

Message Construction Guide

Electronic Interface between GPs and the HSE in relation to the Under 6s Contract

Version: 1.3

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1 Version History

Date	Version	Authors	Change
31/08/2015	0.1	Brian O'Mahony	First draft
14/09/2015	0.2	Karen Wynne, Brian O'Mahony, Declan Butler	Use of batch files removed, consent indicated in PV1.2, type of assessment (periodic or asthma or diabetes) indicated in OBR.4, date of assessment indicated in OBR.7,
15/09/2015	0.3	Karen Wynne	Included details for LOINC Codes, Code Tables
21/09/2015	0.4	Karen Wynne	Included PV1.7, removed ReviewDate OBX segments, included ACK error codes, section on Message Transportation
23/09/2015	0.5	Brian O'Mahony, Karen Wynne	General editing, inclusion of LOINC and local codes
25/09/2015	0.6	Brian O'Mahony, Karen Wynne	Addition of sample IHI number,
09/10/2015	0.7	Declan Butler, Brian O'Mahony	Code Table added for Referral Options, comment added re Patient Visit Segment, sanity checks for height and weight and prototype WSDL added as Appendix A
23/10/2015	0.8	Karen Wynne, Declan Butler, Brian O'Mahony	Code tables gathered into one section, updated error codes to include General Message Exception, information on timing of returns, update xml message samples, inclusion of PID.11 in xml
12/11/2015	0.9	Gemma Garvan	Section added to indicate frequency of data returns.
29/01/2016	0.10	Karen Wynne	Reference code tables at relevant sections within the doc. Updated PID Patient Identifier IHI comment, PV1.7 IHPI comment and HL7 sample.
22/02/2016	0.11	Karen Wynne	Updated MSH.10 definition, replaced PCRS wsdl with link to web service, included 'Medication review' in comment section of Review Treatment.
26/02/2016	0.12	Karen Wynne	Updated MSH.10 comment
09/06/2016	0.13	Karen Wynne	Update details on consent, registration, XML case sensitivity, OBX.14 is mandatory, clarify units of measure, message transportation clarification, PCRS web service definition.
22/07/2016	0.14	Karen Wynne	Updated units of measure and references to N/A
25/08/2016	1.0	Karen Wynne	Added clarification on date of registration

19/10/2016	1.1	John Cattnach	Updated webservices to new security model
06/12/2016	1.2	Karen Wynne	Clarification on Periodic Assessment age 5 assessment.
28/03/18	1.3	Karen Wynne	Updated Appendix A for PCRS web services

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3 Document Aim

This document aims to help General Practice (GP) Practice Software Vendors to construct electronic messages to facilitate data returns related to the Under 6s contract (Periodic Assessments and Asthma Cycle of Care). The data returns are from the GP practice software systems via Healthlink, the National Messaging Broker, to the Primary Care Reimbursement Service (PCRS) of the Health Service Executive (HSE). A later document will define the specification of data returns for the Diabetes Cycle of Care.

4 Consent, Registration and PCRS Web Service

GPs need the consent of the patient, or their parent or guardian, in order to return clinical data to the HSE. Consent is captured by the HSE when an application for an Under 6s medical card is made. The PCRS will put in place a web service to establish whether consent is in place to return clinical data. The GP Practice Software system will check if consent exists before returning clinical data. If no consent exists then the return will contain demographic information and the date of assessment, but not clinical data. The PCRS will define the specification for the Consent web service.

Registration of a patient, as having a disease that may avail of a cycle of care, is carried out by the GP on the PCRS GP Suite. The GP Practice Software System can only return an asthma review where the patient is already registered with PCRS as having asthma. Thus the PCRS web service will also indicate, for an individual patient, what diseases they are registered as having. Once a patient is registered, they do not need to be registered again if they change GP. The registration is on a national level and moves with the patient. Returns submitted for a patient that has not been registered will be rejected. If the patient is registered as asthmatic, but there is no consent to return clinical data, then the asthma review will contain demographic information and the date of assessment only. The PCRS will define the specification for the Registration web service.

For any returns submitted where exam details are included but the PCRS database indicates consent was not given (or has been withdrawn) a NACK will be returned. Conversely, if the exam is submitted indicating no consent but the PCRS database shows the patient has provided consent, a NACK will be returned indicating full exam details required.

5 Timing of Return of Assessments and Reviews

Once a child is age 2 or over there is no restriction on when the dataset for the assessment can be returned. The date of assessment cannot be in the future.

Periodic Assessments

- For the age 2 assessment, the date of assessment must be before the child's 5th birthday.
- For the age 5 assessment, the date of assessment is within 1 year from when the child reaches 5th birthday i.e. the exam must be completed before the child's 6th birthday.

Example: a child is registered to a doctor's panel at age 4 then the periodic assessment for age 5 is valid when child reaches 5 years old.

Asthma Cycle of Care

- The date of assessment cannot be prior to date the child is registered for Asthma.
- The date of registration sets out the annual schedule of when an assessment is due; one assessment per year from date of registration until child is 6 years old.
- The date of assessment is used to determine what year the assessment applies to.

Example: a child is registered for Asthma at age 2.5 years (30 months):

- 1st assessment due before child turns 3.5 years (42 months)
- 2nd assessment due before child turns 4.5 years (54 months)
- 3rd assessment due before child turns 5.5 years (66 months)

Management of updates or deletions of data returns will be handled via the PCRS GP Suite rather than by HL7 messaging.

