



[Healthcare Organization]
[Vendor [Result Type] System] to
Medicity ProAccess Laboratory
Results
HL7 2.3

Delivery Date

Version 1.0 / Draft



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1 Introduction

The Medicity LAB Inbound interface supports the receipt of HL7 [Result Type] messages. This document defines and describes the HL7 event codes and messages that Medicity [Result Type] Inbound will accept. This document also describes how the Medicity [Result Type] Inbound interface will process each event.

This document contains the following chapters:

Chapter 1: Introduction – Includes the purpose and scope of the document, instructions on how to use it, and a list of related documents that can help you understand the subject matter.

Chapter 2: Communication – Details the generalized interaction and exchange of data.

Chapter 3: The [Vendor [Result Type] System] System – Used to record and identify the details regarding the organizations that will have ProAccess connectivity.

Chapter 4: [Result Type] Interface Flow – Describes the dataflow in the Medicity [Result Type] Interface model.

Chapter 5: [Result Type] Trigger Events – Describes the supported HL7 trigger events for given HL7 [Result Type] message types.

Chapter 6: Message Definition and Processing – Identifies the message structure the processing that occurs when it is processed.

Chapter 7: HL7 Segment Layouts – Defines HL7 data segments supported in a [Result Type] interface from a non-Medicity system to ProAccess.

1.1 Document Purpose

This document is designed to facilitate the collection and dispersal of information regarding the HL7 specification of HL7 event codes delivered by the client system to the Medicity ORU interface. Any related interfaces, such as orders will be documented in separate interface reference documents [Order Spec Name Here].

Business Rule – When to define separate result specs:

Lab results specs should be created for each unique resulting filler system and for each specific department (RAD, LAB, PATH, TRANS, etc.). If there are 2 filling lab systems (Example: SunQuest and Cerner Lab), there should be two Lab Results specs.

1.2 Document Scope

- This document is not intended to be a compendium of knowledge regarding system interfaces or HL7 specifications.
- Background information on HL7 Interface standards is specifically excluded in this document
- Additional information about the items not covered in this manual can be found in the documents in section 1.3 of this document

1.3 Using This Document

This document is designed to be used by a Medicity Interface Architect to collect the information necessary to define the relationship between the client system and the Medicity.

1.3.1 Search and Replace

When first saving this document, perform a search and replace with the following:

Search for	Replace with
[Vendor [Result Type] System]	The name of the vendor system Example: HealthInfoSoft
[Healthcare Organization]	The name of the Medicity client Example: Healthcare, Inc
[Result Type]	The type of result

Following the search and replace instances detailed above, save the document with the vendor results system and, if necessary, a version number in the file name.

Example: [Client] [Vendor] LAB to PA5 Medicity LAB Results Spec v1.0.doc

There is also other highlighted text that needs to be replaced as part of the data collection process. For example, in Chapter 3, the data you need to collect includes the format for internal and external patient identifiers.

In most cases, the text that needs to be changed is **highlighted in yellow** to help you identify the items that need attention.

Once a document has been approved by QA, each version must have track changes enabled. This feature is available by clicking **Tools > Track Changes** from the Word menu bar.

After completing these tasks, you can delete this section.

1.3.2 Entering Text

In each table there is space to enter text where applicable. For example, Chapter 3 includes a table that has space for you to enter the names of the organizations that will and those that will not use the interface.

1.4 Referenced Documents

This document is not intended to be a complete ADT or HL7 technical reference document. The following documents can be a valuable resource in helping to understand the details of these items.

- One
- Two
- Three

1.5 Document Version

Author	Version	Date	Comments	Status
[Analyst], [Title], Medicity, Inc.	1.0			Draft

Editor	Version	Date	Comments	Status

2 Communications

2.1 Minimal Lower Level Protocol

Medicity will not use data validation mechanisms, such as checksums, often required with less reliable connections.

The generalized interaction and exchange of data proceeds as follows:

1. The initiating system (i.e. the system with data to send) constructs an HL7 message and transmits the message via an established connection to the receiving system.
2. The receiving system performs basic checks on the incoming message (ensures an HL7 wrapper <SB>dddd<EB><CR>). These edits are negotiable, but typically includes checking for the presence of required segments and possibly fields within segments. These basic checks focus on message structure validity and do NOT include data validation (e.g., a valid patient number).
3. If the message passes the basic checks in step 2, the receiver commits the message to safe storage.
4. The receiver sends an acknowledgement MSA segment to the initiating system. The receiving system sends the message on to the application layer, and the initiating system is free to send the next message once the acknowledgement is received by the sending system.
5. In the event that the sending system does not receive an acknowledgement, Medicity expects the sending system interface to automatically issue a TCP/IP Close Port Command, then recycle the interface to a 'Connect To' state. Medicity recommends that the sending system not setup an automatic retry of sending the message prior to recycling the interface and be configured to recycle the interface after not receiving an ACK.
6. Medicity recommends setting a maximum ACK timeout value of 5-10 seconds on the sending system.

2.2 Port Assignment for Results

Medicity strongly recommends sending application-specific HL7 messages on separate ports. For example, results would be sent to Medicity on a port separate from Lab results or Pathology reports. In the event this cannot be accomplished Medicity will create a splitter processor that can allow Medicity to receive results, transcription on a single port and route them to the appropriate sub-processes (see 2.2.2 below Message Router Custom Processing by Medicity).

2.2.1 Results Port Assignments

Medicity uses the following port naming conventions:

If DEV, QA or CERT = 7XXX

If PROD = 8XXX

Example:

DEV: 7XX1

QA: 7XX1

CERT: 7XX1

PROD: 8XX1

Department Type:

- ADT = XXX0
- LAB Orders and Results = XXX1
- RAD Orders and Results = XXX2
- Transcription Results = XXX3
- Pathology Orders and Results = XXX4
- General Orders and Notes = XXX5
- Pharmacy Orders = XXX6
- Other Interfaces = XXX7 – XXX9

If there is more than one results interface from this data provider, the last port number should be incremented as follows:

- 7001 = First results instance
- 7201 = Second results instance

Environment	Port
CERT	7XX1
PROD	8XX1

2.2.2 Message Router Custom Processing by Medicity

Medicity strongly recommends that each interface be sent to a unique port to allow for expanded maintenance, monitoring and general throughput. However, if the sending system cannot support this request, Medicity can split the data feed into separate interface instances prior to processing.

The Message Router is a custom feature that **is not covered** in a standard Medicity interface scope. If a client should elect to have Medicity install the Message Router module, a scope change request must be completed and approved.

Formal acceptance of the risks associated with the sending system not being able to deliver interfaced data to separate ports must be discussed between the client and Medicity prior to enabling this function.

Interface Instance
How to identify the results contributing systems. Medicity uses string Regex expressions to make this determination.

2.2.3 Pre and Post-validation

The following are requirements for pre and post-validation:

- The Required/Medicity/Client Optional naming conventions defined for R/O fields will be used in the Pre and Post Validation Columns.
- The goal of the pre and post-validators is to ensure that the minimum required dataset is available in an incoming message.

- If a message does not pass the validation rules, the message is de-queued and the sending organization is notified via email.
- Validation Options Business Rules:
 - If a field is a Medicity or client required field, by default the pre- and post-validators should be configured to test that the field 'Is Not Null.'
 - If more complex data validation is required (example: Data is within a specified range of values), the validation criteria are to be defined within the comments section of the segment/field/component row of the data element table.
 - Validation Options
 - Numeric/Alphanumeric
 - Range of Values
 - Is Not Null

2.2.3.1 Pre-validation:

The goal of pre-validation is to ensure that the incoming message contains the minimum dataset necessary to populate all the Medicity and client required fields prior to transformation (if required).

Special consideration must be made for data elements that must be transformed as a required data element may not be in a Medicity 'expected' location. The pre-validation rules must take into account where the client source system is sending the data if the message is improperly structured by the sending system.

2.2.3.2 Post-validation:

The goal of post-validation is to ensure that after message transformation, the message contains the minimum dataset necessary to write the message to the database and meet the client minimum dataset requirements.

3 [Healthcare Organization] [Vendor [Result Type] System] System

[Healthcare Organization] uses the [Vendor [Result Type] System]. Lab Sections to be interfaced will be General Lab, Microbiology, and Blood Bank.

3.1 Organizations

[Healthcare Organization] will have the ProAccess Repository and Organization configuration listed in the table below. All organizations in [Healthcare Organization] that are to be part of this interface should be listed in the table below. Medicity Reference Value Org Names shall always be defined in Upper Case.

Repository	Organization	Identified in Message By	Medicity Reference Value
		MSH:04	

Note: Separate configurations per organization will be required for the translator and database writer. The project manager is responsible for filling out the repository overview.

Note: The repository overview will be addressed in the integration scope document developed by the Project Manager and Integration Analyst. This scope document is to be defined before any specs are developed.

Note: Some hospital environments will have instituted a lab outreach process where patients are registered in that contributing lab system and are not documented in the HIS. In the case where a lab outreach organization is configured separately from an inpatient lab organization by the client, a separate organization must be defined in ProAccess.

