Occupational health for healthcare workers in Southwest Nigeria

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Outline

- Introduction & background
- Study population
- Baseline survey
- Intervention
- Post intervention results
- Discussion and Conclusion
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Introduction

Healthcare workers (HCW) are individuals engaged in activities focused on improving people's health and well-being – primary intent to enhance health

They face a wide range of risks posed by biological, chemical, physical, ergonomic, and psychosocial hazards, as well as risks related to fire and explosions.

Biological agents are the major hazards in healthcare settings.

Hepatitis B & C and HIV are associated with needlestick injuries

Latent TB infection among HCWs in LMIC range 33-79%

Workplace violence

Burnout

Musculoskeletal disorders

Background

- Across the world, the health of healthcare workers had received little attention until the Ebola and Covid -19 pandemics.
- The loss of a senior doctor, Dr Ameyo Adadevo, who contracted Ebola Virus disease in a Lagos Private hospital in August 2014 heralded the entry of Ebola into the country and highlighted the vulnerability of frontline doctors.
- Prior to this, healthcare worker fatalities were recorded at all levels of care in Nigeria in the late 80's during a yellow fever epidemic .
- More recently, the world witnessed an onslaught of HCW fatalities during the COVID-19 pandemic and this resulted in a shift in focus to the health of healthcare workers.

Background

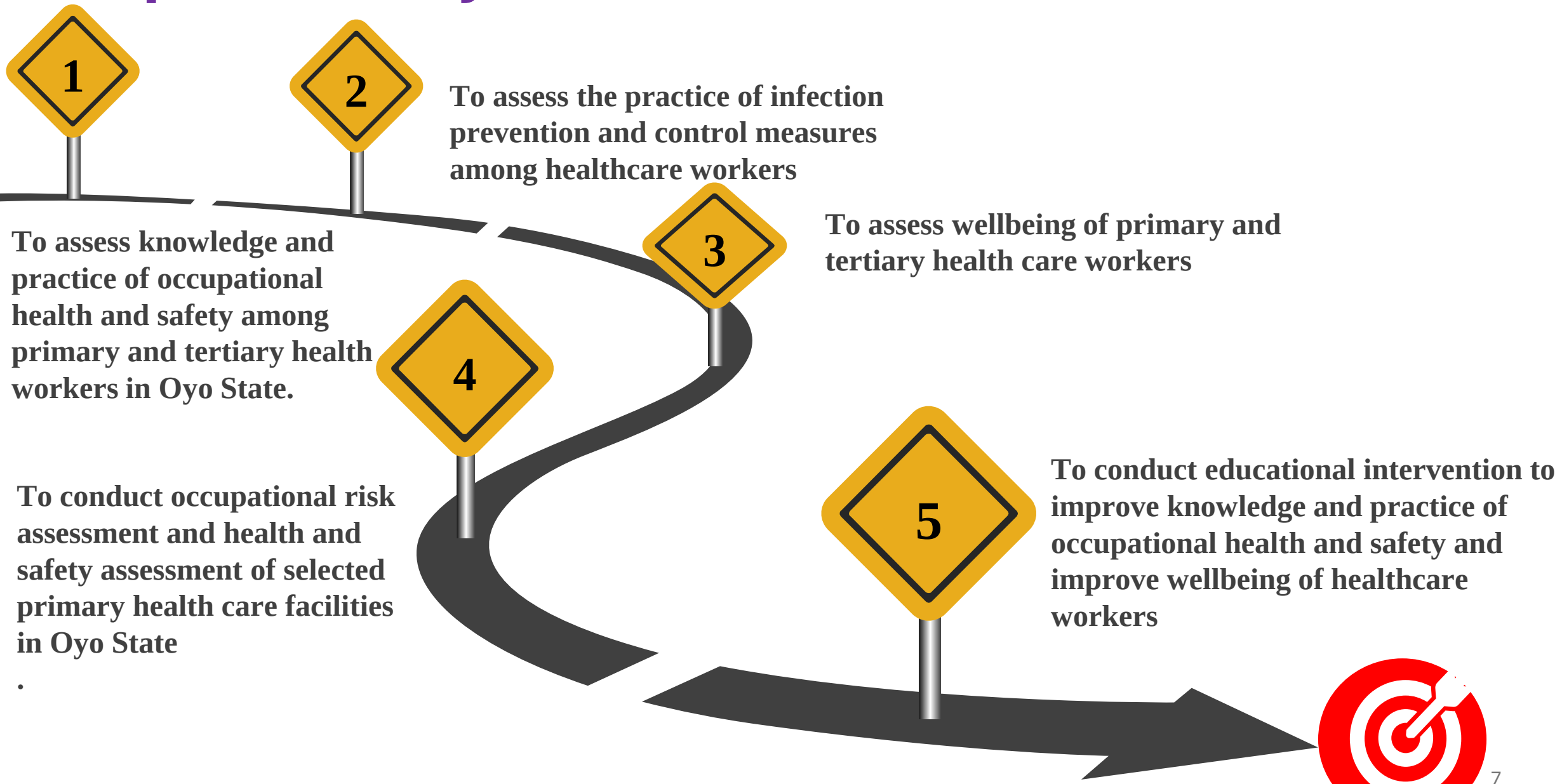
- Nigeria runs a 3 -tier health system, primary, secondary and tertiary. The PHC system is faltering because of poor funding, poor infrastructure and lack of political will. The mass migration of health workers occurs at all 3 levels of care.
- Oyo State in SW Nigeria is in the process of restructuring its PHC system to provide quality healthcare services to its population.
- Achieving this goal goes beyond constructing new facilities and training to deliver better services but should include improving the fitness of healthcare workers to ensure optimal performance of their roles.
- Occupational health training of healthcare workers will improve their capacity to deliver more efficient services whilst reducing their vulnerabilities to workplace hazards

Study Objectives

General Objective

To conduct Occupational health training for healthcare workers at primary and tertiary health facilities in Oyo State to improve health security and wellbeing.

Specific Objectives



To assess knowledge and practice of occupational health and safety among primary and tertiary health workers in Oyo State.

To assess the practice of infection prevention and control measures among healthcare workers

To assess wellbeing of primary and tertiary health care workers

To conduct occupational risk assessment and health and safety assessment of selected primary health care facilities in Oyo State

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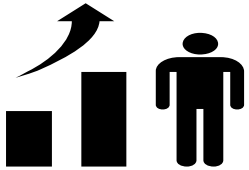
To conduct educational intervention to improve knowledge and practice of occupational health and safety and improve wellbeing of healthcare workers