6 Level of Automation

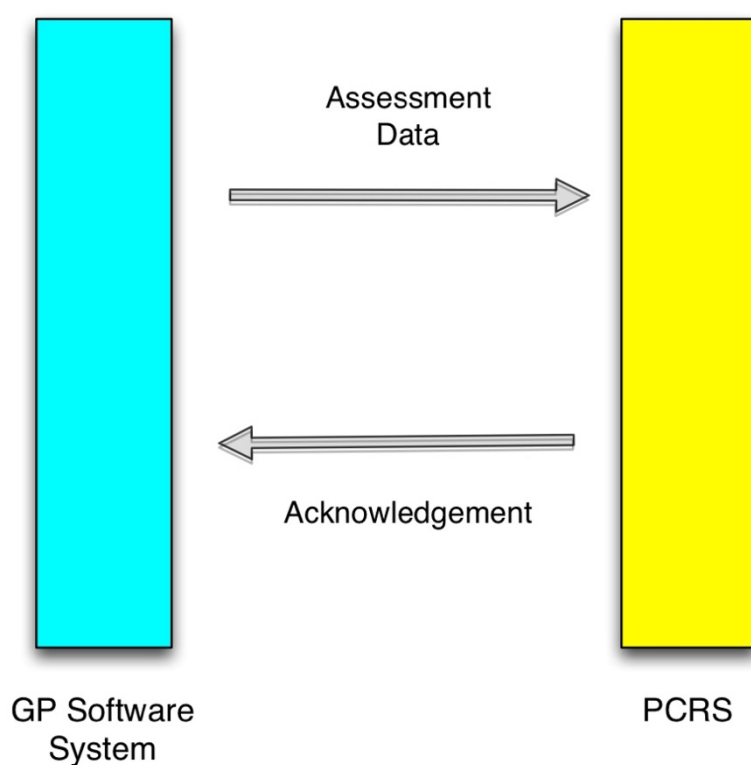
The intention is that the returns can be provided by the GP with the minimum of administrative burden, e.g. the GP's practice management system could initiate the return procedure on a real time or a scheduled basis. However, it is also the case that returns cannot be provided to the HSE without a conscious decision by the GP to submit the returns, i.e. returns cannot be submitted unbeknown to the GP.

Frequency of Uploads: It is proposed that periodic assessments and other data returns would ideally be delivered close to real time, i.e. when completed to the GPs satisfaction, the return could be submitted there and then. This would ensure that if there was an issue with the return, the GP would know quickly while the matter is current. However, if a GP wished to send data returns for a number of patients at the same time, the return frequency would ideally be no longer than monthly. To the extent that returns have a bearing on reimbursement processes, the interface should ensure that GPs can safely deliver returns to the HSE in a timely manner without any risk of missing a date which might be required to facilitate the monthly payment.

7 Message Flow

Assessment data may relate to periodic assessments at age 2 and 5 years, asthma cycle of care or diabetes cycle of care.

Assumptions: Consent to send clinical data has been established via PCRS
Consent Web Service and messages are sent via the Healthlink Messaging Broker



Message Flow v0.1
Dated 31/08/2015

Figure 1 Message Flow

8 Message Types

An unsolicited Observation Message (ORU_R01) should be generated by the GP Practice Software System for each assessment. The PCRS will return an Acknowledgement Message (ACK_R01), one for each assessment (ORU_R01) message received.

The XML message is not case sensitive except for the unit field <OBX.6>.

9 HL7 Segments to Consider for ORU_R01 Message

<u>ORU^R01</u>	<u>Unsolicited Observation Message</u>	<u>Chapter</u>
MSH	Message Header	2
{		
[		
PID	Patient Identification	3
[PD1]	Additional Demographics	3
[{NK1}]	Next of Kin/Associated Parties	3
[{NTE}]	Notes and Comments	2
[		
PV1	Patient Visit	3
[PV2]	Patient Visit - Additional Info	3
]		
]		
{		
[ORC]	Order common	4
OBR	Observations Report ID	7
[{NTE}]	Notes and comments	2
[CTD]	Contact Data	11
{		
[OBX]	Observation/Result	7
[{NTE}]	Notes and comments	2
}		
[{FT1}]	Financial Transaction	6
[{CTI}]	Clinical Trial Identification	7
}		
}		
[DSC]	Continuation Pointer	2

Table 2 Abstract Message Structure for Unsolicited Observation Message

These are the segments used in this implementation:

ORU_R01	Observation Message	HL7 Chapter
MSH	Message Header	2
PID	Patient Identification	3
PV1	Patient Visit	3
OBR	Observation Request	4
OBX	Observation/Result	7

Table 3 Segments in use in this implementation

Message Header Segment (MSH)

Field	Mand	Value	Comment	HL7
Sending Application	Yes	HELIXPM.HEALTH LINK.40	Made up of name of GP Practice Software System, Healthlink and Healthlink Message Type, see code tables for possible values	<MSH.3>
Sending Facility	Yes		GP's Medical Council Number	<MSH.4>
Receiving Application	Yes	PCRS (Constant)	Defined application within Primary Care Reimbursement Service (PCRS)	<MSH.5>
Receiving Facility	Yes	PCRS (Constant)	PCRS	<MSH.6>
Date/time of message	Yes	YYYYMMDDHHMM		<MSH.7>
Message Type	Yes	ORU_R01 (Constant)		<MSH.9>
Message Control ID	Yes	ORU2015082716205405003564	Uniquely identifies the message. The format used to generate the Message Control ID is "ORU" + date and time in the format YYYYMMDDHHMMSSSS + GP's 6 digit Medical Council Number. Note the max length of this field is 50 characters.	<MSH.10>
Processing ID	Yes	P (Constant)		<MSH.11>
Version ID	Yes	2.4 (Constant)	HL7 version number	<MSH.12>
Accept ACK Type	Yes	AL (Constant)	ACK always expected	<MSH.15>

Table 4 Message Header Segment MSH

Note: 'Mand' in the column header means Mandatory.

