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Exported Sep 09, 2020 at 12:58 PM

## HL7 FHIR eReferral Workstream



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Added by Tim Berezny • Updated Jul 30, 2019 at 11:32 AM

# QuestionnaireResponse

**60% Prototype Ready**

## Overview:

## Links:

- [/QuestionnaireResponse - FHIR 4 Standard](#)

## Relevant chat.fhir.org Threads

- [QuestionnaireRespons and LinkID](#)

## Change Request Submissions

- none

## Usage

The questionnaireResponse resource will be used WITHOUT a corresponding Questionnaire resource, which significant simplifies implementation. This can be done because the question itself can be embedded in the response via the **item.text** element.

## Important Decisions & Rationale

- **questionnaireResponse.subject** is not needed because the subject is assumed to be the subject of the ServiceRequest.
- **questionnaireResponse.author** is not needed as the author is assumed to the ServiceRequest requester
- **linkId** - Even though this specification is not using Questionnaire (yet), usage should be forward thinking to the use of Questionnaire. The LinkId should be whatever would make sense as the linkId if you were to ever expose the questionnaire definition as a Questionnaire.
- **definition (uri)** - can be used to link to a webpage that defines the question in more detail (e.g., what are the presented options, further definition of meaning, etc...)
- Using **item.text** followed by **item.item** is used for headers to group questions. Using **item.text** with **item.answer[x]** + **item.answer.item** is used for nested (and conditional) questions.

- **item.value.answer[x]** can use any of the 11 datatypes **EXCEPT** reference.

## Resource Profile - QuestionnaireResponse

- **Identifier [0..1] (Identifier)** - Unique ID for this set of answers
- **basedOn [0..\*1] (Reference(ServiceRequest))** - Request fulfilled by this QuestionnaireResponse
- **partOf**
- **questionnaire**
- **status [1..1] (code)** - in-progress | completed | amended | entered-in-error | stopped
- **subject**
- **encounter**
- **authored [dateTime]** - Date the answers were gathered
- **author [0..1] (reference(PractitionerRole))** ~~— person who received and recorded the answers~~
- **source [0..1]** ~~— The person who answered the questions~~
- **item [0..\*]** - Groups and questions. + Rule: Nested item can't be beneath both item and answer
  - **linkId [1..1](string)** - Pointer to a specific item from questionnaire
  - **definition (uri)** - Element definition, for details of the item
  - **test (string)** - Name for group or question text
  - **answer** - the response to the question
    - **value[x]** - single value answer to the question
      - **valueBoolean**
      - **valueDecimal**
      - **valueInteger**
      - **valueDate**
      - **valueDateTime**
      - **valueTime**
      - **valueString**
      - **valueUri**
      - **valueAttachment**
      - **valueCoding**
      - **valueQuantity**
      - **valueReference**
    - **item** - Nested groups and questions
  - **item** - nested questionnaireResponse items

## ValueSets

- 

## Sample Payload

```
{
  "resource": {
    "resourceType": "QuestionnaireResponse",
    "id": "7674cab2-cc1f-4f7c-969d-62a4988501e9",
    "identifier": [
      {
        "system": "http://example.org/fhir/NamingSystem/questionnaire-ids",
        "value": "414692"
      }
    ],
    "basedOn": [
      {
        "reference": "ServiceRequest/365985"
      }
    ],
    "status": "completed",
    "authored": "2019-08-27T21:33:34Z",
    "item": [
      {
        "linkId": "1",
        "text": "Section 1 Header",
        "item": [
          {
            "linkID": "1.1",
            "text": "String Question in Section 1",
            "answer": [
              {
                "valueString": "String Answer"
              }
            ]
          },
          {
            "linkID": "1.2",
            "text": "Boolean Question in Section 1",
            "answer": [
              {
                "valueString": true
              }
            ]
          },
          {
            "linkID": "1.3",
            "text": "Number Question in Section 1",
            "answer": [
              {
```

```
        "valueInteger": 365
      }
    ]
  }
]
},
{
  "linkId": "3",
  "text": "Section 2 Header",
  "item": [
    {
      "linkID": "2.1",
      "text": "Integer Question in Section 2",
      "answer": [
        {
          "valueInteger": 365
        }
      ]
    },
    {
      "linkID": "2.2",
      "text": "Multi-Select Question in Section 2",
      "answer": [
        {
          "valueString": "tag1"
        },
        {
          "valueInteger": "tag2"
        },
        {
          "valueInteger": "tag3"
        }
      ]
    }
  ]
},
{
  "linkId": "3",
  "text": "CONDITIONAL Section 3 with Question",
  "answer": [
    {
      "valueBoolean": true,
      "item": [
        {
          "linkId": "3.1",
          "text": "Conditional Question 1:",
          "answer": [
            {
              "valueString": "ConditionalAnswer1"
            }
          ]
        }
      ]
    }
  ]
}
```

```
    },  
    {  
      "linkId": "3.2",  
      "text": "Conditional Question 2:",  
      "answer": [  
        {  
          "valueString": "ConditionalAnswer2"  
        }  
      ]  
    }  
  ]  
}  
]  
}  
]  
}  
}
```

## Comments:

Use the comments on this page to discuss the development of this resource profile. Conclusions made from the discussion will be added into this document and the profile where applicable.

