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A Descriptive Survey to Assess the Knowledge of Multi Purpose Health Workers and Problems Encountered by them in the Management of Cold Chain System for Vaccines in Universal Immunization Programme in Selected Health Centres of NCR (U.P.)

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ABSTRACT

A descriptive survey to assess the knowledge of Multi Purpose Health Workers and problems encountered by them in the management of cold chain system for vaccines in Universal Immunization Programme in selected Health centres of NCR (UP).**Objectives:**1)To assess the knowledge of MPHW in management of cold chain system for vaccines in Universal Immunization Programme.2)To find out problems encountered by MPHW in management of cold chain system for vaccine in Universal Immunization Programme.3) To determine the association between knowledge about management of cold chain system with selected demographic factors. The conceptual framework developed for the study was based on the "Ludwig Open System Model". The research approach for the study was descriptive survey approach; the study design was descriptive design. Non-Probability Purposive sampling Technique was used to obtain an adequate size of sample. The sample consisted of 100 MPHW's working in Loni and Bisrakh Health Centres. **Findings showed that:** Majority of MPHW's had the average knowledge 55(55%), 42(42%) had good knowledge and 1(1%) had poor knowledge regarding maintenance of Cold Chain system. Major Problems encountered by the MPHW's were 72(72%) faced electricity problem, 71(71%) lack of availability of thermometer in recording the temperature of ILR, and 67(67%) faced difficulties in transporting the vaccines. Chi square value computed between knowledge score and selected demographic factors showed that the association of knowledge score of the MPHW's with the Work Experience and In-Service training was found to be statically significant at 0.05 level of significance. It can be inferred that the knowledge of MPHW's were dependent on their Work Experience and In-Service training. The study also discussed the implications of findings in the field of nursing education, practice, administration, research and for the society. The study concluded that the MPHW's were having average knowledge regarding maintenance of cold chain system.

Keywords: *MPHW, UIP, Problems. Cold Chain, Immunization, Management, Knowledge.*

INTRODUCTION

*"*Vaccines are a billion dollar industry and there are at least a billion good reasons there, why it's continued" (Dr Peter Baratosy).

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Vaccine is an immune-biological- substance designed to produce specific protection against a given disease. It stimulates the production of protective antibody and other immune mechanisms**.** "Cold chain maintenance" is the system of storage and transport of vaccines at a low temperature from the manufacturer to the actual vaccine site. In general all vaccines must be stored under the conditions recommended by the manufacturer in the literature accompanying the vaccines otherwise they become denatured and totally ineffective[1]. Immunization

is an important means of controlling infectious diseases. Careful attention to vaccine storage is essential to ensure optimal vaccine effectiveness. The system used for keeping and distributing vaccines in good condition is called the cold chain. This consists of a series of storage and transport links, designed to keep the vaccine at the correct temperature until it reaches the user.Maintaining the vaccine cold chain is an essential part of a successful immunization program me, but in developed countries faulty procedures may occur more commonly than is generally believed [2].

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The vaccines play a major role in preventing mainly major communicable diseases which the people die because of these communicable diseases. It is necessary to provide vaccines against these diseases but the maintenance of the vaccine potentiality is most important because if we give non potentiality vaccines will not protect people from killer diseases in order to maintain potentiality of vaccines the maintenance of the cold chain system is Cold chain system is necessary because the vaccines are sensitive to heat, if the vaccines are exposed to heat they will have shortened life [6]. Some vaccines are more sensitive than others. Polio is the most sensitive to heat. When the vaccines lose their potency they can no longer protect individuals from diseases. Vaccines potency cannot be regained once it is lost. Returning vaccines to the refrigerators will not restore its potency, all vaccines retain their potency at temperature between 2- 8 C, so the vaccines must stay cold or maintain optimum temperature to the actual vaccination site of expectant mother and child all the way from manufacture storage and transportation [3].

The cold chain in other words the manufacturing company and storing the vaccines at a temperature suggested by it, right from manufacture of the vaccine to the health workers at grass route level contribute significantly in cold chain of vaccines [4].

