swiss medical weekly

SPECIAL ARTICLE

The importance of reporting notifiable infectious diseases – the Swiss reporting system

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Summary

The structured processes of clinical medicine and epidemiology are closely aligned, with disease reporting serving as the critical interface between individual patient care and population-level public health action. In Switzerland, mandatory reporting of communicable diseases forms the backbone of national infectious disease surveillance and relies on coordinated contributions from clinicians and laboratories. The Swiss reporting system is regulated by an ordinance that defines notifiable diseases, reporting criteria and strict timelines. It encompasses severe diseases, outbreak-prone infections, and endemic or vaccine-preventable conditions, and is continuously updated to reflect evolving epidemiological threats. Accurate case classification depends on the integration of both clinical and laboratory data; incomplete reporting compromises data quality and can lead to misclassification and biased epidemiological conclusions.

In recent years, reporting compliance – particularly for clinical notifications – has declined significantly. This deterioration in data completeness limits the ability to detect outbreaks, assess trends and implement timely and targeted public health interventions. Contributing factors include administrative burden, limited awareness of reporting obligations and insufficient understanding of the public health value of reporting.

High-quality reporting is essential for multiple public health functions: enabling rapid containment measures such as contact tracing and isolation, supporting outbreak detection through statistical surveillance and genomic analysis, informing national health policies and vaccination strategies, and facilitating research. Surveillance data are routinely analysed and disseminated via national dashboards and international collaborations.

In conclusion, although reporting imposes additional demands on clinicians, it remains a fundamental component of effective public health practice. Strengthening reporting compliance and data quality is critical to ensuring timely interventions, reducing disease burden and maintaining resilient health systems. Improved digital solutions may alleviate reporting burdens; however, sustained clinician engagement and recognition of their role in public health are indispensable.

Published
25 September 2026

doi
https://doi.org/10.57187/5508

Cite this as
Swiss Med Wkly. 2026;156:5508

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Introduction

In medicine, assessing, diagnosing and treating a patient follows a structured process: gather patient history, perform diagnostics, form a diagnosis, prescribe the appropriate treatment and monitor outcomes. Epidemiology follows the same logic – just at a population level. Reporting is the crux of the collaboration between a clinician and an epidemiologist. It is the link between the conclusion of the clinician's process and the beginning of the epidemiologist's. At its core, epidemiology is medicine on a larger scale. Recognising these parallels can help strengthen collaboration between clinicians and epidemiologists – because whether treating one or many, the goal remains the same: better health for all [1].

Since the COVID-19 pandemic, a decline in compliance with reporting of infectious diseases in humans has been observed. Missing reports from the clinical or laboratory side hampers case assessment and classification. This in turn leads to biased conclusions at the population level and, at its extreme, to poorly targeted public health measures. Without consistent and complete reporting, emerging trends and threats can go unnoticed until they spiral out of control, delaying interventions that could prevent further illness and save lives.

The present article provides an overview of the mandatory reporting system in Switzerland, highlighting the importance and applications of the reporting mandate, through various real-world examples.

Swiss reporting system

The obligation to report is a central element of systems of national surveillance of infectious diseases worldwide. In Switzerland, it is realised in close collaboration between the Federal Office of Public Health (FOPH), the Cantonal Medical Services, laboratories and physicians. The Ordinance on the reporting of observations of communicable diseases in humans [2] determines reporting criteria, deadlines and channels for communicable disease notification. Included in the Ordinance are particularly severe diseases (such as haemorrhagic fevers), diseases requiring immediate control measures (such as measles and meningococcus) as well as diseases with outbreak potential (such as salmonella and listeriosis) but also diseases with an ongoing endemic activity that are preventable such as vaccine-preventable or sexually transmitted diseases – see figure 1 for the full list. The Ordinance is reviewed regularly and changes made are based on the national public health situation, as well as current epidemiological and international developments. It is through such a review that in 2016 Zika virus infections became mandatory to report, and in 2020 vancomycin-resistant enterococci (VRE) outbreaks in hospitals as well as COVID-19 were added. Most recently, "extraordinary epidemiological observations in hospitals" was added to the reporting mandate. The trigger was the multiresistant fungus *Candida auris*, which has a high epidemic potential.

