



Developing Guidelines for Surveillance Reporting (G-SIRE): protocol for guideline development

Wonyoung Jung¹, Sukhyun Ryu², So Yeon Ryu³, Mina Ha⁴, Bo Youl Choi⁵, Soo Young Kim¹

¹Department of Family Medicine/Obesity and Metabolic Health Center, Kangdong Sacred Heart Hospital, Hallym University, Seoul, Korea

²Department of Preventive Medicine, Konyang University College of Medicine, Daejeon, Korea

³Department of Preventive Medicine, Chosun University Medical School, Gwangju, Korea

⁴Department of Preventive Medicine, College of Medicine, Dankook University, Cheonan, Korea

⁵Department of Preventive Medicine, Hanyang University College of Medicine, Seoul, Korea



Received May 24, 2024

Revised Jun 10, 2024

Accepted Jul 18, 2024

Corresponding author

Soo Young Kim
Department of Family Medicine/Obesity and Metabolic Health Center, Kangdong Sacred Heart Hospital, Hallym University, 150, Seongan-ro, Gangdong-gu, Seoul 05355, Korea
E-mail: hallymfm@gmail.com

Keywords

Surveillance report; Reporting guideline; Study protocol



Objectives: Surveillance reporting, which is integral to public health and safety, involves the systematic collection, analysis, and dissemination of data crucial for various health and security scenarios. Despite its importance, standardized Guidelines for Surveillance Reporting (G-SIRE) are lacking, leading to inconsistencies and affecting data reliability and comparability. To address this gap, this study aimed to develop the G-SIRE, tailored to improve the clarity, transparency, and consistency of surveillance reports, thereby increasing the accuracy and usability of surveillance data for better public health outcomes.

Methods: The methodology adhered to the EQUATOR Network standards, employing a multidimensional approach with a diverse expert team. The process included forming a research committee of multidisciplinary experts, conducting a thorough literature review of recent surveillance report publications, reviewing existing reporting guidelines, and developing a new set of guidelines. Continuous updates and revisions are planned to keep the guidelines relevant and effective.

Results: Significant progress has been made as of November 2023 in developing comprehensive reporting guidelines for surveillance reports. A detailed checklist and Explanation & Elaboration documents have been formulated, which are anticipated to be finalized and published by December 2023.

Conclusion: The G-SIRE guidelines signify a major advancement in standardizing surveillance. They provide a structured approach that increases scientific accuracy, transparency, and practical applicability in this domain. The guidelines are expected to improve the quality of surveillance reporting significantly, contributing to the advancement of public health research and discourse.

Introduction

Surveillance reports play a critical role in the realm of public health and safety. At its core, a surveillance report refers to a document for the ongoing systematic collection, analysis, and dissemination of data related to events or activities that are of importance for public health or security [1]. The significance of this process lies in its ability to provide timely information, which

is crucial for decision-making and effective responses in various scenarios [2]. Whether they involve monitoring the spread of infectious diseases [3], assessing the effectiveness of health interventions [4], or ensuring national security [5], surveillance reports serve as a cornerstone for informed strategies and actions. Their importance is further underscored by their applications across diverse fields, including epidemiology, environmental studies, and national defense, highlighting the versatility and indispensability of these documents in safeguarding public welfare [6].

Despite the significant role of surveillance reports, standardized reporting guidelines are lacking. This absence of a structured framework leads to inconsistencies in reporting practices, thereby affecting the reliability and comparability of surveillance data. Reporting guidelines are checklists, flow diagrams, or organized texts that act as detailed guides for authors when reporting specific kinds of research [7]. These tools are valuable for various groups, including peer reviewers, authors, and scientific journals, helping to ensure accurate and thorough reporting of research. Recognizing this gap, our study aimed to develop the Guidelines for Surveillance Reporting (G-SIRE), a comprehensive set of reporting guidelines specifically tailored for surveillance reports. The objective of this study was to establish a standardized protocol that improves the clarity, transparency, and consistency of surveillance reports. By doing so, the G-SIRE guidelines aim to contribute to the accuracy and usability of surveillance data, ultimately supporting better public health and safety outcomes. This study involved a systematic approach, including literature review, expert consultations, and iterative feedback, to ensure that the guidelines are robust, practical, and applicable across various surveillance contexts.

Methods

This project's methodology aligns with the Enhancing the Quality and Transparency of Health Research (EQUATOR) Network standards [8]. The method involved a multidimensional approach, engaging a diverse team of experts to create solid reporting guidelines.

Formation and role of the research committee

The research committee is a multidisciplinary group that has played a key role in shaping the reporting guidelines. It consists of preventive medicine experts who focus on disease prevention strategies, epidemiologists who study disease patterns and outbreak dynamics, methodologists who ensure scientific accuracy in research design and data analysis, family medicine professionals who provide insights into practical community health management, public health experts aligning the guidelines with wider health policies, and journal editors ensure that the guidelines are clear and applicable. Their combined knowledge, brought together in workshops and team sessions, has formed a basis for developing comprehensive, scientifically sound, and practical reporting guidelines.