STATEMENT OF THE PROBLEM:

A descriptive survey to assess the knowledge of Multi Purpose Health Workers and problems encountered by them in the management of cold chain system for vaccines in Universal Immunization Programme in selected Health centres of NCR (UP).

OBJECTIVES

- To assess the knowledge of MPHW in management of cold chain system for vaccines in Universal Immunization Programme.
- To find out problems encountered by MPHW in management of cold chain system for vaccine in Universal Immunization Programme.
- To determine the association between knowledge about management of cold chain system with selected demographic factors.

MATERIAL AND METHOD

Research approach

The study aimed at determining the relationship of MPHW's knowledge with selected background factors and hence a **Descriptive Survey** was considered appropriate.

Research design

The research design selected for the study was a Non-experimental descriptive survey design was adopted for the study.

Research Design

Research Variables: Two types of variables were identified in this study. They were as follows

Attribute Variables:- Academic Qualification, Vocational Qualification, Working Experience, In Service Training.

Dependent Variables:-Knowledge Score of MPHW's and Problem Description were regarding management of Cold Chain System for vaccine in Universal Immunization Programme.

Setting of the study: The present study was conducted in CHC LONI (U.P) and CHC BISRAKH (GREATER NOIDA, NCR).

Population: The population of the present study comprises of Multipurpose health workers female working in selected health centres of Ghaziabad and Bisrakh Greater Noida.

Sample and sampling technique: In the present study samples were Multipurpose health workers working in selected health centres of Ghaziabad and Bisrakh Greater Noida and For the present study, **Purposive Sampling Technique** was adopted to select the Multipurpose health workers for data collection.

Sample size : For the present study, 100 MPHW's were selected for the final study working in selected health centres of Ghaziabad and Bisrakh Greater Noida.

Criteria for sample selection:

Inclusion Criteria for Selection of Sample:-

MPHW's who can understand English or Hindi properly.

MPHW's available during data collection procedure.

MPHW's willing to participate in the study.

Exclusion Criteria for Selection of Sample:-

MPHW's who will not be available during the study.

MPHW's who were not willing to participate in the study.

Description of the tool:

Tool	Purpose	Data collection technique
Section-I: Demographic data	To know the demographic data of MPHW's.	Printed questionnaire by using paper pencil approach.
Section-II: Structured knowledge questionnaire related to maintenance of cold chain system.	To assess the knowledge of MPHW's on maintenance of cold chain system.	Printed questionnaire by using paper pencil approach.
Section-III: Structured questionnaire on problem encountered.	To assess the problem encountered by MPHW's during cold chain management.	Printed questionnaire by using paper pencil approach.

FINDINGS

Results: This section present the analysis and interpretation of the data collected from 100 MPHW's, in order to assess the knowledge and problem encountered by them in the management of cold chain system for vaccines in Universal Immunization Programme The data was collected through structured questionnaire, which was prepared, based on the objectives of the study. The collected data was organized, analyzed and interpreted by using descriptive and inferential statistics.

Interpretation and conclusion

The study revealed that majority of MPHW's had average knowledge regarding cold chain system and its maintenance and problem encountered by them during the maintenance of cold chain system was electricity. In the present study, MPHW's have adequate knowledge can be improved to excellent knowledge by providing in-service education, conducting workshops and conferences on this area for the provision of awareness for a better future [10].

DISCUSSION

This chapter includes the discussion of the findings of the study interpreted from statistical analysis. The findings are discussed in relation to the objectives, need for the study, related literature of the study and conceptual frame work. It is presented in line with the objectives of the study.

Characteristics of the demographic variables:

As represented by Table:-The majority of the MPHW's 31 (31%) belonged to the age group of 51-60 years, 22 (22%) belonged to the age group 31-40 year,

26(26%)belonged to the age group of 41-50 years and only 21 (21%) were between 21-30 years of age group**.** The majority of the MPHW's 89 (89%) were married, 6 (6%) were unmarried, and 5 (5%) were widow.