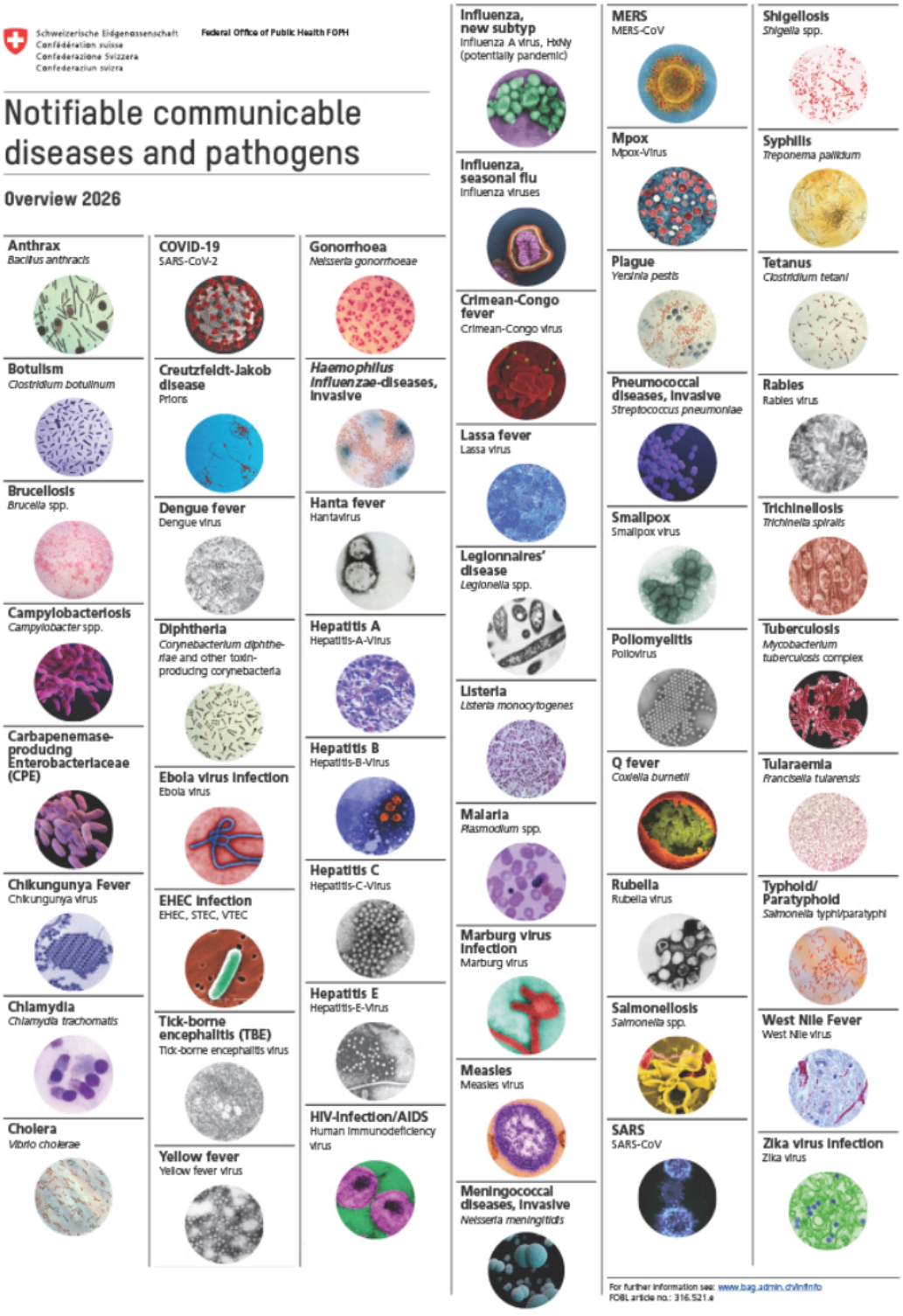

Figure 1: 2026 overview poster of notifiable communicable diseases and pathogens.