The separation of data by inpatient and outreach organization is important because:

- Outreach Lab orders and results may never be tied to an ADT message
- Patient demographic quality between inpatient and outreach lab orders can vary greatly
- Possibility for separate MRN and account pools

3.2 Contributing System

[Healthcare Organization] will have the ProAccess Contributing System configuration listed in the table below.

Organization	Sending Application	Identified in Message By	Medicity Reference Value
		MSH:03	MSH:04 + LAB

Note: Separate configurations per contributing system will be required for the translator and database writer.

3.3 Medicity Business Rules and Guidelines

3.3.1 Patient Matching

For this results interface, Medicity attempts to match all valid patients within the [Healthcare Organization] Repository to the same patient. Medicity expects the MRN and Account number format to be consistent between sending systems within a hospital organization. If this is not possible – see Section 8 Processing Performed by Medicity.

Patient Matching for this interface will be referenced in the *Patient Matching* document.

3.3.1.1 Patient Identifiers configured for this interface

A client may use up to four of these identifiers for an interface. The most commonly used identifiers are “Internal Patient Identifier” and “Patient Account Identifier.”

Note: Within ProAccess, “Internal Patient ID” is considered the MRN. External Patient Identifier is used as an EMPI patient identifier.

Identifier from [Vendor Results System]	Identifier in Medicity	Format	Validation Rule (Exists/Alpha-Num/Custom Format)
Internal Patient Identifier	PID:3	XXX-XX-XXXX	
External Patient Identifier	PID:2	XXXXXXXXX	
Alternate Patient Identifier	PID:4	999999999	
Patient Account Identifier	PID:18	000999	

3.3.1.2 Add/Update Setting

ProAccess has the capability of handling the creation/update of a patient record in the following ways:

- Add/Update:
 - If the patient identified in an inbound message does not currently exist within this ProAccess Organization, a new patient record will be added.
 - If the patient identified in an inbound message does currently exist within this ProAccess Organization, the patient record **will** be updated with the patient demographics within the inbound message.
 - This setting is most often used with a results interface that does not have a corresponding ADT interface that is considered the Patient Demographics system of record or authority and the results interface is the Patient Demographics system of record.
- Add Only:
 - If the patient identified in an inbound message does not currently exist within this ProAccess Organization, a new patient record will be added.
 - If the patient identified in an inbound message does currently exist within this ProAccess Organization, the patient record **will not** be updated with the patient demographics within the inbound message.
 - This setting is most often used with an results interface that has a corresponding ADT interface that is considered the Patient Demographics system of record or authority.

Database Writer Configuration Value for Patient Matching	Configuration
patient_process value=	ADDONLY or ADDUPDATE
encounter_process value=	ADDONLY or ADDUPDATE

3.3.1.3 Encounter or Visit Matching

[Vendor [Result Type] and Results System] system sends a patient account number to which charges, payments, etc., are recorded. This is required on all account-based events. The Medicity ProAccess system prefers to use the patient account number to uniquely match all encounters. The Visit Identifier can be used as an optional visit/encounter matching identifier.

Note: The Encounter or Visit Matching section should precede the Guarantor, Next of Kin, and Insured Matching section.

Identifier from [Vendor Results System]	Identifier in Medicity	Format	Validation Rule (Exists/Alpha-Num/Custom Format)
Patient Account Identifier	PID:18	000999	
Visit Identifier	PV1:19	XXXXXXXX	

The values in the table above should only reflect the values to be used in this interface. If the visit identifier is not used, the row should be grayed out.

3.3.2 Physician Matching

[Vendor [Result Type] and Results System] system always sends a unique identifier for physicians for all related positions to patients and patient's encounters. When a physician identifier is received that is not pre-built in the PersonnelRef table the physician will be added. The physician ID number format will be [fill_in_the_blank].

3.3.2.1 Physician Matching Business Rules:

- If a physician ID is sent, Medicity will match on the ID. If there is no match by ID then Medicity will create the physician record with the provided ID and name.
- If a physician ID is not sent, Medicity attempts to match based on free text matching an agreed upon free text physician ID and name.
- Both ID and last name must be provided. If both are not provided, there will be impacts to provider to patient relationships, result delivery, etc.

3.3.2.2 Physician Matching Common Issues:

- If an ID is provided without a provider name, Medicity will write the ID to the provider table with the name of 'Unknown Physician'
- This feature will allow a relationship to be established between a provider ID and a patient/result.
- Clients will often default a provider ID to a default provider ID if the provider is not known. This default value must be included in this specification.

- The format of physician ID needs to be standardized. If system A sends 0123 and system B sends 123 for the same provider, the data sender shall normalize the provider ID format between systems.
- The ID format must be consistent or made consistent across the Results and all other interfaces.
- Medicity will evaluate ORC:12 and/or OBR:16 to determine the Ordering Provider. It is important to note that the OBR:16, if populated will be used to populate the ordering provider field in ProAccess. As HL7 provides for 2 ordering provider fields in the ORU message the OBR takes priority.

Provider ID				Format	Validation Rule (Exists/Alpha-Num/Custom Format)
Ordering Provider ID (OBR:16.1)					
16.1	Provider ID	<u>R</u>			
16.2	Last Name	<u>R</u>			
16.3	First Name	<u>O</u>			
16.4	Middle Name	<u>O</u>			
16.5	Suffix	<u>O</u>			
16.6	Prefix	<u>O</u>			
16.7	Degree	<u>N</u>			
<p>Note: Medicity expects that all Provider IDs will match the format of the Attending Provider ID as described above.</p> <p>Note: Medicity does not currently support the degree field.</p>					

3.3.2.3 Physician Free-text Matching

If a physician record is created in 'freetext' mode (we receive a provider name without an ID) Medicity will create a 'free text' provider ID. The format of the free text provider ID is specified in the table below. The format of the default provider ID must be defined and agreed to by the data provider.

Free-Text Physician Identifier from [Vendor Results System]	Identifier in Medicity
Ex. ^Smith^John^A^Jr	Medicity will configure the database parser to accept "99999" as the free-text provider ID. Example: 99999^Smith^John^A^Jr

3.3.3 Performing Lab Requirements

Per the regulations defined in Clinical Laboratory Improvement Amendments (CLIA) Subpart K §493.1291(c)(2), each Lab Result must identify the name and address of the Performing Lab.

It is up to the hospital departmental directors/managers/supervisors whether they need to meet this requirement. This is because they are ultimately responsible for approving the report contents and are the most knowledgeable of the requirements and their internal policies/procedures to enforce the requirements. There are at least 3 state licensure programs for CLIA exemption.

If we observe that it is not sent we will bring it to the client's attention, but ultimately whether or not the client provides this information is their decision.

When the client is unable to fulfill this requirement directly from their sending system, Medicity will work with the client to determine custom processing to calculate the Performing Lab and display this as a Performing Lab Comment (PLC).

This information is displayed underneath the report header in ProAccess and at the bottom of printed reports. The end-users can use this information to contact the Performing Lab should they have any questions or concerns about the Lab Result.

A client can have from one to many Performing Labs. For hospitals that do all of their Labs in-house this may simply be the name of the client such as "City Hospital" and the full street address such as "301 E. Main St. City, ST 99999". A single PLC can span multiple lines like this:

```
City Hospital
301 E. Main St.
City, ST 99999
```

ProAccess will always display the Performing Lab information from the configuration at the time the Result was received. Should the configuration of the phone number or address of the Performing Lab change over time the Result will show the information from the time the Result was received, not what might presently be configured in the transformer.

Medicity has defined the following business rules to aid in identifying the proper processing for each client:

- The PLC should be identified in each Result message. The information is not required for ORM messages and should not be added to them.
- Within each HL7 message, each group of {OBR [NTE] OBX [NTE]} segments should have its own Performing Lab Comment(s). Each OBR segment and its children will be evaluated independently.
- At a minimum, the PLC should contain the name of the Performing Lab and its street address.
- Additional information, such as phone number, instructions, and the name of the facility director may be included. This list is not meant to limit the specific types of information that can be included in the configured value.
- Creation of a PLC using a combination of fields, rather than a match on a Performing Lab and its configured value, is possible. This section is only intended to document the information necessary to configure the standard functionality; any additional processing should be documented in section 6 Message Processing.
- The header information in the body of a Microbiology Report is sufficient when it includes the name and address of the performing lab. Because of this, Medicity may make a determination about whether or not to insert a PLC based on the value of the Diagnostic Service Section.
- A client should have at least one Performing Lab default.

