



## MOST EFFECTIVE TACTIC TO RESOLVE PROBLEMATIC INFECTION CONTROL PRACTICES IN DEVELOPING COUNTRIES: PERIODIC IN-SERVICE TRAINING SESSIONS.

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### Abstract

**Background:** Lack of Health Education Training Programs for in-service candidates in most of the health institutions of country is imposing a biggest hindrance in achieving the dream of skilled India. This all hits the institutions' bottom line and there is no enhancement in skill development, experience and practical knowledge of the workers. In certain hospitals because of operational difficulties like high turnover of staff and insufficient time for training and monitoring their effectiveness, good service practices suffers. **Methodology:** This analytical cohort study was undertaken and was followed up, to assess the impact of specified training sessions, on the knowledge about skills of Infection Prevention over a group of nursing staffs of a tertiary care institution at Bhopal city in 2016. Total 30 nursing participants were evaluated statistically for assessing significant difference in their qualitative knowledge improvement level before and after the infection control training sessions. **Results:** Pretest & Posttest means & variances were calculated & Pearson Correlation between pre & posttest findings was also estimated. Here ( $t_{29} = -6.59$ ,  $p \text{ value} \leq 1.59533 \times 10^{-7}$ ) inference of the study is highly significant. **Conclusion:** It has been concluded that in order to get desired results in terms of infection control practices, intermittent and relevant training sessions are required.

**Keywords:** In service training, Hospital Acquired Infections, Infection Control, Bhopal

### Introduction:

The scientific selection and placement of worker on a scientifically designed job based on training together with the operation of reward and higher productivity became the cardinal doctrine

in Taylor's scientific management approach.<sup>1</sup> Lack of Health Education Training Programs for in-service candidates in most of the health institutions of country is imposing a biggest hindrance in achieving the dream of skilled India. New employees need to understand how to

perform the required work. Current employees need to keep their skills sharp. Health care workers are lacking channels for implementation of insights into current working scenarios due to poor updating of their ground knowledge in terms of modern advancements. Most of them are still dragging the old norms due to lack of lawful valid in-service training sessions for uplifting the quality of patient care services. This all hits the institutions' bottom line and there is no enhancement in skill development, experience and practical knowledge of the workers. In certain hospitals because of operational difficulties like high turnover of staff and insufficient time for training and monitoring their effectiveness, good service practices suffers. To explode required profits & to skyrocket the clinical outcome success certain spectacular, simple and practical tips are to be incorporated in well planned groundbreaking training sessions. Health care workers are to be given tangible solutions to play a multitude of roles with ease. A robust framework with relevant technicalities is needed for the development of integrated core competencies for infection prevention and control in health sector workers.

Active educational techniques, such as academic detailing, consensus building sessions and educational workshops, should be implemented in each hospital worldwide according to its own resources. The direct involvement of the doctors in these programs may be a way to fight the cognitive dissonance.

Every health institution should improve on its training policy in its entire ramification because in recent times academics are being faced with innovations and techno- scientific developments so as to meet up with the changing trends and circumstances.<sup>2</sup>

Against this backdrop, this prospective study was undertaken on a batch of senior nursing staffs to

gauge the impact of hospital infection control training program on the skill development aspect of participants & then, indirectly monitoring the lowering in various hospital acquired infection rates as per set benchmark as a whole.

### **Methodology:**

This analytical cohort study was undertaken and was followed up, to assess the impact of specified training sessions, on the knowledge about skills of "Infection Prevention" over a group of nursing staffs of a tertiary care institution at Bhopal city in 2016. Training was imparted on various infection control practices for a period of 1 week. A pre-test was conducted before the start of training & a post-test was also done at the end of training sessions. Statistical difference in the level of knowledge before & after the training about different infection control practices was assessed by using paired t-test. Marks obtained in the pre & posttest were taken as numeric, continuous variable.

An open ended structured questionnaire based on various modern infection control practices of hospitals was administered before and after the training period. Maximum marks limit was 25.