The guiding principle "whoever diagnoses, reports" (with few exceptions) applies to physicians, hospitals, laboratories, public and private health institutions and requires them to report infectious disease cases. The Reporting Obligation Guidelines [3] define specific reporting criteria and deadlines as well as particularities of various pathogens (tables 1 and 2). These reporting criteria are based on best current practice and the Swiss Society for Infectious Diseases guidelines [4]. All

cases meeting the reporting criteria – most often a positive laboratory result – must be submitted within 2 hours, 24 hours or 1 week, depending on the pathogen. Just as timely treatment is essential for patient health outcomes, timely case reporting is crucial for effective public health response. For example, during outbreaks, early case notifications have allowed for rapid containment measures, such as isolating cases or issuing targeted public health warnings.

Clinicians report clinical findings using specified forms that contain information about the person concerned, laboratory diagnostics, exposure and vaccination status. Depending on the reporting deadline, these clinical reports can be submitted by post or via HIN Mail (a secure electronic communications system used in the Swiss medical field) – reports via telephone can be made only in cases where (suspicion of) pathogens with a 2-hour reporting mandate are involved. In the case of tuberculosis, measles and congenital rubella, additional information must be provided in a supplementary report. Laboratories report their laboratory findings using the appropriate forms, which include information on the person concerned, the referring physician, the date of sampling and testing, the test method and the result. All reports from labs are received digitally only since January 2024.

Table 1: Notifiable communicable diseases and pathogens [3].

Disease	Pathogen	Reporting deadline
AIDS	HIV	1 week
Anthrax	*Bacillus anthracis*	2 hours
Botulism	*Clostridium botulinum*	2 hours
Brucellosis	*Brucella spp.*	1 week
Campylobacteriosis	*Campylobacter spp.*	24 hours
Carbapenemase-producing enterobacteriaceae (CPE)	Carbapenemase-producing enterobacteriaceae (CPE)	1 week
Chikungunya fever	Chikungunya virus	24 hours
Chlamydiosis	*Chlamydia trachomatis*	1 week
Cholera	*Vibrio cholerae*	24 hours
COVID-19	*SARS-CoV-2*	1 week
Creutzfeldt-Jakob disease (CJD)	Prions	1 week
Dengue fever	Dengue virus	24 hours
Diphtheria	*Corynebacterium diphtheriae* and other toxin-producing Corynebacteria (*C. ulcerans, C. pseudotuberculosis*)	24 hours
Ebola	Ebola virus	2 hours
Enterohaemorrhagic *Escherichia coli* infection (EHEC, VTEC, STEC)	Enterohaemorrhagic *Escherichia coli* (EHEC, VTEC, STEC)	24 hours
Tick-borne encephalitis (TBE)	Tick-borne encephalitis virus	1 week
Yellow fever	Yellow fever virus	24 hours
Gonorrhoea	*Neisseria gonorrhoeae*	1 week
Haemophilus influenzae-Erkrankungen, invasive	*Haemophilus influenzae*	1 week
Hanta fever	Hantavirus	1 week
Hepatitis A	Hepatitis A virus	24 hours
Hepatitis B	Hepatitis B virus	1 week
Hepatitis C	Hepatitis C virus	1 week
Hepatitis E	Hepatitis E virus	24 hours
HIV infection	HIV	1 week
Influenza, new subtype	Influenza A virus of type HxNy (new subtype with pandemic potential)	2 hours
Influenza, seasonal flu	Influenzaviruses (seasonal, not pandemic types and subtypes)	1 week
Crimean-Congo haemorrhagic fever	Crimean-Congo virus	2 hours
Lassa fever	Lassa virus	2 hours
Legionellosis	*Legionella spp.*	24 hours
Listeriosis	*Listeria monocytogenes*	24 hours
Malaria	*Plasmodium spp.*	1 week
Marburg fever	Marburg virus	2 hours
Measles	Measles virus	24 hours
Meningococcal diseases, invasive	*Neisseria meningitidis*	24 hours
Middle East respiratory syndrome (MERS)	MERS coronavirus	2 hours for lab, 24 hours for physician
Mpox	*MPX virus*	24 hours
Plague	*Yersinia pestis*	2 hours
Pneumococcal diseases, invasive	*Streptococcus pneumoniae*	1 week
Smallpox	*Variola/Vaccinia*	2 hours
Poliomyelitis	Polio virus	24 hours
Q fever	*Coxiella burnetii*	1 week
Rubella	Rubella virus	24 hours
Salmonellosis	*Salmonella spp.*	24 hours
Severe Acute Respiratory Syndrome (SARS)	SARS coronavirus	2 hours
Shigellosis	*Shigella spp.*	24 hours
Syphilis	*Treponema pallidum*	1 week
Tetanus	*Clostridium tetani*	1 week
Rabies	Rabies virus	24 hours
Trichinellosis	*Trichinella spiralis*	1 week
Tuberculosis	*Mycobacterium tuberculosis* complex	24 hours for lab, 1 week for physician
Tularaemia	*Francisella tularensis*	1 week
Typhus abdominalis/Paratyphus	*Salmonella* typhi/paratyphi	24 hours
West Nile fever	West Nile virus	24 hours
Zika virus infection	Zika virus	24 hours