Medicity has defined the following business rules to define the generic Performing Lab Comments function:

- A client can have 0, 1, or many configured Performing Labs.
- A client should have at least one configured Performing Lab Default. This default will be used if no match is found for the Performing Lab.
- Comparisons will be case insensitive and all fields should be stripped of white spaces prior to comparison.
- Evaluations of the configuration and message will be done on a top to bottom basis.
- For each distinct match between the distinct Key Fields values and the XML configuration, Medicity will create a Performing Lab comment using the Configured Value.
- Line breaks will be represented in the configuration by the normal HL7 repetition character "~". These will present in ProAccess as line breaks.
- The Performing Lab Comments are stored in the CDR as one contiguous comment. The function will start NTE:03 with "~" for any Performing Lab NTE segments created after but not including the first Performing Lab Comment. This will provide proper spacing between each comment.
- The *Matching Value* should normally be a string value, but can also be a RegEx expression. The use of expressions is meant to allow limited matching based on ranges of expected values.
- The max total length of all performing labs attached to a single order is 8000 characters. The individual performing labs will normally be 100 characters or less, so there normally is no reason to be concerned with the max length.

3.3.3.1 Performing Lab Configuration

After Medicity or the client has identified how to determine the Performing Lab, the Medicity analyst will gather the Matching Criteria for each of the Performing Labs and record it in the following tables. The first table will record the Performing Labs; the second table will record the Performing Lab Defaults.

The information for both tables will be stored in XML configuration attached to the Transformer Module.

- The *HL7 Key Field* is the HL7 field, component, or sub-component or combination of the same which Medicity will key off to determine a match on the configuration.
- The *Matching Value* is the concatenated string which represents the intended match. It can also be a RegEx expression but the documentation should only reflect the intent of the RegEx – not the RegEx itself.
- The *Configured Value* is the value which should be inserted into a Performing Lab Comment. It can be up to 8000 characters long.

Performing Lab

A single Observation Result can match to 0 or many Performing Labs. For each unique match on this table Medicity will create a new NTE segment containing the configured value for each of the distinct matches.

HL7 Key Field	Matching Value	Configured Value
OBR:24, OBX[*]:16	LAB0123	Laboratory 123 E. Main St. City, ST 99999
OBR:24, OBX[*]:16	MB0123	Microbiology 123 E. Main St. City, ST 99999

OBR:24, OBX[*]:16	LAB0345	Laboratory 345 E. Main St. City, ST 99999
OBR:24, OBX[*]:16	MB0345	Microbiology 345 E. Main St. City, ST 99999
OBR:24, OBX[1]:16	LAB	Laboratory 301 E. Main St. City, ST 99999
OBR:24, OBX[1]:16	MB	Microbiology 301 E. Main St. City, ST 99999

Note: A [*] indicates that all of a given segment type should be checked and a list of the distinct values should then be checked for matches. A [1] or [n] indicates that the 1st or nth of that segment in that group of segments. The actual configured value will need to contain “~” for any line breaks.

Performing Lab Defaults

A single Observation Result can have 0 or 1 Performing Lab Defaults. A default will only be used if no Performing Labs were matched based on the preceding table. The defaults should be listed in this table in the order they are intended to be tested. The first match that is found will be selected and inserted as the default PLC. Medicity will create one NTE segment containing the configured Performing Lab Comment.

HL7 Key Field	Matching Value	Configured Value
MSH:03, OBR:24	CCLABMICRO	Facility Director Microbiology Department City Center Hospital 301 E. Main St. City, ST 99999
OBR:24	LAB	Laboratory Department City Center Hospital 301 E. Main St. City, ST 99999

Note: A [*] indicates that all of a given segment type should be checked and a list of the distinct values should then be checked for matches. A [1] or [n] indicates that the 1st or nth of that segment in that group of segments. The actual configured value will need to contain “~” for any line breaks.

Performing Lab Comment Creation

For each match, Medicity will create an NTE segment where the fields are valued as follows:

Field #	Custom Processing Required	Pre-Validation Rule
NTE:01	An incremental set id. Starts at 1, increments by 1. The counter restarts at 1 after each OBR segment.	None

NTE:02	Medicity will always value NTE:02 as "P" for Performing Lab Comments.	None
NTE:03	As determined by the Match and its Configured Value. For any Performing Lab NTE segments created after but not including the first Performing Lab Comment Medicity will prefix the configured value with "~".	None

While it is a requirement that the Performing Lab information be provided in some manner for each result, Medicity will evaluate this only during the Analysis Stage. The Post-Validator will not fail a message because there is no NTE segment containing a Performing Lab comment.

Example Performing Lab Comment

NTE|1|P|City Center Hospital~For inquiries the physician may contact the City Center Laboratory at (801) 555-5555.

3.4 Nexus Metadata to be captured for this Interface

Metadata is used on the Nexus engine for transaction searching purposes. Nexus is already configured to provide a set of searchable items. The list of standard Metadata items and any custom items are listed below. To ensure optimal performance, custom metadata elements are not available without approval from the Medicity Product Management Team.

Metadata item to be captured:	Identified in Medicity after message transformation
SendingApplicationID	MSH:3
MessageControlID	MSH:10
Event	MSH:9.2
PatientID	PID:3
AlternatePatientID	PID:4
PatientLastName	PID:5.1
PatientMiddleName	PID:5.3
PatientFirstName	PID:5.2
PatientAccountNo	PID:18
Placer	OBR:2
Filler	OBR:3
OrderedTest	OBR:4.1
PlacerAccession	OBR:18
FillerAccession	OBR:20

3.5 Down Time Process

The intent of this section is to identify any issues related to the assignments of patient account numbers and medical record numbers that do not fall within the normal pool of patient account numbers and medical record numbers that are available when a downtime event is to in play.

If different pools of MRN and Account Numbers are used during downtime, we need to know how those numbers are reconciled after the downtime event has ended.

3.5.1 Unscheduled Downtime

[Cut-and-Paste Client Unscheduled Downtime Procedures]

3.5.2 Example Purposes - Unscheduled Downtime

1. A list of downtime MRNs and account numbers is provided to the registrars.
2. When Lab and Radiology receives an order on a paper requisition from for entry into the Lab or Radiology system, an alpha lookup is done for a valid MRN.
 - If the patient exists, the MRN is used with downtime account number.
 - If the patient does not exist, downtime MRN and account number are used.
3. When the HIS resumes operation, registrars perform the alpha look up for the valid MRN.
 - If the patient exists, the MRN is used with downtime account number.
 - If the patient does not exist, downtime MRN and account number are used.
4. When Lab and Radiology is turned on, the Lab and Radiology results are sent with the matching PID segment information.
5. If duplication makes merging necessary, it is handled by the Medical Records department as follows:
 - Inpatients – the merge will occur after discharge.
 - Outpatients – the merge will occur within a few days.
6. Lab and Radiology receives the merge request and merges the patient data. Medical Records deletes the unnecessary MRN.

3.5.3 Scheduled Downtime

[Cut-and-Paste Client Scheduled Downtime Procedures]

3.5.4 Example Purposes - Scheduled Downtime

1. The registrars are given a medical record number index to locate an existing patient.
 - If the patient does not exist, the “Unscheduled downtime” procedure is used.
 - If the patient does not exist, downtime MRN and account number are used.
2. A list of downtime MRNs and account numbers is provided to the registrars.
3. The Lab and Radiology receive results on paper request form for entry into the system. The results are attached to the MRN and downtime billing number.
4. When the HIS resumes operation, these numbers are used to register the patient with the Lab and Radiology interface turned off.

5. When the Lab and Radiology interface is turned on, the lab and radiology results are sent with the matching PID segment information.

3.6 Order and Result Matching

Because matching an order to a result is a critical part of the data repository model that Medicity provides, this section discusses the business rules that must be taken into consideration when developing a Lab/General orders interface specification that has one or more associated lab results interfaces.

Medicity requires a unique identifier per clinical result event for matching all succession of order and result transactions for that unique clinical result. Therefore, Medicity requires that vendor system send a unique value in OBR:2 or Medicity must construct a unique value in OBR:2 that will be reflected in both the order and corresponding results interfaces.

Business Rule:

Spec developers must also note that the contributing system (MSH:3) values in both the ordering and resulting interfaces must be identical or must be transformed by Medicity to be identical.

Terms:

Pool: Collection of unique numbers that are never re-used.

Since Lab/General Results can originate in the [Vendor [Result Type] System], different ranges of Placer Number in each system must be received.

