



Enfermería Clínica

www.elsevier.es/enfermeriaclinica



BRIEF REPORT

Vaccine cold chain interruption in a primary care centre and economic evaluation[☆]

Israel Larena Fernández^{a,*}, Marta Vara Callau^b, Guillermo Peña Blasco^c,
Esther Atance Melendo^d, Blanca Gay Gasanz^d, María Jesús Blasco Pérez-Aramendía^d

^a Hospital Universitario Miguel Servet, Zaragoza, Spain

^b Hospital Barbastro, Huesca, Spain

^c Departamento de Economía Pública, Facultad de Economía, Universidad de Zaragoza, Zaragoza, Spain

^d Centro de Salud Valdefierro, Zaragoza, Spain

Received 9 November 2015; accepted 26 July 2016

KEYWORDS

Vaccines;
Refrigeration;
Drug stability;
Resources
management;
Economics nursing

Abstract

Objectives: Cold chain control is one of the most important facts to ensure the effectiveness of vaccines links, which requires specific material and human resources for management. The principal objective is to evaluate the interruptions in cold chain of the last 6 years and the possible cost savings that would result in further improvements.

Method: A retrospective and descriptive study based on a review of all cold chain interruptions during the last 6 years, at Valdefierro Primary Health Centre.

Results: We had 5 interruptions, the maximum temperature reached was $23.1 \pm 3.4^\circ\text{C}$ and the longest interruption lasted $25.2 \pm 20.7\text{h}$. 1611 vaccines were affected and 165 discarded. Total economic loss was 2098.10€ and 33,611.64€ were savings. The electrical failure was the disruption cause in 5 cases.

Conclusions: Equipment and staff are essential. The centre did some corrective actions, such as minimising refrigerator time control, minimum stock control, considering population changes, and the centre has requested a electrical supply system.

© 2016 Elsevier España, S.L.U. All rights reserved.

[☆] Please cite this article as: Larena Fernández I, Vara Callau M, Peña Blasco G, Atance Melendo E, Gay Gasanz B, Blasco Pérez-Aramendía MJ. Interrupción de la cadena de frío vacunal en un centro de atención primaria y su valoración económica. Enferm Clin. 2016. <http://dx.doi.org/10.1016/j.enfcli.2016.07.012>

* Corresponding author.

E-mail address: ilarena@salud.aragon.es (I. Larena Fernández).

<http://dx.doi.org/10.1016/j.enfcle.2016.07.004>

2445-1479/© 2016 Elsevier España, S.L.U. All rights reserved.

PALABRAS CLAVE

Vacunas;
Refrigeración;
Estabilidad de
medicamentos;
Gestión de recursos;
Economía de la
enfermería

Interrupción de la cadena de frío vacunal en un centro de atención primaria y su valoración económica**Resumen**

Objetivos: El control de la cadena de frío constituye uno de los eslabones más importantes para garantizar la efectividad de las vacunas, por lo que es necesario disponer de recursos materiales y humanos específicos para su gestión. El objetivo principal es valorar las interrupciones de la cadena de frío de los últimos 6 años y el posible ahorro económico que supondrían nuevas mejoras.

Método: Estudio retrospectivo, descriptivo, basado en la revisión de todas las interrupciones de la cadena de frío en los últimos 6 años, en el Centro de Salud Valdefierro.

Resultados: Cinco interrupciones, con temperatura máxima de $23,1 \pm 3,4^\circ\text{C}$ y $25,2 \pm 20,7$ h de interrupción; 1.611 vacunas fueron afectadas y 165 desechadas. La pérdida económica total fue 2.098,10 € y el ahorro 33.611,64 €. El fallo de suministro eléctrico fue la causa de interrupción en los 5 casos.

Conclusiones: El equipamiento y el personal son esenciales. Se tomaron medidas como minimizar los periodos entre controles sobre la nevera, control de stocks mínimos y, valorar cambios en la población, y se ha solicitado un sistema de suministro eléctrico.

© 2016 Elsevier España, S.L.U. Todos los derechos reservados.

What is known?

The cold chain is the system for the preservation, management, transport and distribution of vaccines from the manufacturer's laboratory until they are administered to the patient and ensures that they are preserved under appropriate light and temperature conditions, guaranteeing their immunogenicity. Cold chain control by nursing staff is considered essential for the maintenance of vaccine immunogenicity, and implies a financial saving by avoiding discarding vaccines in the event of a cold chain interruption.

What do we contribute?

We contribute our personal experience of cold chain interruptions in our environment, the Valdefierro Primary Health Centre in Saragossa, and the solutions that we consider most appropriate in order to avoid discarding vaccines and to make financial savings, as well as maintaining vaccine immunogenicity. Furthermore, we stress the importance of a dedicated vaccine manager in the Health Centre, who has undergone extensive training on vaccines, their preservation and administration.

Introduction

Cold chain control in primary care centres is one of the most important, yet most fragile,¹ links in the chain of continuous

temperature monitoring in order to ensure the effectiveness of vaccines.^{2,3}

The success of vaccination programmes depends on the rates of vaccination coverage and the effectiveness of the vaccines used and this in turn depends to a great extent on their refrigeration preserving the cold chain during the processes of storage and distribution.⁴ Therefore it is essential that these vaccines, in addition to being accessible to the population, arrive in a perfect state of preservation, so that their immunogenicity and protective efficacy are ensured.⁵

Specific material and human resources and a series of scheduled activities to ensure optimal preservation are required to safeguard the capacity of a vaccine.⁴

The medical literature includes studies that posit the cases of mumps in immunised people in Canada, the outbreak of diphtheria in the former Soviet Union in 1990 and the resurgence of whooping cough in Australia between 1996 and 1997, as a possible consequence of the inadequate preservation and handling of vaccines.⁶

The cold chain is the system for the preservation, management, transport and distribution of vaccines from the manufacturer's laboratory until they are administered to the patient, which ensures their preservation under appropriate light and temperature conditions, and guarantees their immunogenicity.³ It comprises various links, which include human resources (the individual responsible for transport, distribution, handling and administration) and material resources (refrigerators, portable fridges, etc.). In addition, the refrigerators require temperature control elements.²⁻⁵

The main aim of this study was to analyse all the cold chain interruptions that have occurred in our centre over the last 6 years, evaluating the causes in order to propose action to minimise these interruptions. Furthermore, we want to assess the financial losses incurred by the interruptions over these 6 years, in order to establish the economic dimensions of an interruption and possible financial savings.

Download English Version:

<https://daneshyari.com/en/article/8928901>

Download Persian Version:

<https://daneshyari.com/article/8928901>

[Daneshyari.com](https://daneshyari.com)