

Interfacing Boot Camp

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Overview

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- Premise
- Background for Today's Session
- What is an Interface
- Types of Interfaces
- Inbound and Outbound
- Trigger Rules
- The Interface Specification Document
- Dissecting a Message

Premise for Today's Session

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- PAIN POINT: Care Providers lose productivity when typing encounter data straight into an EHR or EMR.
- **ACTION POINT: MTSOs need to proactively engage clinics to give them the option to dictate and place interfaces into the project plan from the beginning.**

Background for Today's Session

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- Key point from first webinar: it's not the EHR as much as the clinic's preference that determines whether transcription will continue being used.
- It is critical to proactively present interface options to clients **before** you become aware that they are looking into EHR systems. By then, it might be too late.

Sampling of Interfaces Completed Q1

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EHR	Clinic Type	Impact of EHR	Interface Type
Acumen	Renal Group	Full Transcription	HL7
Allscripts	Digestive Health	Full Transcription	HL7
Greenway	Orthopedic	Full Transcription	File Monitor
Centricity	Hospital	Full Transcription	HL7
Meditech	Behavioral Health	Full Transcription	HL7
eMDs	Abdominal Health	Full Transcription	HL7
Care 360	Internal Medicine	Full Transcription	HL7
SRSsoft	Orthopedic	Full Transcription	File Monitor
Epic	Multi-Speciality	Full Transcription	HL7
NextGen	Orthopedic	Full Transcription	File Monitor

Definitions

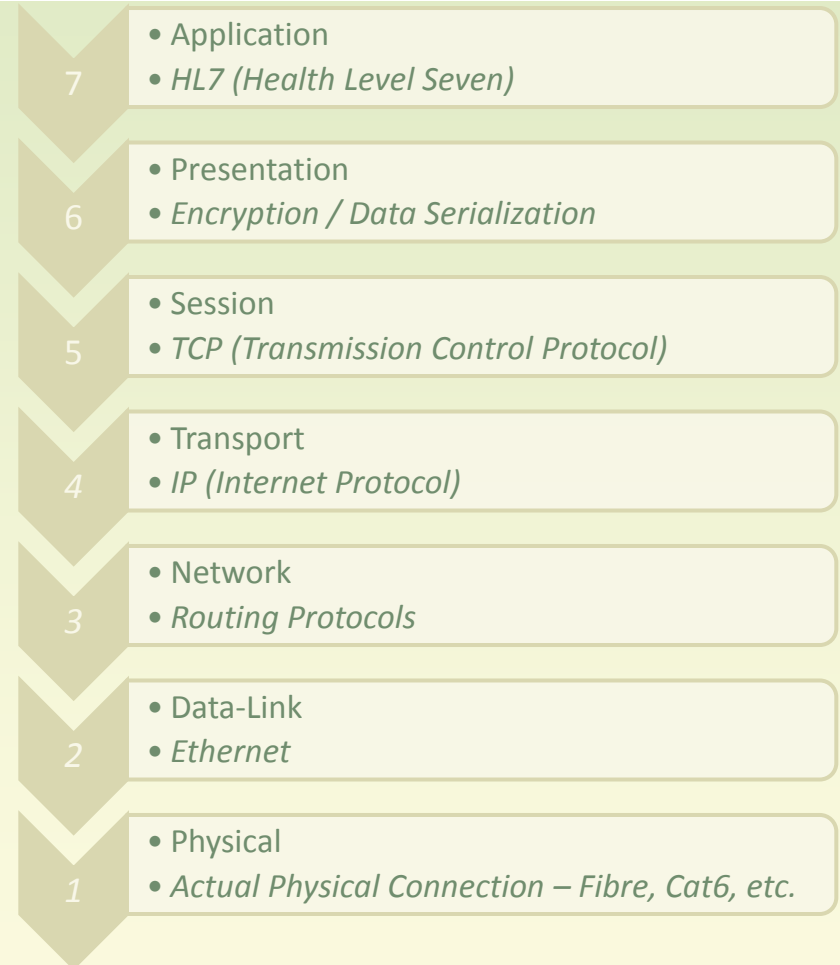
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- ADT: Admit Discharge Transfer
- HL7: Health Level 7
- MDM: Medical Document Management
- ORU: Observation Result
- PID: Patient Identification
- PV1: Patient Visit
- HTML: HyperText Markup Language
- XML: eXtensible Markup Language

Health Level 7?

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- “7” refers to the seventh layer of the Open Systems Interconnection (OSI) reference communications model.
- Interfaces directly to the “Application” layer.



What Is An Interface?

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- A bridge between two systems
- Facilitates communications.
- Transport mechanism.
- If the data exists, it can be sent.
- Any limitations are because of one system or the other, not the bridge.

