



Health share Health Connect Data Quality Analysis-Ensemble

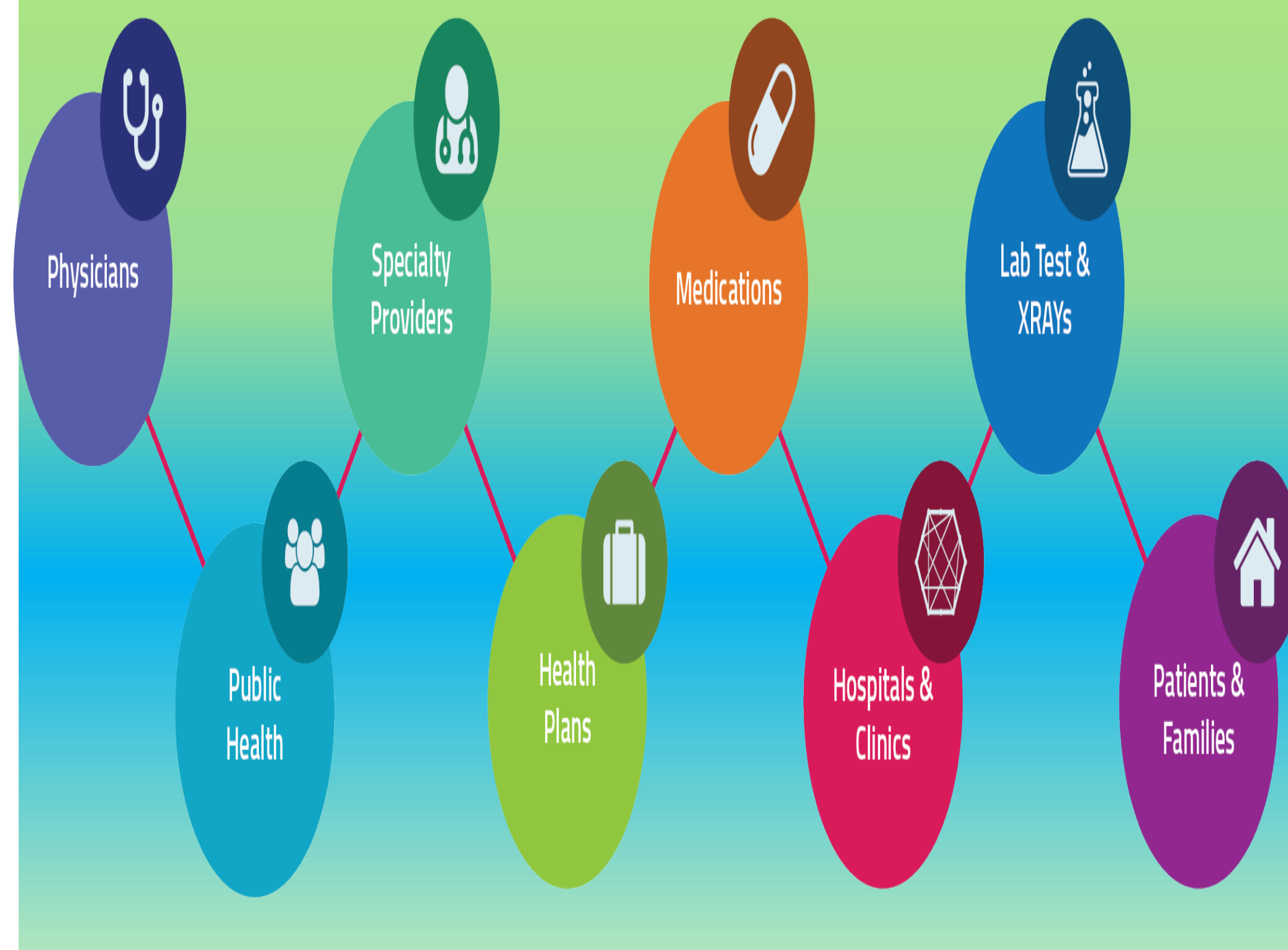
Great Lakes Health Connect Internship
Health Informatics and Bioinformatics
Grand Valley State University

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Introduction

Great Lakes Health Connect (GLHC)[1] is a nonprofit organization, offering the most comprehensive, flexible, and secure portfolio of HIE products and services in Michigan. They are committed in improving the quality and efficiency of patient care by making health information available to healthcare providers throughout Michigan when they need it. A wealth of healthcare information technology solutions. Consistent guidance and partnership through project and workflow implementation. A network of 129 hospitals and 4,000 primary, specialty, and allied care organizations. A registry that securely houses over 10 million unique patient records. Intelligent, timely, and automated clinical results and event notifications to keep you updated on your patient's well-being.



