Scientific Technologies Corporation

ImmsLink API Specification

Enabling Immunization Information System Data Submissions and Queries

Revision History:

2017.06.07	Cumulative update of all prior changes
2018.01.02	(fix omission) Added *birthOrder* and *mutipleBirthIndicator* properties to patientData object summary
2018.04.27	**PatientData object**: added *deathIndicator* and *deathIndicatorDate* fields **FindHistory, FindHistoryWithForecast, UpdateHistory responses**: added *environment* field **MessageStatusQuery method, QueryResponseException object**: (newly added) **Misc**: standardized descriptions of *environment* and *registryCodeList* in UpdateHistory, FindHistory, and FindHistoryWithForecast requests; clarified that PatientData's *ssn* field should not be used
2018.09.27	**Location object**: updated length of *id* field from 20 to 200, and added *npi* field **PatientData object**: added *grade* and *relevantIndicatorList* fields **MessageStatusQuery response**: removed *environment*, *subscriberId*, and *messageBatch* fields; added *queryStatus*, *facilityId*, and *requestType* fields **Misc**: removed statement in FindHistoryWithForecast response's *queryStatus* field description which erroneously indicated that a low-probability match on one candidate would include immunization recommendations; removed statement describing /html option on FindHistoryWithForecast (as that option has been discontinued); updated list of additional operations shown in online help; fixed description of Location's address field which erroneously characterized it as a collection; minor font and alignment corrections
2019.03.11	**Name object**: changed *lastName* field to optional for Provider.name (but remains required for other uses)
2020.03.17	**PatientData object**: added *forecastEvaluationData* field **VaccinationEvaluation object**: (newly added) **AntigenEvaluation object**: (newly added) **UpdateHistoryRequest object**: added *returnForecastEval* field
2020.05.18	**PatientData object**: added *observationList* field **Observation object**: (newly added)
2020.05.29	**ForecastDetail object**: updated data type and description for date properties and added note about date format
2021.01.26	**Address object:** added county field **PatientData object:** added occupation field **Vaccination object:** added doseNumber and seriesCompletion fields
2021.02.09	**Updates for Covid specific fields.**
2021.03.08	**Title change:** Immslink API Specification

ImmsLink API Specification

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Overview

The ImmsLink API consists of the following four operations:

- UpdateHistory: Submits a record of an administered immunization to the registry IIS
- FindHistory: Performs a query on the IIS to retrieve immunization history
- FindHistoryWithForecast: Same as FindHistory but additionally returns information on the recommended immunizations
- MessageStatusQuery: Retrieves the status of a previously-submitted message

All four are stateless operations using the same basic JSON structures described below. In addition to JSON (preferred), these operations will alternatively accept and return data in XML format.

Additional detail and sample messages are provided online:
https://immswebtestext.stchome.com/publicservice/ImmsLinkServices/help

Note that there are additional operations utilized in other functional scopes that are also listed in the online help:
- FacilityLookup
- GetLocation
- ListLocations
- QueryForecast
- StatusCheck

The tables below provide the detailed description and requirements for the data objects and elements. Not all data elements are required, but if a data object is sent then the required elements within that data object must be provided.

UpdateHistory

HTTP Request

POST /UpdateHistory

The UpdateHistory method sends immunization information to the state or jurisdictional registry.

Request Body

Supply the following in the request body:

Property Name	Type (len)	Required?	Mapped?	Description

authentication	*Authentication*	Y		Authentication details for the request.
environment	string (1)			Optional value (T/P) to override administrative setting defining whether the interface is in test or production. This field should normally be set null or empty as ImmsLink will determine the environment based on the current status of the interface.
patientData	*PatientData*	Y		Patient details.
registryCodeList	array of string (3)			***This field is deprecated.** The recommended method is to leave this field null, and ImmsLink will determine the correct registry or registries based on the pre-defined location mapping.* Identifiers for the state or jurisdictional registries to which the data should be sent. Data should be submitted to the registry where the services are performed. All 58 jurisdictional registries are supported, which include the 50 USPS state codes (code list), plus the following: DC: District of Columbia PR: Puerto Rico NYC: New York City PHL: Philadelphia SAT: San Antonio SJB: San Joaquin Region, CA SAN: San Diego, CA
subscriberKey	string (250)			Optional (recommended) field that can be sent by the calling system and will be returned in the response. In order to enable STC support to be able to assist with an inquiry about a message, this value should be provided to identify the message. If this value is not populated, STC will use the vaccination.orderNumber (when multiple order numbers are

				provided in the same message, the first one will be used).