Patient Identification Segment (PID)

Field	Mand	Value	Comment	HL7
Patient Identifier	Yes	1234567A	Patient's GMS number. Individual Health Identifier as a repeating field, which will also be mandatory when it becomes available. See HL7 formatting in Patient Identification Segment	<PID.3>
Patient Name	Yes	Varchar(50)	Surname, first name	<PID.5>
Date of Birth	Yes	YYYYMMDD	Min: 19000101 Max: current date	<PID.7>
Gender	Yes	F, M	F for female, M for male	<PID.8>
Address	Yes	Four lines, each line Varchar(30)	Four lines, first two are mandatory	<PID.11>

Table 5 Patient Identification Segment PID

Patient Visit Segment (PV1)

Field	Mand	Value	Comment	HL7
Patient Class	Yes	CP, CA	CP if consent is present, CA if consent is absent Indicates whether consent is present to share clinical data with HSE	<PV1.2>
Attending doctor	Yes	Identifies GP's GMS number. Refer to code table 0010 for permitted values.	This indicates the patient's registered GP. Individual Health Professional Identifier (IHPI) as a repeating field, which will also be mandatory when it becomes available. See HL7 formatting in Patient Visit Segment	<PV1.7>

Table 6 Patient Visit Segment PV1

Observation Request Segment (OBR)

Field	Mand	Value	Comment	HL7
Set ID	Yes	Numeric	Value 1	<OBR.1>
Universal Service	Yes	LOINC code and name for	Different codes for periodic, asthma and	<OBR.4>

Identifier		observation request	diabetes assessments. See Codes for OBR Segments for permitted values.	
Observation time	Yes	YYYYMMDD	Date of the assessment	<OBR.7>

Table 7 Observation Request Segment OBR

Observation Result Segment (OBX)

Field	Mand	Value	Comment	HL7
Set ID	Yes	Numeric	Starts at 1 and incrementally increases, order is not significant	<OBX.1>
Value type	Yes	FT, NM, CE	FT for formatted text, NM for numeric, CE for coded entry	<OBX.2>
Observation identifier	Yes	LOINC code and name for observation result. Local code where LOINC not available	See Codes for OBX Segments , e.g. LOINC code for Weight measured in Kg is 3141-9	<OBX.3>
Observation value	Yes		The value of the observation	<OBX.5>
Observation units		Units relevant to result		<OBX.6>
Reference range		Reference range of result		<OBX.7>
Abnormal flag		Abnormal flag value		<OBX.8>
Observation result status	Yes	F (Constant)	F for final	<OBX.11>
Date/time of the observation	Yes	YYYYMMDD	Timestamp	<OBX.14>

Table 8 Observation Request Segment OBX

10 Message Fragments

MSH Segment

The first five lines are standard in all ORU_R01 messages and show the XML declaration, the XML names space and, in the <MSH.1> and <MSH.2> fields, the legacy field separator and encoding characters used in traditional encoded HL7.

The practice software system, which is the sending application <MSH.3>, is called HELIXPM for Helix Practice Manager. Other software application names include HEALTHONE, SOCRATES, MEDTECH and COMPLETEGP. See [Codes for Practice Software Systems](#) for list of GP practice software systems.

The sending facility <MSH.4> is the GP's medical council number. Please fill all three components of this field, <HD.1>, <HD.2> and <HD.3>. The format is GP's family name and first name separated by comma, code, coding system, where L signifies a local coding system.

The receiving application <MSH.5> is the specific application in PCRS, populated by Web Service.

The receiving facility <MSH.6> is PCRS, populated by Web Service.

<MSH.7> is the date/time the ORU message was created by the practice software system. The format is YYYYMMDDHHMM.

MSH.9 is the message type.

MSH.10 is the Message Control ID and uniquely identifies the message. The format used to generate the Message Control ID is "ORU" + date and time in the format YYYYMMDDHHMMSSSS + GP's 6 digit medical council number. The max length of this field is 50 characters.

MSH.11 is the Processing ID. P is for production, D is for debugging or testing and T for training. Always use P.

MSH.12 is the HL7 version number, 2.4.

MSH.15 Accept Acknowledgement Type will be AL for always because the system expects to get an acknowledgement back.

```

<?xml version="1.0" encoding="UTF-8"?>
<ORU_R01 xmlns="urn:h17-org:v2xml">
  <MSH>
    <MSH.1>|</MSH.1>
    <MSH.2>^~\&amp;</MSH.2>
    <MSH.3>
      <HD.1>HELIXPM.HEALTHLINK.40</HD.1>
      <HD.2/>
      <HD.3/>
    </MSH.3>
    <MSH.4>
      <HD.1>Dr. Smith, John</HD.1>
      <HD.2>123564</HD.2>
      <HD.3>L</HD.3>
    </MSH.4>
    <MSH.5>
      <HD.1>PCRS</HD.1>
      <HD.2/>
      <HD.3/>
    </MSH.5>
    <MSH.6>
      <HD.1>PCRS</HD.1>
      <HD.2>99990</HD.2>
      <HD.3>L</HD.3>
    </MSH.6>
    <MSH.7>
      <TS.1>20150915103136</TS.1>
    </MSH.7>
    <MSH.9>
      <MSG.1>ORU</MSG.1>
      <MSG.2>R01</MSG.2>
    </MSH.9>
    <MSH.10>ORU20150914162054003564</MSH.10>
    <MSH.11>
      <PT.1>P</PT.1>
    </MSH.11>
    <MSH.12>
      <VID.1>2.4</VID.1>
    </MSH.12>
    <MSH.15>AL</MSH.15>
  </MSH>

