



Interoperability MATTERS

an initiative of The Sequoia Project

Data Usability Workgroup

May 4, 2023



Agenda

- Welcome, Introductions, Membership, Agenda - Adam Davis, MD – 10 minutes
- Workgroup Priorities & 2023 – 2024 Timeline – Bill Gregg, MD – 10 minutes
- Laboratory Discussion – Katherine Lusk, Texas Health Services Authority (THSA) – 20 minutes
- Save the Date: Sequoia Annual Member Meeting
- Workgroup Discussion & Q&A – Didi Davis, Co-chairs and Workgroup - 20 minutes



Adam Davis, MD, Co-chair
Sutter Health



Bill Gregg, MD, Co-chair
HCA Healthcare



Didi Davis, VP
The Sequoia Project

Workgroup Members

266 Organizations

378 Participants



Healthcare Providers



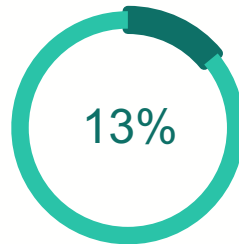
Public Health



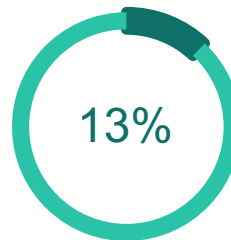
Consumer/Patient



HIN/HIEs



Federal, State, Local Government



Standards Developer



Health IT Developers



Other



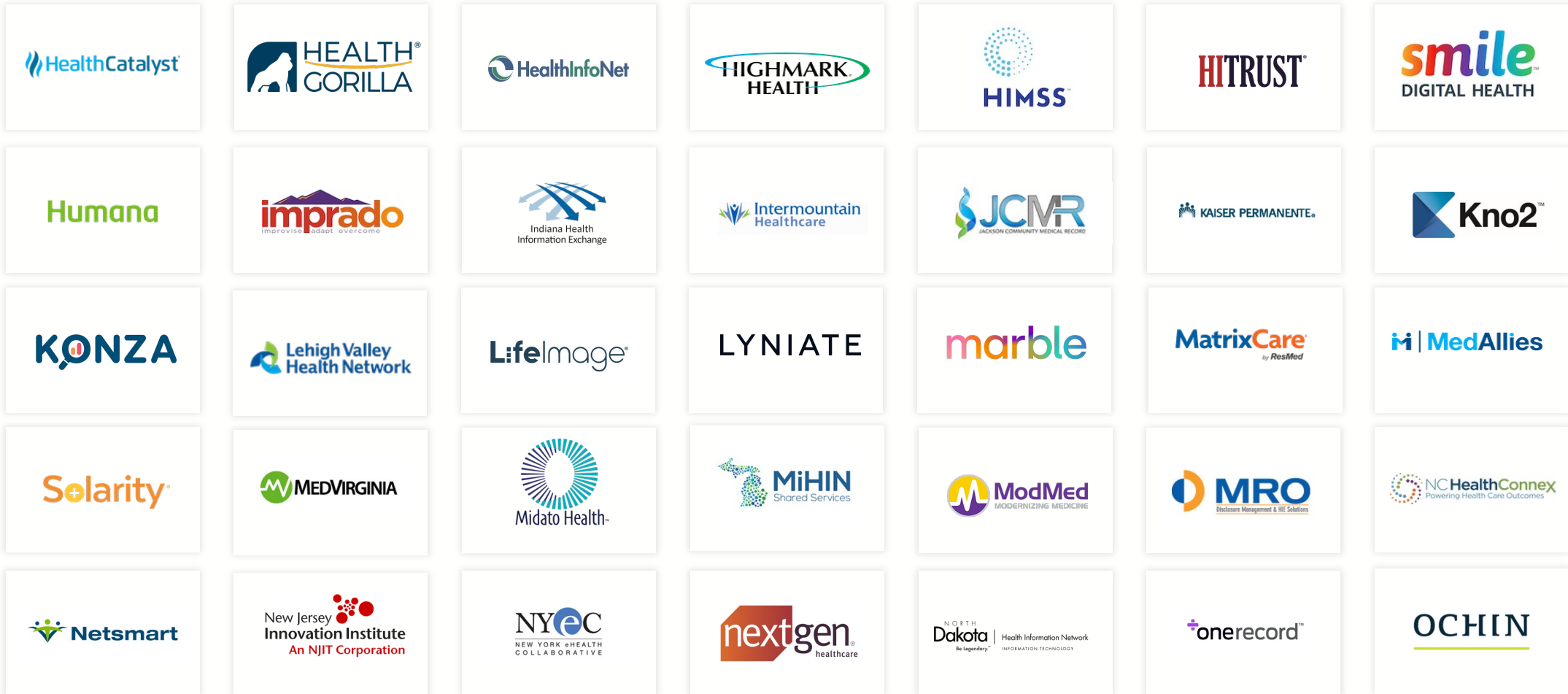
Health Plan/Payer



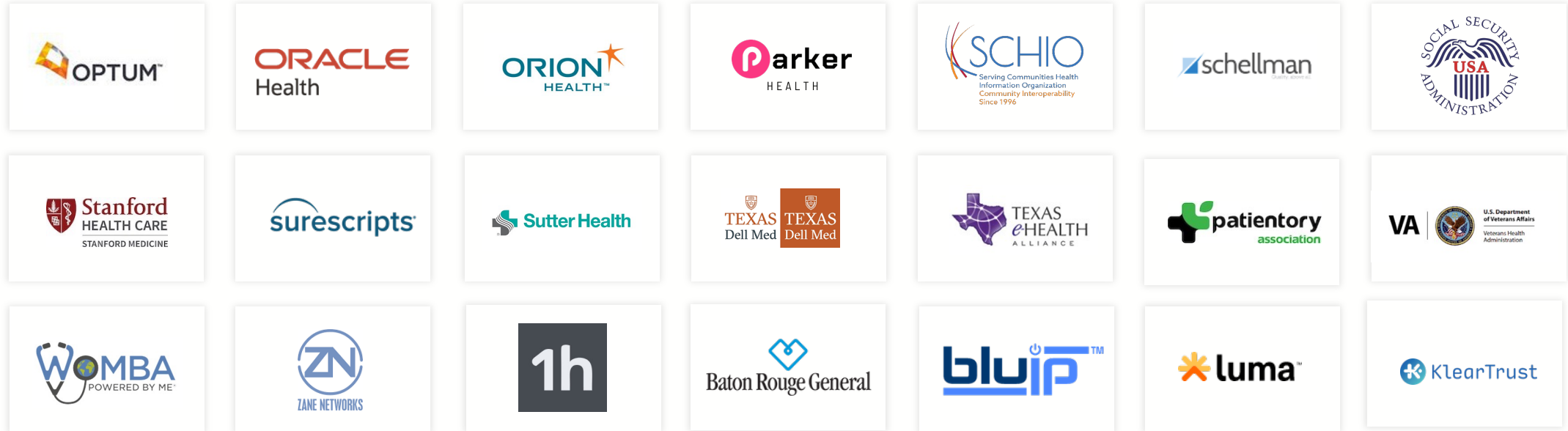
Sequoia Member's Shape Interoperability for the Public Good



