

API FAQs

Project Name: Learn From Patient Safety Events (LFPSE)

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1. Introduction

This document was prepared in order to answer the most frequently asked question of developers integrating with the Adverse Event and Taxonomy APIs. The LFPSE team would encourage developers gain a strong understanding of FHIR resources as a starting point before commencing development because the most frequent questions tend to be about the nature of FHIR resources. Where appropriate we have included helpful links to HL7 documentation on FHIR, which goes into greater detail on many topics and should be used to supplement the answers given in this document.

2. Frequently Asked Questions

2.1. What is the latest version of taxonomy available?

The most recent taxonomy you can use is **version 5**.

2.2. What versions of the taxonomy are still supported by LFPSE?

Taxonomy versions 4 and 5 are currently supported.

Taxonomy versions 1, 2 and 3 have been deprecated and should no longer be used.

2.3. Where can I find the documentation for LFPSE supported taxonomy versions?

The latest taxonomy documentation consists of a question definition document and associated code lists, which are available on the developer portal. The portal link and access are available on request.

2.4. How are LFPSE FHIR resources structured?

All profiles and extensions in the LFPSE taxonomy are of type StructureDefinition (<https://www.hl7.org/fhir/structuredefinition.html>), which defines the blueprint for what a valid submission should look like, structurally – it describes all the sub-profiles, extensions and data properties that are allowed in a submission. The root profile (patient-safety-adverse-event) defines a bespoke implementation of the HL7 AdverseEvent definition (<https://www.hl7.org/fhir/adverseevent.html>), and defines which sub-profiles are allowed and which extensions can be attached. It will be helpful to explain the way these are structured – most of the information you will need about FHIR resources is at the above HL7 links but at a high level the profiles are built in a hierarchy:

- Patient safety adverse event (profile)
 - Contained (list of allowed sub-profiles)

- Patient
 - Extension (list of allowed extensions)
 - Patient information
 - ...
- Location
- Medication
- Device
- Practitioner
- Extension (list of allowed extensions)
 - Adverse Event Agent
 - ...

As illustrated by the above hierarchy, the profile defines a few extensions which are allowed as well as sub-profiles. Sub-profiles may also define extensions of their own, so each of those will need to be looked at in turn (their ids are specified in the parent profile so they can be looked up in the Taxonomy API), so you can see which data properties are applicable to each extension. Almost all LFPSE data properties are in extensions, though some default values (e.g. date, description on AdverseEvent) are expected which are defined on the root versions of each of the profiles, which are all documented on the HL7 website. One suggestion the LFPSE team would make is to minimise the “Snapshot” portion of the definition and instead focus on the “Differential” within each profile and extension. These are two different ways of visualising the same structure, but differential tends to be more approachable.

2.5. Where are the data properties found?

An important note about extensions is that they define all of the bespoke data properties and this includes conditionality, or in other words how many times the property can be included (there will be a minimum and a maximum number allowed) – this is useful for indicating when something must be provided with every submission. Also some questions can have multiple answers (often presented to users with checkboxes). Another important property to note here is the type. These are documented in HL7 (<https://www.hl7.org/fhir/datatypes.html>). Anything that’s a type code (“valueCode”) has a corresponding CodeSystem lookup in LFPSE, the id of which is provided on the extension. For these, any submission needs to provide one of the values in the corresponding CodeSystem.

A full list of data properties and CodeSystems for the supported versions of taxonomy can be found on the developer portal. The portal link and access are available on request.

2.6. What is the difference between ValueSets and CodeSystems?

The ValueSet is just a connector which links to its CodeSystem. It specifies which codes from the CodeSystem are allowed. In LFPSE at present all codes are allowed so ValueSets just reference

the full CodeSystem. Note that in the LFPSE taxonomy resources, all ValueSets and CodeSystems have matching ids, so whilst the extensions may reference a ValueSet with each code, the same id can be used to retrieve the CodeSystem with all the allowed values. You can look up all resources in the Taxonomy API using the endpoints that you've been given access to in order to explore the contents of these.