Response Body

Returns the following:

```
{
        "environment": {string},
        "errorCode": {string},
        "errorList": [{string}],
        "messageKey": {string},
        "status": {string},
        "subscriberKey": {string},
}
```

Property Name	Type (len)	Description
environment	string (1)	Returns T if the message was sent to the registry's Test system; otherwise returns P (indicating Production).
errorCode	string (5)	Error code returned for unsuccessful messages. See *ImmsLink Integration Guide* for list of possible values.
errorList	array of string	List of error messages generated while processing the request (there is no maximum length).
messageKey	string (36)	Unique identifier generated by ImmsLink for successfully parsed messages to identify the request/response pair.
status	string (10)	Status of the request: ok – successfully sent to registry IIS error – not sent, see errorCode and errorList for more info pending – network issue with contacting the IIS or configuration/setup issue within ImmsLink; will be reprocessed automatically
subscriberKey	string (250)	Returns the value provided in the request.

FindHistory

HTTP Request

POST /FindHistory

The FindHistory method queries immunization information from the state or jurisdictional registry.

Request Body

Supply the following in the request body:

Property Name	Type (len)	Required?	Mapped?	Description
authentication	*Authentication*	Y		Authentication details for the request.
environment	string (1)			Optional value (T/P) to override administrative setting defining whether the interface is in test or production. This field should normally be set null or empty as ImmsLink will determine the environment based on the current status of the interface.
patientData	*PatientData*	Y		Patient details.
registryCodeList	array of string (3)			***This field is deprecated.** The recommended method is to leave this field null, and ImmsLink will determine the correct registry or registries based on the pre-defined location mapping.* *Identifiers for the state or jurisdictional registries to which the query should be sent. See UpdateHistory for list of valid registry codes.*
subscriberKey	string(250)			Optional field that can be sent by the calling system and will be returned in the response.

Although the /FindHistory request uses the same patientData object as the /UpdateHistory request, the list of fields that may be used by the registry in processing the query is as follows:

- patientName (first, middle, last)
- dateOfBirth
- sex
- ssn (this field is not used due to privacy concerns)
- guardianList
- motherMaidenName
- medicalRecordNumber
- stateRegistryId (only used when re-querying a patient)
- addressList (street, city, state, zip)

- phoneNumberList

Additionally, the location object is required to provide context for the request.

Response Body

Returns the following:

```
{
        "environment": {string},
        "errorCode": {string},
        "errorList": [{string}],
        "messageKey": {string},
        "patientDataList": [{PatientData}],
        "queryStatus": {string},
        "status": {string},
        "subscriberKey": {string}
}
```

Property Name	Type (len)	Description
environment	string (1)	Returns T if the message was sent to the registry's Test system; otherwise returns P (indicating Production).
errorCode	string (5)	Error code returned for unsuccessful messages. See *ImmsLink Integration Guide* for list of possible values.
errorList	array of string	List of error messages generated while processing the request (there is no maximum length).
messageKey	string (36)	Unique identifier generated by ImmsLink for successfully parsed messages to identify the request/response pair.
patientDataList	array of *PatientData*	Array of patients matching the query.
queryStatus	string (8)	Indicator of whether or not a patient match was found: Found – patient was matched with high probability (patientDataList will have exactly one entry, with immunization history) Requery – patient was matched with low probability (patientDataList will have one or more entries, but no immunization history) NotFound – no patients matched the query (patientDataList will be empty)
status	string (10)	Status of the request: ok – successfully sent to and returned from registry IIS error – not sent, see errorCode and errorList for more info
subscriberKey	string (250)	Returns the value provided in the request.

FindHistoryWithForecast

HTTP Request

POST /FindHistoryWithForecast

The FindHistoryWithForecast method queries immunization information from the state or jurisdictional registry and also determines recommended immunizations for the patient.

Request Body

Supply the following in the request body:

Property Name	Type (len)	Required?	Mapped?	Description
authentication	*Authentication*	Y		Authentication details for the request.
environment	string (1)			Optional value (T/P) to override administrative setting defining whether the interface is in test or production. This field should normally be set null or empty as ImmsLink will determine the environment based on the current status of the interface.
patientData	*PatientData*	Y		Patient details.
registryCodeList	array of string (3)			***This field is deprecated.*** *The recommended method is to leave this field null, and ImmsLink will determine the correct registry or registries based on the pre-defined location mapping.* *Identifiers for the state or jurisdictional registries to which the query should be sent. See UpdateHistory for list of valid registry codes.*
subscriberKey	string (250)			Optional field that can be sent by the calling system and will be returned in the response.
returnForecastEval	boolean			If set true, STC will return a CDSi-compliant evaluation of the patient's vaccination history per the

				ACIP schedule. See PatientData's forecastEvaluationData field for details. (Without this field set, STC will still return a somewhat simpler evaluation of the immunization history—see Vaccination's messageList field for details.)