Table 2: Notifiable communicable diseases and pathogens [3].

Finding	Reporting deadline
Outbreak of vancomycin-resistant enterococci in hospitals	24 hours
Exceptional outbreak in hospitals	24 hours
Exceptional epidemiological finding in hospitals	24 hours
Exceptional clinical or laboratory finding	2 hours
Accumulation of clinical or laboratory findings	24 hours

Data processing and analysis

All reports are compiled in a national database. Cantonal authorities have access to their cantonal data and can exchange with the FOPH in real time. After a plausibility and completeness check, reports from laboratories and physicians are consolidated into a single case and classified according to standard case definitions as "Confirmed", "Probable", "Possible" or "Not a case". The case definitions are developed and maintained in line with other international case definitions and classification criteria such as the European Centre for Disease Prevention and Control (ECDC) Case Definitions [5]. These form part of the Reporting Obligation Guidelines [2], which are updated annually by the authors of the present article in collaboration with colleagues from the department of infectious diseases at the FOPH. Final case evaluation typically requires both laboratory and clinical findings (see tables 3 and 4). If either of these is missing, correct classification is at risk, potentially causing under- or overestimation of case numbers.

Table 3: Hepatitis A case definition [3].

Clinical criteria	Any person that fulfils one of the following criteria:
	Jaundice
	Increased serum transaminases
Laboratory criteria	Positive laboratory finding using one of the following methods:
	Antibody specifically for the hepatitis A virus (anti-HAV IgM-positive)
	Viral RNA using PCR in stool or serum
	Antigen in stool sample
Epidemiological criteria	Any person that fulfils at least one of the following criteria:
	Stay in a hepatitis A endemic area in the last 15 to 50 days prior to start of illness manifestation

Table 4: Hepatitis A case classification [3].

Confirmed case	Any person that fulfils the laboratory and either the clinical or the epidemiological criteria
	Any person that fulfils both the clinical and epidemiological criteria with a laboratory finding
Probable case	Any person that fulfils the clinical criteria without a laboratory finding
Possible case	Any person that fulfils the laboratory criteria without a clinical report
Not a case	Any person that does not fulfil the laboratory criteria
	Any person that fulfils the laboratory criteria but does not meet the clinical or epidemiological criteria

Following data evaluation, individual measures may be necessary, depending on the pathogen. These are described in more detail in the "Data usage" chapter.

Reporting data are regularly published by the FOPH on the infectious diseases dashboard (IDD) [6]. Here, interested parties can interactively access basic information on current incidences and trends in infectious diseases.

In addition, in-depth epidemiological data analyses are performed and delivered to supranational institutions such as the WHO or are published on the FOPH website or in peer-reviewed journals.

Low reporting compliance and data quality of clinical reports

Figure 2 visualises the proportion of missing clinical reports relative to the total number of reports received for individual pathogens. Relative changes in the proportion of missing reports between pathogens were calculated as $(\text{proportion}_{\text{Covid}} - \text{proportion}_{\text{Pre-Covid}})/\text{proportion}_{\text{Pre-Covid}}$ to compare differences in reporting completeness across pathogens. Figure 2 reveals that the proportion of missing clinical reports is high, and has increased again since the SARS-CoV-2 pandemic. In the period 2016–2019, 7–16% of clinical reports, depending on the pathogen, were missing; this figure increased to 8–30% in 2020–2023. Overall, the proportion of missing clinical reports has increased 2.3-fold since the COVID-19 pandemic. In addition, the reports received are often lacking critical information. Gaps in reporting do not only affect surveillance – they delay evidence-based policymaking that could directly benefit both clinicians and patients in the long run.