Summary of activities for the whole project

Identify study population



Baseline survey

Occupational risk assessment of PHC centers

WHO checklist for health of healthcare workers

FGD with policy makers

Training of healthcare workers

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Monitoring Visits

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Evaluation Survey

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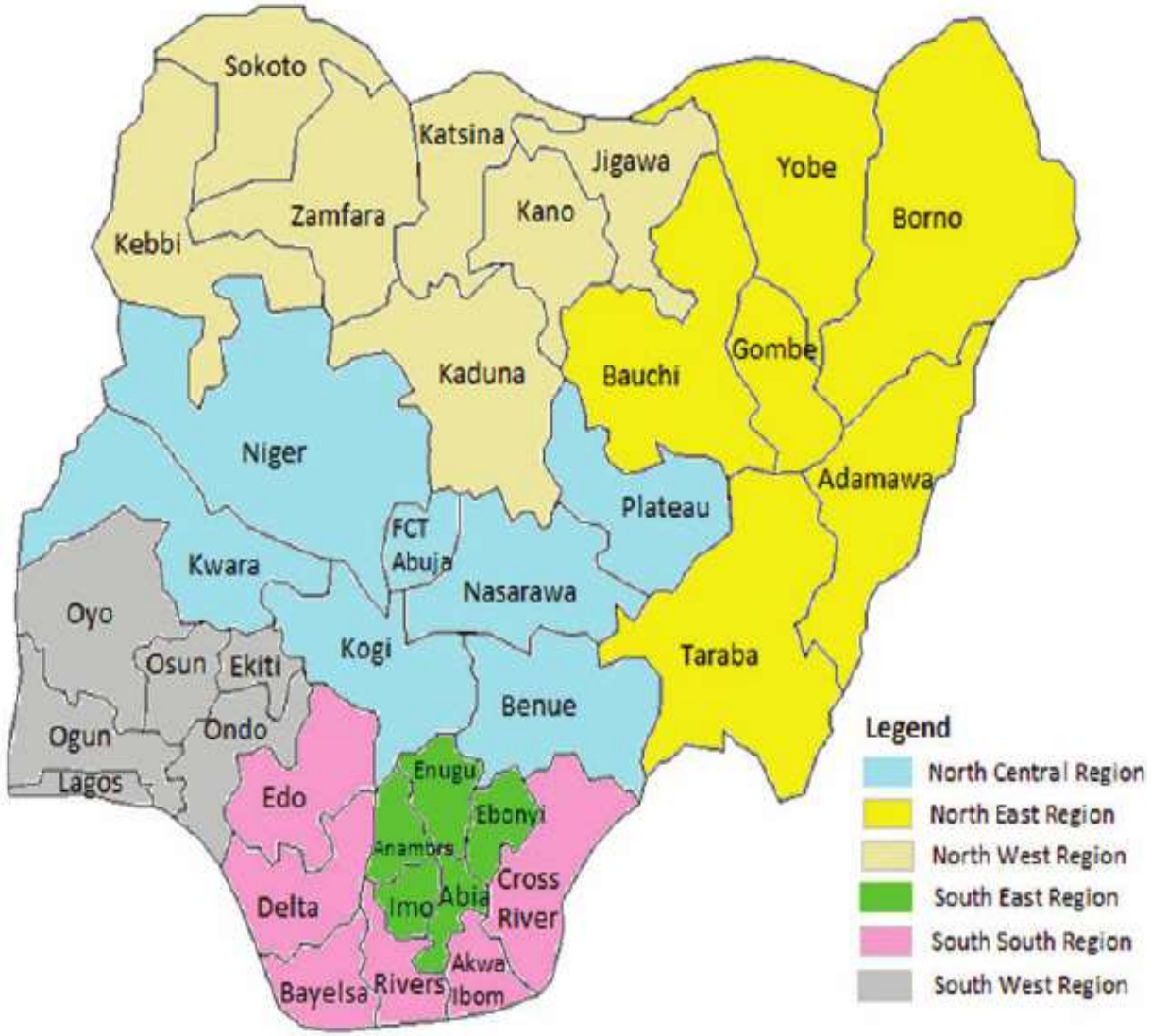
Stakeholders' meeting

Methods

Study Area



The study was carried out in Oyo State in Southwest Nigeria. Oyo State comprises of 3 senatorial districts, 33 Local Government Areas (LGAs) and is divided into six health zones

The study focused on 3 out of the 6 health zones namely; Ibadan zone, Ibarapa zone and Oyo zone. The 3 health zones covered 18 LGAs

The University College Hospital is the main tertiary health facility in Oyo state.

Methods

Study Population

- Healthcare workers of both sexes delivering clinical services in Primary health care facilities
- Resident doctors at the University College Hospital

Study Design

A quasi-experimental design with pre and post intervention assessment

Sampling strategy

For PHC study-a simple random sampling technique was employed to select 12 out of 18 LGAs in the 3 zones.

Inclusion criterion

Should have worked in the health care facility for at least one year.

Exclusion criteria

- Unwell
- On leave
- Unwilling

Research tools

- **Semi structured questionnaire (pre-tested)**
- Sociodemographic characteristics
- Occupational characteristics
- Knowledge of Health and safety in healthcare setting
- Attitude to Health and safety in healthcare setting
- Practice of Health and Safety in healthcare setting
- Knowledge of Infection Prevention and control measures
- Practice of Infection Prevention and control measures
- Self efficacy in protection from occupational hazards
- Mental health and wellbeing

- Occupational Risk Assessment of PHC facilities using an Excel template developed in line with Health and Safety Executive (HSE) UK guidelines

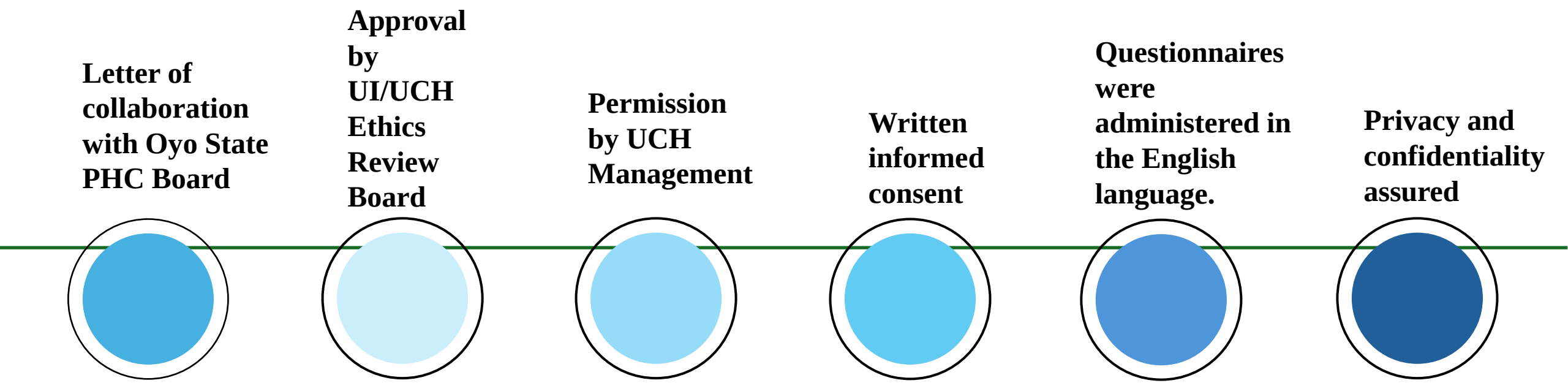
- WHO checklist for Protection of Health and Safety of health workers

- WHO 5-item wellbeing index

Total of 25 points obtainable, categorised as follows:

  - 0-49% Poor
  - 50-74% Fair
  - 75-100% Good

Ethical issues



Intervention

- 4 day training workshops
- 3 workshops for PHC workers, 1 workshop for resident doctors
- Batch 1- Ibadan zone - 78 participants
- Batch 2- Oyo Zone-92 participants
- Batch 3- Ibarapa/Ibadan Zones- 91 participants
- Batch 4-Doctors- 61 participants
- **Total- 322 participants**
- Workshops comprised:
  - Didactic lectures
  - Discussions
  - Practical sessions

- **Areas covered:**
- Physical, chemical and biological hazards in healthcare settings
- Psychosocial hazards and workplace violence
- Ergonomics and manual handling
- Occupational Risk Assessment
- Occupational accidents and Mx of injuries
- Mental health issues
- Burn out and fatigue
- Water and sanitation
- Improving wellbeing
- Hospital waste management
- Fire safety

Batch 1 workshop

Batch 2 workshop

Batch 3 workshop

Batch 4 workshop

Results for PHC workers N=430

Sociodemographic & Occupational characteristics N=430

Variables	Frequency
Age	
20-39	125(29.1%)
40-59	304 (70.7%)
60	1 (0.2%)
Sex	
Male	25(5.8%)
Female	405 (94.2%)
Marital status	
Single	43 (10%)
Married	376 (87.4%)
Separated	2 (0.5%)
Widowed	9 (2.1%)