In inclusion criteria all those staffs who attended the training for whole six days and who attended both pretest & posttest were included. All those participants were excluded from the study who have attended training sessions incompletely & who have attempted either pretest or posttest only or attempted none.

Microsoft Excel spreadsheets were used to tabulate the data and for calculation purposes.

Due permission was taken from relevant authorities and confidentiality of data was maintained.

### **Results:**

**Table 1: Distribution of marks obtained by participants of study population in Pre & Posttest.**

Pre Test HIC 2016 Marks	Post Test HIC 2016 Marks
14	18
5	17
6	13
10.5	17
7	13
9	14
11.5	20
10	14
11	14
3	15
12.5	16
10	12.5
10	15
10	19
22	18
7	15
4	8
11.5	15
16	14
9	16
10	12.5
7	12.5
8	13.5
11	16
7	14
13	10
11	15
8	9
10	9
3	12.5

**Table 2: Calculation Results of Paired T-Test using MS-Excel**

<b>t-Test: Paired Two Sample for Means</b>		
<b>Statistical Calculations</b>	<b>Pretest Values</b>	<b>Posttest Values</b>
Mean	9.566666667	14.25
Variance	14.97816092	8.254310345
Observations	30	30
Pearson Correlation	0.363617863	
Hypothesized Mean Difference	0	
df	29	
t Stat	-6.591176333	
P(T<=t) one-tail	1.59533*10 <sup>-7</sup>	
t Critical one-tail	1.699127027	
P(T<=t) two-tail	3.19067*10 <sup>-7</sup>	
t Critical two-tail	2.045229642	

Total 30 nursing participants were evaluated statistically for assessing significant difference in their qualitative knowledge improvement level before and after the infection control training session. 11 (36.6%) were male nurses and 19 (63.3%) were female nurses. Mean age of sample population was 33.8 with standard deviation of  $\pm 7.05$ .

Pretest & Posttest means & variances were calculated & Pearson Correlation between pre & posttest findings was also estimated. However out of thirty participants, four scored lesser marks in their posttest otherwise rest of them have shown better performance after attaining training. Here ( $t_{29} = -6.59$ ,  $p \text{ value} \leq 1.59533 \times 10^{-7}$ ) inference of the study is highly significant. It was noted that all hospital acquired infection rates like catheter associated urinary tract infection rates, central line associated blood stream infection rates, ventilator associated pneumonia rates, surgical site infection rates etc came under control after training sessions and were maintained below the set benchmark.

#### **Discussion:**

Quality of an organization's training affects its value; untrained or poorly trained employees cost significantly more to support than well trained employees do.<sup>3</sup> Training is used to improve employee performance, which leads to improved service results.<sup>4</sup>

Importance of highly qualified facilitators designing & presenting employee training and development programs in order to contribute to improved performance cannot be ignored anymore.<sup>5</sup>

Ngu as cited in Halidu SG sees training and development to be the process of behavioral modification or moulding of workers to integrate organizational needs with their characteristics.<sup>6</sup>

Oribabor as cited in Kulkarni added that training and development aims at developing competencies such as technical, human, conceptual and managerial for the furtherance of individual and organization growth.<sup>7</sup>

Our study is in consistent with the findings of above mentioned researches and depicted the importance of training sessions for in-service candidates to improve their performance. Declining trends have also been reported in all types of hospital acquired infection rates from our institution, after starting continuous periodic training sessions.

Access to and transfer of information on employees training and development programs can be improved by the responsible authorities, within the institutions. Provision of incentives is to be there to motivate employees to participate in training programs.

Institutions need to cultivate an inspiring and compassionate training culture that nurtures talent and offers personalized praise. Pair their employees with an experienced mentor, and create a customized training plan that caters to their need. They may be able to trouble shoot any issues that arise during a task because skill development in them via training (induction/on the work/off the work) will give them the chance to explore the consequences of every decision and action. Repetitive training activities give health care workers the chance to practice skills and master the information they will need on the job. It also improves knowledge retention and recall.

