

Interfacing Insights

What is Your Data Integrity Model?

Demand for healthcare interfaces is rising, and there is a rapid pace in which healthcare entities are working to connect various internal applications and external resources. In a hospital environment, connecting the Electronic Health Record (EHR) to the Radiology Information System (RIS) to the Laboratory Information System (LIS) etc. is an example of what is occurring. Added to this mix is an external laboratory connecting their LIS to a hospital's LIS; consequently, the connections that are occurring are going beyond the four walls of a healthcare entity.

HL7 is the standard method to define the clinical messages sent between the applications and the institutions. With the growing number of interfaces and connections to different healthcare entities, instilling solid data integrity practices throughout the process is critical.

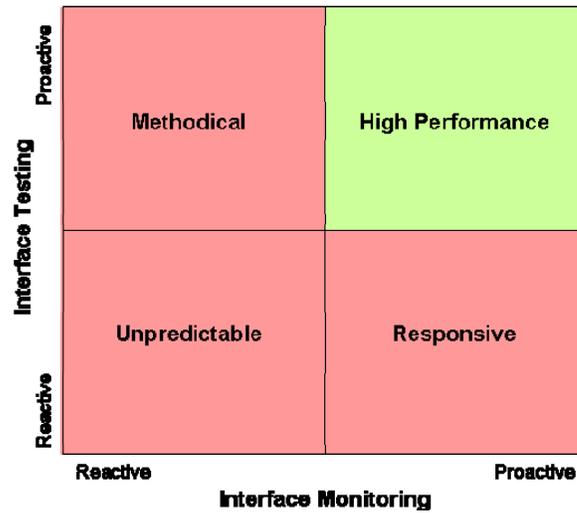
Why is this critical? Without the right data integrity model, the confidence in the deployed interfaces will be low, and the support costs will be high. Clinical data not received properly, or received in an untimely manner, will quickly erode the healthcare professional's acceptance of the implemented applications and raise questions about the quality of the information.

Clinical Data Integrity Model

There are several aspects to ensuring a robust data integrity model, and one way to look at it is based on two dimensions – Interface Testing and Interface Monitoring. Interface Testing is the practice of ensuring that the interfaces being developed are of the highest quality prior to deployment. Interface Monitoring is the practice of ensuring that the interfaces continue to operate with a high degree of integrity after deployment. Together, these two practices ensure the highest integrity for the connected healthcare environment.

The Clinical Data Integrity Model is illustrated below.

Clinical Data Integrity Model



Depending on the quadrant that a healthcare institution may be in, different characteristics can be defined to the data integrity state. Ideally, the institution will want to be in the top right quadrant – High Performance – which means a proactive discipline to both Interface Testing and Interface Monitoring.

Data Integrity Model Characteristics

The characteristics for each quadrant are outlined in the following manner:

Data Integrity State	Characteristics
Unpredictable	Inadequate or non-existent testing tools and processes of interfaces Inadequate or non-existent monitoring and alerting tools for deployed interfaces Inconsistent data quality, poor customer service, failure of interface initiative
Methodical	Solid testing processes defined

Data Integrity State	Characteristics
	<p>Robust testing tools deployed, including connection testing and simulation of interface interaction with selected applications</p> <p>Conformance checking against selected HL7 standard and modifications made</p> <p>Inadequate or non-existent monitoring and alerting tools for deployed interfaces</p> <p>High data quality being deployed with poor service and quality levels after deployment</p>
Responsive	<p>Inadequate or non-existent interfaces testing tools and processes</p> <p>Defined customer service levels and processes</p> <p>Robust monitoring and alerting tools in place to enable critical support processes</p> <p>Flexible parameters to define metrics applicable to interface connections and workflow</p> <p>Tools to quickly identify and resolve issues</p> <p>Inconsistent data integrity of deployed interfaces; quick response and resolution of issues</p>
High Performance	<p>Solid testing processes defined</p> <p>Robust testing tools deployed, including connection testing and simulation of interface interaction with selected applications</p> <p>Conformance checking against selected HL7 standard and modifications made</p> <p>Defined customer service levels and processes</p>

Data Integrity State	Characteristics
	<p>Robust monitoring and alerting tools in place to enable critical support processes</p> <p>Flexible monitoring parameters to define metrics applicable to interface connections and workflow</p> <p>Tools to quickly identify and resolve issues</p> <p>High integrity of interfaces deployed; high service levels delivered; low cost approach to development and management of critical healthcare interfaces</p>

Summary

Why does being in the High Performance quadrant matter? The following five points summarize the importance of having implemented the right data integrity model:

1. Clinical data that is sent to another healthcare application or entity is sent as intended.
2. Clinical data that is received from another healthcare application or entity is accepted as required.
3. Healthcare interfaces are fully tested and documented before being deployed.
4. Interfaces are developed efficiently within requirements – the selected HL7 standard version and modifications included.
5. Messages are being exchanged in a timely manner. Bottlenecks or potential problem areas are identified quickly and proactively repaired. Healthcare departments and external entities (e.g., imaging centers, laboratories) receive high performing customer service which boosts their confidence in the integrity of the data being used.

About NeoTool

NeoTool is a leading provider of healthcare integration solutions that empower organizations to develop, test, deploy, and manage data exchanges between healthcare applications and providers. Through software, HL7 training, and consulting, NeoTool is dedicated solely to healthcare application interfacing. NeoTool customers include healthcare providers (e.g., hospitals, imaging centers, labs, and clinics), healthcare software application providers, and medical device manufacturers. www.neotool.com

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