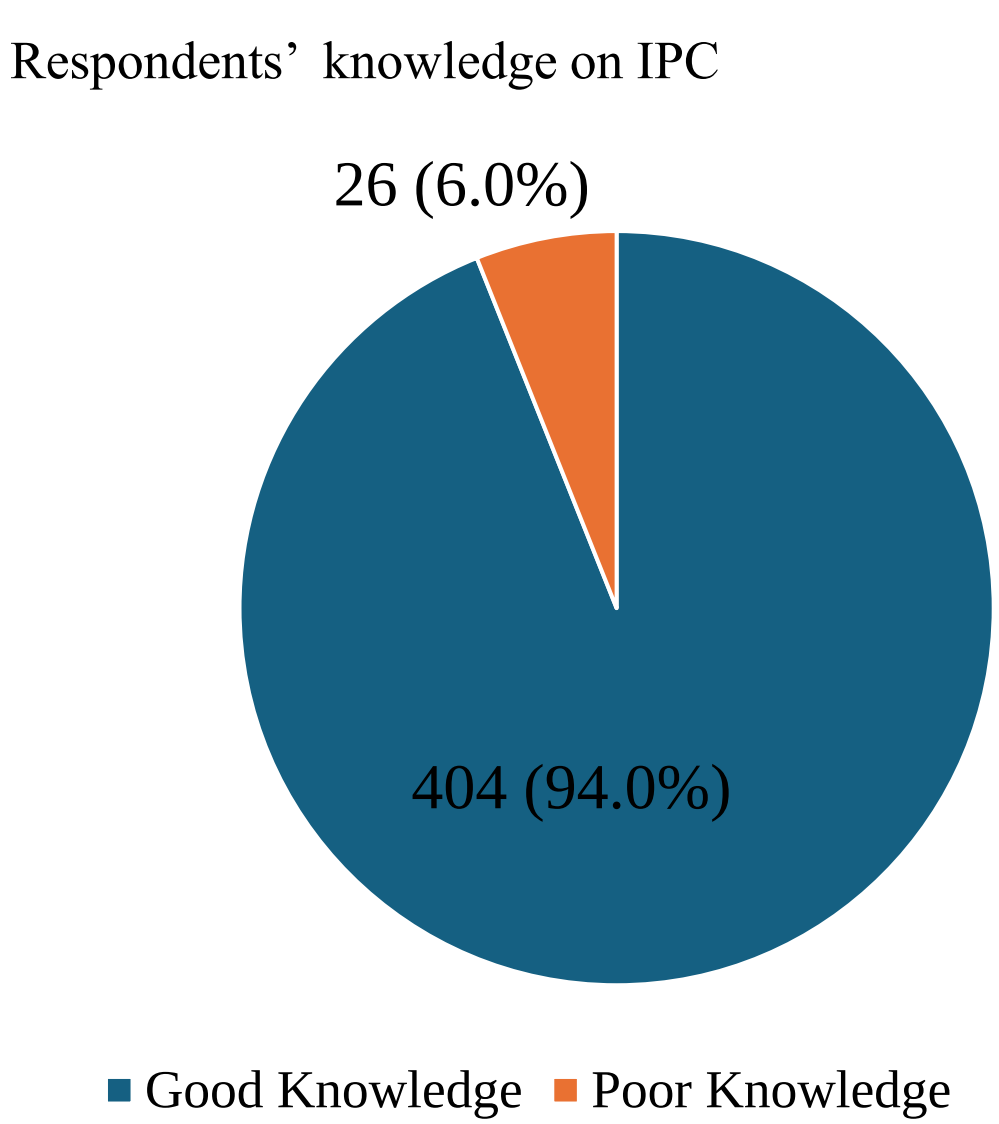
Variables	Frequency
Profession	
JCHEW	60 (14%)
SCHEW	214 (49.8%)
CHO	102 (23.7%)
Nurse	53 (12.3%)
Doctor	1 (0.2%)
Working hours /day	
8 and less	291(67.7%)
9-16	131 (30.5%)
>17	8 (1.8%)
Years of work experience	
1-10	97 (22.6%)
11-20	153 (35.6%)
21-30	133 (30.9%)
31-40	47 (10.9%)

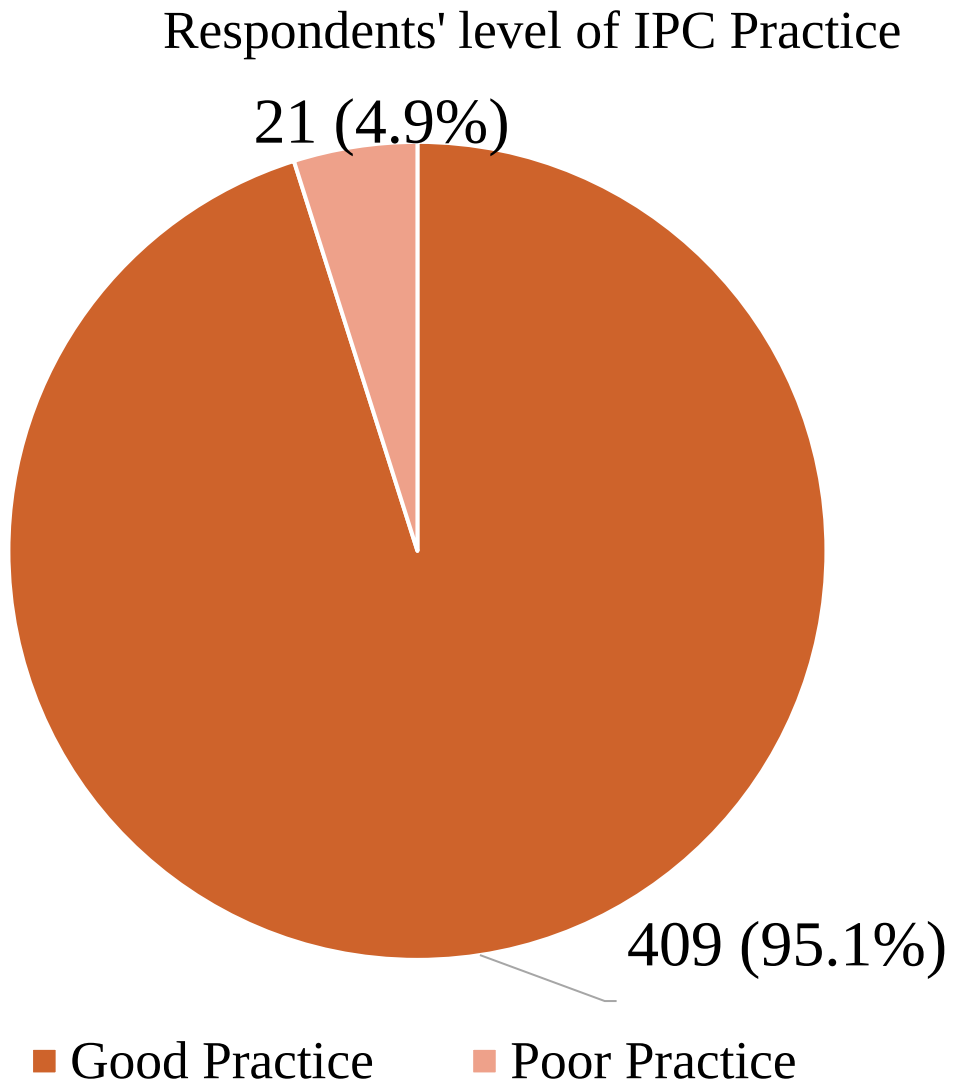
Exposure to Occupational Hazards in PHCs

Variables	Always (&)	Sometimes (%)
Physical hazards		
Noise sources (generator)	51 (11.9)	129 (30.0)
Poor ventilation	71 (16.5)	84 (19.5)
Chemical hazards		
Disinfectants	23 (5.3)	47 (10.9)
Biological hazards		
HIV	36 (8.4)	194 (45.1)
Hepatitis B	34 (7.9)	185 (43.0)
Tuberculosis	59 (13.7)	146 (34.0)
Mechanical hazards		
Cut from other sharp objects	21 (4.9)	246 (57.2)
Being hit by moving objects- trolley, wheelchairs	14 (3.3)	129 (30.0)

Variables	Always (%)	Sometimes (%)
Ergonomic hazards		
Awkward postures during patient care	93 (21.6)	180 (41.9)
Lifting of heavy objects	12 (2.8)	116 (27.0)
Prolonged sitting (more than 2 hours)	108 (25.1)	322 (74.9)
Psychosocial hazards		
Shift work or frequent calls	93 (21.6)	183 (42.6)
Long work hours	159 (37.0)	197 (45.8)
Violence such as physical assault, threatening behaviour, verbal abuse	32 (7.4)	148 (34.4)
Incivility- gossiping and spreading rumours, name-calling, using a condescending tone etc	46 (10.7)	155.36.0)

