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Original article

# Feedback on the management of the 2011 measles outbreak by French military general practitioners: An evaluation study

Retour d'expérience des médecins généralistes militaires face à l'épidémie de rougeole en 2011 : une étude évaluative

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## Abstract

Objective. - Preventive measures were implemented in the French armed forces to limit the measles outbreak that occurred in 2010 and 2011. This study aimed to obtain feedback concerning the management of this outbreak by the French military general practitioners.

Method. - A cross-sectional study was conducted among the general practitioners (GPs) in military units located in metropolitan France. The 60 military units that reported at least one measles case in 2011 were included. Data were collected using self-administered questionnaires.

Results. - The acceptance of preventive measures against measles was good (measures "totally justified" for 77.8%) and most of the military GPs considered that the outbreak had no significant impact on their activities. The management of measles cases was perceived as not very problematic but difficulties were encountered in the identification of contacts around cases (48.1% of respondents) and in the identification of vaccine recipients among these contacts (more than 80% of respondents reporting difficulties in the collection of measles and vaccination histories). The organization of vaccination around cases was also perceived as difficult.

Conclusions. - Preventive measures around measles cases were well accepted by the military GPs, which could reflect their preparedness in the face of the outbreak. However, vaccination did not seem to be well understood or accepted by military patients, underlining the essential role of military GPs in patient information. Difficulties in the collection of vaccination and measles histories among contacts could be overcome by an early transcription of individual medical records in the military medical files of newly enlisted personnel. A more generalized use of oral fluid testing devices, which can be shipped at ambient temperature, would simplify diagnosis in the armed forces. © 2014 Elsevier Masson SAS. All rights reserved.

Keywords: Adult; Armed forces; General practitioner; Measles; Outbreak management; Vaccination

#### Résumé

Objectifs. - Des mesures préventives ont été mises en place dans les armées françaises pour limiter l'impact de l'épidémie de rougeole survenue en 2010-2011. L'objectif de l'étude était d'obtenir un retour d'expérience de la gestion de cet épisode par les médecins généralistes (MG) militaires.

Méthode. – Une étude transversale a été conduite auprès des MG exerçant dans les unités militaires de France métropolitaine. Les 60 unités qui avaient déclaré au moins un cas de rougeole à la surveillance épidémiologique des armées ont été incluses. Les données étaient recueillies à l'aide d'un questionnaire anonyme.

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*Résultats.* – Les mesures préventives mises en place contre la rougeole étaient bien acceptées (« totalement justifiées pour 77,8 %) et la plupart des MG considéraient que la gestion de l'épidémie n'avait eu que peu d'impact sur l'activité de leur service médical. La gestion des cas était perçue comme relativement simple mais des difficultés ont été rencontrées dans l'identification des sujets contacts autour des cas (48,1 % des répondants) et dans l'identification des sujets à vacciner parmi ces contacts (plus de 80 % des MG rapportant des difficultés de recueil des antécédents de rougeole et du statut vaccinal). L'organisation de la vaccination était aussi perçue comme difficile.

*Conclusions.* – Les mesures préventives mises en place autour des cas de rougeole apparaissaient bien acceptées par les MG militaires, ce qui pourrait refléter leur bonne préparation face à l'épidémie. Cependant, la vaccination semblait mal comprise et acceptée par les patients, ce qui souligne le rôle essentiel du MG dans l'information des patients. Les difficultés de recueil des antécédents de rougeole et du statut vaccinal pourraient être contournées par une retranscription précoce, dès l'incorporation des militaires, des données du carnet de santé dans le dossier médical. Une utilisation accrue des tests salivaires de détection, qui s'affranchissent de la chaîne du froid, simplifierait enfin la démarche diagnostique en milieu militaire.

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Mots clés : Adulte ; Armées ; Épidémie ; Médecin généraliste ; Rougeole ; Vaccination

### 1. Introduction

Since late 2009, transmission of the measles virus has increased in Europe, and outbreaks have become widespread. In 2011, measles outbreaks were reported in 36 of the 53 World Health Organization European region member states, France being the country that reported the largest number of cases, predominantly among older children and young adults who had not been vaccinated with measles-mumps-rubella (MMR) vaccine or whose vaccination history was unknown [1]. The resurgence of measles in France was detected at the start of 2008 with 579 cases reported [2]. The outbreak then intensified and continued to spread throughout the country from 2009 to 2011 with a total number of notified cases reaching nearly 15,000 in 2011 [3,4]. In the French armed forces, the outbreak evolved in the same manner. While the disease has been rare since 2002, with an average of 2 reported cases a year, a small resurgence was noted in 2008 and 2009, with 5 cases on average per year, prior to the epidemics which occurred in 2010 and 2011 with respectively 35 and 143 cases reported [5,6].

Because measles is highly contagious and considering the age structure of the military population, mainly made up of young adults, this disease is an important public health issue for the armed forces with a potential impact on operational capacities [6,7]. This is particularly true in view of the low MMR vaccination coverage, around 50%, recently observed among young French adults in both civilian and military populations [6,8–10]. The French armed forces integrated MMR vaccination into their calendar in 2009: any person with no history of measles vaccination attested by a document was to be given a dose at incorporation. In 2011, preventive measures were implemented in the French armed forces to limit the spread of the outbreak. These measures, in line with those recommended by the French national health authorities, included active monitoring aiming to diagnose cases early, to isolate them and to perform booster vaccination for subjects who had close contacts with the cases during their contagious period [11]. This booster vaccination aimed to achieve twodose status among adults born since 1980 and one-dose status among subjects born between 1965 and 1979. In addition to the contacts around cases, this strategy also targeted new recruits, personnel deployed overseas, healthcare personnel and women of childbearing age.

Due to the high number of cases observed in 2011, a degree of disorganization or difficulty could be expected in the management of cases and contacts around cases. To our knowledge, no recent research regarding the impact of the implementation of preventive measures on the activity of general practitioners (GPs) has been published. Thus, the aim of our study was to provide feedback concerning the management of the 2011 measles outbreak by the French military general practitioners in metropolitan France.

#### 2. Methods

Measles has been monitored by the French Military Health Service since 1992 [5]. This surveillance, supervised by the Military Centre for Epidemiology and Public Health (Centre d'épidémiologie et de santé publique des armées [CESPA]), concerns all the active military personnel wherever medical provision is instated, whether in civilian or military facilities. The criteria for reporting measles cases include several case definition parameters, in accordance with French national compulsory reporting criteria [11]: biologically confirmed case, clinically confirmed case and cluster of cases. All the GPs in the medical departments supporting the military units comply with this regulation. A more detailed methodology of this surveillance system has been published elsewhere [6].

An evaluative cross-sectional study was conducted from January 1st to December 31st 2011 among the GPs in the 262 military units stationed in metropolitan France. The units that reported at least one measles case during the study period were included, and 60 military units (22.9%) were involved. Data were collected using anonymous self-administered questionnaires sent to the medical departments in the units concerned by email and/or by post. Although several GPs could be present in a given medical department, only one questionnaire per unit was expected. This point was explained to the respondents, who were to complete the questionnaire collegially if there was more than one GP in the medical department in the unit. In order to restrict recall bias, the questionnaires were sent in two rounds: the first in June 2011 for the units that encountered cases during the first half of 2011 and the second in December 2011 for the units

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