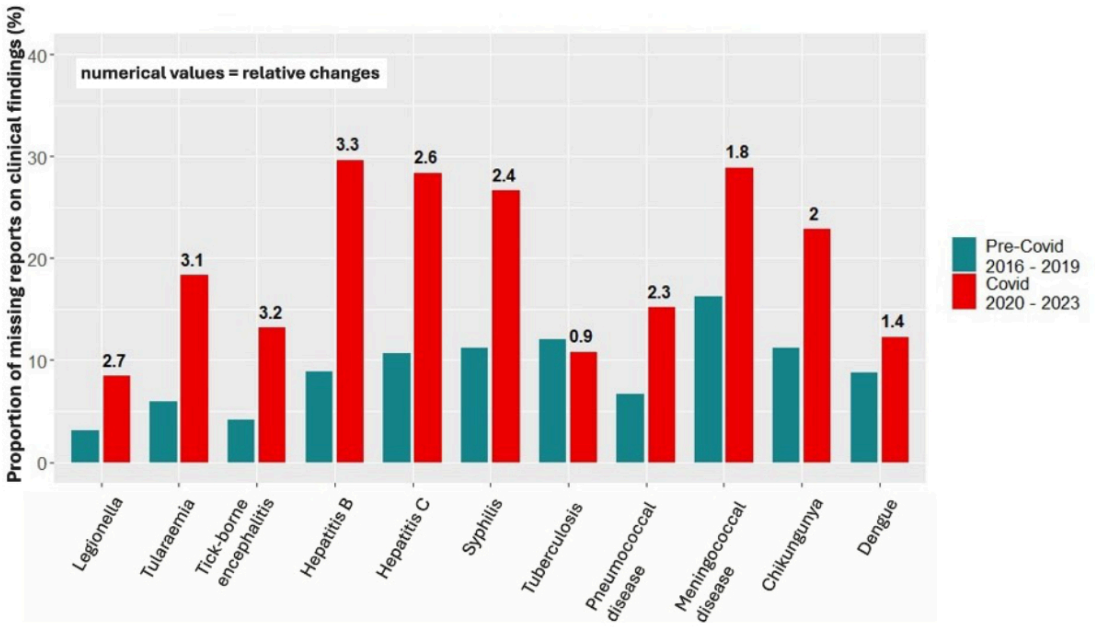

Figure 2: Proportion of missing clinical reports across selected pathogens.

Presumed reasons why clinicians fail to comply with their reporting obligations include not only the anticipated effort involved, but also a lack of knowledge about which diseases and situations require reporting and how to report them. Similarly, limited knowledge on the utility of these reports can reduce motivation to make the effort.

Why it is worthwhile reporting

Reporting helps protect others

Cases of highly infectious diseases such as measles, tuberculosis or diphtheria are often subject to contact tracing measures in order to avoid secondary cases. Isolation, closing of institutions and postexposure prophylaxis (PEP) can be ordered or recommended by the cantonal medical officer [7]. Delayed or incomplete reporting can lead to outbreaks [8], which in turn has disruptive effects at the social as well as healthcare sector [9].

Reporting detects and helps mitigate outbreaks

The FOPH runs a weekly statistical outbreak investigation to evaluate whether reported case numbers exceed the expected values (fig. 3). If the expected threshold is surpassed, the case numbers are examined in more detail – checking age, sex, domicile and, if relevant, type or species.