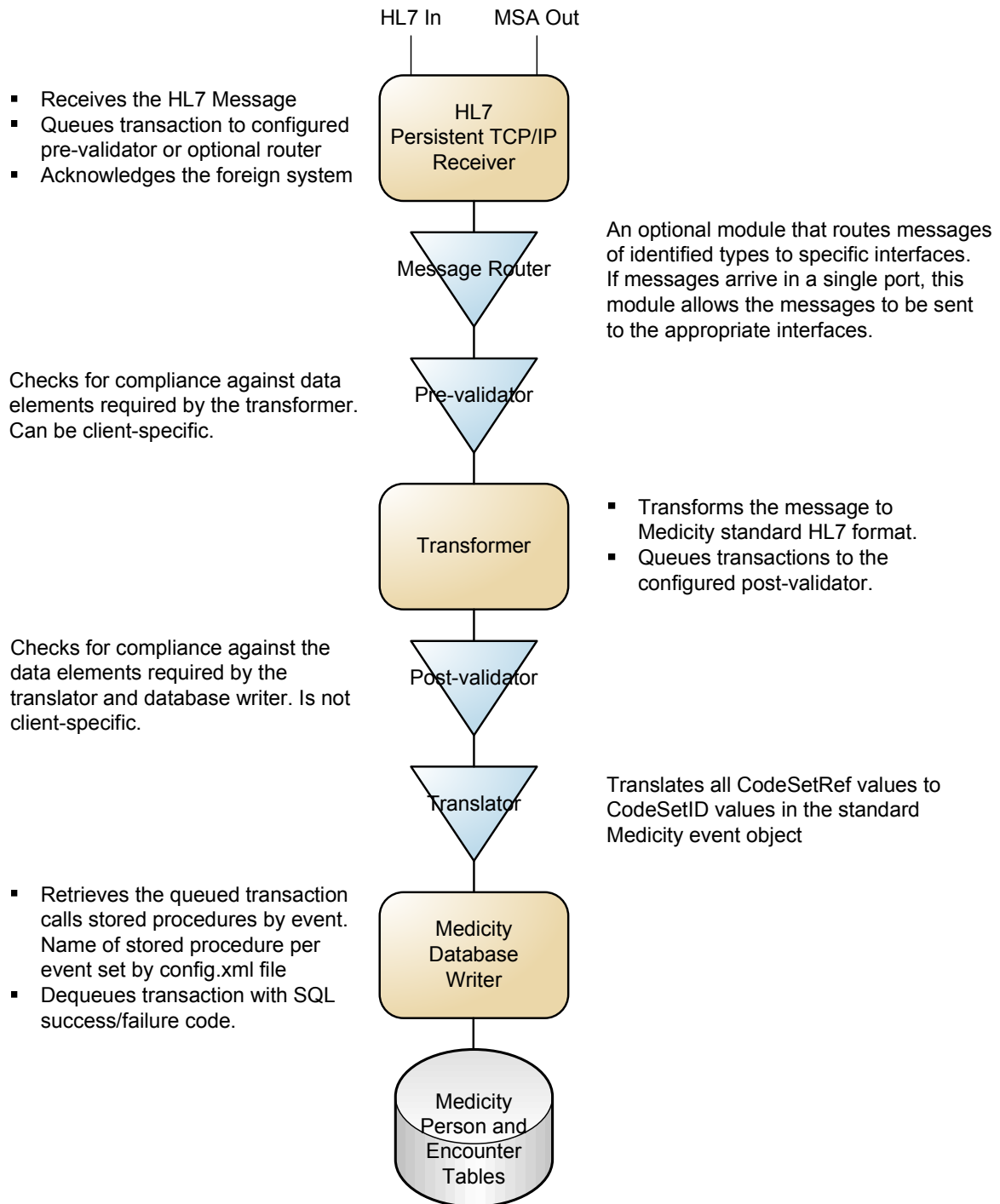
Medicity groups results by accession number. Medicity uses OBR:20 (filler field 1/Medicity Accession Number) to receive the accession number. OBR:20 is required for results.

Spec writer Notes/Considerations:

- Need to ensure that OBR:20 (filler field 1/Medicity Accession Number) is indeed the accession number used to group related order events
- Need to ensure that OBR:20 is a unique value that will not be reused to after a certain timeframe
- Need to ensure that OBR:20 is consistently valued across related results interfaces
- Careful consideration must be used when defining the field that will be used for matching results to results:
 - Consider HIS-initiated Orders vs. LIS-initiated Orders and the workflow between these two systems to ensure the agreed upon matching identifier will ALWAYS exist between those two systems, even during downtime scenarios.
 - The Orders/Results matching number must be guaranteed to be unique in all scenarios. Suffixing or prefixing this number from other fields such as the test code or patient account number will need to be considered.
- You need to determine how are accession numbers are generated:
 - Consider that some results systems will auto accession before sending the order to ProAccess.
 - Is the order sent to ProAccess and the filling system that will then create an accession number after the order is sent to ProAccess?

Identifier from Results Interface	HL7 Field	Medicity assumptions to be evaluated and confirmed or denied.	Match	Custom Processing Required?	Client-specific implementation notes
Medicity Placer Number	OBR:2/ ORC:2	Historically, the order management number that is considered to be unique	Yes/No	Yes. See section XXXXXX	Example: Based on discussion with client, the place number is only unique within the encounter. Medicity will have to manufacture this number by pre-pending the encounter number in the transformer.
Medicity Filler Number	OBR:3/ ORC:3	Historically, the filler number assigned by the LIS that is considered to be unique. Sometimes the same as OBR:20.	Yes/No	No	
Filler Field 1 (Medicity Accession Number)	OBR:20	Historically, the LIS Accession number, meant to aggregate one or more ordered tests on one report. Sometimes the same as OBR:3.	Yes/No	No	
Placer Field 1 (Placer Accession Number)	OBR:18	Historically, has been used by some Lab Systems to uniquely identify an ordered test	Yes/No	No	

4 Lab Results Inbound Interface Flow



4.1 Interface Names

The following rules and standards should be followed when naming interfaces and instances.

4.1.1 Standardizing Interface and Instance Names

Use a standard format for all interface names. This makes it easy for the client to look in Nexus and easily understand which interfaces they are looking at. Components that should make up the interface names are:

- Value we are changing MSH:4 to. (ex: HMA, WCH,etc)
- Type of interface (ADT, LAB, PATH, RAD, TRANS, PACS, etc)
- Type of messages (results vs. orders)
- Designation of Inbound or Outbound to or from Meditrust (In vs. Out)
- Name must be under 50 char and spaces are included in that count.
- No special character should be used in the name of an instance
- No spaces should be used in the name of an instance
- Interface type should be in all CAPS.

Client Example: City Center

Description	Name
City Center Lab Result interface	CCLABResultsIn
City Center Receiver	CCLABReceiver
City Center Message Router	CCLABRouter
City Center Pre-validator	CCLABPreValidator
City Center Transformer	CCLABTransformer
City Center Post-validator	CCLABPostValidator
City Center Translator	CCLABTranslator
City Center Database Parser	CCLABDBParser
City Center MPI Writer	CCMPIWriter
City Center Delivery Preferences Router	CCDeliveryPrefRouter
City Center Worklist Writer	CCWorklistWriter

4.1.2 Interface Module Names

In the space provided below, list the interface and instance names used for the client.

5 ORU Trigger Events

This interface will support the following HL7 trigger events for the HL7 LAB message type:

HL7 Trigger Event	Trigger	Event Code
Discrete Results	ORU	R01
Display Results	ORU	R03

6 Message Definition and Processing

6.1 Discrete Results ORU (R01)

The Medicity ORU Inbound interface will accept discrete results using the R01 trigger. Each result test code will be added to the result table with the respective result detail information.

Order status for each order will be based on the following ORC:1 (Order Control) values:

ORC:1 Order Control	ProAccess Order Status
RE – Result	Resulted

Note: Rows listed in gray will not be used in this interface and should be filtered out of the interface by the sending organization's interface engine.

6.1.1 Results ORU (R01) Message Structure

Message

Event TYPE: **ORU**

Event CODE: **R01**

Notes:

- The cardinal order of the segments below shall be followed as defined in the table below. Medicity requires the segments to be sent in this specific order.
- Any Medicity-optional segments not sent by the data provider should be grayed out in the table below.
- If additional segments are requested by the client, a formal product change request must be submitted and will be considered for a future product release.
- If a client sends a Z segment that contains data that needs to be mapped to a supported segment, it must be listed in the table below. Custom mapping between the Z segment and the supporting segment will be defined in the custom processing of the segment that will receive the Z segment data.
- If a client sends a Z segment that Medicity can ignore in its entirety, the segment should be listed in the table below and grayed out with a comment that Medicity will not support this segment.