Interface Transports

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- TCP/IP over Site to Site VPN
- File Copy over Site to Site VPN
- Secure FTP push/pull



Types of Interfaces

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- HL7 Import / Export (Requires TCP/IP over VPN)
- XML Import / Export
- Word Document Export
- HTML Export
- CSV Import
- Flat File Export



File Copy over VPN or
Secure FTP push/pull

Inbound or Outbound?

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- It Depends.

Inbound or Outbound?

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- Messages from the EHR to the TASP are *Outbound* from the EHR's point of view.
- The same messages are *Inbound* from the TASP's point of view.
- Similarly, messages from the TASP to the EHR are *Outbound* from the TASP's point of view.
- And the same messages are *Inbound* from the EHR's point of view.

Inbound or Outbound?

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- Best to talk about the actual message types instead of direction.
- Inbound to TASP examples:
 - ADT
 - Patient Demographics
 - Physician Data
- Outbound from TASP examples:
 - MDM, ORU
 - Flat File Export

Interface Triggers

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- Determine *when* a message is sent.
- For WebChartMD, the triggers are:
 - ▣ On Transcription
 - ▣ On Finalize
 - ▣ On Esign
- Messages are normally sent, post trigger, every time a change is made.

The Interface Specifications Document

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- Normally provided by the EHR / EMR vendor.
- Determines exactly how they wish to send and receive messages.
- Varies from one EHR to another.

Example of WebChartMD's ISD

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Page 3 • WebChartMD ADT Feed Specification • v2.0



MSH – Message Header Segment

<u>Seq</u>	Len	Data Type	Element Name	Required	Comments
1	1	ST	Field Separator	Yes	
2	4	ST	Encoding Characters	Yes	
3	180	HD	Sending Application		
4	180	HD	Sending Facility		
5	180	HD	Receiving Application		
6	180	HD	Receiving Facility		
7	26	TS	Date/Time of Message	Yes	
8	40	ST	Security		
9	13	CM	Message Type	Yes	
10	20	ST	Message Control ID	Yes	
11	3	PT	Processing ID		
12	60	VID	Version ID	Yes	
13	15	NM	Sequence Number		
14	180	ST	Continuation Pointer		

Anatomy of a Message

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- Contains “meta-data” (data about the data).
 - ▣ This meta-data tells the receiver what to do with the message.
 - ▣ Can be in a header.
 - ▣ Can be a specially formatted filename.
- Contains the actual data content that needs to be sent.

HTML Export Example (OrthoPad)

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JOHNSON CITY ORTHO ASSOCIATES, L.L.C.

100 Med Tech Parkway, Suite 550, Johnson City, TN 37604 Phone: 423-321-6600 Fax:
423-321-8814

Smith, Jane
54212
11/2/1966
Olson, John
5/23/2012

CHIEF COMPLAINT: Left shoulder pain.

HISTORY OF PRESENT ILLNESS: The patient states that approximately 2 months ago, she started noticing some discomfort in her left shoulder. She states that the pain was kind of generalized throughout the shoulder. No focal area, sometimes it was on the lateral aspect of her shoulder. She had no traumatic injury. She is right-hand dominant. Approximately a week ago, she was in the shower and felt a pop in her left shoulder that was minimally painful. She did feel a bit better after this pop but then she noticed some swelling and stiffness. She denies any numbness or tingling going down this left arm. She denies any previous problems with this left shoulder. She describes the pain as a 4/10 and describes it as intermittent, occurring mainly in the morning and with certain positions. She has had no imaging and no physical therapy on the shoulder.

```
1 <html>
2 <head>
3     <title>NEW PATIENT Parker</title>
4 <style type='text/css'> BR.PgBreak {page-break-after:
always;} </style>
5 </head>
6 <body><br />
7 <!--<br />
8 startdoc
9 <style>
10 h4 { line-height: 0; }
11 </style>
12 <h4>Patient Name:&nbsp;&nbsp;&nbsp;<span>*Smith, Jane</span>
</h4>
13 <h4>Date of Birth:&nbsp;&nbsp;&nbsp;<span>*11/02/1966</span>
</h4>
14 <h4>Physician Name:&nbsp;&nbsp;&nbsp;<span>*John,
Olson</span></h4>
15 <h4>Date of Service:&nbsp;&nbsp;&nbsp;<span>*05/23/2012</span></h4>
16 <h4>Reason:&nbsp;&nbsp;&nbsp;<span>*NEW PATIENT Parker</span>
</h4>
17 endheader<br />
18 --><br />
19 <p align='center'><span style='font-family: Times New
Roman; font-size: 16pt;'><strong>JOHNSON CITY ORTHO
ASSOCIATES, L.L.C.</strong></span></p>
20 </strong></span><span style='font-family: Times New
Roman; font-size: 10pt;'>100 Med Tech Parkway, Suite
550, Johnson City, TN 37604 Phone: 423-321-6600
Fax: 423-321-8814</span></p>
21 </br/>
```

HL7 Messages

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- Preferred method of communication.
- Takes the longest time to implement.
- Robust messaging with guaranteed delivery and notifications on failure.
- Standards based and has the widest level of adoption.

