

## Enhancement of disease reporting after implementation of the electronic integrated disease surveillance system in Azerbaijan

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**Introduction:** Electronic Integrated Disease Surveillance System (EIDSS) was adopted in Azerbaijan in 2010 by the Ministry of Health. EIDSS provides essential patient-specific accumulation of information from the data sources throughout the country, real-time reporting of diseases, integrating with other electronic systems (health medical records, TB-manager, TIBCO, CISID, etc.) and it allows information exchange between different agencies. The main goal of the current assessment was to identify the public health benefits after implementation of the electronic reporting.

**Methods:** Assessment criteria included timeliness of the diseases notifications and cases investigation, data quality, and completeness of laboratory data. Data was obtained from the EIDSS database. Paper forms on the cases notifications were reviewed for 2010 by RAPS. Indicators of timeliness and records' completeness were calculated via Analysis, Visualization and Reporting module (AVR) of the EIDSS.

**Results:** The EIDSS includes 7 key modules: Human Cases module, Vector Surveillance module, Laboratory module, Outbreak module, etc. Interaction of these modules allows summarizing the data in whole across the different sectors. Visibility of veterinary and human data was not established to conduct collaborative investigation for zoonotic diseases. Data on 50 notifiable diseases including suspect and probable cases is entered into the EIDSS by all District Centers of Hygiene and Epidemiology and medical facilities, except Nakhichevan (4.6% of population). Web-version of the EIDSS as open source allows inputting the data from any computer with internet connection. Timeliness of a notification of especially dangerous infections by paper forms was 37% in 2010 and 98% by electronic reporting in 2018. After simplification of the Laboratory module in 2013 the completeness of laboratory data was improved (from 32% to 97%). Data quality was improved after training of users (reduction of number of missing values after next training was 14% in average). All tests results were entered in a timely manner.

**Conclusion:** EIDSS provides the simultaneous input, investigation and monitoring of the data about the infection diseases. Establishment of the connection between veterinary and human services for integrated surveillance and collaborative investigation of zoonotic infections is recommended. Validation of the data quality of the database is possible through AVR module and developed Data Quality Indicators. Completeness of the laboratory data allows timely diagnostics. Timely notification and investigation make possible rapid identification of the outbreaks. It is recommended systematic assessment of the data quality and surveillance indicators. The implementation of the EIDSS in Azerbaijan significantly improves the diseases reporting and surveillance system in the country.