Segment	Segment Name	Comments
MSH	Message Header	Required
PID	Patient Identification	Required
PV1	Patient Visit	Required
{		
ORC	Common Order	Required

Segment	Segment Name	Comments
OBR	Observation Report	Required
{[NTE]}	Order Comments	Optional
{OBX	Result	Required
{[NTE]}	Result Comments	Optional
}		
}		

Example R01 Result Message from [Vendor [Result Type] System]:

```
MSH|^~\&|SUNQ|001|SUNQ|001|200310140015||ORU^R01|06017|P|2.2|||AL|NE
PID|0001||000158967||LAST^FIRST MIDDLE^^^|19210209|F||C|1290 MAIN RD APT
201^^CHARLESTON^WV^26003-0000^USA^^100|(800)555-1212|(800)555-
1313||S|AA|2844577^^^|999-99-9999|||CHARLESTON WV
PV1|1|E|ER|||19998^EMERGENCY ROOM PHYSICIAN|10484^JONES MD, CHRISTOPHER
A||ER|||M|||E|000|||||||200310132254
ORC|RE|||||||
OBR||3915616|T19537|CBC^CBC|||20031014050800|||20031014052800|^|10411^TEST MD,
MATTHEW P|||X12345||20031014055143||HE|F|^|^20031014050800^CLK|^|
OBX|1|NM|WBC^WBC|1|0.8|K/UL|4.5-11.5|L^LL|||||
OBX|1|FT|WBC^WBC|2|PREVIOUS CRITICAL WBC CALLED|||||||
OBX|2|NM|RBC^RBC|1|3.39|M/UL|3.5-5.5|L|||||
OBX|3|NM|HGB^HGB|1|10.0|GM/DL|12.0-15.0|L|||||
OBX|4|NM|HCT^HCT|1|30.2|%|36-48|L|||||
OBX|5|NM|MCV^MCV|1|88.8|FL|79-98|N|||||
OBX|6|NM|MCH^MCH|1|29.6|PG|25.4-34.6|N|||||
OBX|7|NM|MCHC^MCHC|1|33.3|GM/DL|30-37|N|||||
OBX|8|NM|RDW^RDW|1|14.3|%|11.5-14.5|N|||||
OBX|9|NM|PLAT^PLATELETS|1|64|K/UL|130-400|L|||||
OBX|9|FT|PLAT^PLATELETS|2|BATTERY REPEATED|||||||
```

Transformed to Medicity R01 Result Message:

```
MSH|^~\&|[Sending System LAB]| [Sending
Facility]|ProAccess|ProAccess|200310140015||ORU^R01|06017|P|2.5|||
PID|0001||000158967||LAST^FIRST MIDDLE^^^|19210209|F||C|1290 MAIN RD APT
201^^CHARLESTON^WV^26003-0000^USA^^100|(800)555-1212|(800)555-1313||S|AA|2844577|999-99-
9999|||CHARLESTON WV
PV1|1|E|ER|||19998^EMERGENCY ROOM PHYSICIAN|10484^JONES MD, CHRISTOPHER
A||ER|||M|||E|000|||||||200310132254
ORC|RE|3915616|||||||
OBR|1|3915616|T19537|CBC^CBC|||20031014050800|||20031014052800|^|1041^TEST MD,
MATTHEW P|||X12345||20031014055143||HE|F|^|^20031014050800^CLK|^|
OBX|1|NM|WBC^WBC|1|0.8|K/UL|4.5-11.5|L^LL|||||
OBX|1|TX|WBC^WBC|2|PREVIOUS CRITICAL WBC CALLED|||||||
OBX|2|NM|RBC^RBC|1|3.39|M/UL|3.5-5.5|L|||||
OBX|3|NM|HGB^HGB|1|10.0|GM/DL|12.0-15.0|L|||||
OBX|4|NM|HCT^HCT|1|30.2|%|36-48|L|||||
OBX|5|NM|MCV^MCV|1|88.8|FL|79-98|N|||||
OBX|6|NM|MCH^MCH|1|29.6|PG|25.4-34.6|N|||||
OBX|7|NM|MCHC^MCHC|1|33.3|GM/DL|30-37|N|||||
OBX|8|NM|RDW^RDW|1|14.3|%|11.5-14.5|N|||||
OBX|9|NM|PLAT^PLATELETS|1|64|K/UL|130-400|L|||||
OBX|9|TX|PLAT^PLATELETS|2|BATTERY REPEATED|||||||
```

6.2 Display Results ORU (R03)

The Medicity ORU Inbound interface will accept Display Results using the R03 trigger. Each result test code will be added to the result table with the respective result detail information.

Order status for each order will be based on the following combination of ORC:1 (Order Control) value:

ORC:1 Order Control	ProAccess Order Status
RE – Result	Resulted

Note: Rows listed in gray will not be used in this interface and should be filtered out of the interface by the sending organization's interface engine.

6.2.1 Results ORU (R03) Message Structure

Message

Event TYPE: **ORU**

Event CODE: **R03**

Notes:

- The cardinal order of the segments below shall be followed as defined in the table below. Medicity requires the segments to be sent in this specific order.
- Any Medicity-optional segments not sent by the data provider should be grayed out in the table below.
- If additional segments are requested by the client, a formal product change request must be submitted and will be considered for a future product release.
- If a client sends a Z segment that contains data that needs to be mapped to a supported segment, it must be listed in the table below. Custom mapping between the Z segment and the supporting segment will be defined in the custom processing of the segment that will receive the Z segment data.
- If a client sends a Z segment that Medicity can ignore in its entirety, the segment should be listed in the table below and grayed out with a comment that Medicity will not support this segment.

Segment	Segment Name	Comments
MSH	Message Header	Required
PID	Patient Identification	Required
PV1	Patient Visit	Required
{		
ORC	Common Order	Required
{[NTE]}	Order Comments	Optional
OBR	Observation Report	Required
{OBX	Result	Required
}		
}		

OBX|11|TX|RSPG^RESPIRATORY CULT/GS |1|CULTURE^10/14/03,0740,T105: Called MRSA to Erin (CVICU)|||||||

OBX|12|TX|RSPG^RESPIRATORY CULT/GS |1|REPORT STATUS^FINAL|||||||

OBX|13|TX|RSPG^RESPIRATORY CULT/GS |1|REPORT STATUS^10142003|||||||

OBX|14|TX|RSPG^RESPIRATORY CULT/GS |1|ORGANISM^MRSA STAPHYLOCOCCUS AUREUS|||||||

OBX|15|TX|RSPG^RESPIRATORY CULT/GS |1|METHOD^BREAKPOINT KB|||||||

OBX|16|TX|RSPG^RESPIRATORY CULT/GS |1|^GENTAMICIN^S|||||||

OBX|17|TX|RSPG^RESPIRATORY CULT/GS |1|^GENTAMICIN^[Reporting of GENTAMICIN for STAPHYLOCOCCUS is intended for synergistic use, not monotherapy.]|||||||

OBX|18|TX|RSPG^RESPIRATORY CULT/GS |1|^LINEZOLID^S|||||||

OBX|19|TX|RSPG^RESPIRATORY CULT/GS |1|^OXACILLIN|^R|||||||

OBX|20|TX|RSPG^RESPIRATORY CULT/GS |1|^OXACILLIN^...(NOTE: MRSA isolated. Consult InfectionControl Policy.)^L|||||||

OBX|21|TX|RSPG^RESPIRATORY CULT/GS |1|^VANCOMYCIN^S|||||||

7 HL7 Segment Layouts

This chapter defines HL7 data segments supported in a results interface from a non-Medicity system to ProAccess.

The Segment Definition Tables are populated as follows:

HL7 Segment Layouts - Column Heading Explanation

Heading	Contents	Values
Seq.	HL7 Field Sequence	Begins with '01' for each segment.
Name	HL7 Field Name	Defined by HL7.
R/O	Field/Component Required by ProAccess	<p><u>R</u> - Medicity required field <u>N</u> - Not supported by Medicity <u>C</u> - Conditional <u>O</u> - Optional R - Client Required N - Client Not Supported C - Client Conditional O - Client Optional</p> <p>Rules regarding graying out rows <u>R</u> - Always white <u>N</u> - Always gray <u>C</u> - Can grey <u>O</u> - Can grey R - Always white N - Can grey C - Always white O - Always white</p> <p>Business Rules</p> <ul style="list-style-type: none"> When client downstream system has a requirement to have a Medicity Optional field as required, maintain Medicity notation and add a '-' and add the client 'R' notation When a field is conditional, the conditions must be defined in the comments section of the data element When a Conditional or Optional field is grayed out by the spec writer, the reason why must be defined in the comments section.
Comment	ProAccess Field Usage Comments	

Note: Rows displayed in **gray** were reviewed but will not be used in this interface.

If a field is marked as not supported by Medicity, an application enhancement would be required to add the additional data and would need to be a part of a sanctioned product release.

If a field is marked as required by Medicity and cannot be provided by the data provider, a formal HL7 configuration discussion must take place between Medicity and the client as adverse effects will be encountered within the product if required data cannot be provided.

7.1 Control Segments

7.1.1 The MSH Segment—Message Header

The MSH segment defines the characteristics of the message. The sending and receiving applications are identified. The encoding characters used as delimiters for the message are also indicated. The MSH message type is used to indicate the type of message being transmitted.

In the MSH of the ACK response, the values of the Sending Application, Sending Facility, Receiving Application, and Receiving Facility will be the reverse of the values in the original message.

Note: The entry in the R/O column is post-validator.