Dissecting an HL7 Message

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- HL7 messages are comprised of a number of groups, segments, fields, components and sub-components.
- Groups contain segments or groups
- Segments contain fields
- Fields contain components
- Components contain sub-components

HL7 Message Segments

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- All messages are required to have exactly one message header segment (MSH).
- All messages are required to have exactly one patient identification segment (PID).
- Transcription messages normally contain an Observation segment for the note (OBX).

Common HL7 Transcription Interface Message Types

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- ADT
- MDM
- ORU

Common Types of ADT Messages

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- ADT-A01: Patient Admit
- ADT-A02: Patient Transfer
- ADT-A03: Patient Discharge
- ADT-A04: Patient Registration
- ADT-A05: Patient Pre-Admission
- ADT-A08: Patient Information Update
- ADT-A11: Cancel Patient Admit
- ADT-A12: Cancel Patient Transfer
- ADT-A13: Cancel Patient Discharge

Common Types of MDM Messages

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- MDM-T01: Original Document Notification
- MDM-T02: Original Document Notification & Content
- MDM-T03: Document Status Change Notification
- MDM-T04: Document Status Change Notification & Content
- MDM-T05: Document Addendum Notification
- MDM-T06: Document Addendum Notification & Content
- MDM-T07: Document Edit Notification
- MDM-T08: Document Edit Notification & Content
- MDM-T09: Document Replacement Notification
- MDM-T09: Document Replacement Notification & Content
- MDM-T11: Document Cancel Notification

Common Types of ORU Messages

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- **ORU-R01:** Unsolicited transmission of an observation message
- **ORU-R31:** Unsolicited New Point-Of-Care Observation Message - Search For An Order
- **ORU-R30:** Unsolicited Point-Of-Care Observation Message Without Existing Order
- **ORU-R32:** Unsolicited Pre-Ordered Point-Of-Care Observation

Sample ADT A01 Message

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```
MSH|^~\&|ADT1|MCM|LABADT|MCM|198808181126|SECURITY|ADT^A01
|MSG00001-|P|2.3
EVN|A01|198808181123
PID|||PATID1234^5^M11||JONES^WILLIAM^A^III||19610615|M-||C|1200
N ELM
STREET^^GREENSBORO^NC^27401-1020|GL|(91-9)379-1212|(919)271-
3434||S||PATID12345001^2^M10|123456789|9-87654^NC
NK1|1|JONES^BARBARA^K|WIFE|||||NK
PV1|1||2000^2012^01|||004777^LEBAUER^SIDNEY^J.|||SUR||-
||ADM|A0-
AL1|1||^Penicillin||Produces hives
AL1|2||^Cat dander|Respiratory distress
```

Sample MDM T02 Message

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MSH|^~\&|||N||2012051712075691699|WebChartMD|MDM^T02|20120516130657845|T|2.3

PID||09000001||TEST^MEDICAREPATIENT2||19400304|F|||||||17104|||||||

TXA||6||2012051712075691698|91704^WatermanTest^Sara^^
^^^^^^^FCSER|201205101145000000|2012051508432783700|2012051712075691698|91704^WatermanTest^Sara^^
^^^^^^^FCSER||16560^Test^Epic^^4449155||||DI||UN|||

OBX||ST|N||JESSICA WHITE|||||||

OBX||ST|N||01/12/1970

900-112|||||||

OBX||ST|N|||||||

OBX||ST|N||The patient was evaluated today in follow up evaluation. She continues to suffer from ongoing neck and lower back pain with no recent radicular complaints.|||||||

OBX||ST|N|||||||

OBX||ST|N||Her evaluation today reveals restriction in the range of motion of the cervical and lumbar region with tenderness and spasms of the paraspinal musculature. Motor strength was 5/5 on the MRC scale. Reflexes were 2+ and symmetrical. Palpable trigger points were noted bilaterally in the trapezius and lumbar paraspinal musculature bilaterally.|||||||

OBX||ST|N|||||||

OBX||ST|N||Palpable trigger points were noted on today's evaluation. She is suffering from ongoing myofascitis. Her treatment plan will consist of a series of trigger point injections, which were performed today. She tolerated the procedure well. I have asked her to ice the region intermittently for 15 minutes off and on x 3. She will be followed in four weeks' time for repeat trigger point injections if indicated.|||||||

OBX||ST|N|||||||

OBX||ST|N|||||||

Sample ORU R01 Message

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```
MSH|^~\&|LCS|LCA|LIS|TEST9999|199807311532||ORU^R01|3629|P|2.2
PID|2|2161348462|20809880170|1614614|20809880170^TESTPAT||19760924|M|||^^^
00000-0000|||86427531^^^03|SSN# HERE
ORC|NW|8642753100012^LIS|20809880170^LCS|||19980727000000||HAVILAND
OBR|1|8642753100012^LIS|20809880170^LCS|008342^UPPER RESPIRATORY
CULTURE^L||19980727175800|||SS#634748641 CH14885 SRC:THROA
SRC:PENI|19980727000000|||20809880170|19980730041800|BN|F
OBX|1|ST|008342^UPPER RESPIRATORY CULTURE^L|FINALREPORT|||N|F||19980729160500|BN
ORC|NW|8642753100012^LIS|20809880170^LCS|||19980727000000||HAVILAND
OBR|2|8642753100012^LIS|20809880170^LCS|997602^.^L||19980727175800|||G||
19980727000000|||20809880170|19980730041800||F|997602||008342
OBX|2|CE|997231^RESULT 1^L||M415|||N|F||19980729160500|BN
NTE|1|L|MORAXELLA (BRANHAMELLA) CATARRHALIS
NTE|2|L|HEAVY GROWTH
NTE|3|L|BETA LACTAMASE POSITIVE
OBX|3|CE|997232^RESULT 2^L||MR105|||N|F||19980729160500|BN
NTE|1|L|ROUTINE RESPIRATORY FLORA
```



