33 (SD 10.82) years (range 17 to 85 years). In a study of 296 Nagpur auto-rickshaw drivers Mean age of study subjects was 41.70±9.05 yrs with a range of 20-65 years.⁶

According to our study majority of PTDs were in the productive age group i.e. 20 to 50 years constituting about 85.89%. The BMI status showed 895 (5.98%) were underweight, 7080 (47%) were having normal BMI, 5315 (35.56%) were overweight and 1655 (11.07%) were obese. This is comparable to a study in Chennai, India, where they found 41% of respondents were overweight and 14.5% were obese.⁷

There are huge gaps in the health awareness and health related behaviour of PTDs. Health promotion interventions for truck drivers can improve both intermediate health outcomes and health behaviours over the short term.⁸ The Health education done in our interventional study seemed to be effective as we noted that PTDs were becoming concerned about their NCDs and 653 had visited CHD for 2 to 17 times for management of their disease.

Our study found that majority of PTDs suffered with the Eye problems, tobacco chewing, drinking, smoking, over-weight, musculo-skeletal problems, gastritis, obesity, hypertension, URTI, skin diseases, and diabetes. A study mentioned the common work related health problems of auto rickshaw drivers in India as smoking, obesity, hypertension, alcohol and drug abuse, stress, fatigue, sleep apnoea and poor eating habits.⁹

Sleep apnoea can cause the drivers to experience daytime drowsiness and affect their reaction time and judgment in the same way as being intoxicated. Daytime somnolence is of particular concern for commercial vehicle drivers, whose crash risk increases 50% with untreated obstructive sleep apnoea (OSA).¹⁰ The issue of safety is particularly relevant in commercial drivers, who show a higher prevalence of OSA (between 28% and 78%) compared with the general population and are more exposed to risk of driving accidents because of their high mileage per year compared with non-commercial drivers.¹¹

An increase in age and body mass index (BMI) has been found to be the main causes of such disorders. In another study there is mention of vehicle pollution induced diseases [VPID] such as CVDs, respiratory problems, asthma, hypertension and myocardial infarction, among the auto-drivers.¹²

In our study eye problems were the most common ailment encountered in 5981 (40%) of drivers. In a study in Karachi, Mumtaz et al in a sample of 120 drivers found 52% were suffering from refractive errors.¹³

The addiction to tobacco chewing (31.36%), drinking (24.98%) and smoking (24.2%) was very common among our study subjects. Smoking increases the risk of cardiovascular diseases. In a study prevalence of addiction to pan and pan masala was 24%, tobacco 15%, smoking 36% and alcohol 22%.¹⁴ A study found, 92 (16.8%) drivers were smokers only, 125 (22.8%) were chewers only and only 13 (2.3%) were using alcohol.¹⁵ A Nepal study of bus drivers found quite high prevalence of tobacco 'ever use' i.e. 96.3% and 'current use' was 81.7%.¹⁶ In a study of truckers and tempo drivers prevalence of addiction was tobacco 74.75%, smoking 25.13% and alcohol 42.13%.¹⁷

1433 (9.6%) PTDs were suffering from hypertension, which, if left uncontrolled, could lead to sudden episodes of giddiness, haemorrhage and stroke. The driver would immediately lose control over the vehicle. Regional estimates for the prevalence of hypertension were as follows: 28.8% (26.9–30.8), 34.5% (32.6–36.5), 35.8% (35.2–36.5), and 31.8% (30.4–33.1) for urban north, east, west, and south India, respectively.¹⁸ A study in India showed overall, prevalence of diabetes was 6.1% among women and 6.5% among men; for hypertension, 20.0% among women and 24.5% among men.¹⁹

There were 1057 (7.07%) PTDs, suffering with diabetes mellitus. The National urban survey conducted across the metropolitan cities of India reported higher trend: 11.7 per cent in Kolkata (Eastern India), 6.1 per cent in Kashmir Valley (Northern India), 11.6 per cent in New Delhi (Northern India), and 9.3 per cent in West India (Mumbai) compared with (13.5 per cent in Chennai (South India), 16.6 per cent in Hyderabad (south India), and 12.4 per cent Bangalore (South India).²⁰

It is a hard life for drivers. In November 2015, road transport, highways and shipping minister said, “there is a 22 per cent shortage of drivers in the country today. We are amending the motor vehicle act to introduce computerized driving schools and training centers to impart skills for driving specialized vehicles used in the infrastructure sector, especially in building roads and national highways.”²¹

There was lack of social planning (SP) among the PTDs. SP could be helpful. It focuses on improving well-being and quality of life in a community. It supports the community according to its needs to develop itself economically, socially and culturally. The auto rickshaw service providers could have their own organization or group within the society.

The main objectives of SSA were achieved to quite some extent. Our interventions involved different strategies in the form of mobile health unit to reach IGL stations, health checkups under the tents, training of Health Assistants and conduction of health check-up, clinical services including blood tests, health awareness on various diseases and follow up to improve compliance through health assistants.

CONCLUSION

“Treatment gap” which is the gap between need and availability (on site) of health services is big but the need for reducing treatment gap for groups like PTDs is enormous. Our study adds to evidence that such interventions as ours work very well in improving awareness and acceptability of health care services in PTDs. By having mobile health care services at the convenient places like CNG stations, saarthies seek care more readily, as seen by increasing numbers of revisit of PTDs for follow ups and NCD camps. Innovative programmes such as this are definite steps towards achieving universal “Health For All”.

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