Segment Layout

MSH Seq	Name	R/O	Comments
01	Field separator	<u>R</u>	Field separator. Value required is “ ” – ASCII(124)
02	Encoding Character	<u>R</u>	Used to separate data field components, repeating data elements, and text control characters. Must be printable characters that will never be included in transmitted data. Required values: Pos 1: Component Separator ‘^’ - ASCII(94) Pos 2: Repetition Separator ‘~’ - ASCII(126) Pos 3: Escape ‘\’, ASCII(92) Pos 4: Sub-component ‘&’ - ASCII(38).
03	Sending Application	<u>R</u>	See section 8 Processing Performed by Medicity.
04	Sending Facility	<u>R</u>	See section 8 Processing Performed by Medicity.
05	Receive Application	<u>R</u>	See section 8 Processing Performed by Medicity.
06	Receiving Facility	<u>N</u>	
07	Date/Time of Message	<u>R</u>	System date and time the message was formatted in the sending system.
08	Security	<u>N</u>	
09	Message Type	<u>R</u>	Specific HL7 message type and event triggering the message.
09.1	Type	<u>R</u>	Value must = ‘ORU’ and must be sent by the source system
09.2	Event	<u>R</u>	See Error! Reference source not found. – ORU Trigger Events for allowable ORU Event Triggers.
10	Message Control ID	<u>R</u>	Unique. Initiator generated. Responder returns sender value in ACK message in MSA:2. With acknowledgment messages, MSH:10 value may be identical to original sender value or may be a new unique value assigned by acknowledging system. To ProAccess: The Medicity ORU Parser will not reject a message when MSH:10 is not unique. However, non-

MSH Seq	Name	R/O	Comments
			unique values will hinder or limit troubleshooting options. Medicity requests the client to append date/time to the message control ID if it is not unique prior to sending the message to Medicity.
11	Processing ID	<u>O</u>	'P' = Production 'T' = Test
11.1	Processing ID	<u>O</u>	
11.2	Mode	<u>O</u>	
12	Version ID	<u>R</u>	HL7 version. Medicity currently transforms HL7 that is received to version '2.3'. Medicity can accept HL7 version 2.1 – 2.5. See section 8 Processing Performed by Medicity.
13	Sequence Number	<u>N</u>	
14	Continuation Number	<u>N</u>	
15	Accept ACK Type	<u>N</u>	
16	Application ACK Type	<u>N</u>	
17	Country Code	<u>N</u>	
18	Character Set	<u>N</u>	
19	Language of Message	<u>N</u>	

7.1.2 The MSA Segment—Message Acknowledgment Segment

The MSA segment is returned as part of MSH, MSA pair in the ACK message type.

Segment Layout

MSA Seq.	Name	R/O	Comments
01	Acknowledge Code	<u>R</u>	Valid values: 'AA'=ACK=message stored 'AE' =NACK=message stored with error noted.
02	Message Control ID	<u>R</u>	Echo MSH segment control ID (MSH:10) of message being acknowledged.
03	Text Message	<u>N</u>	
04	Expected Sequence Number	<u>N</u>	
05	Delayed ACK Type	<u>N</u>	
06	Error Condition	<u>N</u>	

Original Message:

MSH|^~\&|MCITY|999|CITYCENTERHOSP|ProAccess|19960214134522||ORU^R01|A13345.78|P|2.2

Acknowledgement (Immediate Original Processing Rules):

MSH|^~\&|CITYCENTERHOSP|ProAccess|MCITY|999|19960214134530||ACK|A13345.78|P|2.2
MSA|AA|A13345.78

7.2 Person Segments

7.2.1 The PID Segment - Patient Identification

The PID segment identifies the person and usually the encounter associated with the message. Patient demographic information is also provided. ProAccess requires at least one primary Patient or Person Identifier.

Segment Layout

PID Seq.	Name	R/O	Comments
01	Set ID- PID	<u>O</u>	
02	External Patient ID	<u>O</u>	See section 3.3.1 Patient Matching.
02.1	Patient ID	<u>O</u>	
02.2	Check Digit	<u>N</u>	
02.3	Check Digit Scheme	<u>N</u>	
02.4	Assigning Authoring Identifier Type	<u>N</u>	
02.5	Identifier Type	<u>N</u>	
03	Internal Patient ID	<u>R</u>	See section 3.3.1 Patient Matching. This is Medicity's MRN display value field. What is in this field is displayed as the MRN in the application. This entry is highly recommended for patient matching.
03.1	Patient ID	<u>R</u>	
03.2	Check Digit	<u>N</u>	
03.3	Check Digit Scheme	<u>N</u>	
03.4	Assigning Authoring Identifier Type	<u>N</u>	
03.5	Identifier Type	<u>N</u>	
03.6	Assigning Facility	<u>N</u>	
04	Alternate Patient ID	<u>O</u>	See section 3.3.1 Patient Matching.
04.1	Patient ID	<u>O</u>	
04.2	Check Digit	<u>N</u>	
04.3	Check Digit Scheme	<u>N</u>	
04.4	Assigning Authoring Identifier Type	<u>N</u>	
04.5	Identifier Type	<u>N</u>	
04.6	Assigning Facility	<u>N</u>	
05	Patient Name	<u>R</u>	Highly recommended to be part of patient matching rules
05.1	Last Name	<u>R</u>	
05.2	First Name	<u>O</u>	
05.3	Middle Name	<u>O</u>	
05.4	Suffix	<u>O</u>	
05.5	Prefix	<u>O</u>	
05.6	Degree	<u>N</u>	

PID Seq.	Name	R/O	Comments
06	Mother's Maiden Name	<u>N</u>	
07	Date of Birth	<u>R</u>	Highly recommended to be part of patient matching rules
08	Sex	<u>R</u>	See Codeset: CS_GENDER Highly recommended to be part of patient matching rules
09	Patient Alias	<u>N</u>	
09.1	Last Name	<u>N</u>	
09.2	First Name	<u>N</u>	
09.3	Middle	<u>N</u>	
09.4	Suffix	<u>N</u>	
09.5	Prefix	<u>N</u>	
09.6	Degree	<u>N</u>	
10	Race	<u>Q</u>	See Codeset: CS_RACE
11	Patient Address	<u>Q</u>	See: Medicity Base Codeset
11.1	Address Line 1	<u>Q</u>	
11.2	Address Line 2	<u>Q</u>	
11.3	City	<u>Q</u>	
11.4	State	<u>Q</u>	
11.5	ZIP Code	<u>Q</u>	
11.6	Country	<u>Q</u>	
11.7	Type	<u>N</u>	
11.8	Other Geographic Designation	<u>N</u>	
11.9	County/Parish	<u>N</u>	
11.10	Census Tract	<u>N</u>	
12	County Code	<u>N</u>	
13	Home Phone Number	<u>Q</u>	18 char limit Suggested format (999) 999-9999
14	Business Phone Number	<u>Q</u>	18 char limit Suggested format (999) 999-9999
15	Language – Patient	<u>Q</u>	
16	Marital Status	<u>Q</u>	See Codeset: CS_MARITAL_STATUS
17	Religion	<u>Q</u>	See Codeset: CS_RELIGION
18	Patient Account Number	<u>R</u>	See section 3.3.1 Patient Matching. Highly recommended to be part of patient matching rules
18.1	Patient Account Number	<u>R</u>	
18.2	Check Digit	<u>N</u>	
18.3	Check Digit Scheme	<u>N</u>	
18.4	Assigning Authority	<u>N</u>	
18.5	Identifier Type	<u>N</u>	

PID Seq.	Name	R/O	Comments
18.6	Assigning Facility	<u>N</u>	
19	SSN – Patient	<u>O</u>	12 char limit Suggested format 999-99-9999
20	Driver's License Number	<u>N</u>	
21	Mother's Identifier	<u>N</u>	
22	Ethnic Group	<u>O</u>	See Codeset: CS_ETHNIC_GROUP
23	Birth Place	<u>O</u>	
24	Multiple Birth Indicator	<u>N</u>	
25	Birth Order	<u>N</u>	
26	Citizenship	<u>N</u>	
27	Veterans Military Status	<u>N</u>	
28	Nationality	<u>N</u>	
29	Patient Death Date/Time	<u>N</u>	
30	Patient Death Indicator	<u>N</u>	

7.2.2 The PV1 Segment – Patient Visit

The PV1 segment provides visit or encounter specific information. Medicity requires PV1 segment. Medicity will default to "O" if not sent.

Segment Layout

PV1 Seq.	Name	R/O	Comments
01	Set ID- PV1	<u>R</u>	Starts at 1; increments by 1.
02	Patient Class	<u>R</u>	See Codeset: CS_ENCOUNTER_CLASS Required by Medicity to determine IP/OP status.
03	Patient Location	<u>O</u>	See Codeset: CS_LOC_NURSE_STATION
03.1	Point of Service Location	<u>O</u>	
03.2	Patient Room	<u>O</u>	
03.3	Patient Bed	<u>O</u>	
03.4	Facility ID	<u>O</u>	
03.5	Bed Status	<u>N</u>	
03.6	Location Type	<u>N</u>	
03.7	Building	<u>O</u>	
03.8	Floor	<u>N</u>	
04	Admission Type	<u>O</u>	See Codeset: CS_ADMIT_TYPE
05	Pre-Admit Number	<u>N</u>	
06	Prior Patient Location	<u>N</u>	
07	Attending Doctor	<u>O</u>	The value in this field can be used to determine result delivery routing to an end user. Medicity will not accept repeating fields for PV1:07 – only a single occurrence is allowed.

