



TO ASSESS AN IMPACT OF TRAINING OF COLD CHAIN EQUIPMENT ON COLD CHAIN HANDLERS IN INDIA

Management

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ABSTRACT

The study focuses on the impact of a cold chain equipment training program on cold chain handlers. The research was conducted using a cross-sectional study approach, and the results suggest that effective training can improve vaccine handling and storage, reducing spoilage and waste of vaccines and enhancing cold chain efficiency. The study recommends introducing online courses, periodic workshops, and virtual meetings to improve training effectiveness and communication with cold chain handlers.

KEYWORDS

Training, Vaccine, Cold Chain Handlers, NCCRC.

INTRODUCTION

The cold chain is a crucial system for storing and transporting vaccines in recommended conditions from the manufacturing unit to the patients. Maintaining the recommended temperature range of 2-8° Celsius is important to avoid damage to low temperature-sensitive vaccines. Compliance to standard and adequate cold chain infrastructure is necessary for proper maintenance of the vaccine.^[1] The poor understanding of the dangers of freezing vaccines contributes to weak cold chain management in many countries. Regular training and supervision of vaccine cold chain handlers is necessary to ensure effective cold chain management practice. The cold chain is a vital component of the vaccination program, which consists of transport and storage equipment, trained staff, and efficient management procedures.^[2] National Cold Chain Resource Centre is the only training centre in Asia that gives training to the people who are associated with cold chain and cold chain equipment and which is consistently supporting Gol for effective implementation of immunization programs across the country.^[3]

Background of the Study:

Cold chain maintenance is crucial for immunization programs.^[4] The study of cold chain equipment training is important for ensuring product quality and safety, meeting regulatory requirements, reducing product waste, and protecting public health.^[5-6]

METHODOLOGY:

This study evaluates the effectiveness of cold chain equipment training for handlers in India. Objectives include reviewing the existing training program, assessing handlers' needs, evaluating their attitudes toward the training, and offering recommendations. The research follows a cross-sectional approach, utilizing retrospective data from handlers trained between 2016-2019 at the National Cold Chain Resource Centre in Pune. The study spans 60 days and includes 94 willing participants selected through purposive sampling. Data collection employs a self-administered questionnaire in English and Hindi, shared via email and WhatsApp groups. Inclusion criteria involve handlers within the same module and pre-COVID training completion, while exclusion criteria include those trained before 2016, post-COVID training, non-Indian participants, and unwilling participants. Microsoft Excel is used for data entry and analysis to ensure accuracy and consistency.

AIM

To determine the effectiveness of cold chain equipment training on cold chain handlers in India.

OBJECTIVES

1. To review the current cold chain equipment training program.
2. To assess the attitude of cold chain handlers towards the training program.

3. To make recommendations for improvement to the current cold chain equipment training program based on the findings of the study.

RESULT:

Demography: 1)Based on the data depicted in the graph and table above, it can be observed that the majority of the samples have an age greater than 35 years old. There are only a few samples that fall under the age groups of 26-30 and 31-35, while only one sample is below 25 years old.

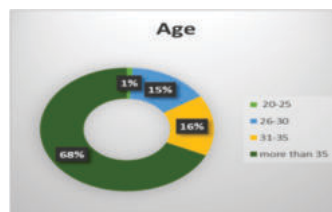


Figure 1: Age graph

- 2)The majority of participants, at a rate of 63%, attended training for ILR-DF. A smaller percentage attended WIC-WIF training, while only a few attended training for SNCU and Face Plate Training.

Table 1: Training Title

Training Title	ILR-DF	WIC-WIF	SNCU	FP
Total	59	24	8	3

- 3) The majority of participants are from Maharashtra state and also few other states also contributed in the study and showed their interest by participating.

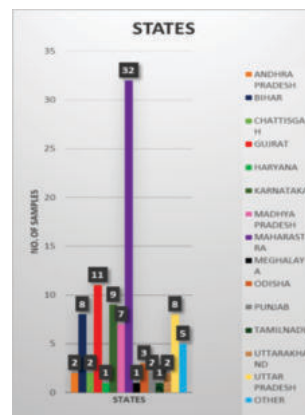


Figure 2: State wise participants

4) Based on the data presented in the graph, it's clear that the training had a positive impact on the participants. The maximum score attained by the participants was over 80, indicating that they strongly agreed with the statements in the research tool. This suggests that the training provided by NCCRC was effective in improving the skills and knowledge of the cold chain handlers who underwent the training

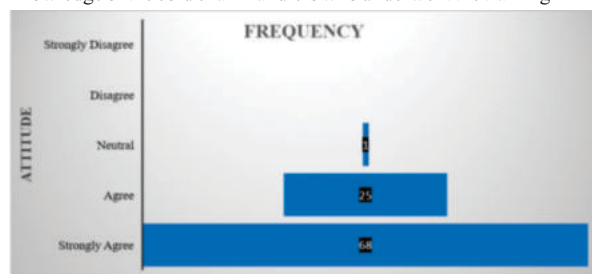


Figure 3: Frequency Graph

The study's results indicate that participants found the organization's training relevant to their professional development, with clear instructions and improvements in knowledge and understanding of cold chain equipment. This training also increased work efficiency, productivity, and confidence in managing cold chain equipment and processes, ultimately enhancing cold chain logistics fluidity and reducing vaccine spoilage and waste through preventive maintenance. While a few participants disagreed with these findings, most expressed a willingness to pursue online certified training related to cold chain equipment. Notably, the study found that training improved employee performance, knowledge acquisition, and confidence, boosting morale and motivation to excel. Consequently, effective training can contribute to a smoothly functioning and efficient cold chain system, with participants reporting enhanced vaccine handling and storage. Additionally, participants acknowledged the value of material provided by the NCCRC and expressed a need for outreach sessions to stay updated on cold chain teams' knowledge.

