

# Health Education for Peon to Improve Infection Prevention Practices in Government Health Facilities of Morang

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## ABSTRACT

**Background:** Infection prevention practices are crucial for the safety of health workers, others working in health care settings, individuals and communities receiving health care. Peons are also high risk individual working in a health care set up beside health. This study was done to assess the effectiveness of peons in improving Infection prevention practices at health facilities of Morang after a proper health education.

**Methods:** This was quasi-experimental design to compare the infection prevention practices of government health facilities of Morang before and after health training to the peons. A total of 33 health facilities were selected using random sampling for the study. The data were collected in four areas: environmental cleanliness, hand washing practices, waste disposal, and decontamination.

**Results:** It was found that after the training on Infection prevention, health facilities with functioning infection prevention practice was increased from 18.1% to 42.4% ( $\chi^2= 4.59$ ;  $p=0.032$ ). Environmental cleanliness was increased from 24.2% to 51.5%. It is found that hand washing practice was increased from 36.3% to 87.8% ( $\chi^2= 18.6$ ;  $p=0.00001$ ). The waste disposal was increased from 27.2% to 51.5%. Decontamination was increased from 21.2% to 45.4%.

**Conclusion:** Health training for peon to improve infection prevention practices of health facilities was found effective. Further improvement in the Infection prevention performance of health facilities can be achieved focusing on other elements health education to the high risk individual in a peripheral health centers.

**Key words:** decontamination; hand washing; infection prevention; waste disposal

## INTRODUCTION

Majority of morbidity and mortality is related to infectious diseases especially in the developing country. Over the past decades, the world has seen increased outbreaks of the disease that were once under controlled. Health care personnel and others working in the health care settings are on the front line of protecting themselves and their clients from infectious diseases.<sup>1</sup> They

perform clinical procedures or other activities that can expose themselves and clients to potentially infectious microorganisms. Health care-associated infections lead to death, disability and excess medical costs.<sup>2</sup> Hospital/ health facilities (HFs) acquired infection is called nosocomial infection.<sup>3</sup> One estimation shows that about three million health workers worldwide are exposed to

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pathogens such as hepatitis B virus (HBV), hepatitis C virus (HCV) and HIV each year through percutaneous injuries. And more than 90% of these infections occur in developing countries, where health workers often lack the knowledge, skills and resources necessary to protect themselves and their clients from becoming infected.<sup>4</sup> Infection Prevention (IP) practices are crucial for the safety of health workers, others working in health care settings, individuals obtaining health care, and the communities in which they live. Even with limited staff, equipment, and funds, health care facilities in the developing world can fight deadly diseases by following some simple, cost-effective procedures.<sup>5</sup> Infection prevention and control maximize patient satisfaction and also reduces the cost of health services.<sup>6</sup>

Peons, are non-health professional individual who are a part of a health care system yet they have rarely been included in any health education concerning the maintenance of a healthy environment and in the prevention of cross infection. Joint monitoring of the HFs by District Public Health Office (DPHO) and Save the Children, showed the need to train peons on IP. An assessment of IP practices of 33 HFs was done. Save the Children US, in collaboration with DPHO Morang, organized five days training, for all the peons in the district, to improve and systematize the existing infection prevention practices of their daily work. The training used internationally accepted but low-tech approaches that are practical, simple and inexpensive. The main contents of the training were disease transmission, hand washing, gloving, and waste disposal including others. The methods used in this training included three days micro-teaching followed by two days field practices. After the training, follow up was done focusing on on-site coaching in that HFs. This study was therefore designed to know the exact situation of IP practices in government HFs and to compare IP practices before and after health education to the peons.

