

*“Using Clinically-Enhanced
Claims Data to Guide Treatment
of Acute Heart Failure”
An AHRQ Grant to MHA*



Data Acquisition & Transmission

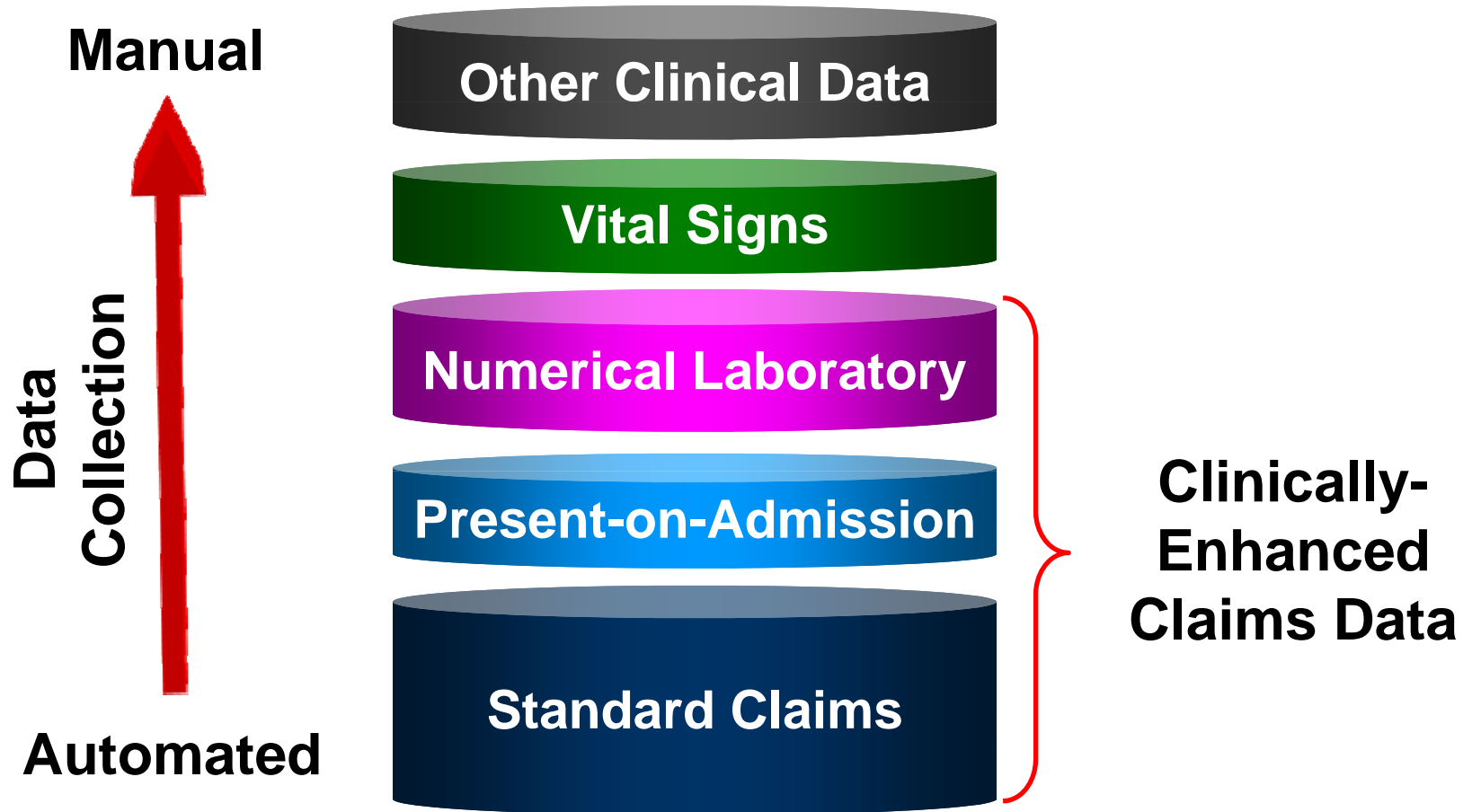
Laboratory Data



Minnesota Hospital Association



Databases for Outcomes Assessment



Efficient Use of Clinical Data

Cost to Collect

Low

High

Analytic
Power

High

POA Codes,
Albumin

Glasgow
Coma Score

Low

Hemoglobin

FEV1



Risk-adjustment using numerical lab data

- Results of 22 lab tests enter at least 1 of 12 models
- Results of 14 tests enter 4 or more of 12 models
 - pH (11)
 - Prothrombin Time (10)
 - Sodium (9)
 - White Blood Count (9)
 - Blood Urea Nitrogen (8)
 - pO₂ (8)
 - Potassium (7)
 - SGOT (7)
 - Platelet Count (7)
 - Albumin (5)
 - pCO₂ (4)
 - Glucose (4)
 - Creatinine (4)
 - CPK-MB (4)

Chemistry Data

- Albumin
- Alkaline phosphatase
- Amylase
- Aspartate aminotransferase
- Bicarbonate
- Bilirubin (total)
- B-type natriuretic peptide
- Calcium
- Creatine Kinase
- Creatine Kinase MB
- Creatinine
- Glucose
- Lactate Dehydrogenase
- Potassium
- Sodium
- Troponin I
- Troponin T
- Urea Nitrogen

Blood Gas & Hematology Data

Blood Gas

- Arterial O₂ saturation
- Arterial pCO₂
- Arterial pH
- Arterial pO₂
- Base excess (deficit)
- Bicarbonate
- FIO₂ (if electronic)

Hematology

- Hemoglobin
- International normalized ratio
- Neutrophil bands
- Partial thromboplastin time
- Platelet count
- Prothrombin time
- White blood count



Examples of LOINC Coding

Test Name	Specimen Type	Units	LOINC Code
Albumin	Serum/Plasma	g/dL	1751-7
pCO ₂ Arterial	Arterial Blood	mmHg	2019-8
Calcium	Serum/Plasma	mg/dL	17861-6
Calcium	Serum/Plasma	mEq/L, mmol/L	2000-8
Calcium	Whole Blood	mg/dL	49765-1
Calcium	Whole Blood	mEq/L, mmol/L	1996-8



Transmission Format: Data Elements

1. Provider Number
2. Admission Date
3. Discharge Date
4. Date of Birth