```

Patient Identification Segment

The practice software system must send the patient demographics in the referral. The patient's GMS number must be present. If an Individual Health Identifier is available for the patient then this should be sent as a repeating PID.3 field. PCRS will make a match based on the patient's GMS number.

```
<ORU_R01.PATIENT_RESULT>
<ORU_R01.PATIENT>
  <PID>
    <PID.3>
      <CX.1>12345A</CX.1>
      <CX.4>
        <HD.1>PCRS</HD.1>
        <HD.2/>
        <HD.3/>
      </CX.4>
      <CX.5>GMS</CX.5>
    </PID.3>
    <PID.3>
      <CX.1>5393-014 123-456-789</CX.1>
      <CX.4>
        <HD.1>PCRS</HD.1>
        <HD.2/>
        <HD.3/>
      </CX.4>
      <CX.5>IHI</CX.5>
    </PID.3>
    <PID.5>
      <XPN.1>
        <FN.1>Mouse</FN.1>
      </XPN.1>
      <XPN.2>Michael</XPN.2>
      <XPN.5>Mr</XPN.5>
      <XPN.7>L</XPN.7>
    </PID.5>
    <PID.7>
      <TS.1>20130505</TS.1>
    </PID.7>
    <PID.8>M</PID.8>
    <PID.11>
      <XAD.1>
        <SAD.1>58 SEA VIEW</SAD.1>
      </XAD.1>
      <XAD.2>HOWTH ROAD</XAD.2>
      <XAD.2>HOWTH</XAD.2>
      <XAD.4>CO DUBLIN</XAD.4>
    </PID.11>
  </PID>
```

Patient Visit Segment

This segment contains information on patient consent and also the GMS number of the patient's registered doctor. The code CP means consent present and CA means consent absent.

```
<ORU_R01.PATIENT_VISIT>
  <PV1>
    <PV1.2>CP</PV1.2>
    <PV1.7>
      <XCN.1>12345</XCN.1>
      <XCN.13>GMS</XCN.13>
    </PV1.7>
  </PV1>
  <XCN.1>9999-2222 1123321-4545</XCN.1>
  <XCN.13>IHPI</XCN.13>
</PV1.7>
</PV1>
</ORU_R01.PATIENT_VISIT>
```

The PCRS Web Service will indicate:

- Whether consent is in place to return clinical data
- What Cycle of Care the patient is registered for
- Date patient was registered for a disease

Please be aware that PCRS will only accept clinical data from the patient's current registered GP.

Periodic Assessment Segment

OBX Segment	Mandatory	Data Type	Comment	Code
Patient Weight	Yes	Numeric, to one decimal point	Weight in kg (Kg, KG also permitted)	3141-9
Patient Height	Yes	Numeric, to one decimal point	Height in cm, to closest mm (Cm, CM also permitted)	3137-7
Referral Action	Yes	Yes, No	Referral or follow up action	X0121-0
Referral Option	Conditional on Referral Action being Yes	a, b, c, d	Code Table 22 a. Brief intervention by GP b. Refer to dietetic service c. Refer to paediatrician d. Refer to Community/Voluntary Programme Please note: it is possible other referral options will be added at a later stage	X0122-0
Immunisation Offered	Yes	Yes, No, N/A	If Primary Childhood Vaccination has not been completed, has vaccination been offered?	X0124-0

Household Smoking	Yes	Yes, No, N/A	Yes if one or more smoke in the household No if no one smokes	63771-0
Brief Intervention	Conditional*	Yes, No	* If 'Household Smoking' is Yes then this field is mandatory	X0123-0

Table 9 Data Fields for Periodic Assessment

Notes:

1. The assessment will only return raw data on height and weight to PCRS and PCRS will derive the centiles from the raw data.
2. Please implement validation of height and weight entries to prevent data input errors, e.g. maximum height 300cm, maximum weight 100kg.
3. You may not send a partial return of Periodic Assessment data. All the fields are mandatory or conditional and only fully completed returns will be accepted.

```

<ORU_R01.ORDER_OBSERVATION>
  <OBR>
    <OBR.1>1</OBR.1>
    <OBR.4>
      <CE.1>X0120-0</CE.1>
      <CE.2>Periodic Assessment</CE.2>
      <CE.3>L</CE.3>
    </OBR.4>
    <OBR.7>
      <TS.1>20150915</TS.1>
    </OBR.7>
    <OBR.25/>
  </OBR>
</ORU_R01.ORDER_OBSERVATION>
<ORU_R01.OBSERVATION>
  <OBX>
    <OBX.1>1</OBX.1>
    <OBX.2>NM</OBX.2>
    <OBX.3>
      <CE.1>3141-9</CE.1>
      <CE.2>Weight</CE.2>
      <CE.3>LN</CE.3>
    </OBX.3>
    <OBX.5>10.5</OBX.5>
    <OBX.6>
      <CE.1>kg</CE.1>
      <CE.2>kg</CE.2>
    </OBX.6>
    <OBX.7/>
    <OBX.8/>
    <OBX.11>F</OBX.11>
    <OBX.14>
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    </OBX.14>
  </OBX>
</ORU_R01.OBSERVATION>
<ORU_R01.OBSERVATION>
  <OBX>
    <OBX.1>2</OBX.1>
    <OBX.2>NM</OBX.2>
    <OBX.3>

```

```

        <CE.1>3137-7</CE.1>
        <CE.2>Height</CE.2>
        <CE.3>LN</CE.3>
    </OBX.3>
    <OBX.5>82</OBX.5>
    <OBX.6>
        <CE.1>cm</CE.1>
        <CE.2>cm</CE.2>
    </OBX.6>
    <OBX.7/>
    <OBX.8/>
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    <OBX.14>
        <TS.1>20150915</TS.1>
    </OBX.14>
</OBX>
</ORU_R01.OBSERVATION>
<ORU_R01.OBSERVATION>
    <OBX>
        <OBX.1>3</OBX.1>
        <OBX.2>TX</OBX.2>
        <OBX.3>
            <CE.1>X0121-0</CE.1>
            <CE.2>Referral Action</CE.2>
            <CE.3>L</CE.3>
        </OBX.3>
        <OBX.5>Yes</OBX.5>
        <OBX.6/>
        <OBX.7/>
        <OBX.8/>
        <OBX.11>F</OBX.11>
        <OBX.14>
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        </OBX.14>
    </OBX>
</ORU_R01.OBSERVATION>
<ORU_R01.OBSERVATION>
    <OBX>
        <OBX.1>4</OBX.1>
        <OBX.2>CE</OBX.2>
        <OBX.3>
            <CE.1>X0122-0</CE.1>
            <CE.2>Referral Option</CE.2>
            <CE.3>L</CE.3>
        </OBX.3>
        <OBX.5>
            <CE.1>A</CE.1>
            <CE.2>Brief intervention by GP</CE.2>
            <CE.3>L</CE.3>
        </OBX.5>
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<ORU_R01.OBSERVATION>
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        <OBX.1>5</OBX.1>

