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The digital stethoscope: Why Switzerland's Electronic Health Record requires citizen testing

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Summary

Switzerland's Electronic Patient Record (EPR) system faces a critical adoption crisis: less than 2% of the population has opened an account despite years of investment. To understand this failure from the citizen's perspective, we launched the first “expedition” in which 120 volunteers (“salutonauts”) systematically tested Switzerland’s current digital health infrastructure by opening EPRs, requesting their health data and documenting their experiences. This represents the first real-world, citizen-led assessment of Switzerland's health data infrastructure.

Our findings reveal three fundamental insights. First, citizens appreciate the concept of personally controlled health records governed by a trustworthy national framework. Second, the current EPR implementation is both impractical and economically untenable under existing conditions: opening an EPR nationwide would cost CHF 400 million (calculated from required man-hours alone), while uploading historic documents would cost CHF 1 billion, and obtaining insurance claims data would cost over CHF 5 billion in lost productivity. Third, the recently announced draft of the new Electronic Health Dossier Law (E-GD) comes at a critical moment, since evidence-based redesign of the EPR system is essential.

95% of participants valued comprehensive medical checkups producing structured data, demonstrating citizens' appetite for high-quality digital health records when they provide tangible benefits.

Our expedition methodology, which is agile, citizen-centred and involves real-world testing, offers a replicable model for evaluating digital health initiatives before massive implementation costs are incurred. With the E-GD revision underway, Switzerland has a unique opportunity to develop an EPR system that serves patients and physicians above all. Successful implementation requires EPR opening at birth by default (with the ability to opt-out), the AI-powered automation of data collection and uploading, seamless healthcare professional interfaces, and using the EPR as the billing data gateway. The alternative – i.e. continuing the current approach – virtually guarantees failure based on economic factors alone.

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Introduction

When physicians examine patients, they use a stethoscope to listen to what the body reveals. We applied this diagnostic principle to Switzerland's digital health infrastructure: We systematically listened to what citizens experience when attempting to use the Electronic Patient Record (EPR) system. What we heard should concern every stakeholder in Swiss healthcare.

Despite world-class healthcare outcomes, Switzerland's digital transformation lags behind that of other developed nations while consuming 11.3% of gross national product, compared to the OECD average of 8.8%. The EPR, launched with considerable investment and expectations, has achieved less than 2% population adoption – a clear signal of system failure. Yet until now, no systematic, citizen-led assessment has documented *why* the EPR has failed to meet user needs.

The recently published draft of the new Electronic Health Dossier Law (E-GD) creates an urgent need for evidence-based insights from actual users rather than theoretical projections from system designers. Our expedition provides this exact evidence at this precise moment.

A novel methodology: The expedition approach

We deliberately chose an “expedition” format rather than a conventional clinical trial. Expeditions explore unknown territories, identify obstacles and adjust methods based on their discoveries. From January 2024 to May 2025, we recruited 120 “salutonauts”, who were citizens willing to systematically navigate the current health data infrastructure. Each participant opened an EPR, requested health data from providers and insurers, uploaded documents, and documented their experiences in a secure expedition logbook. Additionally, each participant underwent a comprehensive medical checkup by specially trained physicians (“mediconauts”), generating 7,000 structured data points reflecting their current health status.

To the best of our knowledge, this methodology represents the first systematic, real-world test of national health data infrastructure from the citizens' perspective. The approach proved timely, agile and capable of identifying major obstacles before additional massive implementation costs are incurred. Our 74% response rate (89 of 120 participants) provided both quantitative and qualitative data about user experience across different EPR providers and private health data stores.

Key findings: What citizens experience

The good news: Citizens value the *concept*. Survey data indicate that 64% of participants would recommend opening an EPR to others despite frustrations, and 95% valued comprehensive medical checkups producing structured health data. The vision of personally controlled health records governed by trustworthy national legal frameworks resonates with the Swiss values of data sovereignty and privacy.

The bad news: The current *implementation* is economically untenable. Our economic calculations reveal staggering costs at the national scale: CHF 400 million if all Swiss residents opened EPRs under current conditions, over CHF 1 billion to upload historic documents (averaging 50 documents per person at 8 minutes each, including metadata entry), and over CHF 5 billion to obtain insurance claim data (averaging 13 hours per request). These numbers assume a conservative CHF 50/hour labour cost.