## METHODS

A quasi-experimental study design to assess the effectiveness of the capacity building measure to peons

on IP practices in Primary Health Care Centers (PHCCs), Morang. A survey to assess the IP practices of the sample HFs was done from March 10, 2005 to March 20, 2005. Then IP training was conducted from March 30 to April 8, 2005 at the sample HFs. A standard training manual developed by Save the Children US was used. The training was complemented by intensive follow-up for six to eight months which was focused on on-site coaching. The IP training and the coaching during follow-up was taken as the capacity building intervention to peons. Then another assessment at the same sample HFs was done on February 2006. Standard infection prevention observation checklist/guideline was used to collect data from HFs. Out of 66 HFs, 33 HFs comprising three PHCCs, seven Health Posts (HPs), and 23 Sub-Health Posts (SHPs) were randomly selected using simple random sampling technique. Detailed list of Health facilities were prepared and desired sample size was chosen using lottery method. The operational definition for the functioning of IP practices of HFs in this study was HF which have fulfilled all four criteria: environmental cleanliness, hand washing practices, waste disposal and decontamination/high level disinfection (HLD). Before collecting data, permission was taken from DPHO, Morang and verbal consent was taken from respondents. Four areas were chosen to see the situation of IP practices in HFs which was used and accepted internationally. These areas were environmental cleanliness, hand washing practices, waste disposal, and decontamination.<sup>6,7</sup> Data were entered and analyzed using Epi info 3.2.2.

## RESULTS

### *Environmental cleanliness*

Under this heading there were four indicators. There was increase in proportion of clean health facilities from 24.2 % before training to 51.5 % after training follow up.

### *Hand washing practices*

Hfs with both facilities for hand washing and practice of hand washing by peons is found increased from 36.3% to 87.8%.

**Table 1. Environmental cleanliness (N=33)**

SN	Indicators	before	After	Difference (%)
1	Clean floors of HF	11 (33.3%)	25 (75.7%)	42.4
2	Clean compound of HF	9 (27.2%)	27 (81.8%)	54.6
3	Clean dressing tables	10 (30.3%)	22 (66.6%)	36.3
4	Clean toilets	8 (24.2%)	21 (63.6%)	39.4
5	HF with clean environment (with above 1, 2, 3,4)	8 (24.2%)	17 (51.5%)	27.3

**Waste disposal**

The waste disposal practice was found increased from 27.2% to 51.5%. However, practices of burning syringes and needles were not quite satisfactory with only 6% increase before and after capacity building measures but practices of waste disposal on puncture proofed medical waste container improved quite significantly with 57.6% increase before and after training.

**Decontamination/High Level Disinfection (HLD)**

Practice of Decontamination/HLD before the capacity building measures was found very low (21.2%) which

was increased to 45.4%. The reason for low level of decontamination/HLD was due to poor supply of material (*Chlorine*, gloves and kerosene oil). In 10 HFs (3 PHCs and 7 Hbs), practice of sterilization is also assessed which was slightly increased from 40% to 60% after the capacity building measure.

**Health Facilities with functioning IP practices**

HF with functioning IP practices were increased from 18.1% to 42.4%. Before the capacity building intervention, all area of infection prevention were found very poor. But after training and follow up, IP practices were improved considerably.

**Table 2. Hand washing practices (N=33)**

SN	Indicators	Before	After	Difference (%)
1	Facilities for hand washing	14 (42.4%)	29 (87.8%)	45.4
2	Trained peon washed their hand with soap	15 (45.4%)	31 (93.9%)	48.5
3	HF with hand washing practices (above 1 and 2)	12 (36.3%)	29 (87.8%)	51.5

**Table 3. Waste disposal (N=33)**

SN	Indicators	Before	After	Difference (%)
1	Waste disposed on puncture proofed and medical waste container	12(36.3%)	31(93.9%)	57.6
2	Pit or incinerator available	12(36.3%)	24(72.7%)	36.4
3	Burning syringe and needles regularly	18(54.5%)	20(60.6%)	6.1
4	Burning combustible items regularly	19(57.5%)	27(81.8%)	24.3
5	HF with waste disposal practice (having all 1-4)	9 (27.2%)	17 (51.5%)	24.3

**Table 4. Decontamination/ HLD (N=33)**

SN	Indicators	Before	After	Difference (%)
1	Peon has put the instruments in chlorine solution	8 (24.2%)	16 (48.4%)	24.2
2	Peon used utility gloves while cleaning instrument	7 (21.2%)	18 (54.5%)	33.3
3	Peon has dipped maintained correct timing for boiling instrument	7 (21.2%)	23 (69.69%)	48.49
4	HF with Decontamination/HLD practice (1, 2, 3)	7 (21.2%)	15 (45.4%)	24.2

