

Send client alert workflow

Notice

The official version of the OHIE workflows can be found in the [OpenHIE Architecture Specification](#).

Overview

Description: The send alert workflow allows the infrastructure services to register alerts with an alert service. The alert service allows alert consumer to query for these alerts and send them out to clients (patients) in whatever format is appropriate (sms, email, etc).

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Definitions

An alert is intended as a largely one way communication to a client of the system. Use cases for alerts include:

1. Crisis Response

In response to a crisis or emergency situation, such as the 2014 and 2015 outbreaks of Ebola in western Africa, it is critical to communicate to clients within a particular health care network and to verify, to the extent possible, the receipt of such alert.

2. Care Reminders

A subject of care may receive care from multiple providers across multiple health care networks, and coordination of care across providers and networks is difficult. If an Electronic Medical Record or Longitudinal/Shared Health Record is present, Care Reminder alerts can be triggered through the examination of clinical records about the subject of care. Care Reminder alerts are sent either to the subject of care.

Though the infrastructure of the alerting workflow indicated below would permit communication of many types of additional messages, alerts, or notifications, it is not intended that these messages exceed the above use cases. In particular these do not include "Critical Findings" or other types of alerts which require immediate action.

The IHE mACM standard on which this workflow expects that additional IHE profiles utilizing mACM would be developed to address broader alerting workflows.

Actors

- **Alert Reporter** - The point-of-service system that captures patient identifiers, is responsible for sending the identifiers to the HIE.

An Alert Reporter shall originate or relay alerts (an alarm, either physiological or technical, or an advisory) to the Alert Aggregator.

This actor can optionally query an Alert Aggregator Actor for statistics related to the dissemination of this alert to the intended recipient(s)

- **Alert Aggregator** - A system responsible for distributing an alert to a client. The alert aggregator manage these alerts according to the required jurisdiction defined business context, for example dispatching them onto a communications platform for delivery to an intended recipient. The Alert Aggregator may optionally collect statistics related to the dissemination of the alert such as delivery status or the value of a SMS response or acknowledgment.

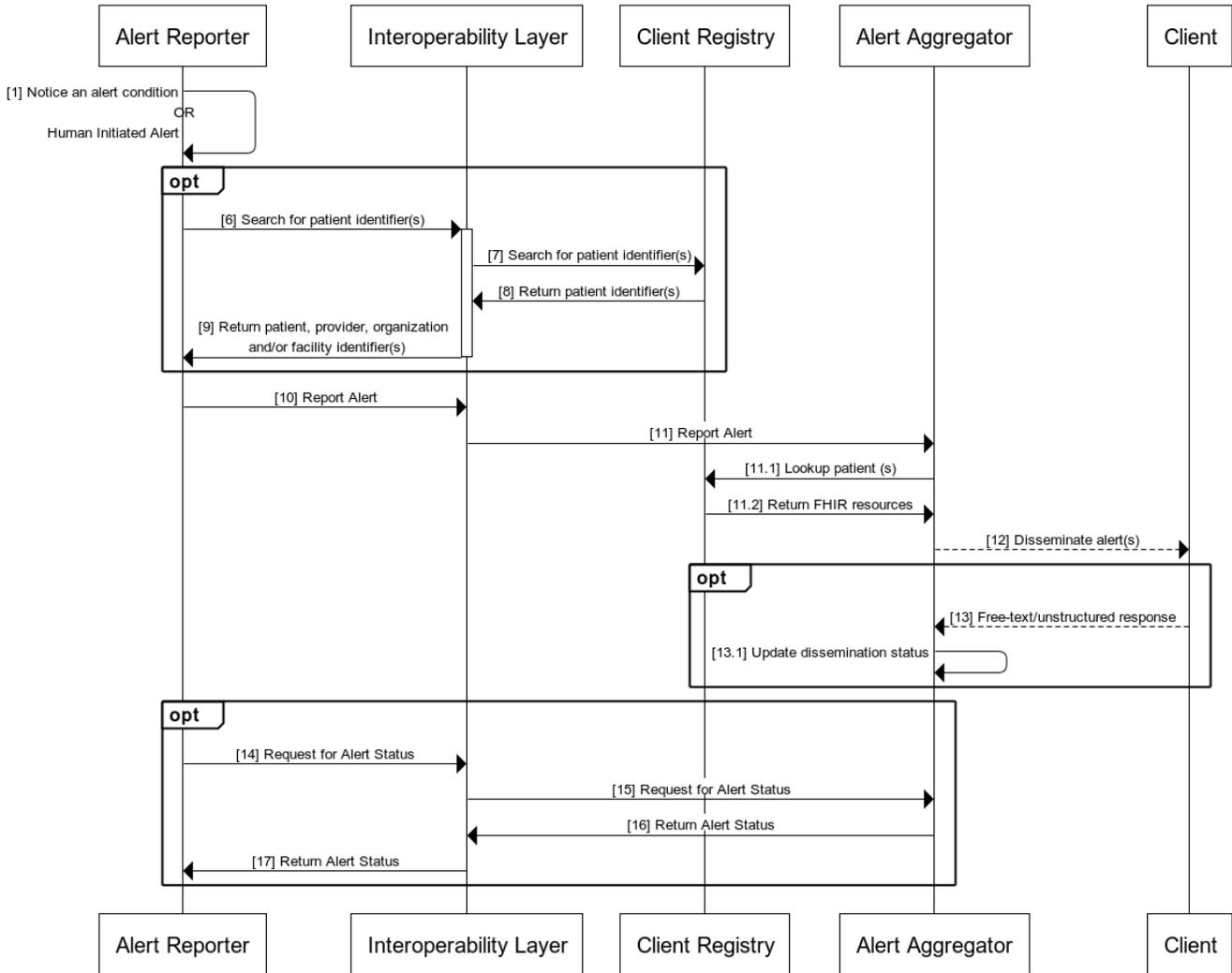
Non-Exhaustive Examples of Alert Reporters