After a good training, they can remain focused on the task without having to worry about self-doubt getting in the way. Their trainer should be a "Learning Professional" – technology savvy innovator, agile, networked and ready to lead the change. Efficient trainer as analyzer identifies the most semantically plausible teaching material and are thus able to provide competency based learning.

Effective & optimal infection control & prevention management is a part of a decision making process that requires a fundamental understanding. Since prescribing clinicians are at the forefront in managing patients with infections, they provide insight into source control within the various set ups.

Training methods may include demonstrations, simulations, tutorials, online micro learning methods, program instructions, class room lectures, work shop and seminars, conference method, vestibule training, behavioral modeling, experimental exercise, audio- visual method, case study method, apprenticeship, internship, coaching etc. This evaluation based approach offers us an opportunity to challenge their assumptions and analyze their performance. Encourage them to identify their areas for improvements.

Hospital infection control programs can help healthcare organizations monitor & improve practices, identify risks and proactively establish policies to prevent the spread of infections. Effective hospital infection control involves ongoing processes of infection surveillance, data collection and analysis, data reporting, implementation of policies and action plans, education and constant vigilance.

A breach in these practices facilitates transmission of infection from patients to health care workers, other patients and attendants. It is therefore important to adhere to guidelines strictly. It is also imperative for health managers and administrators to ensure periodic training on infection control program. Guidelines of infection prevention and control are relevant to both high and low resource settings as the need for effective program is universal across different cultures and contexts.

Effective & optimal infection control & prevention management is a part of a decision making process that requires a fundamental understanding. Explicit training brings effective decision making, swift problem solving, and superior creativity for more productivity, boost confidence & self-esteem etc.

Nurses play a critical role in forestalling hospital-acquired infections (HAI), not only by safeguarding that all aspects of their nursing practice is evidence based, but also through nursing research and patient education.<sup>8</sup> As patient advocates, nurses are the mainspring to affect change to improve patient care standards.

Nowadays nurse has many tools available to create a safe environment for patients. Universal precautions are the linchpin of a safe environment that is disencumber of infection.

In addition to practical bedside interventions, nurses can foster a safe environment for patients by creating an open, non-punitive environment where errors and near misses can be reported. This approach helps an organization determine how to improve the system and prevent future errors from occurring. It is important to be familiar with your organization's error reporting policies, procedures.<sup>8</sup>

Nurses in all roles and settings can demonstrate superintendence in infection prevention and control by using their proficiency, expertise and sagacity to initiate appropriate and immediate infection control procedures. Diligent practice is needed to keep your patient safe.<sup>8</sup>

So periodic in-service training of nursing staffs is an essential component.

The following definitions have been developed to assist with the implementation of elements of the CDC assessment tools related to infection prevention competency, training, auditing and feedback.<sup>9</sup>

Healthcare Personnel Infection Prevention (IP) Competency: The proven ability to apply essential knowledge, skills, and abilities to prevent the transmission of pathogens during the provision of care.

Healthcare Personnel IP Competency-Based Training: The provision of job-specific education, training, and assessment to ensure that healthcare personnel possess IP competency.

Competency Assessment: The verification of IP competency through the use of knowledge-based testing and direct observation. If direct observation is not included as part of a competency assessment, an alternative method to ensure that healthcare personnel possess essential knowledge, skills, and abilities should be used.

**Audit:** Direct observation or monitoring of healthcare personnel adherence to job-specific IP measures.

**Feedback:** A summary of audit findings that is used to target performance improvement.

**Conclusion:**

It has been concluded that in order to get desired results in terms of infection control practices, intermittent and relevant training sessions are required. Something like India Epidemic Intelligence Service (EIS) Training Program is needed to augment the availability of skilled health work force by imparting competency-based, specialized yet practical training, which emphasizes on significant & consequential epidemiology. The training is to be modeled on the best practices of the United States EIS of “training through service”.

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