```

```

<OBX.2>TX</OBX.2>
<OBX.3>
  <CE.1>X0124-0</CE.1>
  <CE.2>Immunisation Offered</CE.2>
  <CE.3>L</CE.3>
</OBX.3>
<OBX.5>No</OBX.5>
<OBX.6/>
<OBX.7/>
<OBX.8/>
<OBX.11>F</OBX.11>
<OBX.14>
  <TS.1>20150915</TS.1>
</OBX.14>
</OBX>
</ORU_R01.OBSERVATION>
<ORU_R01.OBSERVATION>
  <OBX>
    <OBX.1>6</OBX.1>
    <OBX.2>TX</OBX.2>
    <OBX.3>
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      <CE.2>Household Smoking</CE.2>
      <CE.3>LN</CE.3>
    </OBX.3>
    <OBX.5>Yes</OBX.5>
    <OBX.6/>
    <OBX.7/>
    <OBX.8/>
    <OBX.11>F</OBX.11>
    <OBX.14>
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    </OBX.14>
  </OBX>
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<ORU_R01.OBSERVATION>
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    <OBX.2>TX</OBX.2>
    <OBX.3>
      <CE.1>X0123-0</CE.1>
      <CE.2>Brief Intervention</CE.2>
      <CE.3>L</CE.3>
    </OBX.3>
    <OBX.5>Yes</OBX.5>
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    <OBX.7/>
    <OBX.8/>
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  </OBX>
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</ORU_R01.ORDER_OBSERVATION>

```

Asthma Cycle Segment

OBX Segment	Mandatory	Data Type	Comment	Code
Review Treatment	Yes	Yes	Medication review	X0125-0
Review Compliance	Yes	Yes	See note below	X0126-0
Review Inhaler	Yes	Yes, N/A	Check of inhaler technique, see note below	X0127-0
Patient Education	Yes	Yes, No		X0128-0
Self Management Plan	Yes	Yes, No		44943-9
Printed Plan	Yes	Yes, No	Printed asthma management plan given to parent(s)	X0129-0
Immunisation Offered	Yes	Yes, No	Influenza vaccine offered (for moderate/severe asthma)	X0124-0
Household Smoking	Yes	Yes, No, N/A	Yes if one or more smoke in the household No if no one smokes	63771-0
Brief Intervention	Conditional*	Yes, No	* If 'Household Smoking' is Yes then this field is mandatory	X0123-0

Table 10 Data Fields for Asthma Review

Notes:

1. The answers to the questions for Review Treatment and Review Compliance must be Yes in order to submit a valid data return.
2. The answer to the question for Review Inhaler must be Yes or N/A.
3. You may not send a partial return of Asthma Cycle of Care data. All the fields are mandatory or conditional and only fully completed returns will be accepted.

```

<ORU_R01.ORDER_OBSERVATION>
<OBR>
  <OBR.1>1</OBR.1>
  <OBR.4>
    <CE.1>R96</CE.1>
    <CE.2>Asthma</CE.2>
    <CE.3>ICPC-2</CE.3>
  </OBR.4>
  <OBR.7>
    <TS.1>20150915</TS.1>
  </OBR.7>
  <OBR.25/>
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  <OBX.2>TX</OBX.2>
  <OBX.3>
    <CE.1>X0125-0</CE.1>
    <CE.2>Review Treatment</CE.2>
    <CE.3>L</CE.3>
  </OBX.3>
  <OBX.5>Yes</OBX.5>
  <OBX.6/>

```

```

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    <OBX.14>
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    <OBX.3>
      <CE.1>X0126-0</CE.1>
      <CE.2>Review Compliance</CE.2>
      <CE.3>L</CE.3>
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    <OBX.5>Yes</OBX.5>
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    <OBX.7/>
    <OBX.8/>
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    <OBX.14>
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<ORU_R01.OBSERVATION>
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      <CE.3>L</CE.3>
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    <OBX.7/>
    <OBX.8/>
    <OBX.11>F</OBX.11>
    <OBX.14>
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    </OBX.14>
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<ORU_R01.OBSERVATION>
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    <OBX.2>TX</OBX.2>
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      <CE.1>X0128-0</CE.1>
      <CE.2>Patient Education</CE.2>
      <CE.3>L</CE.3>
    </OBX.3>
    <OBX.5>Yes</OBX.5>
    <OBX.6/>
    <OBX.7/>
    <OBX.8/>
    <OBX.11>F</OBX.11>
    <OBX.14>
      <TS.1>20150915</TS.1>

```

```

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        <OBX.2>TX</OBX.2>
        <OBX.3>
            <CE.1>44943-9</CE.1>
            <CE.2>Self Management Plan</CE.2>
            <CE.3>LN</CE.3>
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        <OBX.5>Yes</OBX.5>
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        <OBX.7/>
        <OBX.8/>
        <OBX.11>F</OBX.11>
        <OBX.14>
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        <OBX.2>TX</OBX.2>
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            <CE.2>Printed Plan</CE.2>
            <CE.3>L</CE.3>
        </OBX.3>
        <OBX.5>Yes</OBX.5>
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        <OBX.7/>
        <OBX.8/>
        <OBX.11>F</OBX.11>
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        <OBX.2>TX</OBX.2>
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            <CE.2>Immunisation Offered</CE.2>
            <CE.3>L</CE.3>
        </OBX.3>
        <OBX.5>No</OBX.5>
        <OBX.6/>
        <OBX.7/>
        <OBX.8/>
        <OBX.11>F</OBX.11>
        <OBX.14>
            <TS.1>20150915</TS.1>
        </OBX.14>
    </OBX>
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<ORU_R01.OBSERVATION>
    <OBX>