Although the /FindHistoryWithForecast request uses the same patientData object as the /UpdateHistory request, the list of fields that may be used by the registry in processing the query is as follows:

- patientName (first, middle, last)
- dateOfBirth
- sex
- ssn (this field is not used due to privacy concerns)
- guardianList
- motherMaidenName
- medicalRecordNumber
- stateRegistryId (only used when re-querying a patient)
- addressList (street, city, state, zip)
- phoneNumberList

Additionally, the location object is required to provide context for the request.

Also, the following patientData fields are used when determining the immunization forecast:

- contraindicationList
- vaccinationList (administered vaccinations stored in the sending system)

Existing patient vaccination and contraindication information is not required, and if not sent, the immunization recommendations will calculate based solely on the immunization history returned from the IIS.

Response Body

Returns the following:

```
{
        "environment": {string},
        "errorCode": {string},
        "errorList": [{string}],
        "messageKey": {string},
        "patientDataList": [{PatientData}],
```

```
        "queryStatus": {string},
        "status": {string},
        "subscriberKey": {string},
}
```

Property Name	Type (len)	Description
environment	string (1)	Returns T if the message was sent to the registry's Test system; otherwise returns P (indicating Production).
errorCode	string (5)	Error code returned for unsuccessful messages. See *ImmsLink Integration Guide* for list of possible values.
errorList	array of string	List of error messages generated while processing the request (there is no maximum length).
messageKey	string (36)	Unique identifier generated by ImmsLink for successfully parsed messages to identify the request/response pair.
patientDataList	array of *PatientData*	Array of patients matching the query.
queryStatus	string (8)	Indicator of whether or not a patient match was found: Found – patient was matched with high probability (patientDataList will have exactly one entry, with immunization history and recommendations) Requery – patient was matched with low probability (patientDataList will have one or more entries, with no immunization history) NotFound – no patients matched the query (patientDataList will have exactly one entry, copied from the data passed in, with recommendations)
status	string (10)	Status of the request: ok – successfully sent to and returned from registry IIS error – not sent, see errorCode and errorList for more info
subscriberKey	string (250)	Returns the value provided in the request.

MessageStatusQuery

HTTP Request

POST /MessageStatusQuery

The MessageStatusQuery method retrieves the status of any message previously submitted.

Request Body

Supply the following in the request body:

Property Name	Type (len)	Required?	Mapped?	Description
authentication	*Authentication*	Y		Authentication details for the request.
messageKey	string (36)	Y		Unique identifier generated by ImmsLink and returned in the original response.

If a message returns a pending status when originally sent, ImmsLink continues to retry the message for some period of time. Calling this method returns the status of the most recent attempt to send the message.

Response Body

Returns the following:

```
{
        "errorCode": {string},
        "errorList": [{string}],
        "facilityId": {string},
        "messageException": {QueryResponseException},
        "messageKey": {string},
        "messageStatus": {string},
        "queryStatus": {string},
        "registryCode": {string},
        "requestType": {string},
        "status": {string}
}
```

Property Name	Type (len)	Description
errorCode	string (5)	Error code returned for the most recent attempt to send the message. See *ImmsLink Integration Guide* for list of possible values.
errorList	array of string	List of error messages generated from the most recent attempt to send the message (there is no maximum length).
facilityId	string (200)	Same as Location's id field.
messageException	*QueryResponseException*	Details about the most recent failure to send the message (if messageStatus is still unsuccessful)
messageKey	string (36)	Echo of messageKey submitted for querying.
messageStatus	string (7)	Status of most recent attempt to send queried message. See UpdateHistory response for possible values and meanings.

queryStatus	string (8)	Query status of most recent attempt to send message. See FindHistory or FindHistoryWithForecast response for possible values and meanings.
registryCode	string (3)	Registry where message was sent. See FindHistory, FindHistoryWithForecast, or UpdateHistory requests for possible values.
requestType	string (23)	Type of request the message represents: FindHistory FindHistoryWithForecast UpdateHistory
status	string (9)	Status of the request: Found – exactly one message found (details included in the other fields) NotFound – no message found matching provided messageKey (no other details provided) NotUnique – multiple messages found matching provided messageKey (no other details provided)

Object Definitions

The following sections define the data objects used in the resource representations. Objects are listed in alphabetical order. Notes:

1. All date and datetime fields use ISO 8601 format, e.g. 1980-01-01T00:00:00 or 1980-01-01.
2. If provided datetime value is equal to 0001-01-01 value, it is an invalid date.
3. Any string field without a specified length is passed to and returned from the registry as-is and unmapped, so its maximum length will vary.

