

A FHIR-based Data Flow Enabling Patients with Diabetes to Share Self-collected Data with the Norwegian National Healthcare Systems and Electronic Health Records Systems



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Keywords

data flow, self-collected data, EHRs, FHIR, diabetes.

Background and aims

There is no system permitting to share data directly between patient-selected mobile health (mHealth) tools and electronic health records systems (EHRs) [1]. We describe a standard and open approach for this, allowing patients to share their self-collected data from mHealth tools, with Norwegian EHRs, using Norwegian National Services.

Method

The design of the data flow is based upon one-year of workshops with patients, clinicians, Norwegian EHR vendors and members of the Norwegian Directorate for E-health, who are responsible for Norwegian national healthcare infrastructure (NNHI).

Results

A step-based data flow was designed, which relies on FHIR standards enabling patients to send self-collected data to Norwegian EHRs through the NNHI. The flow relies on schemas, which contains metadata of the patients, raw health data from patients' tools, and summary reports generated from a context-sensitive-based data analysis system. Schemas are first filled by patients or their tools automatically, and then sent to the NNHI, which forward it to the relevant EHR system. This design also enables communication from EHRs to patients (see Figure 1).

Conclusion

Sharing patients' self-collected health data with EHRs requires solutions to interoperability issues, especially when various systems use different standards. However, use of such a National Service as 'middleware', could potentially enable data sharing between patients and EHRs, while allowing actors to choose the tools and services that suit them best. This system will be tested during the FullFlow study in early 2018 using diabetes as the use case, followed by report of results and experiences as the study progresses.

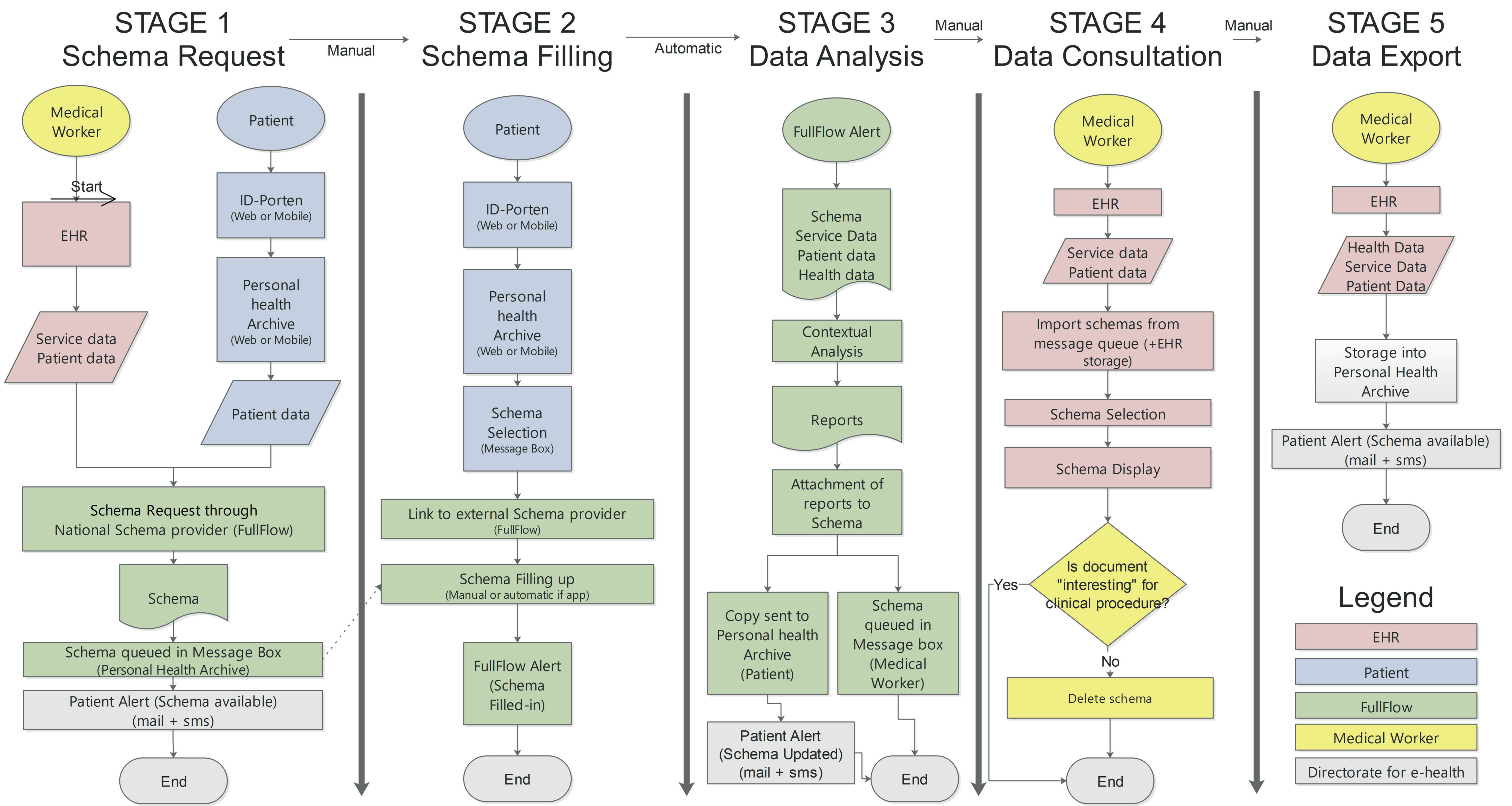


Figure 1. Illustration of the data flow system allowing patients self-collected data to be shared with EHRs.

Reference

1. Giordanengo, A., et al., Systems integrating self-collected health data by patients into EHRs and medical systems: a State-of-the-art review. SHI2017; 2017-08-29 - 2017-08-30. (Accepted for publication).