2.7. What is the difference between an AdverseEvent submission and the AdverseEvent profile (StructureDefinition)?

AdverseEvents are objects built to conform to the blueprint given by the structure definition. They don't contain the metadata that is defined in the profiles and extensions, but rather bring together all the data properties in one place, following the same hierarchy as defined by the profiles/extensions. The API Documentation includes a good example of a submission that utilises many of the data properties defined in the LFPSE profiles. Please note that you can submit more or different properties than this; it is just a representative example. The LFPSE team have more examples available so please let me know if you would find that helpful.

2.8. Do we need to pass the organisation name or organisation code?

Organisation is a "code" data type so the value should be a code from the linked ValueSet/CodeSystem.

2.9. What values are needed for LocationWithinService and ResponsibleSpecialty?

These are both code data types, so values can be selected from their corresponding CodeSystems.

2.10. What are IdentifiedContributoryFactors, Problem, DrugReaction, SubtypeOfDidntDo?

Some of these properties are from an older version of the LFPSE taxonomy resources, most of which took a coded value. These should no longer be submitted since the older taxonomy versions are now deprecated.

2.11. Are PsychologicalHarm and ActionTaken mandatory fields?

ActionTaken is a deprecated property from a previous taxonomy version. PsychologicalHarm is mandatory for "Incident" type submissions where PhysicalHarm is not "Fatal".

Please refer to the FHIR profiles, extensions and the latest Taxonomy Resource Definition document for more details on which properties are mandatory.

2.12. Are StrengthOfAssociation, Process, Level of Concern and Went Well values mandatory fields?

The StrengthOfAssociation, Process and Went Well properties are not mandatory, but will help the patient safety team if they can be answered.

The Level of Concern is mandatory in Incident and Outcome submissions. See the Taxonomy Resource Definition document on the developer portal for more information on mandatory properties. The portal link and access are available on request.

Please refer to the FHIR profiles, extensions and the latest Taxonomy Resource Definition document for more details on which properties are mandatory.

2.13. What are Category and Type?

These are some of the default properties that come on AdverseEvent. Category should be provided as set out in the example in the API Documentaion. Type is where you specify which type of event is being submitting (e.g. Incident) – the AdverseEvent profile shows the linked code system for the available choices for this.

2.14. What are Location, Subject and Recorder?

These are sub-profiles rather than fields, so they should be opened up in turn (they are linked to from the Adverse Event profile) to see which extensions and properties can be added. These are also described in the Taxonomy Resource Definition document on the developer portal.

2.15. Are the mandatory fields different for submissions from different healthcare settings?

The LFPSE taxonomy has been designed to be generic across all healthcare settings, so the FHIR resources currently available are applicable in all circumstances.

Definition of which properties are mandatory is included in the Taxonomy Resource Definition on the developer portal. The portal link and access are available on request.

2.16. Could the properties and validation requirements change?

The development of the taxonomy is an iterative process and further enhancements to the taxonomy will be made over time.

Current validation rules for can be found in the Validation Guide document on the developer portal. The portal link and access are available on request.

2.17. What are the possible error/warning codes that may be returned from the API and what do they mean?

On successful submission of an adverse event you should receive a response containing a JSON representation of the adverse event along with some other metadata, In the event there was a problem with the submission such as missing mandatory data, failed validation against the FHIR profile etc. you will receive a response containing an error code or message.

A full list of these error/warning codes and some example responses can be found in the Validation Guide document on the developer portal. The portal link and access are available on request.

2.18. What are the different AdverseEvent types returned by the Get Metadata endpoint?

This endpoint will list all of the current valid profiles that can be submitted to LFPSE. It is strongly recommended that the latest version (highest number) be used when building submissions. Lower versions may eventually be withdrawn, but will be maintained for a period of time to allow integration and transition to later versions when they are introduced.

2.19. Does the StructureDefinition include dependencies to determine whether a question should be mandatory based on a previous answer?

The FHIR standard does not support definition of dependencies in this way; however the LFPSE team has a supporting document defining logical dependency relationships. This is the Taxonomy Resource Definition document on the developer portal. The portal link and access are available on request.

Some dependencies are enforced through the API, which provides appropriate warning and/or error messages, all of which are documented in the Validation Guide document on the developer portal.

2.20. Will LFPSE change FHIR versions from 3.0.1 to 4?

The LFPSE FHIR version will be staying at 3.0.1 throughout Beta while feedback on questions is being collected by the LFPSE team.