---

## Comments & Events



**Geoff Ramsay**, Solution Architect

Quick example for discussion:



QR\_example.json 1.2 KB • [Download](#)

Aug 06, 2019 at 11:13 AM · Notified 2 people



**ion moraru**

Example of QR for a home care - nursing service request:



questionaireresponse sample\_ InjectionInfusion Therap...

Aug 07, 2019 at 12:17 PM · Notified 3 people



**Tim Berezny**, CTO Caredove, Chair FHIR eReferral Specification Working Group

Thanks for these sample payloads, they look great. A few comments from my review:

Geoff - I believe that the supportingInfo content should reference a resource in the bundle rather than embedding the QuestionnaireResponse in the ServiceRequest

Ion - I've taken the data and converted it into a "text view", which might be how a receiving system would render it to the user below. One particular thing I noticed was that there are 3 questions with no answer ("1.3 Bloodwork Required" or "1.4. Hydration Orders" or "Prescription 1"), is this intentional? Is the reason that they have no value is that they are intended to behave more like group headings for sets of questions? If so, I wonder if using QuestionnaireResponse.item.item would be better than Questionnaire.item.answer.item for group headings?

1 Route : Intravenous Infusion

1.1 Delivery Method : Peripheral IV (PIV)

1.1.1 Request : "As per protocol -- Flush each time IV catheter is [...]"

1.1.2 PICC insertion pending : Yes

1.1.3 Move to PICC Protocol once completion complete? : "As per protocol -- Initial dressing change in 48 [...]"

1.2 First dose to be given in community? : Yes

1.2.1 Patient meets ALL eligibility criteria for first dose?" : Yes

1.3 Bloodwork required :

1.3.1 Requisition : "Given to patient"

1.3.2 Requisition given to patient for all IV antibiotic orders ñ weekly CBC, diff, creat, ALT, AST : Yes

1.3.3 Requisition given to patient for vancomycin ñ weekly level, CBC, diff, creat level : Yes

- 1.4 Hydration Orders :
  - 1.4.1 Fluid : "Saline"
  - 1.4.2 Quantity : 12
  - 1.4.3 Rate : "200 ml / hr"
  - 1.4.4 Frequency : "twice per day"
  - 1.4.5 Stop/Reassess Date : 2019-01-01

## 2 Medication Prescription

- 2.1 Drug allergies : Yes
- 2.2 Prescription 1 :
  - 2.2.1 Drug : "Aspirin"
  - 2.2.2 Dose : "500mg"
  - 2.2.3 Frequency : "2 x daily"
  - 2.2.4 Route : "Oral"
  - 2.2.5 Stop/Reassess Date : 2019-01-01
- 2.3 Recent creatinine level completed : Yes
  - 2.3.1 Level : "High"
  - 2.3.2 Date completed : 2019-02-01

Aug 08, 2019 at 12:24 PM · Notified 4 people



### ion moraru

Hi Tim, Yes, it is intentional, to define a category of items. And yes, it should probably be better served if the nested items are showing underneath the item instead of the answer (i.e. item.item with no answer). In terms of usage of the QuestionnaireResponse it should be a separate resource in the Bundle, referenced in the ServiceRequest.supportingInfo. In my case there will be 0..1 QuestionnaireResponse resources associated with each ServiceRequest. Some ServiceRequest resources would not require a QuestionnaireResponse, example: simple request for Care Coordination. Thanks, Ion

Aug 09, 2019 at 2:50 PM · Notified 4 people



### Tim Berezny, CTO Caredove, Chair FHIR eReferral Specification Working Group

That all makes sense to me Ion, i'm aligned with your perspective.

Sounds like the main outstanding question then is if conceptually using item.item to conceptually mean a "header" makes sense from the intent of the FHIR spec.

I've posted the question in chat.fhir.org here

<https://chat.fhir.org/#narrow/stream/179166-implementers/topic/QuestionnaireResponse>

Aug 09, 2019 at 3:01 PM · Notified 4 people



### Tim Berezny, CTO Caredove, Chair FHIR eReferral Specification Working Group

Lloyd Mackenzie I think has confirmed my theory about using item.item for headers:

"item.item is used when the parent is a group (and thus will not have answers).  
item.answer.item is used when the parent is a question (and thus will have an answer)."