In the workflow below, the Alert Report is presented as a generic actor. Examples include:

- An Health Management Information System (HMIS) notices that a threshold indicator on the number of cases of Cholera for a district. An HMIS could act as an Alert Reporter by querying a health worker registry to determine a list of all clients in the district and generate an alert indicating that they should be advised of the increased number of cholera cases and provide information about disease prevention.
- A Mediator in the Interoperability Layer could monitor a Shared Health Record and notice that a child has missed a vaccination according to an established protocol of care. The Mediator would act as an Alert Reporter and issues an SMS reminder to send to the mother or other designated guardian.
- A Mediator can monitor a central Electronic Referral System and a Shared Health Record to detect if the patient has missed their referral by checking if an encounter has been received at the Longitudinal Health Record within the time frame indicated in the referral. If an encounter has not been received the Mediator acts as an Alert Reporter and sends out an out an alert of the missed appointment to the client.

Workflow

Send alert



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Ref	Interaction	Transaction Specification	Notes
1	Notice an alert condition		None: Defined by business rules of Alert Reporter
2	Search for provider, organization and/or facility identifier(s)	FHIR DSTU2 search on Location, Provider or Patient resources OR ITI-73 Find Matching Services CSD Request	Alert Report constructs query according to business rule under which alert was initiated FHIR transactions are more aligned with the mACM ITI-84 transaction which has references to Organization, Location (e.g. facility), or Provider resources.
3	Search for provider, organization and/or facility identifier(s)	FHIR DSTU2 search on Location, Provider or Patient resources OR ITI-73 Find Matching Services CSD Request	

4	Return identifiers	FHIR DSTU2 bundle search response OR ITI-73 Find Matching Services response	Current reference implementation of ILR (OpenInfoMan) supports both of these transactions. FHIR transactions are more aligned with the mACM ITI-84 transaction which has references to Organization, Location (e.g. facility) or Provider resources
7	Search for patient identifier(s)	FHIR search on Patient resources (PDQm) request OR PIX/PDQ request	
8	Return identifiers	FHIR DSTU2 bundle search response OR PIX/PDQ response	FHIR transactions are more aligned with the mACM ITI-84 transaction which has references to Patient resources
9	Return identifiers	FHIR DSTU2 bundle search response OR PIX/PDQ response	
10	Report Alert	Mobile Report Alert ITI-84 (mACM)	Identifiers of recipients passed either by reference to appropriate FHIR resource (requires FHIR server for those resources) OR Identifiers of recipients passed as embedded reference to appropriate FHIR resources (does not require FHIR server)
11	Report Alert	Mobile Report Alert ITI-84 (mACM)	
12	Disseminate Alert		Disseminate alert(s) via appropriate communication mechanisms available to the HIE (SMS, email, POC system, etc). Transactions depend on the communication channel.
13	Update dissemination status		Transactions are not specified (currently) by mACM standard. Note: RapidPro uses custom FHIR compliant endpoint "Communication/\$response" and "Communication/\$sent" for this. We can submit a Change Proposal to standardize this
14	Request for Alert Status	Query for Alert Status ITI-85 (mACM) Request	
15	Request for Alert Status	Query for Alert Status ITI-85 (mACM) Request	
16	Return Alert Status	Query for Alert Status ITI-85 (mACM) Response	
17	Return Alert Status	Query for Alert Status ITI-85 (mACM) Response	