



Mixed-Methodology in Disease Surveillance, Response, and Control

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Dear Editor,

An article previously published by one of the authors of the present letter in September 2017 issue (vol. 2, no. 3) of the *International Journal of Basic Science in Medicine* shares the importance of mixed-method approaches to improve disease tracking and control.¹ The present write up is an attempt to provide a further description of this mixed-method model that can be beneficial in disease surveillance and epidemiological processes. Our aim is to provide or propose a structure to carry out a multi-phasic, mixed type methodology (qualitative plus quantitative) to assess surveillance capabilities within a jurisdiction that can be pilot tested and used for different reportable conditions specially infectious diseases. We performed a literature review using keywords and Medical Subject Headings (MeSH) terms in the English language. The search was executed on PubMed and Web of Science. The terms such as “surveillance assessment “AND/OR “infectious disease”, “Qualitative approaches” AND “disease surveillance” and phrases such as “surveillance assessment methods”, “qualitative and quantitative methods in surveillance” were used. Boolean operators (AND/OR) were used where applicable. We specifically focused on qualitative studies in the disease surveillance area.

Quantitative Methods

In our previous publication, a 3-phase process was explained where quantitative methods could be used in all three phases which include quantification of all activities.¹ For this part, we propose to include (inclusion criteria) health care agencies (hospitals, clinics, and urgent care clinics), nursing homes, daycares, and schools.

Phase I: To collect baseline information to examine timeliness, frequency, completeness of existing

surveillance process and capacity, e.g., *count of disease reporting sites, no. of sites that could have reported diseases, and total no. of possible reporting sites;*

Phase II: Outreach and education of newly identified and existing stakeholders during which following types of data can be collected, e.g., *no. of sites reached out for outreach activities, no. of training/workshops & correspondences completed, no. of agreements established, recording of pre and post-test surveys during training/workshops;* and

Phase III: Retesting parameters examined in the phase I to assess, e.g., *changes in the no. of reporting sites, timeliness of reporting, completeness of data, etc. and finally dissemination of findings.*

Qualitative Methods (During phase I)

Based on our literature review during our phase I (only), we propose semi-structured in-depth (key informant) interviews with inclusion criteria consisting of health professionals such as environmental health workers, public health professionals (in epidemiology and/or preparedness area), leadership (public health, health facilities), infection control/quality management staff, medical records department staff with sufficient (e.g. at least 1 years of) experience in communicable diseases, surveillance systems, etc.^{2,3} The interview questions could be structured to collect demographic profiles of the respondents, and mainly their knowledge and awareness regarding surveillance systems, e.g., *processes and related attitude, motivations and barrier, data collection & reporting practices*, determine its acceptability, comprehensibility, and time required to implement (among workforce and informants).

We drafted some knowledge-attitude-practice question examples below based on the reviewed literature (Box 1).²⁻⁴

Box 1. Some Examples of Key Informant Survey Questions

- What do you see as the main functions of disease surveillance?
- What do you understand to be the main purpose of disease surveillance?
- How accurate do you feel the current burden of infectious diseases in your area is captured by the disease surveillance? Why? How could it be improved?
- Overall, how well do you think your jurisdiction/organization is performing regarding disease surveillance and reporting or detecting outbreaks?
- Which factors influence disease surveillance in your facility/jurisdiction?
- What are the problems and obstacles you face in optimal disease surveillance?
- How useful do you feel the disease surveillance systems/processes are in identifying outbreaks?
- Do you have easy access to the list of the reportable diseases case definitions?
- In your view, are the case definitions of diseases or reportable conditions are clear (unambiguous)?
- Do you (or the staff) have any problem applying the case definitions? If yes, what are they? In your view, how consistently are the case definitions followed or applied by staff at your facility?
- In your view, how accurate are the counts of cases reported by your facility? How data accuracy is checked and performed? How is surveillance data transmitted/reported to the public health agency? How reliable is this method?
- What does inhibit the timely data collection and reporting?
- Do you see value in electronic data transfer of disease surveillance data? If yes, what value do you see? What barriers do you see?
- Would it be feasible to report data more frequently? If not, why?

Conclusions

We think that using the above-mentioned approach can improve situational awareness and preparedness capacity among health professionals, resulting in better surveillance activity, early detection of outbreaks and early implementation of interventions and control measures.

Ethical Approval

Not applicable.

Competing Interests

Authors declare no competing interests.

References

1. Akram H. West Nile Virus: Epidemiological and Surveillance Approaches. *Int J Basic Sci Med.* 2017;2(3):111-112. doi:10.15171/ijbsm.2017.21
2. Fadaei Dehcheshmeh N, Arab M, Rahimi Fouroshani A, Farzianpour F. Survey of communicable diseases surveillance system in hospitals of Iran: A Qualitative approach. *Glob J Health Sci.* 2016;8(9):53909. doi:10.5539/gjhs.v8n9p44
3. Brookes VJ, Kennedy E, Dhagapan P, Ward MP. Qualitative research to design sustainable community-based surveillance for rabies in northern Australia and Papua New Guinea. *Front Vet Sci.* 2017;4:19. doi:10.3389/fvets.2017.00019
4. Craig AT, Joshua CA, Sio AR, et al. Towards effective outbreak detection: a qualitative study to identify factors affecting nurses' early warning surveillance practice in Solomon Islands. *BMC Health Serv Res.* 2018;18(1):702. doi:10.1186/s12913-018-3508-9

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