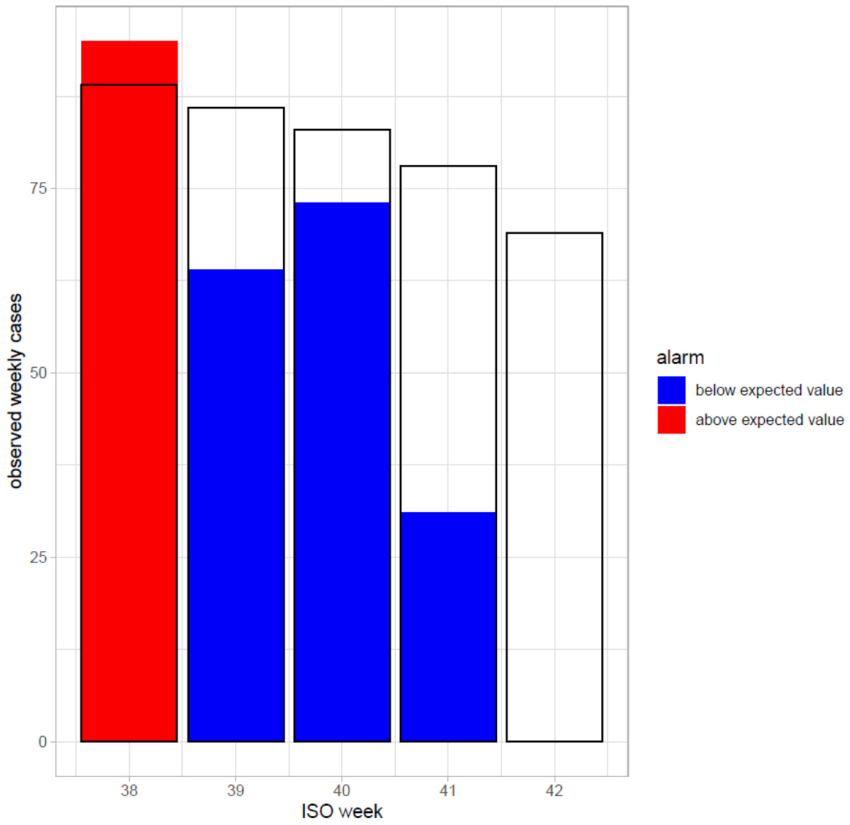

Figure 3: Results of weekly statistical outbreak investigations.

In case of a signal, further investigation is initiated to evaluate whether or not an outbreak can be confirmed. Whole-genome sequencing, for example, is conducted by the reference laboratories to detect clusters and in the best case establish a link to a potential common source in the case of foodborne diseases. When clusters are detected, the goal is to identify and eliminate the source as quickly as possible, thus avoiding further spread of cases. Clinical reports provide valuable information about potential sources of infection and enable measures to be taken quickly.

Example: Listeria outbreak in 2022

At the beginning of July 2022, an unusually high number of listeriosis cases were reported to the FOPH. Whole-genome sequencing confirmed that the cases formed a cluster (20 patients). On behalf of the FOPH, the patients were routinely interviewed by the Competence Center for Epidemiological Investigations (KEA) at the Swiss Tropical and Public Health Institute in Basel (Swiss TPH). This survey revealed that the source could be smoked trout from a specific farm. During the subsequent inspection, the competent food enforcement authority detected listeria in the smoked fish and in the production environment. Whole-genome sequencing enabled the food samples to be linked to the outbreak cluster, confirming them as the cause of the outbreak. The products were recalled and the Federal Food Safety and Veterinary Office issued a public warning. Production was temporarily suspended. The cause of the contamination was identified and remedied [10].

Reporting helps to evaluate national strategies and policies

Rapid collection, analysis and publication of surveillance data enables the evaluation of trends, and the identification of target groups, behaviour changes and healthcare gaps. Data and knowledge obtained through surveillance efforts are swiftly made available and serve as the foundation for strategic decision-making. It is upon this basis that measures and opportunities are developed and implemented.

Example: National programme "Stop HIV, hepatitis B and C viruses and sexually transmitted infections"

The goal of this programme is to eliminate transmissions of HIV and hepatitis B and C by 2030, while reducing cases of other sexually transmitted infections (STI). Over nearly 40 years, Switzerland has managed to prevent the spread of HIV, hepatitis B and C viruses, and STI epidemics within the general population. The average prevalence of HIV is low and stable, with about 0.2% of the population infected. Hepatitis B notifications have declined since 2017, and hepatitis C reports have decreased over the past 20 years. The slight increase in STI cases is mainly due to more testing [11].

