

Abstract

Evaluation of the Dengue Surveillance System in Khyber Pakhtunkhwa Province, Pakistan, in 2020

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Abstract

Background: Installation and actualization of a disease surveillance system are prerequisites for early detection of outbreaks. Prompt response is possible when a robust surveillance system is in place. Dengue is one of the many diseases endemic to Pakistan and is potentially fatal.

Objective: This study aimed to assess the current dengue surveillance system and its performance and to provide recommendations to stakeholders for its actualization and improvement.

Methods: A cross-sectional study was conducted in 2020 to document the outcomes. The evaluation was guided by the updated Centers for Disease Control and Prevention guidelines for public health surveillance for the year 2019. A structured questionnaire was designed and piloted to estimate the simplicity, flexibility, acceptability, and stability of the current dengue surveillance system. The sample included 45 provincial- and district-level staff involved in dengue surveillance. Provincial data on dengue were analyzed to evaluate completeness, quality, positive predictive value, sensitivity, and representativeness. Field visits to districts were performed to assess data flow and timeliness.

Results: The reporting rate ranged from 12/100,000 in 2017 to 21/100,000 in 2019, with a total of 7641 reported cases in the province. The mean time of reporting cases was 1 day (range 0-2 days). The simplicity of the dengue surveillance system was at 90% with respect to structure and data flow. The stability of the system was at 84% because of data backup. System flexibility was at 81% and allowed the addition and modification of variables. The average completeness of the selected variables was 65%. About 59% of the staff interviewed considered the system acceptable. Data quality was suboptimal at 48%. The representativeness of the system was at 40%, and it was mainly representative of secondary and tertiary health care hospitals, particularly inpatients. The system positive predictive value for dengue was 15% and sensitivity was 14%, which were below par. The dengue surveillance system can detect dengue outbreaks early.

Conclusions: An immediate, collaborative, multisectoral, and transdisciplinary plan is needed to enhance reporting from all health facilities. Adequate government funding is needed to improve data quality, and a monitoring mechanism is needed at all levels for prompt functioning of the surveillance system.

(*iproc* 2022;8(1):e36584) doi: [10.2196/36584](https://doi.org/10.2196/36584)

KEYWORDS

evaluation; dengue; surveillance; Khyber Pakhtunkhwa

Edited by Y Khader; this is a non-peer-reviewed article. Submitted 18.01.22; accepted 24.01.22; published 08.02.22.

Please cite as:

Khan OS

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iproc 2022;8(1):e36584

URL: <https://www.iproc.org/2022/1/e36584>

doi: [10.2196/36584](https://doi.org/10.2196/36584)

PMID:

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