PV1 Seq.	Name	R/O	Comments
07.1	Attending Doctor ID	<u>R</u>	If sent, 07.1 and 07.2 are required.
07.2	Last Name	<u>R</u>	
07.3	First Name	<u>O</u>	
07.4	Middle Name	<u>O</u>	
07.5	Prefix	<u>O</u>	
07.6	Suffix	<u>O</u>	
07.7	Degree	<u>N</u>	
07.8	Source Table	<u>N</u>	
07.9	Assigning Authority	<u>N</u>	
07.10	Name Type	<u>N</u>	
07.11	Check Digit	<u>N</u>	
07.12	Check Digit Scheme	<u>N</u>	
07.13	Identifier Type	<u>N</u>	
08	Referring Doctor	<u>O</u>	The value in this field can be used to determine result delivery routing to an end user. Medicity will not accept repeating fields for PV1:08 – only a single occurrence is allowed. If sent, 08.1 and 08.2 are required.
08.1	Referring Doctor ID	<u>R</u>	
08.2	Last Name	<u>R</u>	
08.3	First Name	<u>O</u>	
08.4	Middle Name	<u>O</u>	
08.5	Prefix	<u>O</u>	
08.6	Suffix	<u>O</u>	
08.7	Degree	<u>N</u>	
08.8	Source Table	<u>N</u>	
08.9	Assigning Authority	<u>N</u>	
08.10	Name Type	<u>N</u>	
08.11	Check Digit	<u>N</u>	
08.12	Check Digit Scheme	<u>N</u>	
08.13	Identifier Type	<u>N</u>	
09	Consulting Doctor	<u>O</u>	The value in this field can be used to determine result delivery routing to an end user. Medicity will accept repeating fields for PV1:09. If sent, 09.1 and 09.2 are required.
09.1	Consulting Doctor ID	<u>R</u>	
09.2	Last Name	<u>R</u>	
09.3	First Name	<u>O</u>	
09.4	Middle Name	<u>O</u>	
09.5	Prefix	<u>O</u>	
09.6	Suffix	<u>O</u>	
09.7	Degree	<u>N</u>	
09.8	Source Table	<u>N</u>	

PV1 Seq.	Name	R/O	Comments
09.9	Assigning Authority	<u>N</u>	
09.10	Name Type	<u>N</u>	
09.11	Check Digit	<u>N</u>	
09.12	Check Digit Scheme	<u>N</u>	
09.13	Identifier Type	<u>N</u>	
10	Hospital Service	<u>Q</u>	See Codeset: CS_ADMIT_SERVICE
11	Temporary Location	<u>N</u>	
12	Pre-Admit Test Indicator	<u>N</u>	
13	Re-Admission Indicator	<u>N</u>	
14	Admission Source	<u>Q</u>	See Codeset: CS_ADMIT_SOURCE
15	Ambulatory Status	<u>N</u>	
16	VIP Indicator	<u>Q</u>	See Codeset: CS_VIP_IND
17	Admitting Doctor	<u>Q</u>	The value in this field can be used to determine result delivery routing to an end user. Medicity will not accept repeating fields for PV1:17 – only a single occurrence is allowed.
17.1	Admitting Doctor ID	<u>R</u>	If sent, 17.1 and 14.2 are required.
17.2	Last Name	<u>R</u>	
17.3	First Name	<u>Q</u>	
17.4	Middle Name	<u>Q</u>	
17.5	Prefix	<u>Q</u>	
17.6	Suffix	<u>Q</u>	
17.7	Degree	<u>N</u>	
17.8	Source Table	<u>N</u>	
17.9	Assigning Authority	<u>N</u>	
17.10	Name Type	<u>N</u>	
17.11	Check Digit	<u>N</u>	
17.12	Check Digit Scheme	<u>N</u>	
17.13	Identifier Type	<u>N</u>	
18	Patient Type	<u>Q</u>	See Codeset: CS_ENCOUNTER_TYPE
19	Visit Number	<u>Q</u>	See section 3.3.1.3 – Encounter or Visit Matching
20	Financial Class	<u>Q</u>	See Codeset: CS_FINANCIAL_CLASS
21	Charge Price Indicator	<u>N</u>	
22	Courtesy Code	<u>N</u>	
23	Credit Rating	<u>N</u>	
24	Contract Code	<u>N</u>	
25	Contract Effective Date	<u>N</u>	
26	Contract Amount	<u>N</u>	
27	Contract Period	<u>N</u>	

PV1 Seq.	Name	R/O	Comments
28	Interest Code	<u>N</u>	
29	Transfer to Bad Debt Code	<u>N</u>	
30	Transfer to Bad Debt Date	<u>N</u>	
31	Bad Debt Agency Code	<u>N</u>	
32	Bad Debt Transfer Amount	<u>N</u>	
33	Bad Debt Recover Amount	<u>N</u>	
34	Delete Account Indicator	<u>N</u>	
35	Delete Account Date	<u>N</u>	
36	Discharge Disposition	<u>O</u>	See Codeset: CS_DISCHARGE_DISPOSITION
37	Discharge To Location	<u>N</u>	
37.1	Code	<u>N</u>	
37.2	Description	<u>N</u>	
38	Diet Type	<u>N</u>	
39	Servicing Facility	<u>O</u>	See Codeset: CS_SERVICING_FACILITY All facilities within an organization must be populated.
40	Bed Status	<u>N</u>	
41	Account Status	<u>N</u>	
42	Pending Location	<u>N</u>	
43	Prior Temporary Location	<u>N</u>	
44	Admit Date/Time	<u>R</u>	Medicity hard codes the value to 01/01/1900 if the admit date is not sent. This is done because ProAccess requires an admit date. This is typically performed in the results interfaces.
45	Discharge Date/Time	<u>C</u>	Once the patient has be discharged subsequent transactions after a discharge should have the discharge date and time included unless 'data preservation' has been configured for this interface
46	Current Patient Balance	<u>N</u>	
47	Total Charges	<u>N</u>	
48	Total Adjustment	<u>N</u>	
49	Total Payments	<u>N</u>	
50	Alternate Visit ID	<u>N</u>	
51	Visit Indicator	<u>N</u>	
52	Other Healthcare Providers	<u>N</u>	

7.3 Order Segments

7.3.1 The ORC Segment- Common Order

Segment Layout

ORC Seq.	Name	R/O	Comments
01	Order Control	<u>R</u>	See section 8 Processing Performed by Medicity.
02	Placer Order Number	<u>R</u>	The [Vendor [Result Type] System] unique order number. See Section 3.6 Order and Result Matching
03	Filler Order Number	<u>O</u>	See Section 3.6 Order and Result Matching
04	Placer Group Number	<u>N</u>	
05	Order Status	<u>N</u>	
06	Response Flag	<u>N</u>	
07	Quantity/Timing	<u>N</u>	Quantity/Timing in OBR:27 is used by Medicity
7.1	Quantity	<u>N</u>	
7.2	Interval	<u>N</u>	
7.3	Duration	<u>N</u>	
7.4	Start Date	<u>N</u>	
7.5	End Date	<u>N</u>	
7.6	Priority	<u>N</u>	See Codeset: CS_ORDERING_PRIORITY
08	Parent	<u>N</u>	
09	Date of Transaction	<u>N</u>	
10	Entered By	<u>N</u>	
11	Verified By	<u>N</u>	
12	Ordering Provider	<u>C</u>	If an ordering provider is provided in the OBR and in the ORC, the OBR value will be used The value in this field can be used to determine result delivery routing to an end user. Medicity will not accept repeating fields for ORC12 – only a single occurrence is allowed.
12.1	Identifier	<u>R</u>	If sent, 12.1 and 12.2 are required.
12.2	Last Name	<u>R</u>	
12.3	First Name	<u>O</u>	
12.4	Middle Name	<u>O</u>	
12.5	Prefix	<u>O</u>	
12.6	Suffix	<u>O</u>	
12.7	Degree	<u>N</u>	
13	Enterer's Location	<u>N</u>	
14	Call Back Phone Number	<u>N</u>	
15	Order Effective Date	<u>N</u>	

ORC Seq.	Name	R/O	Comments
16	Order Control Code Reason	<u>N</u>	
17	Entering Organization	<u>N</u>	
18	Entering Device	<u>N</u>	
19	Action By	<u>N</u>	