Literature review

Our team conducted a thorough review of manuscripts on surveillance reports, published in the last 3 years in well-known international journals. We specifically chose *Public Health Weekly Report* (PHWR) in Korea, *Morbidity and Mortality Weekly Report* (MMWR) in the USA, and *EuroSurveillance* in Europe for their significant contributions to the field and their commitment to publishing top-quality reports on surveillance. These manuscripts were carefully examined to identify unique features, research methods, and key components crucial to surveillance

reporting. Following this extensive review, a joint meeting with all team members was held. The aim was to merge our findings, discuss the differences and similarities in reporting styles among the chosen journals, and identify any gaps in the literature. The insights from these discussions were vital in developing the new reporting guidelines, ensuring that they meet current needs and advance the standards of surveillance reporting in health research.

Reviewing existing reporting guidelines

This stage involved scrutinizing and categorizing existing reporting guidelines, including a detailed study of the Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement [9] and the Reporting of Studies Conducted Using Observational Routinely-Collected Health Data (RECORD) statement [10]. The main goal was to assess these guidelines for their suitability and effectiveness in surveillance reporting. This included examining each guideline's structure, key components, and overall approach to epidemiological surveillance reporting. In particular, we focused on how these guidelines address the specific challenges of surveillance reports, such as detailing epidemiological methods, presenting research findings, and discussing public health implications.

Developing new reporting guidelines

Developing the G-SIRE guidelines was a systematic process led by our expert committee. The initial draft was based on insights from a detailed literature review and an analysis of existing reporting guidelines, ensuring that G-SIRE aligns with current practices and reflects recent knowledge in the field. The G-SIRE framework is structured into several distinct sections (e.g., title, abstract, summary, introduction, methods, results, discussion, and other information), each requiring specific details for comprehensive reporting. In total, 25 items need to be addressed across these sections.

We included Explanation & Elaboration (E&E) documents for each guideline item, giving clear reasons and context, which increases the guidelines' usability. The committee played a crucial role in this phase, carefully creating each guideline item. These items are evidence-based, drawn from the combined expertise of the committee, reviewed literature, and current guidelines. This joint effort ensures that all important aspects of surveillance reporting are covered, focusing on scientific accuracy and practical use.

We then repeatedly revised the initial draft of the guidelines and the E&E documents, applying them to selected literature to check their effectiveness and refining them based on feedback. Both internal team members and external experts, including those experienced in surveillance reporting, reviewed the drafts. This review process used a scoring system for a detailed evaluation of each part of the guidelines and the E&E documents.

Finally, we produced the final version of the guidelines and a comprehensive manual. The checklist provides a brief guide for researchers, while the manual gives detailed explanations and examples for various surveillance scenarios. This systematic and evidence-based approach ensures the final guidelines are inclusive, up-to-date, and practical for use.

Ongoing updates and revisions

Recognizing the constantly evolving nature of public health and epidemiological surveillance [11], we commit to regularly updating the G-SIRE guidelines. Ongoing revisions are crucial to keep the guidelines relevant and effective amid changing challenges, scientific advancements, and new best practices in the field. To ensure that these updates are timely and effective, the

G-SIRE guidelines will be continually reviewed, aligning them with the latest developments in public health and epidemiology. A key part of this process is gathering and integrating feedback from a wide range of users including researchers, public health experts, epidemiologists, and policymakers. Their input will be invaluable in identifying areas for improvement, making sure the guidelines continue to be responsive to user needs.

Results

As of November 2023, the research team has achieved significant progress in creating detailed reporting guidelines for surveillance reports. Meanwhile, the team has been diligently developing a comprehensive checklist and E&E documents. These instruments are designed to assist authors in reporting surveillance reports with clarity and uniformity. The team anticipates the completion and publication of the finalized versions of both the checklist and the E&E document by December 2024.

Discussion

The development of the G-SIRE guidelines marks a notable progression in the standardization of surveillance system data reporting in the scientific literature. These guidelines aid researchers in effectively articulating both the advantages and limitations of their research findings. Crucially, they also facilitate the interpretation and practical application of these findings. This clarity is essential in the progression of surveillance research, ensuring that the results are not only scientifically sound but also pragmatically relevant in various settings.

In addition, the G-SIRE framework serves as an essential resource for editorial teams and peer reviewers. It offers a systematic method for evaluating the quality and pertinence of research manuscripts, promoting high levels of scientific integrity and clarity in surveillance-related publications. This aspect is increasingly significant in a context where the precision and dependability of health-related data are of utmost importance.

The inclusion of detailed explanations and illustrative examples for each item in the checklist, as referenced in the appendix, increases the utility of the guidelines. This approach facilitates a deeper understanding of the guidelines and offers practical guidance for their application. By providing specific examples, the guidelines become more approachable and user-centric, minimizing the likelihood of misinterpretation or errors during the manuscript preparation process.