2.21. The online forms are extremely large – is a user expected to complete all of this information?

A user wouldn't complete every field for every record. Depending on what they are reporting there are different questions that are relevant, for example, if they provide an exact time of the event then

an estimated time is not required. The LFPSE team has supporting documents which articulate this available on request.

2.22. Where can I find more background information on APIs and LFPSE?

A detailed overview of the APIs and LFPSE can be found in the NHSE/I LFPSE API Documentation. Further background information on LFPSE may be available on request.

2.23. Where can I find example Postman collections?

Example AdverseEvent submissions have been made available to support LFPSE integration (and continue to be available on request). These can be submitted via Postman with a valid API key. See the NHSE/I LFPSE API Documentation for more details.

2.24. Can additional information be submitted in the AdverseEvent.text property if we have additional data that is not specified in the LFPSE taxonomy?

Please only submit data that is defined in the LFPSE taxonomy. Any other properties that you collect will not be saved or analysed in LFPSE.

2.25. Can the data fields we already collect be mapped straight to LFPSE properties?

The only properties that should be submitted in LFPSE are those defined in the LFPSE taxonomy documentation. If an existing property is an exact match it can be mapped in, but new fields may need to be defined otherwise. It is important that all categorical properties use the code lists defined in LFPSE.

2.26. What major changes are there between Taxonomy release versions 3 and 4?

The most significant changes in the 4th release of the LFPSE Taxonomy include:

- The FHIR structure has been updated to allow for multiple patients and multiple medications to be included in the submission of one event.
- This has resulted in the adverse-event-harm-level extension becoming deprecated, since its properties have migrated to the enhanced patient-information extension (which can be added multiple times) on the Patient resource.
 - The PhysicalHarm, PsychologicalHarm, ClinicalOutcome and StrengthOfAssociation properties are now included in the patient-information extension, as well as the addition of a mandatory PatientSequence property (to enable an ordering to be maintained).

- Incidents can now be submitted with no patients, however if an incident does not have any patients that were involved, it must contain the 'RiskImminent' property in the submission instead.
- Several new properties are available
- Some code list values have been updated

More details on new properties and code lists can be found in the Taxonomy Resource Definition document on the developer portal. The portal link and access are available on request.

2.27. What major changes are there between Taxonomy release versions 4 and 5?

The most significant changes in the 5th release of the LFPSE Taxonomy include:

- The extensions have been updated to group the properties more appropriately to clearer sections, several properties have moved to a new extension.
- The following extensions have been removed:
 - **adverse-event-initial-event-assessment**
 - **adverse-event-problem**
 - **medication-administration**
- The following new extensions have been added:
 - **adverse-event-problem-devices**
 - **adverse-event-problem-medication**
 - **adverse-event-problem-it-systems**
 - **adverse-event-problem-people**
 - **adverse-event-problem-tissues-organs**
 - **adverse-event-problem-buildings-infrastructure**
 - **adverse-event-problem-estates-services**
 - **adverse-event-problem-blood**
 - **adverse-event-problem-blood-products**
 - **adverse-event-governance**
- Several new properties are available
- The 'AgeYears' property has been renamed to 'AgeBrackets'
- The 'AgeAtTimeOfIncident' property has been renamed 'AgeAtTimeOfIncidentDays'
- The property 'MedicationAdministration' has been moved from the 'Medication' FHIR resource to 'AdverseEvent'
- A more extensive list of ODS codes is now available with the CodeSystem 'ods-codes-live', which gets updated periodically. This CodeSystem **does not** require a taxonomy version to be appended such as '-5' when retrieving the resource from the taxonomy API.
- Some code list values have been updated

More details on new properties and code lists can be found in the Taxonomy Resource Definition document on the developer portal. The portal link and access are available on request.

3. LFPSE links

3.1. LFPSE Public Beta Links

Service	UAT Link	Production Link
Online Incident Recording (OIR)	https://psims-online-incident-recording-uat.azurefd.net/	https://record.learn-from-patient-safety-events.nhs.uk/
Taxonomy API	https://psims-api-net-uat.azurefd.net/taxonomy	https://developer.learn-from-patient-safety-events.nhs.uk/taxonomy
AdverseEvent API	https://psims-api-net-uat.azurefd.net/adverse-event	https://developer.learn-from-patient-safety-events.nhs.uk/adverse-event