```

```

<OBX.1>8</OBX.1>
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<OBX.3>
  <CE.1>63771-0</CE.1>
  <CE.2>Household Smoking</CE.2>
  <CE.3>LN</CE.3>
</OBX.3>
<OBX.5>Yes</OBX.5>
<OBX.6/>
<OBX.7/>
<OBX.8/>
<OBX.11>F</OBX.11>
<OBX.14>
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</OBX.14>
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<ORU_R01.OBSERVATION>
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  <OBX.2>TX</OBX.2>
  <OBX.3>
    <CE.1>X0123-0</CE.1>
    <CE.2>Brief Intervention</CE.2>
    <CE.3>L</CE.3>
  </OBX.3>
  <OBX.5>Yes</OBX.5>
  <OBX.6/>
  <OBX.7/>
  <OBX.8/>
  <OBX.11>F</OBX.11>
  <OBX.14>
    <TS.1>20150915</TS.1>
  </OBX.14>
</OBX>
</ORU_R01.OBSERVATION>
</ORU_R01.ORDER_OBSERVATION>

```

11 Acknowledgement Message

When the vendor sends an assessment message to PCRS via Healthlink, an acknowledgement message must be sent back to the vendor by PCRS. If no acknowledgement is received back from PCRS within 24 hours then PCRS has not received the assessment. The GP needs to be aware that no acknowledgement means the submission has not been received.

<u>ACK</u>	<u>General Acknowledgment</u>	<u>Chapter</u>
MSH	Message Header	2
MSA	Message Acknowledgment	2
[ERR]	Error	2

Table 11 Segments for Acknowledgement Message

Below is an XML sample of how an ACK message type is formatted. Values in blue are taken from the originating Vendor message segments.

```

<?xml version="1.0" encoding="UTF-8"?>
<ACK xmlns="urn:h17-org:v2xml">
  <MSH>
    <MSH.1>|</MSH.1>
    <MSH.2>^~\&amp;</MSH.2>

```

```

<MSH.3>
  <HD.1>PCRS.HEALTHLINK.13</HD.1>
</MSH.3>
<MSH.4>
  <HD.1>PCRS [Hospital Name MSH.6/HD.1]</HD.1>
  <HD.2>99990 [Hospital Code MSH.6/HD.2] </HD.2>
  <HD.3>L</HD.3>
</MSH.4>
<MSH.5>
  <HD.1>HELIXPM</HD.1>
  <HD.2></HD.2>
  <HD.3></HD.3>
</MSH.5>
<MSH.6>
  <HD.1>Dr. Smith, John [GP Name MSH.4/HD.1]</HD.1>
  <HD.2>123564.1234 [GP MCN MSH.4/HD.2]</HD.2>
  <HD.3>MCN.HLPracticeID [MSH.4/HD.3]</HD.3>
</MSH.6>
<MSH.7>
  <TS.1>20150914162235</TS.1>
</MSH.7>
<MSH.9>
  <MSG.1>ACK</MSG.1>
  <MSG.2>R01 [MessageType MSH.9/MSG.2]</MSG.2>
</MSH.9>
<MSH.10>ACK201509141622353564</MSH.10>
<MSH.11>
  <PT.1>P</PT.1>
</MSH.11>
<MSH.12>
  <VID.1>2.4</VID.1>
</MSH.12>
</MSH>
<MSA>
  <MSA.1>AA</MSA.1>
  <MSA.2>ORU20150914162054003564</MSA.2>
</MSA>
</ACK>

```

The values for sending application and sending facility in the acknowledgement message are the same as the values for receiving application and receiving facility in the initiating assessment message and vice versa.

MSH.10 is the unique message control ID of the acknowledgement message and is not related to MSA.2, the message control ID of the assessment message that is being acknowledged. MSH.10 is generated using the format of the current date and time, up to the milliseconds. **Ex:** ACKyyyymmddHHmmssfff

The three possible values for MSA.1, Acknowledgement Code are:

- AA Application Acknowledgement
- AE Application Error (details/reasons to be provided by PCRS)
- AR Application Reject

This tells you whether the original assessment message, as identified in MSA.2, has been accepted by PCRS.

An Application Reject acknowledgement may mean one of two things:

- There is a major problem with the message and it cannot be validated by the receiving system;
- There is a problem with the receiving system and it is unable to process the message, though the message itself is fine;

An Application Error message means there is a problem with the content of the message. This should be diagnosed and corrected by the sending system before resending the message.

The Message Error Segment (ERR) is required where an error is found in a HL7 message. The ERR Segment is used to add error information to acknowledgement messages. Healthlink have added codes to the HL7 Table 0357 - Message Error Condition Codes, included in this document. If an error is not included in this table, the unknown code can be used and new errors can be added to this table accordingly as they occur.

SEQ	LEN	DT	OPT	RP/#	TBL#	ITEM #	ELEMENT NAME
1	80	CM	R	Y		00024	Error Code and Location

Table 12 Message Error (ERR) Segment

Notes:

- The ERR segment is optional in an ACK message, but where it does appear the ERR.1 field is required.
- The ERR.1 field is repeatable, allowing for information on multiple errors to be displayed.
- The components of the ERR.1 field are:
 - segment ID, the three letter identifier of the segment in which the error occurred;
 - sequence, the Set ID of the segment if there is more than one segment with the same segment ID in the message;
 - field position, the field number within the segment where the error occurred;
 - code identifying error, taken from HL7 table 0357 Message Error Condition Codes and shown in Section 14 of this document.