The ugly reality: Practical barriers consistently undermine adoption. The amount of time required for EPR onboarding, albeit reduced from 10 hours (March 2024) to 1 hour (May 2025), remains cumbersome, with three separate phases requiring electronic ID verification, application signing and access code retrieval. Manual document uploading with metadata entry creates friction that discourages use. Despite having clear legal obligations under Swiss data protection law, insurance companies are unprepared to deliver machine-readable personal health data within the mandated 30-day window. Moreover, healthcare professionals have no incentive – legal or financial – to populate EPRs, leaving patients to manually reconstruct medical histories on their own.

The path forward: Evidence-based redesign

The draft E-GD law revision creates a critical window for evidence-based redesign. Our expedition results highlight several essential elements:

Default EPR opening at birth: Rather than requiring individual citizens to invest hours opening accounts, every newborn should automatically receive an EPR (with opt-out provisions respecting autonomy). This would eliminate the CHF 400 million national onboarding cost.

AI-powered automation: Much of the CHF 6+ billion in costs associated with document uploading and data requesting could be eliminated through AI tools that automate these processes. Citizens and clinicians would find EPRs pre-populated with meaningful medical histories, dramatically lowering adoption barriers.

EPR as the billing data gateway: Currently, healthcare professionals must send bills to three places: insurers, patients and data repositories. Simplifying this process to a single transmission to the patient's EPR – from which bills flow to insurers according to the owner’s instructions – would reduce professional workload. It would also populate EPRs with a basic layer of structured, interoperable billing data reflecting a complete temporal health timeline, including contact information when needed.

Structured data incentives: Financial and regulatory incentives for healthcare professionals to enter structured data (rather than PDF scans) would unlock EPR potential for both primary care coordination and secondary research use. Our mediconauts demonstrated that comprehensive, structured clinical examinations are feasible and highly valued by patients.

Independent certification: Rather than requiring citizens to parse complex, ever-changing terms and conditions from multiple providers and healthcare professionals to navigate a maze of possible AI-solutions for their administrative and medical work, we should establish an independent data and AI certification unit – a federal data and AI agency associated with and relying on the expertise within the ETH (Eidgenössische Technische Hochschule Zürich) domain, analogous to the EMPA (Eidgenössische Materialprüfungs- und Forschungsanstalt) for materials testing.

Timely evidence for policy decisions

The E-GD revision process is not merely technical; it represents a fundamental choice regarding Switzerland's future digital health. Will we continue investing in systems that prioritise administrative convenience while failing to engage citizens and clinicians? Or will we build infrastructure that puts patients and healthcare professionals at the centre, letting their needs drive design decisions?

Our expedition demonstrates that the current approach cannot be sustained economically. Without major improvements, the EPR in its current form will fail for simple economic reasons: the friction costs overwhelm potential benefits. However, the expedition also demonstrates that citizens want digital health records when they provide tangible value through data sovereignty, care coordination, structured health insights and simplified interactions with the healthcare system. Taxpayers want access to their health data, and they want it now.

International experience confirms that successful health data infrastructure requires patient-centricity from inception, not as an afterthought. For example, Estonia's digital health system, which is widely considered successful, made default participation and seamless professional integration foundational design principles. Additionally, Denmark's Sundhed.dk has achieved a high level of public adoption by prioritising citizen access to prescriptions, test results and appointment scheduling, which are concrete benefits that drive engagement.

Conclusion: The expedition continues

Our expedition provides the first systematic, citizen-led assessment of Switzerland's digital health infrastructure at the precise moment when the E-GD revision offers opportunities for evidence-based redesign. The findings are clear: although citizens value the concept of personally controlled health records, the current implementation fails on both economic and practical grounds.

The expedition methodology, which is agile, citizen-centred and involves real-world testing, offers a replicable model for evaluating digital health initiatives before incurring massive implementation costs. We continue to recruit salutonauts to test emerging solutions, including AI-powered tools and new interfaces developed in response to our initial findings.

Switzerland currently stands at a crossroads. The E-GD revision can either perpetuate the current failing approach or embrace an evidence-based redesign that prioritises patient and physician needs. Our digital stethoscope has revealed the diagnosis. The question is whether policymakers will prescribe the appropriate treatment.

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Potential competing interests

All authors have completed and submitted the International Committee of Medical Journal Editors form for disclosure of potential conflicts of interest. All authors are board members of the Association Swiss Health Data Space.

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