Summary:

India boasts one of the world's largest Universal Immunization Programs, covering millions of beneficiaries across the country and requiring a substantial annual budget. Given the crucial role of cold chain systems in this program, proper handling and maintenance of cold chain equipment are essential. This study aims to evaluate the impact of training provided by the NCCRC on cold chain handlers and associated personnel. The researcher's interactions with these individuals highlight the significance of such training. The positive outcomes of this study underscore the effectiveness of NCCRC's training initiatives, demonstrating their valuable contribution to the cold chain system's success.

Observations:

During the study, the researcher assessed Pune's PHCs' cold chain equipment and infrastructure, focusing on vaccine management, spoilage, and records. They used the Effective Vaccine Management (EVM) tool for data collection, finding that most PHCs were well-equipped with trained staff. However, one PHC lacked electricity backup.

The inspection confirmed proper cold chain infrastructure, temperature maintenance, and adequate vaccine inventory management. Standard procedures were followed for vaccine handling, and records were up-to-date.

This study underscores the importance of cold chain infrastructure, equipment, vaccine management, and record-keeping for effective immunization services. The EVM tool identified system gaps and recommended regular assessments to enhance PHCs' performance and support the national immunization program.

While gaps were found in some PHCs, the EVM tool significantly improved cold chain management. It offered real-time monitoring, temperature alerts, and efficient record-keeping, benefiting vaccine inventory management and distribution reporting.

The study recommends PHCs in Pune prioritize investments in cold chain infrastructure, equipment, and staff training. Encouraging the use of digital tools like EVM can enhance vaccine management and

ensure effective immunization programs in the region.

DISCUSSION:

The study revealed that the organization's training significantly benefited participants' professional development. Clear instructions, improved knowledge of cold chain equipment, enhanced work efficiency, and a focus on teamwork and leadership skills were well-received. Most participants were open to online certified training, but a few retired individuals opted out. Training was found to boost employee performance, primarily by increasing confidence and morale. Effective training was seen as vital for the smooth functioning of the cold chain system. Participants also reported improvements in vaccine handling and storage. The material provided by NCCRC was considered valuable, with a need for regular outreach sessions to update knowledge on cold chain team

CONCLUSION:

Investing in CCE training is crucial for organizations, offering a long-term boost in productivity. Cold chain handlers (CCH) are valuable assets within the cold chain system and should be treated as such. Proper training yields returns on this investment. Evaluating the training process is vital to identify and address any deficiencies, helping NCCRC enhance contact sessions for better outcomes. Effective CCE training improves quality, and service, reduces vaccine spoilage, and enhances CCE handling.

Recommendations:

In terms of the study findings, the following recommendations are made:

- NCCRC can start a few online courses for cold chain handlers.
- They can also conduct periodic workshops at state levels or at NCCRC.
- They can conduct webinars on newly launched equipment and machine models.
- They can share posts and ideas on social sites to be in touch with people associated with the cold chain.
- They can do tie-ups with private hospitals for more training opportunities and platforms to share their incredible knowledge.
- They can conduct periodic virtual meetings with all state cold chain handlers and cold chain officers to know their requirements for training.
- Real challenges occurring at the workplace need to be addressed during training sessions and also discussed post-training.
- Can develop LMS for NCCRC.

REFERENCES

1. World Health Organization. (Year). Module 3: The Cold Chain. Retrieved from <https://www.who.int/vaccines-documents/>
2. Matthias, D. M., Robertson, J., Garrison, M. M., Newland, S., & Nelson, C. (2007). Freezing Temperatures in The Vaccine Cold Chain: A Systematic Literature Review. *Vaccine*, 25, 3980-3986.
3. National Cold Chain Resource Centre. (Year). NCCRC training module. Retrieved from <https://nccrc.in>
4. Cole Parmer. (Year). Reference Guide: Key Regulations for Cold Chain.
5. Oteri, J., Bawa, S., Christopher, E., Nsubuga, P., Dieng, B., Braka, F., Shuaib, F. (Year). Potential for improving routine immunization waste management using measles vaccination campaign 2017 in Kebbi State, Nigeria. In W. Orenstein (Ed.), *Title of the Book or Journal*, Volume 39, Supplement 3, Pages C1-C96.
6. Azira, B., Norhayati, M. N., & Norwati, D. (Year). Knowledge, Attitude, and Adherence to Cold Chain among General Practitioners in Kelantan, Malaysia. *International Journal of Collaborative Research on Internal Medicine & Public Health*, Volume, Page 157.