Consider an example where an ORU_R01 message is missing the required fields PID.3 Patient Identifier and PID.5 Patient Name in the MSH Segment. In this case the ERR segment of the acknowledgment message, which would have AE in the MSA.1 field, would look as follows:

```
<ERR>
  <ERR.1>
    <ELD.1>PID</ELD.1>
    <ELD.3>3</ELD.3>
    <ELD.4>
      <CE.1>101</CE.1>
      <CE.2>Required field missing</CE.2>
      <CE.3>HL70357</CE.3>
    </ELD.4>
  </ERR.1>
  <ERR.1>
    <ELD.1>PID</ELD.1>
    <ELD.3>5</ELD.3>
```

```

        <ELD.4>
          <CE.1>101</CE.1>
          <CE.2>Required field missing</CE.2>
          <CE.3>HL70357</CE.3>
        </ELD.4>
      </ERR.1>
    </ERR>

```

For the current list of error codes see table [HL7 Table 0357](#) in Code Tables section below.

12 Validation of Data

Healthlink will validate the MSH and PID segments of the assessment message to ensure that the sender, receiver and patient details are valid. The overall structure of the message will also be validated prior to forwarding on to PCRS. However, the onus is on the vendor to ensure correct OBR & OBX segments and codes are used for each type of assessment message.

13 Message Transportation

See “WS HealthlinkOnline Tech GP Vendor v1.14.pdf” for the latest version of the vendor web service documentation.

Vendors submit messages to Healthlink via the normal SubmitMessage API web service.

1. Each submitted message will return an Ack/Nack from Healthlink, similar to the referral process, indicating the message has been received.
2. Where messages are integrated into hospital systems, as in the case of PCRS messages and numerous referrals, an Ack/Nack will be generated by PCRS/hospital system for the vendor. Therefore the processing of these ack messages may be somewhat slower. Vendors will need to retrieve the acks using the RetrieveACKbyMessageID or GetAllUnprocessedMessages(ByMsgtype) web service methods. When GetAllUnprocessedMessages(ByMsgtype) is invoked it will be necessary to flag messages as processed using the SetMessagesProcessed method. This step will not be required for the RetrieveACKbyMessageID API.

The same transport mechanism will be used for ACKs that is used to send the originating message to the PCRS/Hospital system:

- The Assessment messages will be placed on an MSMQ on the Healthlink Central Bridge and sent to the PCRS Bridge
- The PCRS Bridge will use FTP to place the Assessment messages in a dedicated folder on the PCRS FTP server. E.g. folder 40
 - FTPHealthlinkFolder/Live/40 or FTPHealthlinkFolder/Test/40
- ACKs and NACKS will be placed by PCRS in folder ‘13/sub-folder’ for pickup by Healthlink
 - e.g. FTPHealthlinkFolder/Test/13/40, FTPHealthlinkFolder/Test/13/41

14 Code Tables

LOINC Codes for Observation Request Segments (OBR)

Text	Other code
Periodic Assessment	X0120-0
Asthma Review	R96 (ICPC-2)

Table 13 LOINC Codes for OBR Segments

LOINC Codes for Assessment Observation Result Segments (OBX)

Text	LOINC code
Weight	3141-9
Height	3137-7
Household Smoking	63771-0
Self Management	44943-9

Table 14 LOINC codes for OBX Segments

Local Codes for Data Items for which a LOINC Code is not available

Text	Local code
Periodic Assessment	X0120-0
Referral Action	X0121-0
Referral Option	X0122-0
Brief Intervention	X0123-0
Immunisation Offered	X0124-0
Review Treatment	X0125-0
Review Compliance	X0126-0
Review Inhaler	X0127-0
Patient Education	X0128-0
Printed Plan	X0129-0

Table 15 Local Codes

<MSH.3> Sending Application

The format is the name of the GP practice software system, Healthlink, Healthlink Message Type ID e.g. COMPLETEGP.HEALTHLINK.40

GP Practice Software System	Code
CompleteGP	COMPLETEGP
Health One	HEALTHONE
Helix Practice Manager	HELIXPM
Socrates	SOCRATES
MedTech32	MEDTECH

Table 16 Code Table for Practice Software Systems

Healthlink Message Type	Message Type ID
Periodic Assessment	40
Asthma Cycle of Care	41
Diabetes Cycle of Care	42
Acknowledgement	13

Table 17 Healthlink Message Types

<MSH.6> Receiving Facility

Hospital/Agency	Code
PCRS	99990

Table 18 MSH.6 values

<MSH.11> Processing ID

Description	Code
Debugging	D
Production	P
Training	T

Table 19 HL7 Table 0103 - Processing ID

HL7 Table 004

Value	Description
Consent is Present	CP
Consent is Absent	CA

Table 20 Values for consent

HL7 Table 0010

Description	Code
General Medical Services	GMS
Medical Council Registration Number	MCN
Individual Health Professionals Identifier	IHPI
An Bord Altranis Registration Number	ABARN

Table 21 HL7 Table 0010 - Physician ID

Referral Option

Description	Code
Brief intervention by GP	A
Refer to dietetic service	B
Refer to paediatrician	C
Refer to community/voluntary programme	D

Table 22 Code table for Referral Option for Asthma Cycle of Care

Please note: it is possible that other referral options will be added over time, as they become available.