Internship Roles

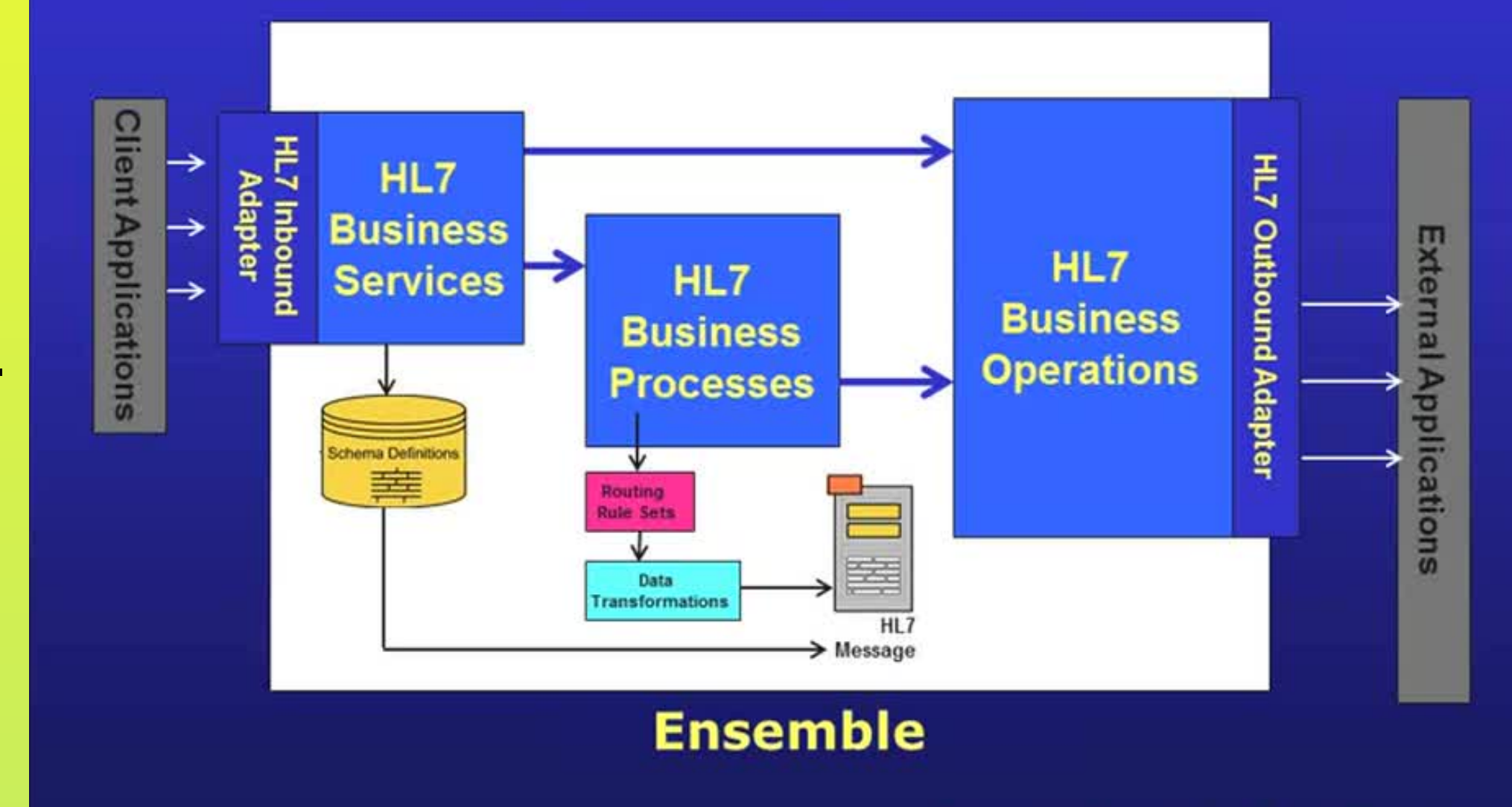
The Integration Developer Intern position will be working with the Integration team on a re-architecture project. The functions the intern will perform:

- Analysis of HL7 messages received from each hospital.
- Comparison of messages received to GLHC standard message structure and normalized values using SQL query Language.
- Documented required changes to meet the GLHC standard message structure .
- Validation of messages.

