

ABSTRACT

Role of continuous monitoring on performance of surveillance systems in military populations in resource-limited settings

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Objective

The objective of this paper is to describe the effect of close monitoring on performance of the electronic disease surveillance system of the Peru Air Force.

Introduction

Timeliness of information has a key role in disease reporting, and may be easily impaired by several factors affecting data entry and utilization.¹ Regarding data entry, previous studies have shown that monitoring strategies, such as telephone reminders and supervision visits ensure reporting timeliness.² Likewise, limited reporting infrastructure may prevent adequate reporting and effective data utilization.^{3,4} The Peruvian Air Force, in collaboration with the US Naval Medical Research Center Detachment in Lima, Peru, implemented in 2009 an electronic disease surveillance system with the objective of establishing near real-time baseline estimates of disease trends, and detecting disease outbreaks in a timely manner. This system has proven to perform well, although reporting sites vary in their reporting infrastructure. Therefore, we attempted to test the effect of a lack of monitoring on the performance of reporting sites, and explore the influence of other factors potentially affecting timeliness.

Methods

We analyzed the reporting performance of participating units at each epidemiological week (EW) from January to August 2010. We selected a six-week period when monitoring was to be voluntarily withheld for the purpose of our study objectives. Monitoring was resumed fully after six weeks. We compared the report-on-time rates of this six-week period of no reporting with those of the previous six-week period during which monitoring was conducted normally. Additionally, we contacted each key personnel at participating sites and asked them to complete an on-line

anonymous questionnaire (www.surveygizmo.com) to explore other factors affecting performance, such as end-user's perception of the system, access to reporting media, and overall workload at establishments.

Results

From January to August 2010, all 31 active sites participated in the study. The report-on-time rate dropped from 100% (EW 17–22) to 42% (EW 23–29) (Mann–Whitney, $P < 0.01$). (Figure 1) Our exploratory analysis of other factors affecting timeliness showed that of the 37 (100%) participants who completed the questionnaire, 30 (81%) were female. The median of age was 35 years (range, 22–55). Most participants had less than five years of service ($n = 14$, 38%); and 65% of participants were nurses and/or technicians. The overall preferred medium of reporting was the internet (65%), although access to telephone was greater than access to the internet (60 versus 40%, respectively). The majority of participants showed satisfaction with being part of the system (95%), and considered reporting to be as important as their normal routine duties within the site (95%). In addition, 84% of participants considered that reporting did not prevent them from carrying out their normal duties.

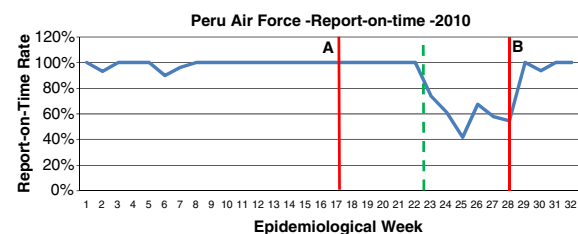


Figure 1 ROT rates during 2010. Red lines, A and B, point at the start and end dates of the study period, respectively. The green dotted line indicates the start of the six-week period at which monitoring was withheld.

Conclusions

Despite availability of reporting infrastructure, and high acceptability of the system among stakeholders, the need for monitoring of reporting activities remains essential in ensuring timely reporting rates. Other factors possibly explaining this contradiction need to be further characterized.

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References

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