Respondents' knowledge and practice of IPC

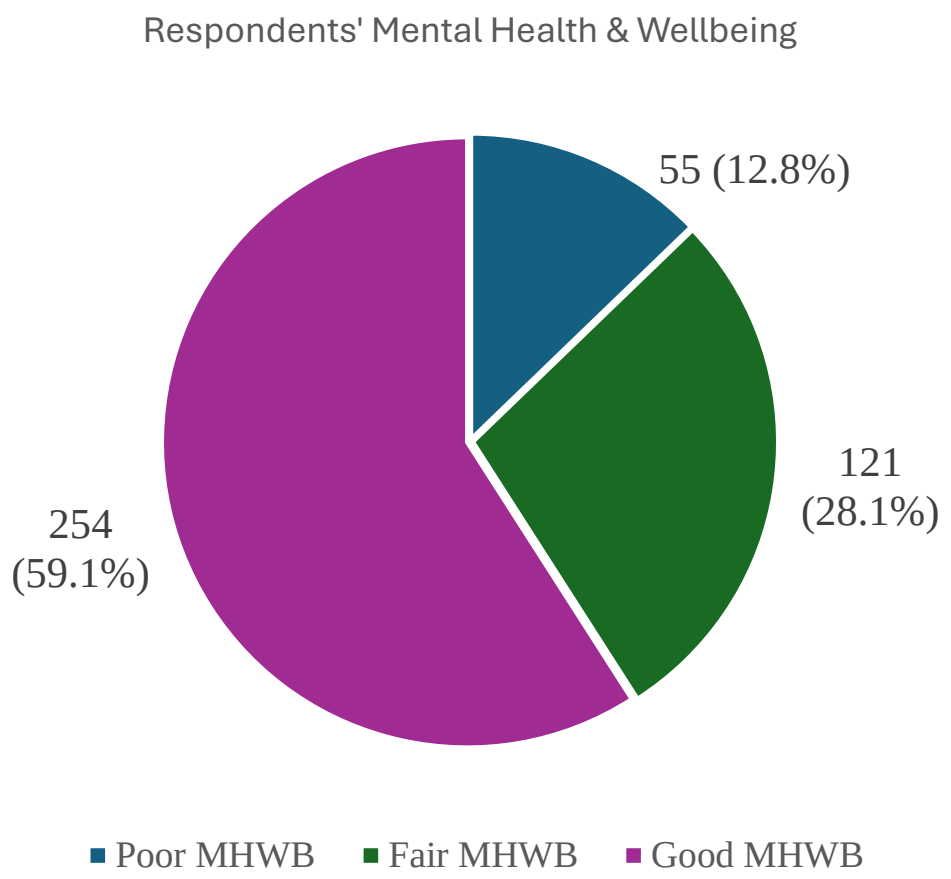




Vaccination against potentially vaccine-preventable diseases- PHC workers

Variables	Yes (%)
Tuberculosis	328 (76.3)
Hepatitis B	381 (88.6)
Yellow fever	391 (90.9)
Covid 19	423 (98.4)

Mental health and Wellbeing

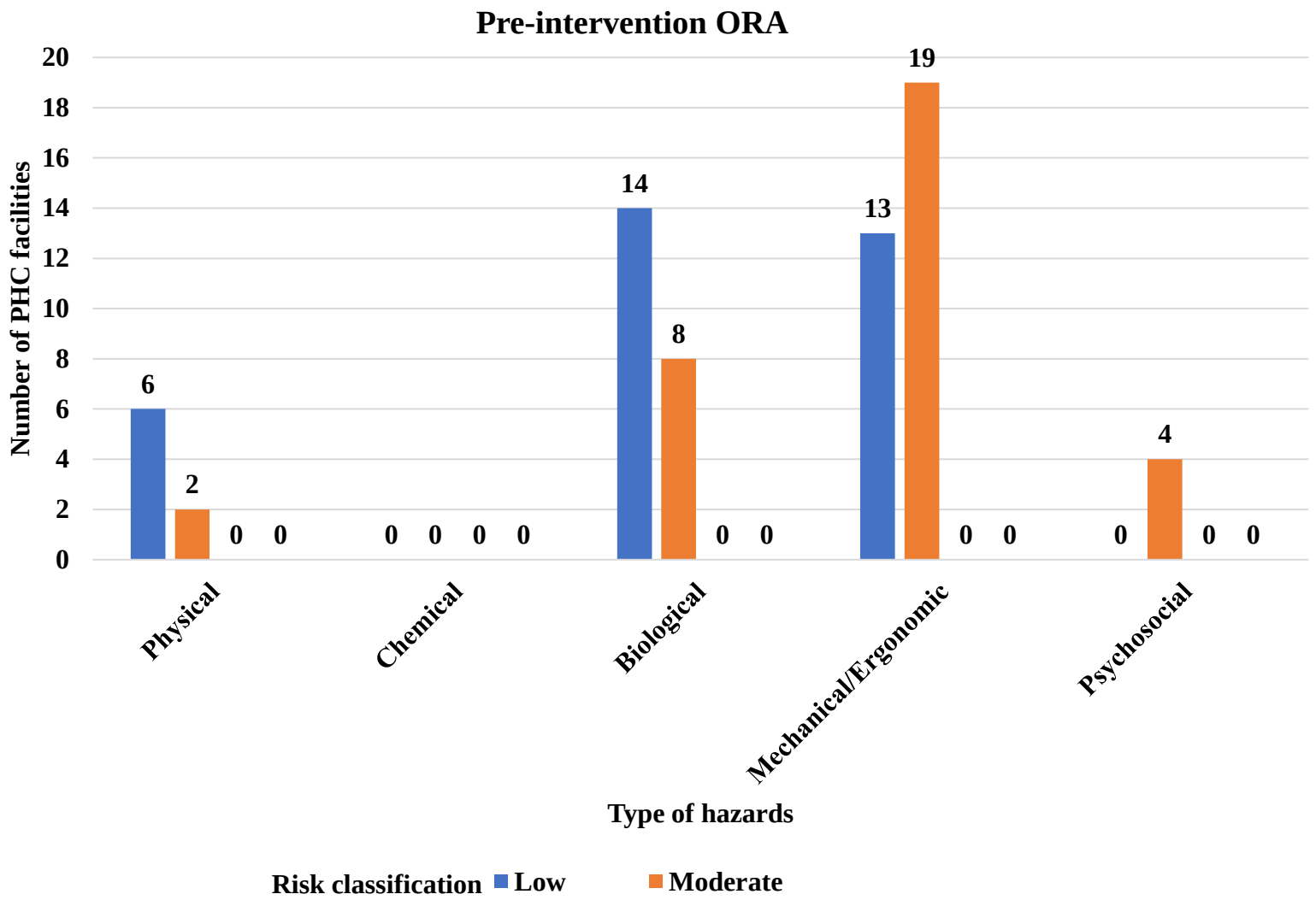


- More than half of the respondents, 254 (59.1%) had good mental health and wellbeing, 121(28.1%) and 55 (12.8%) had fair and poor mental health and wellbeing respectively.

WHO Checklist Health Care Centre Assessment –PHCs N=44

Variables	Poor (%)	Good (%)	Mean Score	Maximum score obtainable
Management of occupational health and safety (6 items)	32 (72.7)	12 (27.3)	2.82 ± 1.42	6
Prevention of physical risks for health and safety (5 items)	31 (70.5)	13 (29.5)	1.61 ± 1.15	5
Prevention of occupational infection (10 items)	11 (25.0)	33 (75.0)	6.84 ± 1.92	10
Prevention of Psychosocial risks (4 items)	38 (86.4)	6 (13.6)	1.10 ± 1.10	4

Occupational Risk Assessment of PHCs N=22



- **Biological**
  - No mosquito nets, no running water, overgrown bushes
- **Mechanical/Ergonomic**
  - Wet floors, broken chairs
- **Physical**
  - Noise, exposed electric cables, poor lighting
- **Psychosocial**
  - Long working hours, staff shortages

Results for Doctors N=194

Sociodemographic & Occupational characteristics N=194 (Doctors)

Variables	Frequency (%)
Age group (years)	
20 – 39	139 (71.6)
40 – 59	55 (28.4)
Mean = 36.79 ± 5.56	
Sex	
Male	123 (63.4)
Female	71 (36.6)
Marital status	
Single	49 (25.3)
Married	145 (74.7)

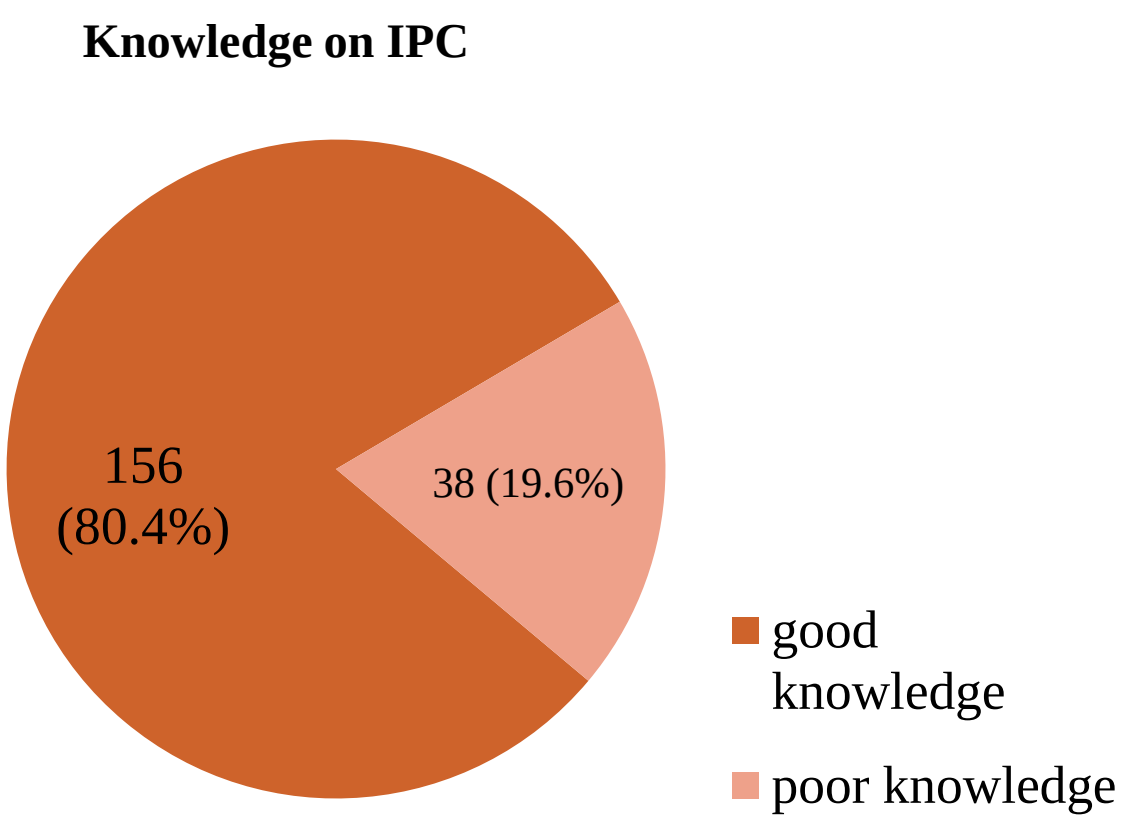
Variables	Frequency (%)
Level of education	
MBBS only	54 (27.8)
Tertiary postgraduate	6 (3.1)
Post graduate fellowship pre-part 1	34 (17.5)
Post graduate fellowship post-part 1	93 (47.9)
Others	7 (3.6)
Working hours in a day	
8 and less	66 (34.0)
9 – 16	120 (61.9)
> 17	8 (4.1)
Total years of work experience	
1 – 10	128 (66.0)
11 – 20	61 (31.4)
21 – 30	18 (2.6)