Key Data Elements

Name	HL7 Segment and Field	Comment
------	-----------------------	---------

Consent Status	PV1.2	
GP's GMS Number	PV1.7	
Patient's GMS Number	PID.3	
Type of Assessment	OBR.4	
Date of Assessment	OBR.7	

Table 23 Mapping of Key Data Elements to HL7 Fields

HL7 Table 008, Acknowledgement Code (for original mode acknowledgements)

Value	Description
AA	Application Accept
AE	Application Error
AR	Application Reject

Table 24 HL7 Table 008, Acknowledgement Code

HL7 Table 0357, Message Error Condition Codes (for the fourth component of the ERR.1 field)

Error Code	Error Condition Text	Description/Comment
Success		
0	Message accepted	Success. Optional, as the AA conveys success. Used for systems that must always return a status code.
Errors		
100	Segment sequence error	The message segments were not in the proper order, or required segments are missing.
101	Required field missing	A required field is missing from a segment
102	Data type error	The field contained data of the wrong data type, e.g. an NM field contained "FOO".
103	Table value not found	A field of data type ID or IS was compared against the corresponding table, and no match was found.
Rejection		
200	Unsupported message type	The Message Type is not supported.
201	Unsupported event code	The Event Code is not supported.
202	Unsupported processing id	The Processing ID is not supported.
203	Unsupported version id	The Version ID is not supported.
204	Unknown key identifier	The ID of the patient, order, etc., was not found. Used for transactions other than additions, e.g. transfer of a non-

		existent patient.
205	Duplicate key identifier	The ID of the patient, order, etc., already exists. Used in response to addition transactions (Admit, New Order, etc.).
206	Application record locked	The transaction could not be performed at the application storage level, e.g. database locked.
207	Application internal error	A catchall for internal errors not explicitly covered by other codes.
208	Duplicate Message Filename	The Filename of the message already exists.
Healthlink Codes		
300	Invalid XML	Message is not valid xml document
301	XML Namespace Issue	Unknown xml namespace
302	Schema Validation error	Message cannot be validated against schema
303	Invalid data format – MSH.3	Invalid data format, segment 'MSH.3/HD.1', expected format '[GeneratingSystem].[Middleware].[MessageType]'
304	MSH.9 Message Type Mismatch	Xml root (Ex: <ORU_R01>) Messagetype doesn't match with MSH.9 Values.
305	Invalid REF/RRI Message Type	Invalid data format, segment 'MSH.10', expected format 'REF/RRI[YYYYMMDDHHMMSS][MedicalCouncilNumber]'
306	Invalid Hospital Data Format MSH.4 or MSH.6	Invalid data format, segment 'MSH.4-MSH.6/HD.2', expected format '[HospitalCode]' and not '[HospitalCode].[SomeOtherCode]'
307	Invalid Agency Data Format MSH.4 or MSH.6	Invalid data format, segment 'MSH.4-MSH.6/HD.2', expected format '[GPCode/AgencyCode/MCNcode]' and not '[GPCode/AgencyCode/MCNcode].[SomeOtherCode]'
308	Invalid MCN.HLPracticeID Data Format MSH.4 or MSH.6	Invalid data format, segment 'MSH.4-MSH.6/HD.2', expected format '[MCN.HLPracticeID]'
Receiving System Codes		
400	General Message Exception	Detailed error description returned by receiving system. This can contain any exception not captured by codes listed above.

		e.g. Message cannot be accepted Message was previously submitted
--	--	---

Table 25 HL7 Table 0357, Message Error Condition Codes

15 Appendix A: PCRS web service

These web services allow integrated software to determine which data returns a given patient is registered for.

NB Consent to Share Data was returned by an earlier version of these web services. It has been removed as redundant since the patient data has been split between reimbursable anonymised clinical data returns. This version of the web service is identical to the previous 1.1 in all respects bar the removal of consent attributes.

a. getCycleOfCare

The service will be secured and authentication will be from a GP client certificate and securityToken (see following getAuthTokenRequest service).

- Inputs:
 - securityToken: returned from getAuthTokenRequest. Will have defined lifespan, can be renewed by getAuthTokenRequest.
 - gmsDoctorNumber: the PCRS contract number of the examining GP, must be linked to the credentials represented by the token.
 - patient GMS card number and letter e.g. 1234567A.
- Output:
 - patient GMS card number: The patient identity as supplied in the inputs
 - gmsDoctorNumber: The GP identity as supplied in the inputs.
 - list of registered diseases
 - errors: details of any failures

b. getConditionRequest

The service will be secured and authentication will be from a GP client certificate and securityToken (see following getAuthTokenRequest service).

- Inputs:
 - securityToken: returned from getAuthTokenRequest. Will have defined lifespan, can be renewed by getAuthTokenRequest.
 - gmsDoctorNumber: the PCRS contract number of the examining GP, must be linked to the credentials represented by the token.
 - patient GMS card number and letter e.g. 1234567A.
- Output:
 - patient GMS card number: The patient identity as supplied in the inputs
 - gmsDoctorNumber: The GP identity as supplied in the inputs.
 - Condition: list of registered illnesses plus registration dates
 - errors: details of any failures to authenticate

c. getPatientRegistrationsRequest

The service will be secured and authentication will be from a GP client certificate and securityToken (see following getAuthTokenRequest service).

- Inputs:
 - securityToken: returned from getAuthTokenRequest. Will have defined lifespan, can be renewed by getAuthTokenRequest.

- gmsDoctorNumber: the PCRS contract number of the examining GP, must be linked to the credentials represented by the token.
- patient GMS card number and letter e.g. 1234567A.
- Exam date: the date the exam was carried out (optional, defaults to today)
- Output:
 - patient GMS card number: The patient identity as supplied in the inputs
 - gmsDoctorNumber: The GP identity as supplied in the inputs.
 - Exam date
 - Registrations: list of registered illnesses including
 - registration date
 - last exam date
 - last exam type
 - next exam due from date
 - next exam due to date
 - next exam type
 - errors: details of any failures to authenticate

d. getAuthTokenRequest

This service will return a re-usable authentication token of finite lifespan. It requires a GP client certificate and the PCRS username and password for the authorised representative of one or more GPs.

- Inputs:
 - username: the PCRS username i.e. the same one used for PCRS web applications.
 - password: the PCRS password i.e. the same one used for PCRS web applications.
- Output:
 - username: The username supplied in the inputs
 - securityToken: a valid token for authenticating subsequent calls to secure PCRS web services.
 - gmsDoctorNumbers: a list of PCRS GPs who have agreed to be represented by this authenticated user.
 - errors: details of any failures to authenticate