Address

```
{
    "addressType": {string},
    "city": {string},
    "country": {string},
    "county": {string},
    "state": {string},
    "streetAddress1": {string},
    "streetAddress2": {string},
    "zip": {string}
}
```

Property Name	Type (len)	Required?	Mapped?	Description

addressType	string (3)			Type of address (code list). Preferred address type is L (Legal). Defaults to L (Legal) if not sent.
city	string (50)			City component of the address.
country	string (3)			Country component of the address. Use ISO 3166-1 Alpha-3 country codes (code list). Value for United States is USA.
county	string (50)			County component of the address.
state	string (50)			State component of the address. Use USPS two-character codes for USA addresses (code list).
streetAddress1	string (120)			Street address component of the address.
streetAddress2	string (120)			Second line of the street address component of the address.
zip	string (12)			Zip code component of the address.

AntigenEvaluation

```
{
        "antigenName": {string},
        "evaluationReason": {string},
        "evaluationStatus": {string},
        "seriesCompletedByDose": {string},
        "seriesName": {string},
        "targetDoseNumber": {int},
        "vaccineGroup": {string}
}
```

Property Name	Type (len)	Required?	Mapped?	Description
antigenName	string			Name of the antigen being evaluated. Possible values: Cholera Diphtheria HepA HepB Hib HPV Influenza Japanese Encephalitis Measles Meningococcal

				Meningococcal B Mumps Pertussis Pneumococcal Polio Rabies Rotavirus Rubella Tetanus Typhoid Varicella Yellow Fever Zoster
evaluationReason	string			The possible values are constrained by the evaluationStatus value. Following is a list of all possible values: GRACE_PERIOD INADVERTENT_ADMINISTRATION INCORRECT_GENDER LESS_THAN_RECOMMENDED_VOLUME LIVE_VIRUS_CONFLICT TOO_OLD TOO_SOON TOO_YOUNG
evaluationStatus	string			Possible values returned: EXTRANEOUS NONE NOT_VALID SUB_STANDARD VALID
seriesCompletedByDose	string			Possible values returned: true false
seriesName	string			ACIP series that the forecaster determines best fits the patient's vaccination history
targetDoseNumber	Int			Dose number of this vaccination within the ACIP series identified above
vaccineGroup	string			Group this antigen fits

Authentication

```
{
```

```
        "licenseKey": {string},
        "password": {string},
        "subscriberId": {int}
}
```

Property Name	Type (len)	Required?	Mapped?	Description
licenseKey	string (36)	Y		GUID license key provided by STC.
password	string (240)	Y		Password provided by STC.
subscriberId	int	Y		Identifies the organization that owns the data. This identifier provided by STC.

Contraindication

```
{
        "codeType": {int},
        "vaccCode": {string}
}
```

Property Name	Type (len)	Required?	Mapped?	Description
codeType	int			Type of coding used to identify vaccination: 0 – CPT 1 – CVX 2 – STC-defined code set
vaccCode	string			Vaccination's code.

FillerAndProviderOrder

```
{
        "enteredBy": {Provider},
        "orderNumber": {string},
        "provider": {Provider}
}
```

Property Name	Type (len)	Required?	Mapped?	Description
enteredBy	*Provider*			Individual who keyed in the data.
orderNumber	string (199)	Conditional (see note)		Order number for provider's orders for this immunization. This field is required when the historical flag is

				false. If not sent, this field will be auto-populated with a generated number.
provider	*Provider*	Conditional (see note)		Individual who signed or filled the order for this patient. This field is required when the historical flag is false. If not sent as part of a provider order, this field will be auto-populated with the administering provider id and name.

ForecastDetail

```
{
        "doseNumber": {int},
        "familyCode": {string},
        "maxAllowableDate": {date},
        "minAllowableDate": {date},
        "pastDueDate": {date},
        "recommendedDate": {date},
        "status": {string}
}
```

Property Name	Type (len)	Required?	Mapped?	Description
doseNumber	int			Next dose the patient is due for.
familyCode	string			Vaccine family of the series, for instance. Values returned are numeric with the following meanings: 1|DTaP/DT/Td 2|HIB 3|POLIO 4|HEP-B 3 DOSE 5|MMR 6|VARICELLA 7|MENINGOCOCCAL 9|HEP-A 10|FLU 11|PNEUMO (PCV) 12|HEP-B 2 DOSE 13|ANTHRAX 14|SMALLPOX SHOT/READING 15|MEASLES 16|MUMPS

					17|RUBELLA 18|PNEUMO (PPSV) 20|ROTAVIRUS 21|HPV 22|HERPES ZOSTER 23|NOVEL INFLUENZA H1N1-09 24|Tdap
maxAllowableDate	date				Used for vaccine series, such as Rotavirus, where the patient does not receive Dose 1 of the series after a specific age. Date is formatted yyyymmdd.
minAllowableDate	date				Earliest date that the patient can receive a dose in the series. Date is formatted yyyymmdd.
pastDueDate	date				Date at which the patient is considered late, or past due, for the specified dose in the series. Date is formatted yyyymmdd.
recommendedDate	date				Recommended date for the specified dose in the series. Date is formatted yyyymmdd.
status	string (10)				Text description of the patient's status for the series. Values returned are: Up to Date: Current date is before the recommended date. Due Now: Current date is between the recommended date and the past due date. Past Due: Current date is after the past due date.