The majority 32 (32%) had the work experience between 21-30 years, 30 (30%) MPHW's had the work experience between 11-20 years, 22 (22%) had the work experience between 1-10 years and only 16 (16%) had the work experience of 31 years and above. The majority 66 (66%) worked in sub centre and 17(17%) MPHW's worked respectively each in Primary and Community Health Centre. The majority 64 (64%) have attained higher secondary qualification and 34 (34%) have attained graduation and 2 (2%) have attained post graduation qualification. The Majority findings regarding vocational qualifications of MPHW's showed that 96 (96%) had taken A.N.M course and 4 (4%) had taken MPHW course. The maximum of the MPHW's 75 (75%) had undergone in service and 25 (25%) did not undergo in service training.

The first objective was to assess the knowledge of MPHW in management of cold chain system for vaccines in Universal Immunization Programme.

Out of 100 MPHW's, Knowledge assessment the majority of the 55 (55%) of MPHW's had average knowledge, 42 (42%) had good knowledge, 2 (2%) had very good knowledge and 1(1%) MPHW's had poor knowledge regarding maintenance of cold chain.

The present study represents the Range, Mean. Standard Deviation (SD), mean percentage of knowledge of the MPHW's. The maximum score was 25. Data in the mean and median of the knowledge score were 18.87 and 18 respectively. The mean, median are close to each other which indicated that the distribution was normal. The mean knowledge score (18.87) was <30 which signifies that the subject is having average knowledge regarding maintenance of cold chain and the standard deviation is 2.81. The range of score obtained by MPHW's was between 10-25.

The study revealed that the MPHW's had an average knowledge regarding cold chain maintenance for vaccines in Universal Immunization Programme. This finding is consistent with the findings of the study conducted by **Joao, Carlos (2007) in Mozambique** a descriptive study to know about cold chain and the result were that the knowledge of health workers need to be improved and integrate knowledge by providing them adequate training and supervision [7].

To find out problems encountered by MPHW in management of cold chain system for vaccine in Universal Immunization Programme.

The problem's encountered by MPHW's shows that majority 72 (72%) faced electricity problem, 71 (71%) shows that no thermometer available to record the temperature and 67 (67%) shows that MPHW's faced difficulties in transporting.

The above findings in the study were similar with the findings of the study conducted **by Shamala Pillay. 2014 South Africa** A Descriptive Study into the Cold Chain Management of Childhood Vaccines by Nurses in Primary Health Care Clinics in the uMgungundlovu District where the findings showed no contingency plans to deal with equipment and electricity issues, no monitoring and evaluation systems, poor recording keeping, poor management of the cold box, access to stock and the actual management of the cold chain for vaccines [9].

To determine the association between knowledge about management of cold chain system with selected demographic factors.

Chi-square value computed between knowledge score and selected factors showed that the association of knowledge score of the MPHW's with Work Experience and In service training is found to be statistically significant at 0.05 level of significance. It can inferred that knowledge of MPHW's were dependent on Work Experience and In service training. The chi square value between knowledge and selected demographic variables like educational qualification and vocational qualification was found to be statistically non significant at 0.005 significance level. This signifies knowledge scores of MPHW's were independent on educational qualification, vocational qualification.

Assessing the demographic data of the MPHW's revealed that, there is a significant association of In-Service training with the knowledge level of the MPHW's. This finding was consistence with the findings of the study conducted by **Avinash N. 2008** on a study to assess the knowledge , attitude & practices regarding

maintenance of cold chain among health workers in selected sub centres of Bangalore urban district and the findings were the health workers had a fair knowledge regarding the cold chain maintenance[8].

CONCLUSION

The conclusion drawn from the study was that the majority 64% of MPHW's had primary education. The MPHW's had average knowledge regarding cold chain system maintenance for vaccines. The problems encountered by the MPHW's can be corrected through proper measures and actions as they are not a major problem. There was a significant association between the knowledge score of the MPHW's with their work experience and In Service training. There was no significant relationship between the knowledge score of the MPHW's with their educational and vocational qualifications.

Conflict of Interest: There is no conflict.

Source of Funding: Self

Ethical Clearance:

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