7.3.2 The OBR Segment – Order Detail

Segment Layout

OBR Seq.	Name	R/O	Comments
01	Set ID- OBR	<u>R</u>	Set ID begins at 1and increments by 1.
02	Placer Order Number	<u>R</u>	See Section 3.6 Order and Result Matching This is a unique number for this given order.
03	Filler Order Number	<u>Q</u>	See Section 3.6 Order and Result Matching The Accession number assigned to the group of results by [Vendor [Result Type] System]. Note: The accession number will be received from [Vendor [Result Type] System] only when the accession number has been assigned.
04	Universal Service ID	<u>R</u>	Field Length Database Limit = 50 Characters, display may be limited Field Length Database Limit = 200 Characters, display may be limited Strongly recommended by Medicity to be populated.
04.1	Test Code	<u>R</u>	
04.2	Test Description	<u>R</u>	
04.3	Coding System	<u>Q</u>	
05	Priority	<u>N</u>	
06	Requested Date/Time	<u>R</u>	
07	Observation Date	<u>R</u>	
08	Observation End Date	<u>N</u>	
09	Collection Volume	<u>N</u>	
10	Collector Identifier	<u>N</u>	
11	Specimen Action Code	<u>Q</u>	
12	Danger Code	<u>N</u>	
12.1	Danger Code	<u>N</u>	
12.2	Danger Text	<u>N</u>	
13	Relevant Clinical Information	<u>N</u>	
14	Specimen Received Date	<u>Q</u>	
15	Specimen Source	<u>Q</u>	
15.1	Source Code	<u>Q</u>	
15.1.1	Code	<u>Q</u>	
15.1.2	Description	<u>Q</u>	

OBR Seq.	Name	R/O	Comments
15.2	Additives	<u>N</u>	
15.3	Free Text	<u>N</u>	
15.4	Body Site	<u>O</u>	
15.4.1	Code	<u>O</u>	See Codeset: CS_BODY_SITE
15.4.2	Description	<u>O</u>	
16	Ordering Provider	<u>C</u>	If an ordering provider is provided in the OBR and in the ORC, the OBR value will be used The value in this field can be used to determine result delivery routing to an end user. Medicity will not accept repeating fields for OBR16 – only a single occurrence is allowed.
16.1	Identifier	<u>R</u>	If sent, 16.1 and 16.2 are required.
16.2	Last Name	<u>R</u>	
16.3	First Name	<u>O</u>	
16.4	Middle Name	<u>O</u>	
16.5	Prefix	<u>O</u>	
16.6	Suffix	<u>O</u>	
16.7	Degree	<u>N</u>	
17	Order Call Back Phone Number	<u>N</u>	
18	Placer Field 1	<u>O</u>	See section 3.6 Order and Result Matching
19	Placer Field 2	<u>N</u>	
20	Filler Field 1	<u>R</u>	See section 3.6 Order and Result Matching
21	Filler Field 2	<u>N</u>	
22	Result Report Change Date	<u>O</u>	Strongly recommended by Medicity to be populated.
23	Charge to Practice	<u>N</u>	
24	Diagnostic Service Section ID	<u>R</u>	See Codeset: CS_DIAGNOSTIC_SERVICE_SECTION
25	Result Status	<u>R</u>	See Codeset: CS_RESULT_STATUS
26	Parent Order ID	<u>N</u>	
27	Quantity Timing	<u>O</u>	
27.1	Quantity	<u>O</u>	
27.2	Interval	<u>O</u>	
27.3	Duration	<u>O</u>	
27.4	Start Date	<u>O</u>	
27.5	End Date	<u>O</u>	
27.6	Priority	<u>O</u>	See Codeset: CS_Ordering_Priority
28	Result Copies To	<u>O</u>	The value in this field can be used to determine result delivery routing to an end user. Medicity will accept repeating fields for OBR:28 and display multiple copy-to-docs on a report.
28.1	Identifier	<u>R</u>	If sent, 28.1 and 28.2 are required.

OBR Seq.	Name	R/O	Comments
28.2	Last Name	<u>R</u>	
28.3	First Name	<u>O</u>	
28.4	Middle Name	<u>O</u>	
28.5	Prefix	<u>O</u>	
28.6	Suffix	<u>O</u>	
28.7	Degree	<u>N</u>	
29	Parent Accession Number	<u>N</u>	
30	Transportation Mode	<u>N</u>	
31	Reason For Study	<u>N</u>	
31.1	Reason ID	<u>N</u>	
31.2	Reason Text	<u>N</u>	
32	Main Result Interpreter	<u>N</u>	
33	Assist Result Interpreter	<u>N</u>	
34	Technician	<u>N</u>	
35	Transcriptionist	<u>N</u>	
36	Scheduled Date/Time	<u>N</u>	
37	Number of Containers	<u>N</u>	
38	Transport Logistics of Specimen	<u>N</u>	
39	Collector's Comments	<u>N</u>	
40	Transport Arrangement Responsibility	<u>N</u>	
41	Transport Arranged	<u>N</u>	
42	Escort Required	<u>N</u>	
43	Planned Patient Transport Comment	<u>N</u>	

7.3.3 The NTE Segment - Result Comments

The NTE segment is used to send textual comments. The Medicity interface will accept comments as multiple NTE segments in which each NTE segment represents a hard carriage return or a new line. The Universal Interface will also accept comments as a single NTE segment in which each instance of the Comment (NTE:3) field separated by the repeat delimiter represents a new line.

Segment Layout

NTE Seq.	Name	R/O	Comments
01	Set ID – NTE	<u>R</u>	

02	Source of Comment	<u>R</u>	Note: If a value other than those listed below is sent by the source system, a custom processing requirement must be defined to transform the source system value to a Medicity required value: O = Order – When sent immediately after an OBR segment A = Accession level – When sent immediately after an OBR segment R = Result – Often used for expanded reference range reporting or interpretative notes for a single discrete result when sent immediately after an OBX segment.
03	Comment	<u>O</u>	Some NTE segments are sent with blank comments to maintain carriage return/blank line separation. Medicity processes a blank comment as a carriage return.

7.3.4 The OBX Segment - Observation/Result

The OBX segment contains clinical observation reporting for results and orders.

OBX Seq.	Name	R/O	Comments
01	Set ID- OBX	<u>R</u>	
02	Value Type	<u>R</u>	Allowable Fields: NM - Numeric DT – Date ST – String TX – Text RP – Reference Pointer FT/CE – (Must be transformed to ‘ST’ as Medicity does not support formatted text nor coded entry at this time)
03	Observation Identifier	<u>R</u>	
03.1	Test Code	<u>R</u>	
03.2	Test Code Description	<u>R</u>	
03.3	Coding Scheme	<u>O</u>	Preferred
04	Observation Sub-ID	<u>N</u>	May be sent in Microbiology results to support the grouping of organisms to be used in the transformation of a Discrete R01 to a Display R03 format by Medicity.
05	Observation Value	<u>C</u>	
05.1	[Vendor Lab Orders and Results System] Value	<u>C</u>	
05.2	[Vendor Lab Orders and Results System] Value	<u>C</u>	
05.3	[Vendor Lab Orders and Results System] Value	<u>C</u>	
05.4	[Vendor Lab Orders and Results System] Value	<u>C</u>	

OBX Seq.	Name	R/O	Comments
05.5	[System] Value [Vendor Lab Orders and Results System] Value	<u>C</u>	
06	Units	<u>C</u>	Conditional if OBX:2 = 'NM' For numeric/discrete results that have to be trended.
07	Reference Range	<u>C</u>	Conditional if OBX:2 = 'NM' For numeric/discrete results that have to be trended.
08	Abnormal Flags	<u>C</u>	Conditional if OBX:2 = 'NM' See Codeset: CS_ABNORMAL_FLAG For numeric/discrete results that have to be trended.
09	Probability	<u>N</u>	
10	Nature of Abnormal Test	<u>N</u>	
11	Observation Result Status	<u>O</u>	See Codeset: CS_RESULT_STATUS
12	Date Last Observe Normal Values	<u>N</u>	
13	User Access Checks	<u>N</u>	
14	Date/Time of the Observation	<u>O</u>	
15	Producer's ID	<u>O</u>	
15.1	Identifier	<u>C</u>	
15.2	Name	<u>C</u>	
16	Responsible Observer	<u>O</u>	
16.1	Identifier	<u>C</u>	
16.2	Name	<u>C</u>	
17	Observation Method	<u>N</u>	

8 Processing Performed by Medicity

8.1 Generic Processing

This interface will utilize the Generic Transformer for the following processing.

8.1.1 Global

All of the processing documented in this table will be configured in the Global Transformations section of the Generic Transformation. The processing will be completed in the order in which it is documented in this table.

Field #	Issue	Custom Processing Required	Pre-validation Rule
MSH:04	Medicity requires the organization reference value in MSH:04.	MSH:04 processing.	
MSH:03	Medicity requires the contributing system value in MSH:03.	Medicity will transform MSH:03 as follows: MSH:03 = MSH:04 + LAB	
MSH:05	Medicity requires MSH:05 be populated with ProAccess.	Medicity will hardcode MSH:05 to "ProAccess".	
MSH:12		Medicity will hardcode MSH:12 to "2.3".	

8.1.2 Contributing System

All of the processing documented in this table will be configured in the Contributing System Transformations section of the Generic Transformation. The processing will be completed in the order in which it is documented in this table.

Field #	Issue	Custom Processing Required	Pre-validation Rule

8.2 Custom Processing

Any processing detailed after this point will require the creation of a custom transformer.

Field #	Issue	Custom Processing Required	Pre-validation Rule