Integration Engine-Ensemble

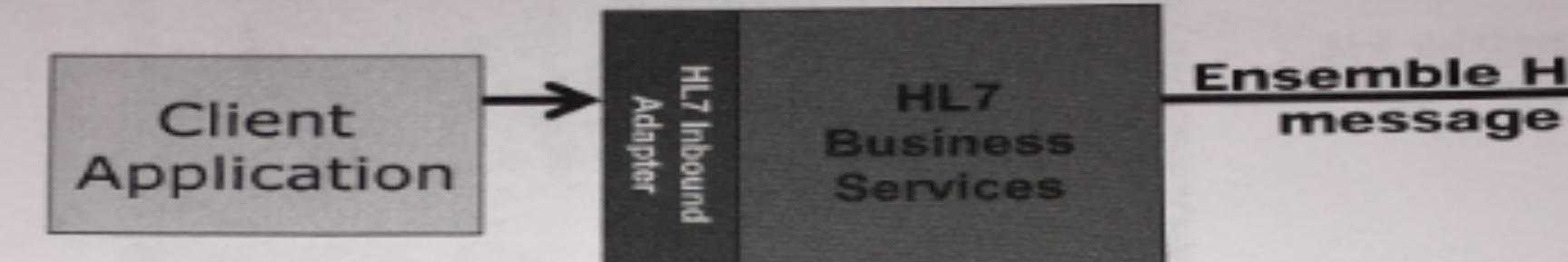
Ensemble shares data between systems and making connections possible. The data is transformed , integrated and monitored.

Ensemble HL7 Architecture



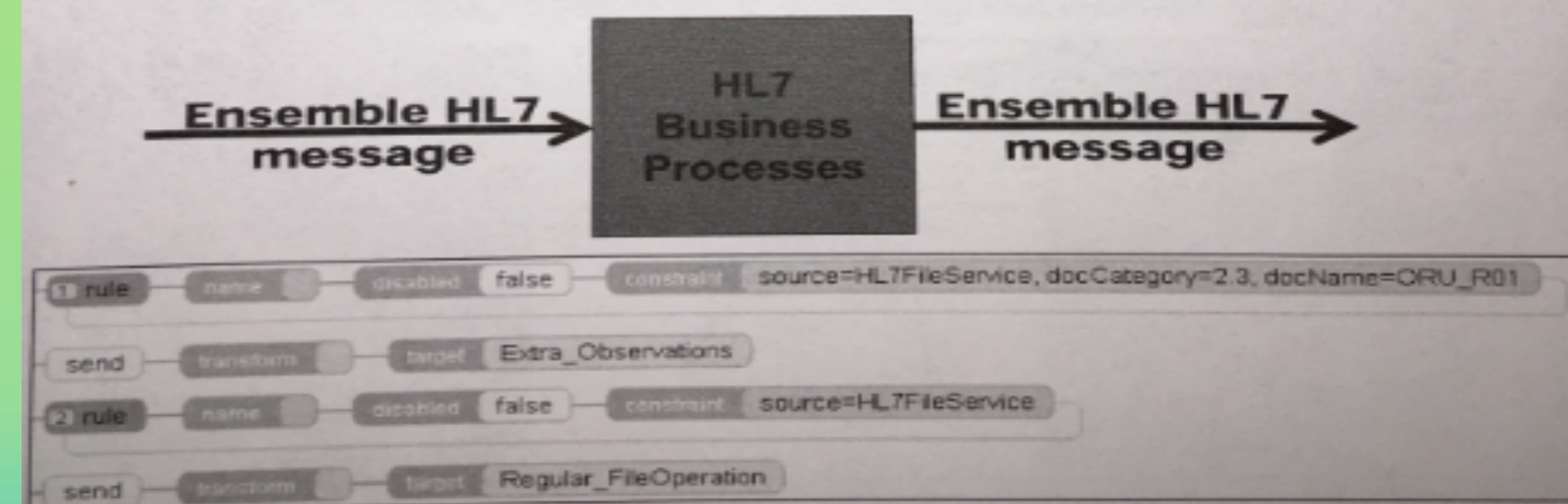
Business Service

- Accepts HL7 messages from outside Ensemble.
- Pre-built HL7 Business Service uses inbound adapter.
- Creates first Ensemble HL7 message.
- Sends message to Business Process.



Business Process

- In HL7 Productions, called "Message Router".
- Routes HL7 messages based on Routing Rules.