Guardian

```
{
        "addressList": [{Address}],
        "email": {string},
        "name": {Name},
        "phoneNumberList": [{PhoneNumber}],
        "relationship": {string}
}
```

Property Name	Type (len)	Required?	Mapped?	Description
addressList	array of *Address*			Collection of guardian's addresses.
email	string (199)			Guardian's email address.
name	*Name*	Y		Guardian's name.
phoneNumberList	array of *PhoneNumber*			Collection of guardian's phone numbers.
relationship	string (250)	Y	Y	Guardian's relationship to patient. ImmsLink will translate any code set to registry-recognized values. ImmsLink natively supports FTH, MTH, GRD and SLF as a subset of relationship type (code list).

Insurance

```
{
        "insuranceCompanyId": {string},
        "insurancePlanId": {string},
        "medicaidCaseNumber": {string},
        "medicareHealthInsuranceNumber": {string},
        "planType": {string},
        "policyNumber": {string},
        "verificationDateTime": {datetime}
}
```

Property Name	Type (len)	Required?	Mapped?	Description
insuranceCompanyId	string (250)		Y	Identifier of the insurance company. ImmsLink will translate any code set to registry-recognized values. ImmsLink natively supports NAIC values recognized by the states that utilize insurance. Unsupported values are defaulted to unknown.
insurancePlanId	string (250)			Identifier of the insurance plan. This field is not currently used.
medicaidCaseNumber	string			Medicaid policy number.

medicareHealthInsuranceNumber	string			Insurance number found on the Medicare card.
planType	string (3)			Insurance plan type. This field is not currently used.
policyNumber	string (15)			Insurance policy number for insured and Medicaid/Medicare patients.
verificationDateTime	datetime	Y		Date the insurance information was verified. Information should be verified on the date of immunization.
insuranceCompanyName	string			Name of insurance company.

Location

```
{
        "address": {Address},
        "id": {string},
        "name": {string},
        "npi": {string}
}
```

Property Name	Type (len)	Required?	Mapped?	Description
address	*Address*			Physical address of the location.
id	string (200)	Y	Y	Identifier of the location. ImmsLink will translate the local identifier for location to registry-recognized values.
name	string (50)	Y		Name of the location.
npi	string (10)			NPI of the location.

Name

```
{
        "firstName": {string},
        "lastName": {string},
        "middleName": {string},
        "nameCode": {string},
        "professionalSuffix": {string},
        "suffix": {string}
```

```
}
```

Property Name	Type (len)	Required?	Mapped?	Description
firstName	string (30)	Conditional (see note)		Individual's first name. This field is required in all *Name* fields except for mother's maiden name in the *PatientData* object.
lastName	string (50)	Conditional (see note)		Individual's last name. This field is required in all *Name* fields except for the *Provider* object.
middleName	string (30)			Individual's middle name. Registries use this field for matching patient names. Include in the patientName field when available.
nameCode	string (1)			Type of name (code list). Defaults to M (Maiden) for mother's maiden name and L (Legal) for all other names.
professionalSuffix	string			Individual's professional suffix. This value should be sent for any individuals with a professional suffix (e.g., providers).
suffix	string			Individual's name suffix (e.g., Jr., III, etc.)

Observation

```
{
        "code": {string},
        "date": {datetime},
        "description": {string},
        "observationType": {string},
        "result": {string}
}
```

Property Name	Type (len)	Required?	Mapped?	Description
code	string (50)			SNOMED code indicating the observation or test result. Accepted values depend on the observationType: 59784-9 click here for list 75505-8 click here for list

date	datetime	Y		Date the observation was made or the test was performed
description	string (999)			Human-readable description of the observation or test
observationType	string (50)			LOINC code indicating the type of observation or test. Accepted values are: 59784-9 (Disease with presumed immunity) 75505-8 (Disease with serological evidence of immunity)

PatientData

```
{
        "addressList": [{Address}],
        "birthOrder": {string},
        "chickenpoxHistoryDate": {datetime},
        "contraindicationList": [{Contraindication}],
        "dateOfBirth": {datetime},
        "deathIndicator": {boolean},
        "deathIndicatorDate": {datetime},
        "emailAddress": {string},
        "forecastDetailList": [{ForecastDetail}],
        "forecastEvaluationData": [{VaccinationEvaluation}],
        "grade": {string},
        "guardianList": [{Guardian}],
        "hasChickenpoxHistory": {boolean},
        "insurance": {Insurance},
        "location": {Location},
        "medicalRecordNumber": {string},
        "motherMaidenName": {Name},
        "multipleBirthIndicator": {boolean},
        "observationList": [{Observation}],
        "occupation": {string},
        "patientEthnicity": {string},
        "patientName": {Name},
        "patientRace": {string},
        "patientStatus": {string},
        "patientStatusDate": {datetime},
        "phoneNumberList": [{PhoneNumber}],
        "protectionIndicator": {boolean},
        "protectionIndicatorDate": {datetime},
        "publicityCode": {string},
        "publicityCodeDate": {datetime},
```

```
"registryCode": {string},
"relevantIndicatorList": [{string}],
"sex": {string},
"ssn": {string},
"stateRegistryId": {string},
"vaccinationList": [{Vaccination}]}
```