**Table 5. Health Facilities with functioning IP practices (N=33)**

SN	Indicators	Before	After	Difference (%)	Difference (%) x 2
1	HF with environment cleanliness	8 (24.2%)	17 (51.5%)	27.3	5.22( df=1, p=0.022)
2	HF with hand washing practices	12 (36.3%)	29 (87.8%)	51.5	18.6 (df=1, p=0.00001)
3	HF with waste disposal practice	9 (27.2%)	17 (51.5%)	24.3	4.1 (df= 1, p=0.043)
4	HF with decontamination/HLD practice	7 (21.2%)	15 (45.4%)	24.2	4.36(df=1, p=0.036)
5	HF with functioning IP practice (1, 2, 3, 4)	6 (18.1%)	14 (42.4%)	24.3	4.59(df=1, p=0.032)

## DISCUSSION

The term capacity building is intangible and vague. What constitute capacity building in practice can vary enormously, and the concept continues to develop as field experience grows. In early days many equated capacity building with training. Today it is accepted that individual skills are only part of the complex mixture of elements that constitute capacity to perform a certain function effectively.<sup>8</sup> Capacity building in this study was defined in terms of training and continuous support/on-site coaching to peon in reference to IP. This study was focused at the measuring effect of increased IP knowledge and skills of peons in IP practices of HFs. Four major areas: environment cleanliness, hand washing, waste disposal and decontamination/HLD were focused during training and follow-up. All together 13 indicators were developed in these 4 areas to measure the performance improvement of IP practices in HFs. An index indicator (HFs with functioning IP practice) was used combining four major indicators (HFs with clean environment, hand washing practices, waste disposal practice and decontamination/HLD) to define whether a HF has functioning IP practice or not. It was found that after training and on-site coaching during follow up, HF with functioning IP practice got increased from 18.1% to 42.4% ( $\chi^2=4.59, df=1, P=0.032$ ). It was found that hand washing practices is found quite satisfactory (87.8%) whereas practice of decontamination/HDL is not increased significantly. A study conducted in Morang found that hand washing practices was found quite high (94.1%).<sup>9</sup> Table 4 shows that the practice of decontamination/HDL was increased from 21.2% before training to 45.4% after the training/follow-up. The use of gloves (54.5%) and chlorine solution (48.4%) is still quite low even after capacity building intervention. It might be due to the lack of gloves and chlorine solution available in Hfs. Literature on effectiveness of IP training to supporting staff/peon is scarce. Available literatures showed that there was no such study conducted before in Nepal. A waste disposal and safety measure training to peons conducted by Care Nepal showed positive outcome with increased waste disposal and safety measure in peripheral health facilities of 7 districts of Nepal.<sup>10</sup> Capacity building is multi-dimensional issues and intervention on only one area of health system cannot improve the overall performance.<sup>8</sup> This study indicates that over all improvement in the IP practices of HFs need regular supply/availability of materials like kerosene, chlorine solution, maintenance of sterilizer, boiler, soap, hand towel, bucket, water etc. The capacity building measures to peons/health worker is only one aspect to improve the IP performance of health facilities. It is also observed that training to health workers on IP is equally important to improve the IP performance of HFs. It is therefore concept of whole-site training is very necessary in which peon, HF staff, Health Facility Operation and Management Committee (HFOMC) need to be trained. HFOMC who is supposed to manage local HF would help to solve issues of supply with local resources.<sup>11</sup>

Even though a cost effective study design, quasi-experimental design has no comparison groups, therefore difficulties in establishment of cause and effect relationship and it does not take in to account temporal change.<sup>12</sup> One can argue that temporal changes and others factors would also affect in the change in IP practices.

In Nepal, the peon, the lowest ranking worker in the health services, performs many basic and crucial functions. Their contribution is remains invisible.<sup>13</sup> This type of the training would really increase their motivation and they can be protected from unwanted health hazards.

## CONCLUSIONS

It can be concluded that capacity building of peon to improve IP practice in government HFs of Morang was very effective. Therefore it is recommended to train the peons on IP using low-tech approaches that are practical and simple to improve IP practices of peripheral governmental HFs.

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