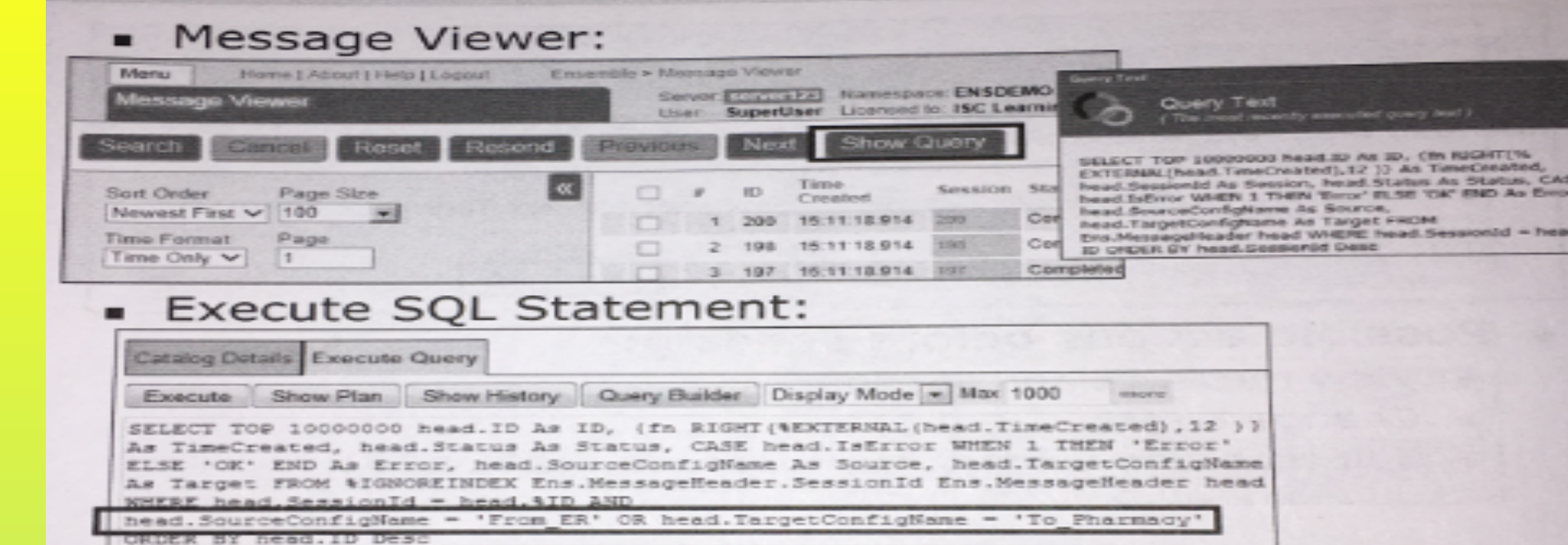


HL 7 Message

To Interpret HL7 message content Ensemble must determine schema and Message structure which is determined from MSH:9 of message. Both pieces of information together referred as Document type.