Property Name	Type (len)	Required?	Mapped?	Description
addressList	array of *Address*	Y		Collection of patient's addresses.
birthOrder	string (2)	Conditional (see note)		birthOrder is required if multipleBirthIndicator is true. ImmsLink supports a one- or two- digit value (1-99).
chickenpoxHistoryDate	datetime			Patient's chickenpox infection date. Used to document presumed immunity based on a history of infection.
contraindicationList	array of *Contraindication*			Collection of patient's contraindications. Only used in FindHistoryWithForecast request. Used to indicate immunizations that are contraindicated due to patient's medical conditions. This affects ImmsLink's recommendations.
dateOfBirth	datetime	Y		Patient's birthdate.
deathIndicator	boolean			Whether or not patient is deceased.
deathIndicatorDate	date			Date deathIndicator was changed.
emailAddress	string (199)			Patient's email address.
forecastDetailList	array of *ForecastDetail*			Collection of patient's recommended immunizations/dates. Only used in FindHistoryWithForecast response.
forecastEvaluationData	array of *VaccinationEvaluation*			Only used in FindHistoryWithForecast

				response. Evaluation of patient's vaccination history per ACIP schedule. This is populated when the client sets returnForecastEval to true in the request.
grade	string			Patient's grade level in school.
guardianList	array of *Guardian*	Conditional (see note)		Collection of patient's guardians. This field is required if the patient is less than 19 years old.
hasChickenpoxHistory	boolean			Indicator of whether patient has a history of chickenpox disease.
insurance	*Insurance*	Conditional (see note)		Patient's insurance information. This field is required for UpdateHistory in some jurisdictions (Idaho, Massachusetts, New Hampshire and New Mexico) to support their state-funded vaccine programs.
location	*Location*	Y		Location where the patient's immunization was given or from where the patient's history is being queried.
medicalRecordNumber	string (15)	Y		Patient's identifier within the calling system.
motherMaidenName	*Name*	Conditional (see note)		Patient's mother's maiden name. This field is required for UpdateHistory in some jurisdictions, and is used in many jurisdictions to match patients for FindHistory and FindHistoryWithForecast. It is highly recommended to include it when available.

multipleBirthIndicator	boolean			Boolean value to indicate multiple birth count
observationList	array of *Observation*			Patient medical conditions (e.g., an immunity to disease or a chronic illness)
occupation	string (30)			Occupation of patient
patientEthnicity	string (250)	Conditional (see note)	Y	Patient's self-reported ethnicity. This is required for UpdateHistory in some jurisdictions. ImmsLink natively supports registry-recognized values: • 2135-2 (Hispanic or Latino) • 2186-5 (Not Hispanic or Latino)
patientName	*Name*	Y		Patient's name.
patientRace	string (250)	Conditional (see note)	Y	Patient's self-reported race. This is required for UpdateHistory in some jurisdictions. ImmsLink natively supports registry-recognized values ([code list](#)).
patientStatus	string (1)	Y		Patient's status with respect to the sending organization ([code list](#)).
patientStatusDate	datetime	Y		Effective date of patient's status.
phoneNumberList	array of *PhoneNumber*			Collection of patient's phone numbers. This field is used by registries to match patients for FindHistory and FindHistoryWithForecast. It is highly recommended to include it when available.
protectionIndicator	boolean	Conditional (see note)		Indicator of whether patient wishes to protect (not share) immunization data (true = protect, do not share). Jurisdictions

				have varying laws respecting this indicator. See the ImmsLink Implementation Guide for further information on which states require this field.
protectionIndicatorDate	datetime	Conditional (see note)		Effective date of patient's protection indicator. If protectionIndicator is populated, this field is required.
publicityCode	string (50)		Y	Defines how patient wishes to be contacted for reminders in the IIS. ImmsLink natively supports registry-recognized values (code list) and can map to locally-defined values. This field is optional but can be utilized if the client base is interested in utilizing reminder functionality provided by the state IIS.
publicityCodeDate	datetime	Conditional (see note)		Effective date of patient's contact reminder preference. If publicityCode is populated, this field is required.
registryCode	string (3)			(Reserved to support future multi-registry requirements.)
relevantIndicatorList	array of string			List of observations or factors that can influence a patient's forecast recommendations. Currently, the only recognized values are: 1) diabetes 2) cardio
sex	string (1)	Y	Y	Patient's sex. Natively supported values are: M – male

				F – female U – unknown
ssn	string (15)			Patient's social security number (no longer used due to privacy concerns). Do not send.
stateRegistryId	string (15)			Patient's identifier in the registry (for patients who have been queried).
vaccinationList	array of *Vaccination*	Y		Collection of patient's vaccinations. This is returned by most registries in the query response but is not a required field so it is not guaranteed to be populated.