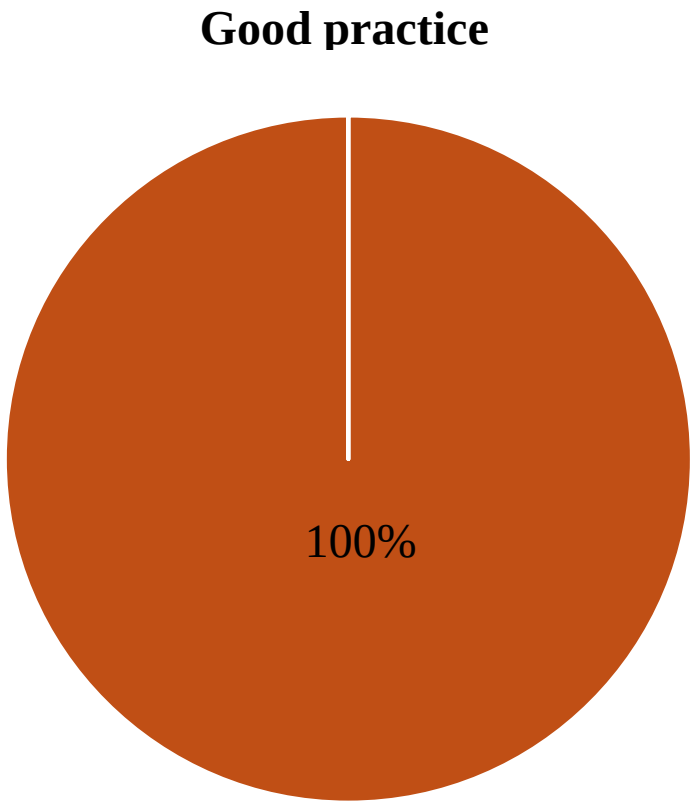
Exposure to Occupational Hazards in Tertiary Hospital

Variables	Always (%)	Sometimes (%)
Physical hazards		
Noise sources (generator)	65 (33.5)	106 (54.6)
Poor ventilation	36 (18.6)	118 (60.8)
Chemical hazards		
Surgical smoke (during surgical procedures)	28 (14.4)	51 (26.3)
Biological hazards		
HIV	35 (18.0)	110 (56.7)
Hepatitis B	34 (17.5)	109 (56.2)
Tuberculosis	15 (7.7)	104 (53.6)
Mechanical hazards		
Cut from other sharp objects	22 (11.3)	76 (39.2)
Needle stick injury	25 (12.9)	100 (51.5)

Variables	Always (%)	Sometimes (%)
Ergonomic hazards		
Awkward postures during patient care	63 (32.5)	105 (54.1)
Psychosocial hazards		
Shift work/frequent calls	84 (43.3)	82 (42.3)
Long work hours	114 (58.8)	66 (34.0)
Violence such as physical assault, threatening behaviour, verbal abuse	12 (6.2)	67 (34.5)
Incivility- gossiping and spreading rumours, name-calling, using a condescending tone etc	13 (6.7)	67 (34.5)

Knowledge and practice of IPC (Doctors)

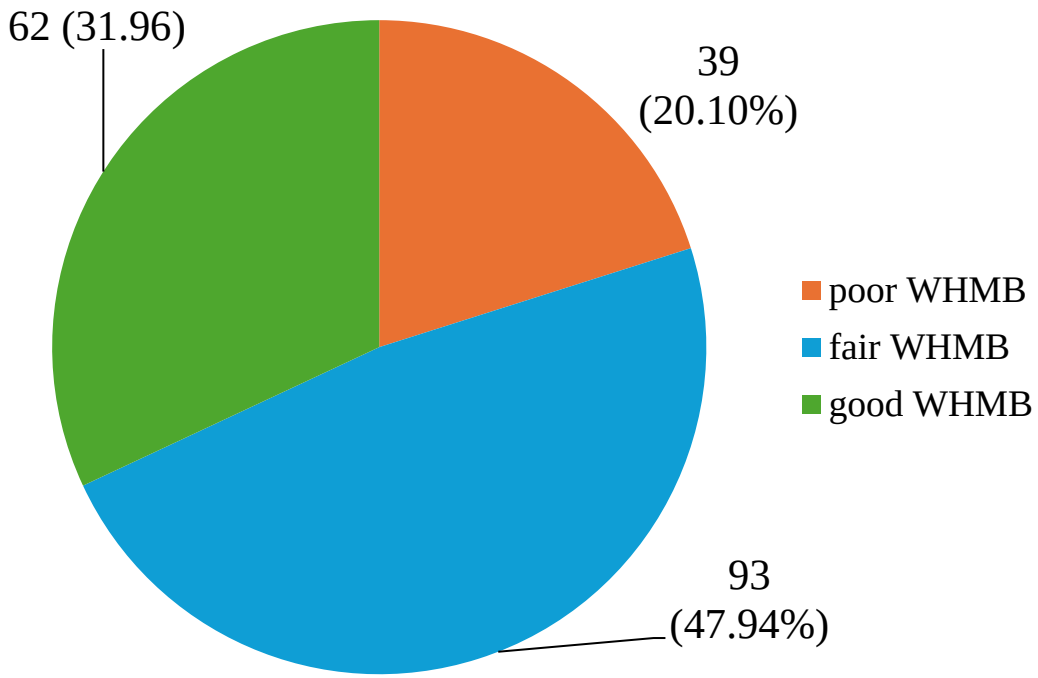




Vaccination against potentially vaccine-preventable diseases - Doctors

Variables	Yes (%)
Tuberculosis	178 (91.8)
Hepatitis B	183 (94.3)
Yellow fever	167 (86.1)
Covid 19	165 (85.1)

Mental health and Wellbeing



62 (32.0%) of respondents had good mental health and wellbeing,93 (47.9%) and 39(20.1%) had fair and poor mental health and wellbeing respectively.