5. Patient Sex
6. Medical Record Number
7. Patient Account Number
8. Social Security Number
9. LOINC Code
10. Observation Units
11. Observation Range
12. Observation Value
13. Observation Date/Time
14. Analysis Date/Time
15. Comments

Transmission Format: Field Description

Field	Example
Item Sequence #	2
Data Element Name	Admission Date
Field Format	ADATE
Field Length	PIC9(8)
Field Length	8
Position From	13
Position Through	20
Value Format	Date in MMDDYYYY format
Comments	

Rules for Lab Data Transmission

- Cases for which data are required may be identified by
 - principal diagnosis
 - procedure
 - age group
- Each row will contain information about a single lab test on a single patient
- Data will be limited to
 - specified time periods (e.g., from 30 days prior to admission until discharge)
 - specified laboratory tests

Preparation for Submission of Lab Data

- Participating hospitals will
 - map their electronic data into the standardized flat file format using tools supplied by the project team
 - submit completed data maps for review by the project team
- Project team will
 - Supply standardized materials to support data mapping by participating hospitals
 - assist individual hospitals in preparing their data maps
 - review completed maps for completeness and accuracy
 - provide feedback and assistance as needed

Transmission & Analysis of Lab Data

- Hospitals will submit a test samples of lab data to the project team
- Project team will analyze test data and work with individual hospitals to ensure completeness and accuracy of data submission
- Hospitals will submit lab data periodically
- Project team will work with individual hospitals to ensure completeness and accuracy of data
- Project team will merge and analyze data
- Project team will report analytic findings to hospitals



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