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Factors associated with abnormal temperature recording in vaccine's cold chain: Case of north west region, Cameroon

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Background: Abnormal temperature recording in vaccine's cold chain is a major issue worldwide and this condition is known to compensate the quality of vaccines very rapidly. In Cameroon with tropical climate, vaccines exposure to abnormal temperatures is very frequent and epidemics of vaccine preventable diseases are equally very common. This study was conducted to identify factors associated to abnormal temperature recording in cold chain in the North West health region.

Methodology: It was cross sectional study targeting vaccine's cold chain of health facilities. The sampling was done at multiple levels and data were collected with the help of a standardized grid by observation and verification of vaccine registers and related documents. Data were analyzed with Epi Info 3.5.4. Associated factors were tested by calculating the Odds Ratio (OR), confidence interval and P-value with simple logistic regression and potential confounders controlled on a multiple logistic regression.

Results: A total of 65 vaccinating health facilities were visited for the study from 8 health districts. Concerning type of health facility, 48 (73.8% [61.5-84.0]) of the health facilities were governmental institutions. About 50 (98.0%) of the facilities that had a working fridge also had a working thermometer in it. Abnormal temperature was registered in 10 (20%) health facilities during data collection of which 6 (60%) of them were overheated. Factors significantly associated with abnormal temperature recording were: Absence of a cold chain contingency plan (OR=infinite, P=0.02), no supervision within last 2 months (OR=7.20, p=0.05) and absence of an alternative power source (OR=5.91, p=0.04).

Conclusion: The absence of an alternative source of power, no contingency plan, no supervision within last 2 months were significantly associated with abnormal temperature exposure during data collection. To improve on the quality of vaccine administered in Cameroon, we each vaccinating health facility must have at least two sources of power supply and should be supervised continuous stressing of the use of contingency plan.

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