Post intervention

IMMEDIATE POST TRAINING IMPACT BY CADRE

Cadre	Number	Pretest (Mean)	Post Test (Mean)
Doctor	34	9.43	10.80
Nurse	55	7.67	9.40
SCHEW	63	7.13	9.01
CHO	99	7.67	9.60
JCHEW	6	7.00	8.33
TOTAL	**257**	**7.72**	**9.62**

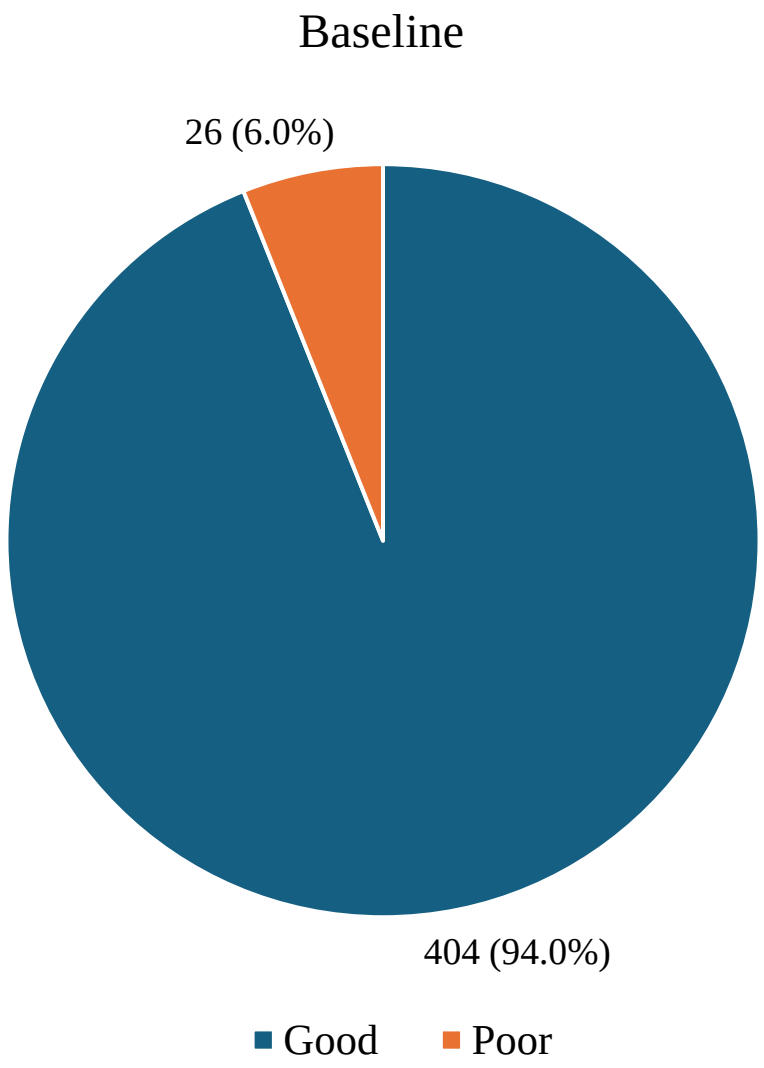
Paired T test for difference in Pretest and Post test scores; t= 13.40; p-value<0.001

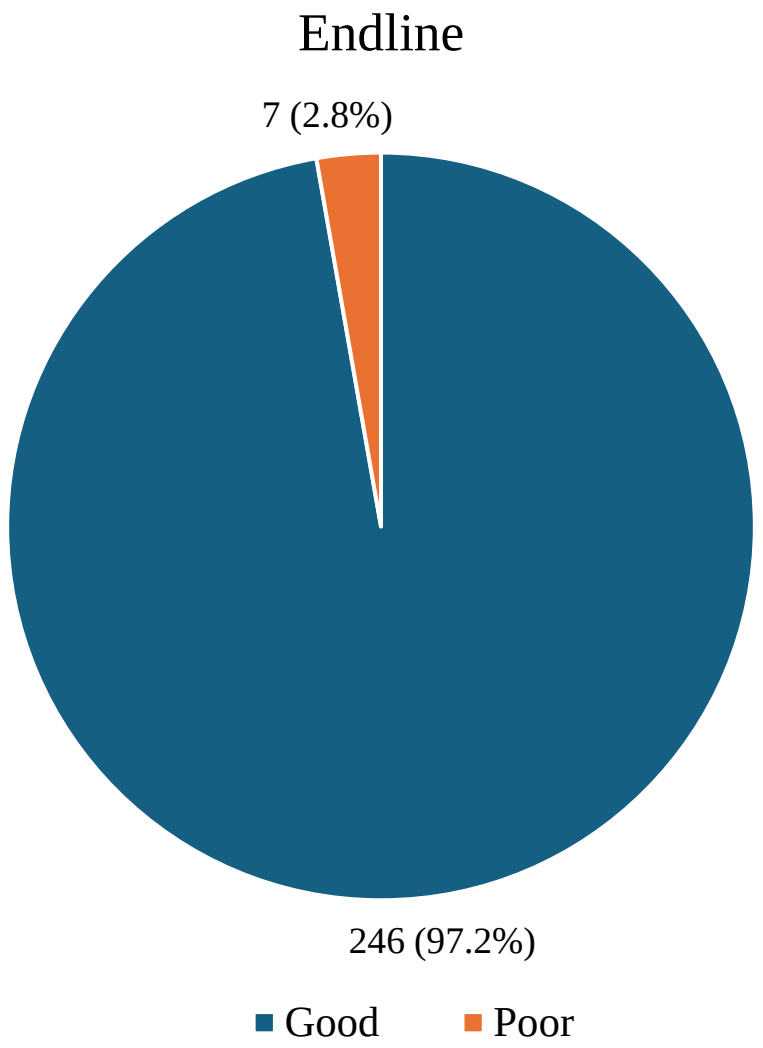
IMMEDIATE POST TRAINING IMPACT BY MODULE

Difference	OHS		IPC	
	Number	%	Number	%
Negative	16	6.23%	26	10.11%
None	50	19.45%	127	49.42%
Positive	191	74.32%	104	40.47%

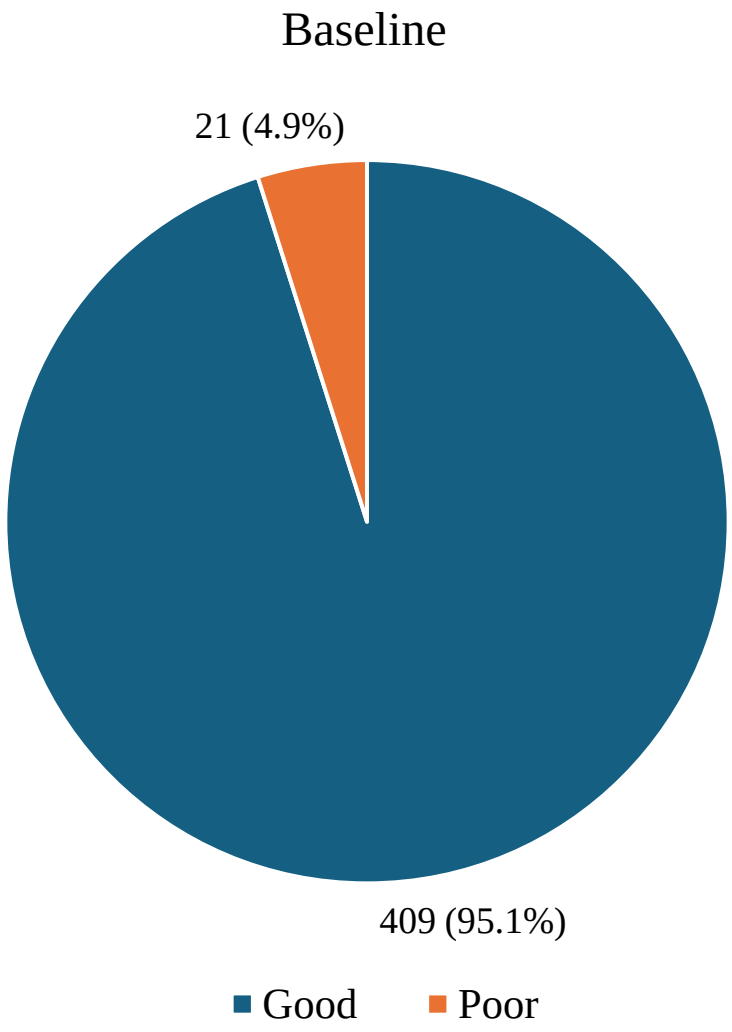
Difference between the Post test and Pretest Scores