For example,2.3:ADT_A01

SQL Searching Example



HL7 Message Example

HL7 Message Framework

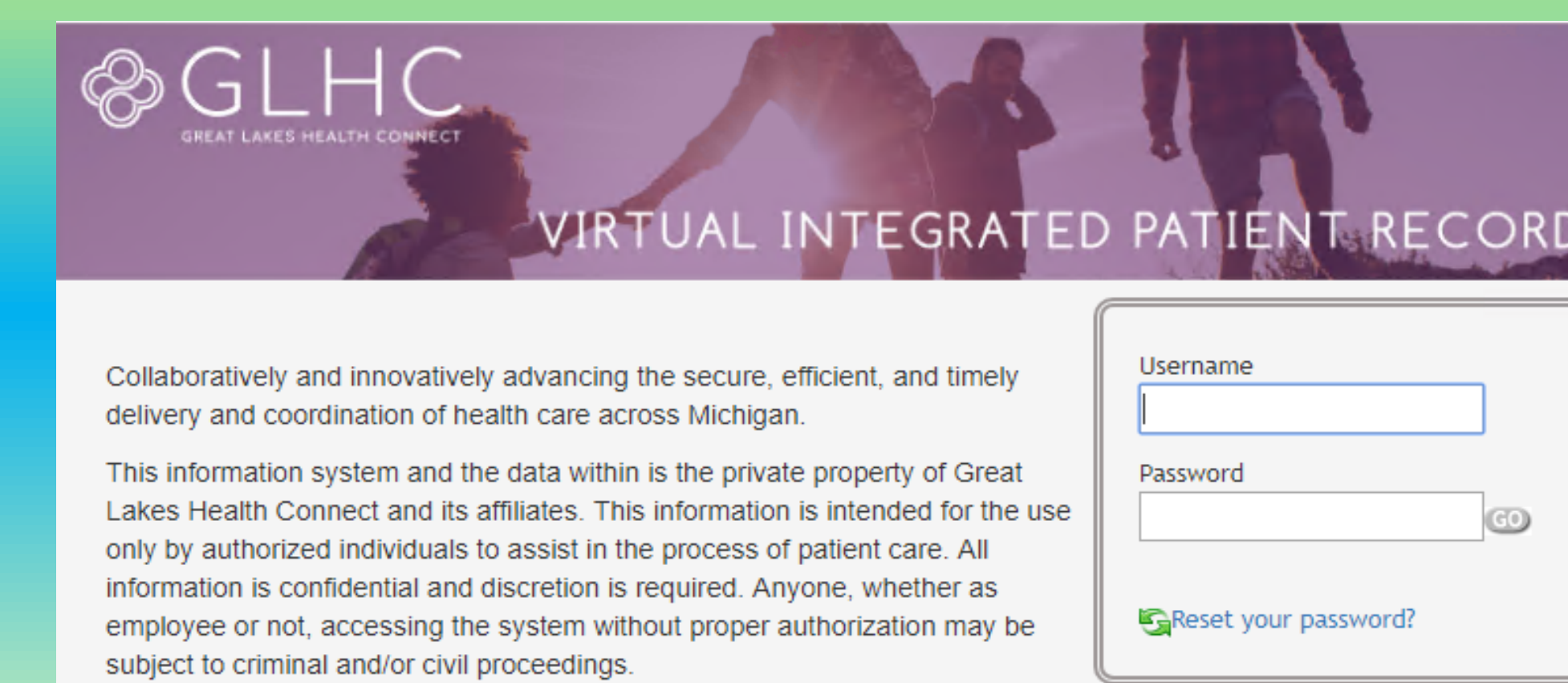
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MSH ^~^& ADT | MCH | LABADT | MCH | 198808181126 | SECURITY | ADT | A01 | MSG00001 | P | 2.4  
EVN | 1 | 198808181123  
PID | 1 | PAT11134 | 5 | M | JONES | WILLIAM | A | III | 19610615 | M | I | C  
PR1 | 1 | 1 | 2000 - 2012 - 01 | 004777 | LABAID | SIDNEY | J | I | SUR | I | - | ADM | A0  
AL1 | 1 | 1 | PENICILLIN | PRODUCES HIVES - RASH - LOSS OF APPETITE  
DG1 | 001 | I9 | I550 | MAL NEO LIVER, PRIMARY | 19880501103005 | P  
PR1 | 2234 | M1 | 111 | CODE151 | COMMON PROCEDURES | 198809081123
```

Segment ID
MSH Message Header
EVN Event Type
PID Patient Visit Information
AL1 Patient Allergy Information
DG1 Diagnosis
PR1 Procedures

Fields: contain information Related to the patient encounter or event

GLHC-VIPR

GLHC community health record, know as the Virtual Integrated Patient Record (VIPR) is getting a makeover in January 2019. The changes are in direct response to evolving needs of the community. GLHC will continue to provide the best technology and customer support for years to come. VIPR 2019 will help support how organizations continue to reinvent care delivery, enhance the care experience, and reduce the cost of care. Real time access to statewide patient health information. Enriched communication and administrative efficiency. A detailed record of interactions and medical history. Improve continuity, coordination, and timeliness of care.



Project Work

The Health share data quality analysis was performed using live patient data .The HL7 messages were extracted from Ensemble Interface explorer in order to Normalize the data by ex tracting messages using HL7 Spy . By running SQL query we could find and compare messages with GLHC standards and make quality validation before feeding into VIPR .

Few challenges faced during my internship were the time taken to pull data messages in live from interface explorer was time taking as we get at least 30,000 HL7 messages in 1 hour. Comparison of messages received to GLHC standard message structure and normalized values and documented required changes to meet the GLHC standard message structure .

Conclusion &Results

Better information leads to more accurate diagnosis and treatment, meaning you can give your patients the care that meets their individual needs. VIPR gives access to the information that fuels their health for patients and clinicians.

Acknowledgement

I would like to thank Paul Riker manager of our team for his guide through out my internship. I would like to thank Dr.Tusch & Anirudh chowdary for accepting my Internship in GLHC.

References

- 1.Great Lakes Health Connect retrieved from <https://gl-hc.org>.
- 2.Intersystems ensemble retrieved from <https://learning.intersystems.com>.