Full Transcription Example

Document

JESSICA WHITE
01/12/1970
19400304

The patient was evaluated today in follow up evaluation. She continues to suffer from ongoing neck and lower back pain with no recent radicular complaints.

HL7 Message

```
MSH|^~\&|||N||2012051712075691699|WebChartMD|
MDM^T02|20120516130657845|T|2.3
PID|||09000001||WHITE^JESSICA||19400304|F|||||||
|17104|||||||||||||||||
TXA||6||2012051712075691698|91704^WatermanTest^S
ara^^
^^^^^^^FCSER|201205101145000000|20120515084327
83700|2012051712075691698|91704^WatermanTest^Sar
a^^
^^^^^^^FCSER||16560^Test^Epic|^4449155||||DI||U
N|||
OBX||ST|N||JESSICA WHITE|||||||||
OBX||ST|N||01/12/1970
19400304|||||||||
OBX||ST|N|||||||||
OBX||ST|N||The patient was evaluated today in follow up
evaluation. She continues to suffer from ongoing neck and
lower back pain with no recent radicular
complaints.|||||||||
```



Partial Dictation Example

Document

Okay, so this a test dictation. I have a little quote here. “There is always room for improvement, it is the biggest room in the house”

HL7 Message

```

MSH|^~\&|||N||2012051712075691698|WebChartMD|
MDM^T08|20120516130657844|T|2.3
PID|||09000001||TEST^MEDICAREPATIENT2||19400304
|F|||||||17104|||||||
TXA||6||2012051712075691698|91704^WatermanTest^
Sara^^
^^^^^^^FCSER|201205101145000000|2012051508432
783700|2012051712075691698|91704^WatermanTest^S
ara^^
^^^^^^^FCSER||16560^Test^Epic|^4449155&PV-tst-
524.wav||||DI||UN|||
OBX||ST|N|||||||
OBX||ST|N||Okay, so this a test dictation. I have a little
quote here. |||
OBX||ST|N||“There is always room for improvement, it is
the biggest room in |||
OBX||ST|N||the house”|||
OBX||ST|N|||||||

```

How to Approach Your Clients

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- Those without an EHR.
- Those that deployed an EHR recently.
- Those who deployed an EHR and said they were terminating all transcription.

The Conversation

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- Talk about how an EHR is *good*. They do have many benefits.
- Transcription really complements an EHR by enabling efficient entry of high quality patient data into an EHR.
- Mention costs – no costs from the transcription end, but potential costs from the EHR.
- Identify benefits and cost savings:
 - ▣ Do they have full time staff (scribes) to enter data for the doctors?
 - ▣ Do they use front end speech recognition?
 - ▣ If so, do they QA that work? If they have full time staff to QA, they are probably spending a lot of money on it. If not, their medical documentation probably has errors.
 - ▣ A study at Princess Margaret Hospital in Toronto found that there was a 23% error rate in reports that were done exclusively using front end speech recognition.

In Summary

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- Transcription along with EHRs should be placed as the future – this is where technology is *moving towards*, not something that is *left behind*.
- There are many new advances, including Partial Dictation, that provide cost savings while enabling dictation.
- Remember – you must be proactive in talking to your clients about setting up a transcription interface to their EHR system *before* they start implementing one.

Questions?

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References & Citations

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