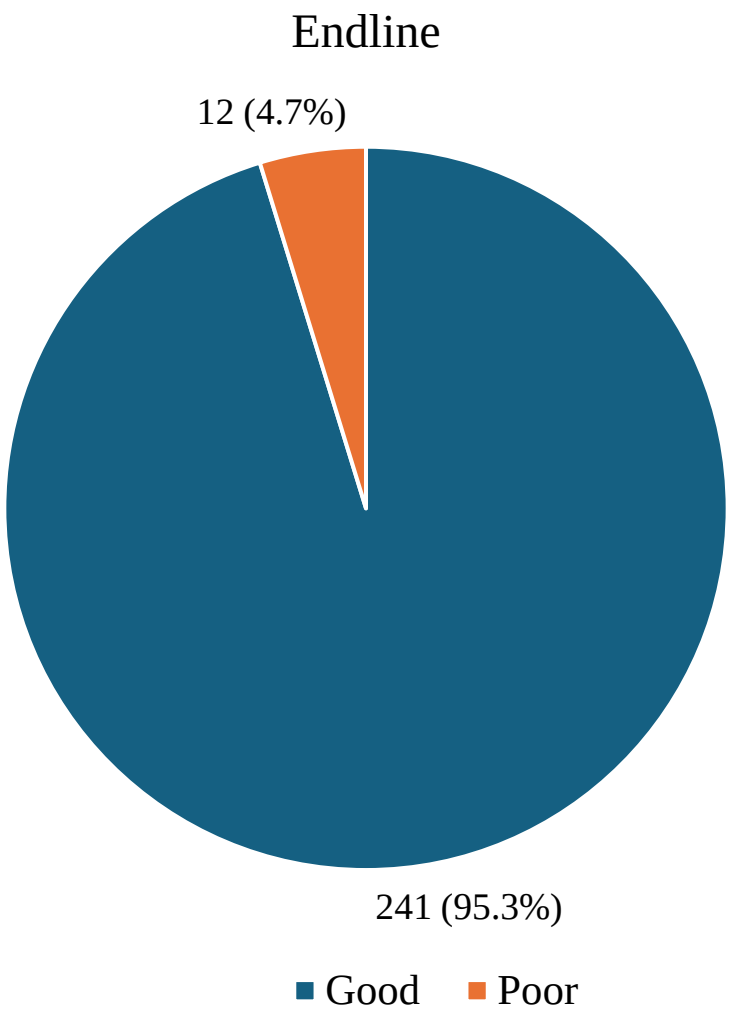
Knowledge on Infection, Prevention and Control



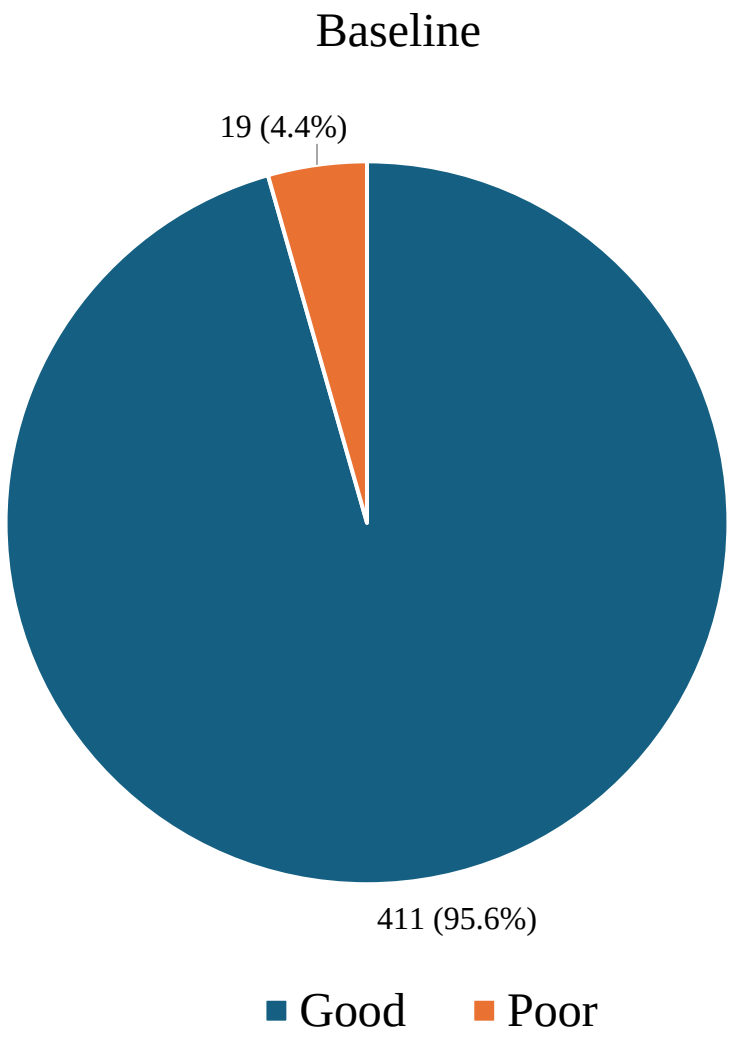


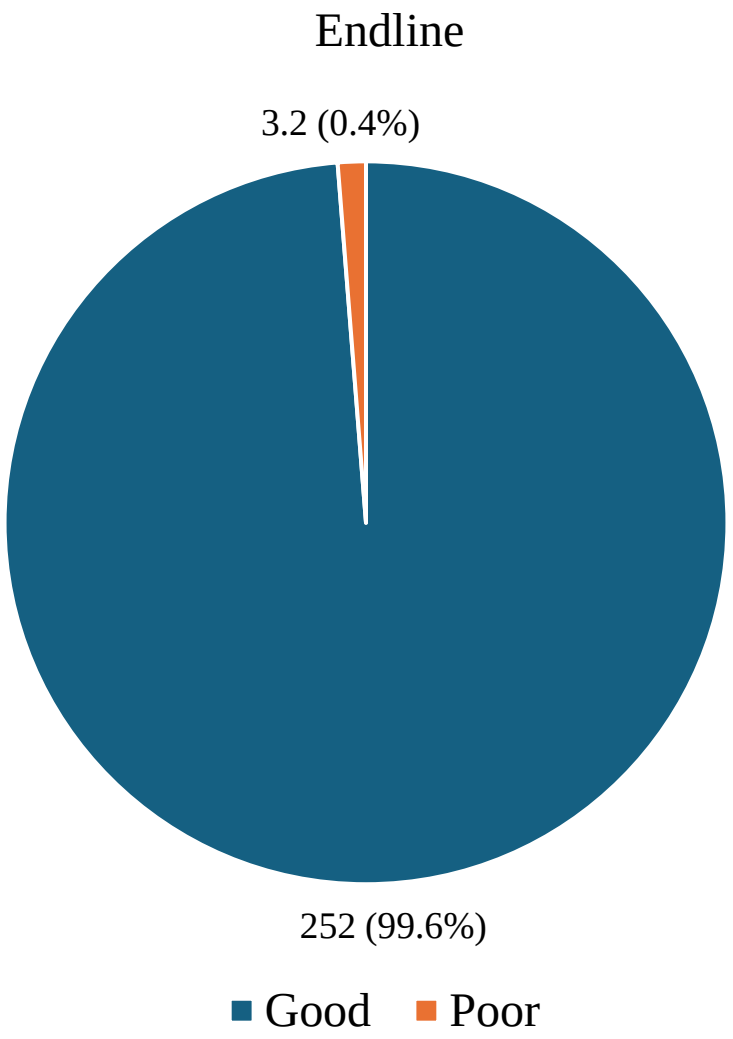
Practice on Infection Prevention and Control