Looking forward, the broad implementation of the G-SIRE is likely to significantly improve the caliber of research in the surveillance system domain. The guidelines promote transparency and uniformity in reporting, as well as a deep comprehension of the intricacies involved in handling surveillance data. As the research community becomes more acquainted with these guidelines, an increase in the quality of surveillance research publications is expected, contributing meaningfully to the evolution of the field and improving public health discourse.

Conclusions

In summary, G-SIRE represents a pivotal advancement in the standardization of surveillance system data reporting, offering a framework that enhances the scientific accuracy, transparency, and practical applicability of research findings in this domain. By providing a structured approach for manuscript preparation and evaluation, these guidelines not only facilitate improved clarity

and consistency in research reporting, but also aid in advancing the quality of publications in the field of surveillance. The comprehensive nature of G-SIRE, including its detailed checklist and illustrative examples, makes it a valuable resource for researchers, editors, and peer reviewers alike. This is instrumental in elevating the standards of surveillance research and, consequently, enriching the broader discourse in public health and epidemiology.

ORCID

Wonyoung Jung: <https://orcid.org/0000-0003-4749-4637>

Sukhyun Ryu: <https://orcid.org/0000-0002-8915-8167>

So Yeon Ryu: <https://orcid.org/0000-0001-5006-1192>

Mina Ha: <https://orcid.org/0000-0003-1011-9446>

Bo Youl Choi: <https://orcid.org/0000-0003-0115-5736>

Soo Young Kim: <https://orcid.org/0000-0002-3205-9408>

Authors' contributions

Project administration: Kim SY

Conceptualization: Jung W, Ryu S, Ryu SY, Ha M, Choi BY, Kim SY

Methodology & data curation: Ryu S, Ha M, Kim SY

Funding acquisition: Choi BY, Kim SY

Writing - original draft: Jung W, Kim SY

Writing - review & editing: Jung W, Ryu S, Ryu SY, Ha M, Choi BY, Kim SY

Conflict of interest

No potential conflict of interest relevant to this article was reported.

Funding

This research was funded through the support of the Policy Research and Development Service Project (202305210001) from the Korea Disease Control and Prevention Agency.

Data availability

Not applicable.

Acknowledgments

We extend our gratitude to Ms. JiHye Kwon for her invaluable administrative assistance.

Supplementary materials

Not applicable.

References

1. Nsubuga P, White ME, Thacker SB, Anderson MA, Blount SB, Broome CV, et al. Public health surveillance: a tool for targeting and monitoring interventions. In: Jamison DT, Breman JG, Measham AR, Alleyne G, Claeson M, Evans DB, et al., editors. Disease control priorities in developing countries. Washington: The World Bank; 2006.
2. German RR, Lee LM, Horan JM, Milstein RL, Pertowski CA, Waller MN. Updated guidelines for evaluating public health surveillance systems: recommendations from the Guidelines

- Working Group. *MMWR Recomm Rep* 2001;50(RR-13):1-35.
3. Institute of Medicine (US) Forum on Microbial Threats. Global infectious disease surveillance and detection: assessing the challenges—finding solutions, workshop summary. Washington: National Academies Press; 2007.
 4. Aagaard-Hansen J, Sørensen BH, Chagnat CL. A comprehensive approach to risk assessment and surveillance guiding public health interventions. *Trop Med Int Health* 2009;14(9):1034-1039.
<https://doi.org/10.1111/j.1365-3156.2009.02330.x>
 5. Smith PF, Hadler JL, Stanbury M, Rolfs RT, Hopkins RS. "Blueprint version 2.0": updating public health surveillance for the 21st century. *J Public Health Manag Pract* 2013;19(3):231-239.
<https://doi.org/10.1097/PHH.0b013e318262906e>
 6. Williams R, Wright J. Epidemiological issues in health needs assessment. *BMJ* 1998;316(7141):1379-1382.
<https://doi.org/10.1136/bmj.316.7141.1379>
 7. Kim SY. Reporting guidelines. *Korean J Fam Med* 2009;30(1):62.
<https://doi.org/10.4082/kjfm.2009.30.1.62>
 8. The EQUATOR Network. How to develop a reporting guideline [Internet]. Oxford (UK): The EQUATOR Network; c2018 [cited 2024 May 24]. Available from: <https://www.equator-network.org/toolkits/developing-a-reporting-guideline/>
 9. von Elm E, Altman DG, Egger M, Pocock SJ, Gøtzsche PC, Vandenbroucke JP. Strengthening the reporting of observational studies in epidemiology (STROBE) statement: guidelines for reporting observational studies. *BMJ* 2007;335(7624):806-808.
<https://doi.org/10.1136/bmj.39335.541782.AD>
 10. Benchimol EI, Smeeth L, Guttman A, Harron K, Moher D, Petersen I, et al. The REporting of studies Conducted using Observational Routinely-collected health Data (RECORD) statement. *PLoS Med* 2015;12(10):e1001885.
<https://doi.org/10.1371/journal.pmed.1001885>
 11. Aiello AE, Renson A, Zivich PN. Social media- and internet-based disease surveillance for public health. *Annu Rev Public Health* 2020;41:101-118.
<https://doi.org/10.1146/annurev-publhealth-040119-094402>