Reporting helps to refine vaccination recommendations

The FOPH, in collaboration with the federal Commission for Vaccine Questions (EKIF) develops guidelines and recommendations for vaccinations. These recommendations aim to mitigate infections and diseases both in the general population and in risk groups. The annually revised Vaccination Plan [11] provides an overview of recommended immunisations, including a schedule and further relevant information. The central basis for the guidelines and recommendations is the information contained in the clinical reports.

Example: Vaccination recommendations for protection against invasive meningococcal disease

Data from the mandatory reporting system informs the frequency of invasive meningococcal disease, affected age groups, and serogroups. Between 2007 and 2018, Switzerland recommended a vaccination for meningococcal serogroup C (MenC) for infants at 12 months, adolescents aged 11–15 and risk groups, resulting in fewer MenC-related invasive meningococcal disease cases. Due to a changing epidemiological situation, including a decline in MenC cases and a relative increase in invasive meningococcal disease caused by serogroups W and Y, as documented through mandatory surveillance data, the vaccination recommendation shifted to MCV-ACWY for children aged 12–18 months, adolescents aged 11–15 and risk groups. In 2022, vaccination against meningococcal serogroup B was recommended for risk groups, followed by an extended recommendation for infants and young children in 2024 [12, 13].

Reporting contributes to research

Both data from the clinicians and laboratories are used by universities and other research groups to glean new scientific knowledge.

Example: Environmental research impacts of weather and air pollution on Legionnaires' disease in Switzerland: A national case-crossover study

The number of Legionnaires' disease cases in Switzerland has increased over the past decade, with environmental factors, particularly weather conditions, possibly influencing the incidence. A study aimed to examine these factors for the regional and seasonal distribution of legionellosis [14]. Data from 2017 to 2021 were analysed, including hotspot and regional cluster analysis. An ecological model determined environmental factors, and a case-crossover design tested associations between weather and legionellosis. A strong correlation was found between higher temperatures and vapour pressure before the occurrence of cases. Weather and air pollution influence case frequency, and their interactions warrant further investigation.

Conclusion

Timely and complete reporting requires an effort, especially for clinicians who are asked to report information that may not always be the most obvious in terms of diagnostics and treatment. Nevertheless, this information is crucial for public health. Delayed or incomplete reporting impedes the identification of risk groups, the monitoring of epidemiological trends and the investigation of outbreaks. As a result, it may contribute to an increased burden of disease and additional strain on the healthcare system. Technological advances may help to simplify and streamline reporting in the near future, as has already been achieved in the laboratory sector. However, responsibility will continue to rest with clinicians to adopt a public health perspective that extends beyond their traditional role as caregivers.

This tension between individual patient care and broader public health obligations is not unique to disease reporting. As recently articulated by the FMH Swiss Medical Association Commission on Public Health, primary care providers are already stretched beyond capacity, and

primary prevention – while essential – should not place an undue additional burden on clinical practice [15]. At the same time, clinicians remain important contributors to public health, and their engagement, even in a targeted and evidence-based way, is indispensable. Disease reporting sits precisely at this intersection: it is a focused, meaningful contribution that does not compromise patient care, yet reliably serves the collective good.

Data sharing statement

The data used in this study were derived primarily from publicly available sources and published studies, as cited in the article. These data can be accessed through the original sources indicated in the references.

The non-public data used for this analysis are held by governmental public health authority and may contain sensitive information. For this reason, and in accordance with applicable data protection requirements and governmental obligations to protect privacy, these data will not be deposited in an open data repository. Data may be made available upon reasonable request. Requests should be directed to the corresponding author and will be assessed on a case-by-case basis.

Notes

Acknowledgements: The authors would like to thank Ekkehardt Altpeter for his valuable expertise, constructive input and support during the preparation of this manuscript.

Use of AI: The authors declare that no generative artificial intelligence (AI) tools or AI-assisted technologies were used in the drafting, writing or creation of this manuscript.

Financial disclosure

This publication received no external funding.

Potential competing interests

All authors have completed and submitted the International Committee of Medical Journal Editors form for disclosure of potential conflicts of interest. No potential conflict of interest related to the content of this manuscript was disclosed.

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