Chat thread can be found here:

<https://chat.fhir.org/#narrow/stream/179255-questionnaire/topic/QuestionnaireResponse.20item.2Eitem.20vs.20item.2Eanswer.2Eitem>

Aug 12, 2019 at 1:35 PM · Notified 4 people



**Tim Berezny**, CTO Caredove, Chair FHIR eReferral Specification Working Group

Hello all, I've fully profiled the questionnaireResponse resource in Basecamp, please review and provide comments. The main work to be done on this page is to add in a few final confirmed examples, which can be slightly modified versions of the sample files submitted by Geoff and Ion as per the newly discussed usage of item.item vs. item.answer.item.

Aug 16, 2019 at 9:30 PM · Notified 4 people



**Amadou Tall**

Hello Team - example of test QR in bundle.json and test QR.json. Can you take a look and let me know if my questionnaireResponse resource implementation is valid with the item nesting structure and the embedding and referencing in the ServiceRequest.supportingInfo resource.



Bundle w QuestionnaireResponse.json 25.1 KB • [Downl...](#)



QuestionnaireResponseSample.json 6.08 KB • [Download](#)

Aug 27, 2019 at 6:38 PM · Notified 5 people



**Tim Berezny**, CTO Caredove, Chair FHIR eReferral Specification Working Group  
Hi Amadou, I took a look at the QR file and have the following comments:

**text.generated:** not needed unless you are going to also use text.div

**Author:** Since it's always attached to a serviceRequest (which has a requester), the author isn't really needed. Doesn't necessarily hurt, but likely to be discarded by the receiving system in favour of the requester info in the service request

**item.text:** Look like you are filling it with a section header name, but formatted as a variable. Instead of calling "GUARDIAN\_1\_ADDRESS" Should do it in a display friendly format: "Guardian 1 Address"

**item.answer.item:** Because you are using item.text as a header with no corresponding item.answer.value[x], you should move the item.answer.item into item.item.

Aug 28, 2019 at 10:14 AM · Notified 5 people



**Tim Berezny**, CTO Caredove, Chair FHIR eReferral Specification Working Group

I've put a sample `QuestionnaireResponse` into the body of the Basecamp page ([QuestionnaireResponse - HL7 FHIR eReferral Workstream](#)). It illustrates the difference between `item.answer.item` (for headers) and `item.item` (for sub-questions or conditional questions).

I've also included an example of a multi-select question.

Aug 28, 2019 at 12:08 PM · Notified 5 people



**Tim Berezny**, CTO Caredove, Chair FHIR eReferral Specification Working Group

We created a little web app for processing and displaying items in a `QuestionnaireResponse` (which is INDEPENDENT of a corresponding `Questionnaire`). You can put any `QuestionnaireResponse` into the box and it will give you a nice screen formatted human-readable version of the results. We've got a couple of sample payloads in there to test out with, you can also put your own payload in there.

If you're interested in `QuestionnaireResponse` please give it a try and let me know how it works for you and any feedback you might have, I think it might be a useful tool for the community to facilitate interoperability. Also, if you have some interesting sample payloads send them over and I can pre-load them into the set of sample payloads.

Give it a try here:

<https://questionnaireresponse-parser.herokuapp.com/>

Sep 10, 2019 at 8:35 AM · Notified 5 people



**Yaron Derman**

Thanks for creating this page. I used the examples above from Geoff and Ion - rendered beautifully!



Sep 19, 2019 at 9:27 AM · Notified 6 people



**ion moraru**

The `QuestionnaireResponse` structure for nested items should include nested questions under the answer element.

```
{
  "resourceType": "QuestionnaireResponse",
  "id": "g2tf1689-06b2-4b9d-b952-26d14551ef3t",
  "basedOn": [
    {
      "reference": "ServiceRequest/88f151c0-a954-468a-88bd-5ae1"
    }
  ]
}
```

```

    ],
    "status": "completed",
    "subject": {
      "reference": "Patient/04121321-4af5-424c-a0e1-ed3aab1c349d"
    },
    "authored": "2013-02-19T14:15:00-05:00",
    "author": {
      "reference": "PractitionerRole/p1bf1689-06b2-4b9d-b952-26d14551ef"
    },
    "item": [
      {
        "linkId": "1",
        "text": "Route:",
        "answer": [
          {
            "valueString": "Intravenous Infusion",
            "item": [
              {
                "linkID": "1.1",
                "text": "Delivery Method:",
                "answer": [
                  {
                    "valueStr
                    "item": [
                      {

```

}

```

    ],
  },
  {
    "linkID": "1.2",
    "text": "First dose to be",
    "answer": [
      {
        "valueStr
        "item": [
          ]
        }
      ]
    }
  ],
},
{
  "linkId": "2",
  "text": "Bloodwork Required: ",
  "answer": [
    {
      "valueString": "Lab requisition must be p
      "item": [
        {
          "linkId": "2.1",
          "text": "Requisition:",
          "answer": [
            {
              "valueStr
            }
          ]
        },
        {
          "linkId": "2.2",
          "text": "For all IV antit
          "answer": [
            {
              "valueBoc
            }
          ]
        }
      ]
    }
  ]
}

```