Phone Number

```
{
        "areaCode": {string},
        "equipmentType": {string},
        "phoneNumber": {string},
        "phoneType": {string}
}
```

Property Name	Type (len)	Required?	Mapped?	Description
areaCode	string (5)			Area code component of the number. If areaCode is populated, phoneNumber should also be populated.
equipmentType	string (2)			Telecommunication equipment type (code list).
phoneNumber	string (9)			Non-area code component of the number. If phoneNumber is populated, areaCode should also be populated.
phoneType	string (4)			Type of phone number (code list). Defaults to PRN (primary residence number) if not sent.

Provider

```
{
        "assigningAuthority": {string},
        "idNumber": {string},
        "identifierTypeCode": {string},
        "name": {Name}
}
```

Property Name	Type (len)	Required?	Mapped?	Description
assigningAuthority	string (20)			Identifies organization responsible for issuing the provider's identifier. In the case of NPI, this is CMS. For internal identifiers, can be sent as null and will be defaulted.
idNumber	string (15)	Y		Provider's identifier within the calling system. For persons with an NPI, it is preferred for this field to contain the NPI. Note: NPI must be the value assigned to the individual, not the NPI assigned to the location.
identifierTypeCode	string (15)			Provider's identifier type, e.g., NPI.
name	Name	Y		Provider's name.

QueryResponseException

```
{
        "resubmitCount": {int},
        "retryStatus": {string},
        "scheduledTime": {datetime},
        "totalRetries": {int}
}
```

Property Name	Type (len)	Required?	Mapped?	Description
resubmitCount	int			Most recent attempt # for this message. Normally ImmsLink attempts 3 times before failing; however this cycle of three is sometimes restarted.
retryStatus	string (8)			Retrying – Attempting to resend the message at a defined interval.

				Review – Failed to resend the message multiple times and the message now requires manual review. Okay – Successfully processed the message. Fail – System failure resending the message. Requires manual review. InProg – Preparing to attempt first resend of message.
scheduledTime	datetime			Time at which the next attempt will be made (only valid if retryStatus is Retrying).
totalRetries	int			Cumulative number of attempts made to send message (could be more than three if the retry cycle is restarted).

Vaccination

```
{
        "actionCode": {string},
        "administeredBy": {Provider},
        "administrationRoute": {string},
        "administrationSite": {string},
        "dosageUnitOfMeasure": {string},
        "doseAmount": {string},
        "doseNumber": {int},
        "expirationDate": {datetime},
        "families": [{ string }],
        "fillerOrder": {FillerAndProviderOrder},
        "fundingSource": {Provider},
        "historical": {boolean},
        "immunizationDate": {datetime},
        "inEhr": {boolean},
        "inRegistry": {boolean},
        "location": {Location},
        "lotNumber": {string},
        "manufacturerCode": {string},
        "messageList": [{VaccineMessage}]
        "providerOrder": {FillerAndProviderOrder},
        "refusalReason": {string},
        "seriesCompletion": {boolean},
        "vaccineCode": {string},
        "vfcStatus": {string},
```

```
        "visStatementList": [{VisStatement}]
}
```

Property Name	Type (len)	Required?	Mapped?	Description
actionCode	string (1)			Vaccination's record type. Only used in UpdateHistory. Indicates action registry should take: A – add U – update D – delete If not sent, defaults to A.
administeredBy	*Provider*	Conditional (see note)		Individual administering vaccination. This field is required when the historical flag is false.
administrationRoute	string (250)	Conditional (see note)	Y	Identifies the route (e.g. intramuscular) through which the vaccination was administered. ImmsLink natively supports registry-recognized values (code list).
administrationSite	string (250)	Conditional (see note)	Y	Identifies the site (e.g. left arm) where the vaccination was administered. ImmsLink natively supports registry-recognized values (code list).
dosageUnitOfMeasure	string (50)	Conditional (see note)		Unit of measure for the vaccine dose amount, e.g. mL. This field is required when the historical flag is false.
doseAmount	string (20)	Conditional (see note)		Vaccine's dose amount, e.g. 0.5. This field is required when the historical flag is false.
doseNumber	int			Dose number of the series of the vaccine being administered