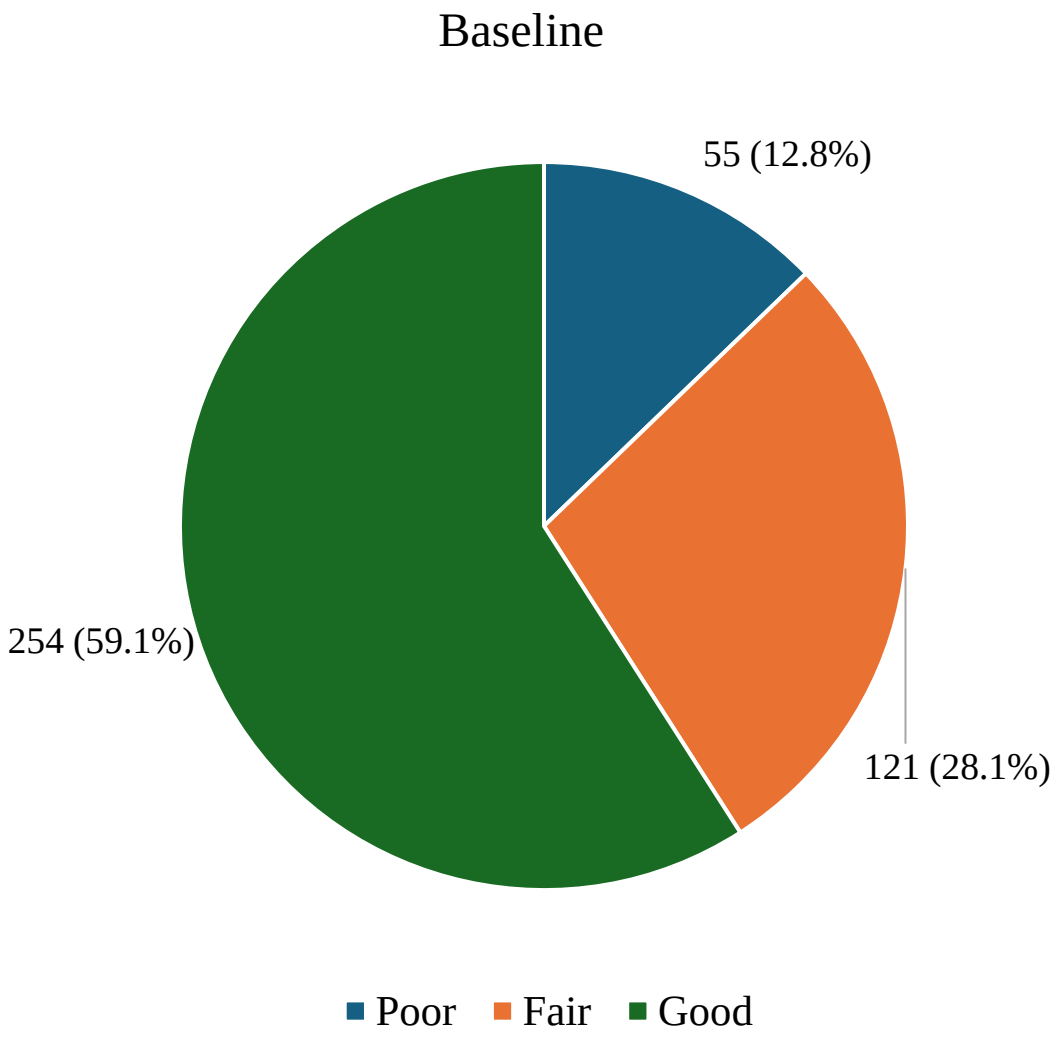


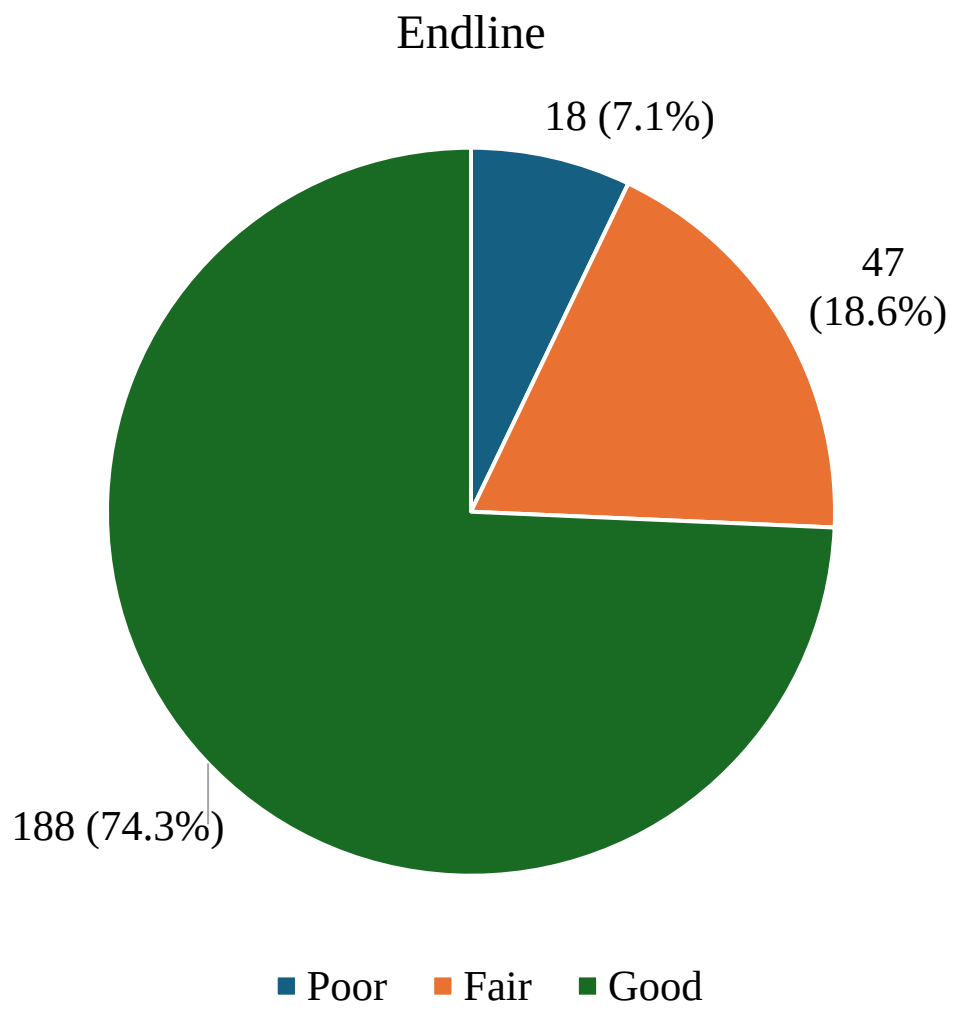
Attitude to Health and Safety in Healthcare Setting





Mental Health and Wellbeing





Fire Safety

Variables	Baseline (%)	Endline (%)
Awareness of the first thing to do in the case of a fire outbreak	150 (34.9)	85 (33.6)
Knows how to use fire blanket in case of fire outbreak	146 (34.0)	243 (96.0)
Knows how to use fire extinguisher in case of a fire outbreak	227 (52.8)	236 (93.3)

Post intervention FGD

"Taking part in this program as really helped to personally identify some hazards within the PHC. It has helped us to do some corrections, to know what can we put together to help ourselves and other health workers, in making the working environment more conducive; the sitting arrangement, how they lift clients, …then, throwing some sharps around which anybody can step on. It has really helped positively…"

PHC worker

"the training was very timely for me, because I was involved in a lot of things. I was involved both in clinical work and academics and I had very little sleep, and that period I was having symptoms that I found out to be burnout. So when the lecturer was talking about signs and symptoms to check out for burnout I was just seeing myself in that… I was doing too many things and I thought that I was productive, but my efficiency was low. So after the event, I had to push down on some things, and put some timelines… It has helped my personal life to reduce the burnout"- **Resident doctor**

Discussion/ Highlights

- PHC workers had better knowledge of IPC compared to doctors
- Doctors had poorer mental health and wellbeing, 20% with poor mental health and wellbeing compared to 13% among PHC workers
- Higher rates of TB and Hep B vaccination among doctors
- Higher rates of yellow fever and COVID-19 vaccination among PHC workers
- ORA highlighted deficiencies in PHCs -lack of water, poor physical structures and ergonomic hazards which are easily amenable to correction
- Overall improvement in knowledge, attitude to health and safety and mental well-being after the intervention.
  - Good Knowledge of IPC rose from 94.0% to 97.2%, with a higher mean score post-intervention.
  - Attitude towards health and safety remained high, with a slight increase in good attitude from 95.6% to 99.6%.
  - Mental health and well-being revealed significant improvement, with good mental health rising from 59.1% of respondents to 74.3%.
  - Knowledge about fire safety improved with 34% knowing how to use a fire blanket before intervention to 96% after intervention. Knowledge of use a fire extinguisher rose from 52% to 93%.

Discussion/Highlights

- Study highlights positive impact of the intervention on healthcare workers' occupational health and safety practice and wellbeing.
- Interventions are needed for Primary and tertiary healthcare workers to protect them from preventable adverse outcomes of hazards in health care settings
- Need to scale up this study to improve OHS in healthcare sector across the country and across the continent.
- Need for OHS Policy for HCWs
- Need for OHS focal persons at all levels of healthcare

Conclusion

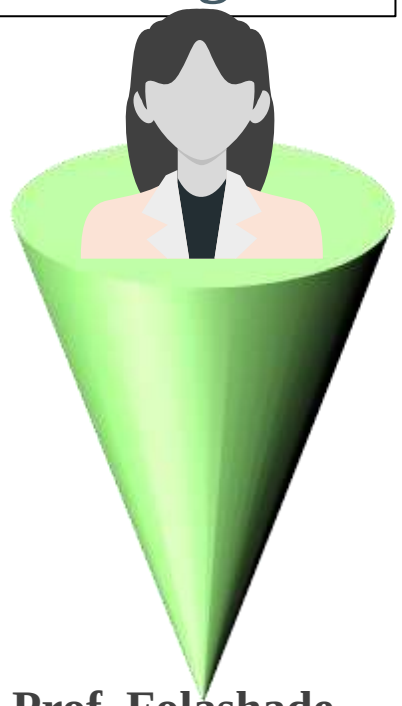
Frontline health workers need to be equipped with information about risks in the healthcare setting, to improve their efficacy in protecting themselves and improve their well being at work

Improvement of the work environment and work conditions in healthcare settings will reduce the risks to the health of healthcare workers.

Acknowledgements-Project team in Nigeria

Principal investigator

Co-investigators



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Thank you
for Listening!