expirationDate	datetime	Conditional (see note)		Vaccine's expiration date. This field is required when the historical flag is false.
families	array of string			Vaccine family to be returned
fillerOrder	*FillerAndProviderOrder*			Vaccination filler order details.
fundingSource	string (50)	Conditional (see note)	Y	Identifies whether the vaccination was purchased with public funds. Sites that do not participate in the Vaccines for Children (VFC) program should send PHC70 (can be defaulted if not sent). Sites that do participate in the VFC program are required to send this field. ImmsLink natively supports: • PHC70: Private • VXC1: Federal funds • VXC2: State funds and will translate any code set to registry-recognized values.
historical	boolean	Y		Identifies whether or not a vaccination is historical (i.e., recorded from the patient's documented history).
immunizationDate	datetime	Y		Date the vaccination was given.
inEhr	boolean			Only used in FindHistoryWithForecast response. Indicates whether this vaccination was one sent in the request (as opposed to one found only in the registry).
inRegistry	boolean			Only used in FindHistoryWithForecast

				response. Indicates whether this vaccination was one found in the registry (as opposed to one only supplied in the request from the calling system).
location	*Location*			Location where the vaccination was given. This field is optional in case of historical vaccines.
lotNumber	string	Conditional (see note)		Vaccine's lot number. This field is required when the historical flag is false.
manufacturerCode	string (250)	Conditional (see note)	Y	Vaccine's manufacturer. MVX codes defined by the CDC ([code list](#)).
messageList	array of *VaccineMessage*			Only used in FindHistoryWithForecast response. Indicates warning or revaccination needed for this vaccination record.
providerOrder	*FillerAndProviderOrder*	Conditional (see note)		Vaccination's order details. This field is required when the historical flag is false.
refusalReason	string (250)		Y	Use in UpdateHistory request only if the patient has been offered a vaccination and opts to not receive it. ImmsLink natively supports: • 00: Parental decision • 01: Religious exemption • 02: Other • 03: Patient decision and will translate any code set to registry-recognized values.

seriesCompletion	boolean			Indicates whether or not vaccine series is complete for patient
vaccineCode	string (250)	Y	Y	Identifies the vaccine given. Supports CVX codes defined by the CDC (code list). If value is -1, it is invalid vaccine code.
vfcStatus	string (250)	Conditional (see note)	Y	Identifies whether patient is eligible to have this vaccination paid for with public funds. Sites that do not participate in the Vaccines for Children (VFC) program should send Ineligible or its equivalent (can be defaulted if not sent). Sites that do participate in the VFC program are required to send this field. ImmsLink natively supports registry-recognized values (code list) and can map to locally-defined values.
visStatementList	array of *VisStatement*	Conditional (see note)		Identifies the VIS information given to patient at the time of vaccination. This field is required when the historical flag is false.

VaccinationEvaluation

```
{
        "antigenEvaluationList": [{AntigenEvaluation}],
        "vaccineCvx": {string},
        "vaccineDate": {string},
        "vaccineDoseVolume": {string},
        "vaccineMvx": {string},
        "vaccineName": {string}
}
```

Property Name	Type (len)	Required?	Mapped?	Description
antigenEvaluationList	array of *AntigenEvaluation*			List of evaluations for each antigen in this vaccination (many vaccinations have multiple)
vaccineCvx	string			CVX code for this vaccination ([code list](#))
vaccineDate	string			Date of this vaccination (yyyymmdd format)
vaccineDoseVolume	string			Dose volume of this vaccination (as provided to the forecaster)
vaccineMvx	string			MVX code for this vaccination ([code list](#))
vaccineName	string			Name of this vaccination

VaccineMessage

```
{
        "message": {string},
        "messageType": {int}
}
```

Property Name	Type (len)	Required?	Mapped?	Description
message	string			Message text (length varies).
messageType	int			Message's type: 0 – Warning 1 – InvalidVaccine

VisStatement

```
{
        "visBarcode": {string},
        "visDateGiven": {datetime},
        "visStatementDate": {datetime},
        "visStatementType": {string}
}
```

Property Name	Type (len)	Required?	Mapped?	Description
visBarcode	string (250)	See note.	Y	VIS statement's barcode (numeric representation). Either barcode or type/date should be sent. Mapping will happen automatically per the registry's

				requirements. Barcode values are defined by the CDC ([code list](#)).
visDateGiven	datetime	Y		Date the patient was given the VIS statement.
visStatementDate	datetime	See note.	-	VIS statement's edition date. Either barcode or type/date should be sent. Mapping will happen automatically per the registry's requirements.
visStatementType	string (250)	See note.	Y	VIS statement's type. Either barcode or type/date should be sent. Mapping will happen automatically per the registry's requirements. A typical mapping is to send the vaccine code in this field (same value that is sent in vaccination.vaccineCode). ImmsLink will map to the CVX code for the unspecified version of the vaccine, which is what the registry uses.