Sequoia Member's Shape Interoperability for the Public Good

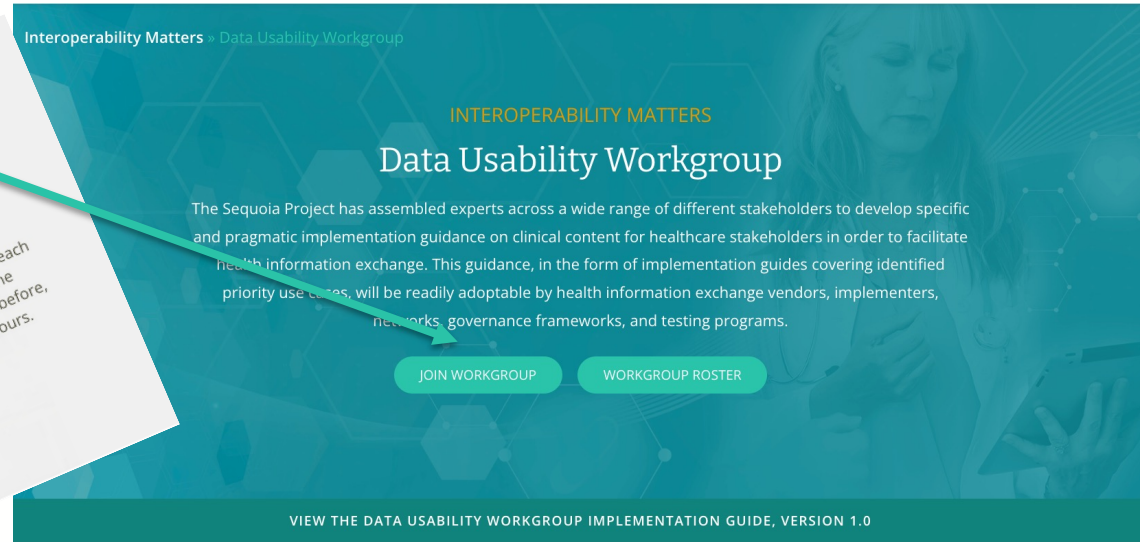
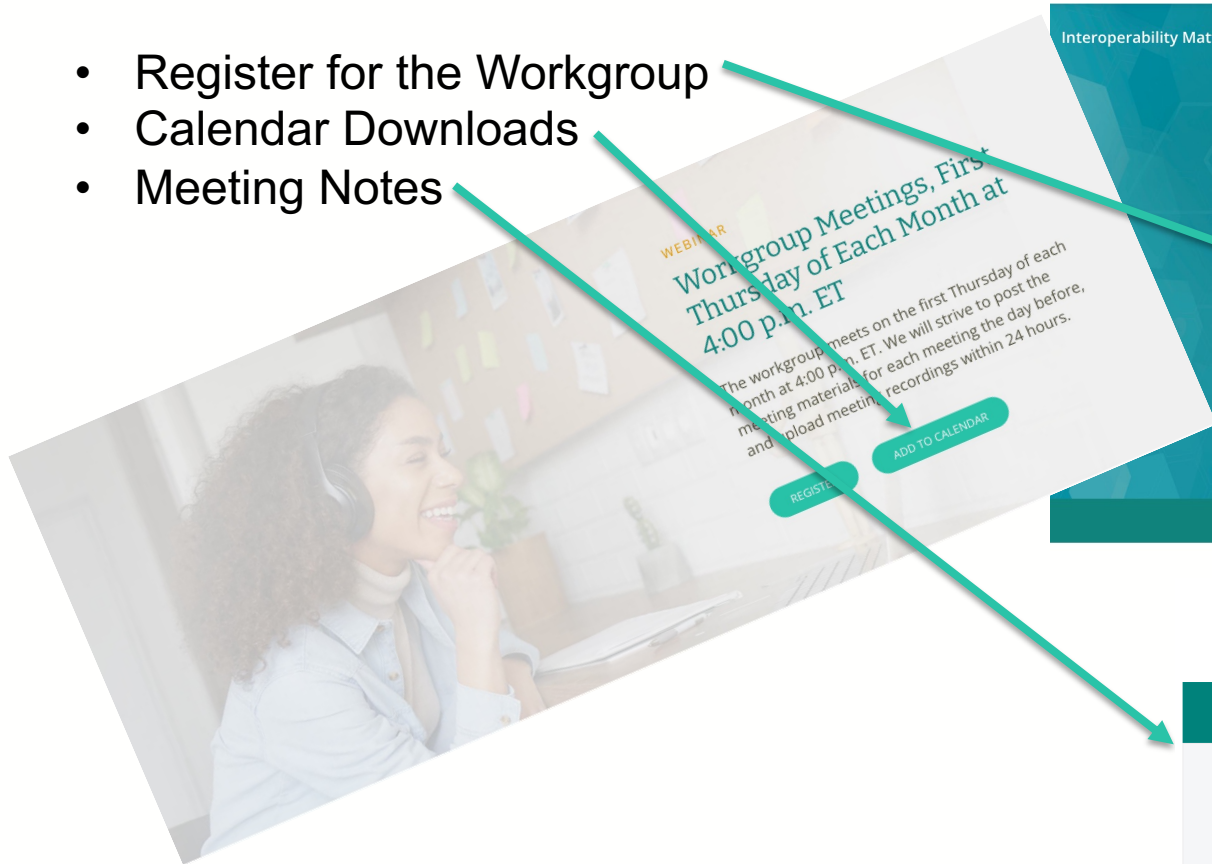


Sequoia Member's Shape Interoperability for the Public Good




Website, Meeting and Workgroup Logistics

- Register for the Workgroup
- Calendar Downloads
- Meeting Notes



Meeting Materials and Recordings

2023 Phase 1	2022 (Phase 3)	2021 - 2022 (Phase 2)	2020 - 2021 (Phase 1)
<ul style="list-style-type: none"> ▶ April 6: Meeting Notes 			
<ul style="list-style-type: none"> ▶ March 2: Meeting Notes 			
<ul style="list-style-type: none"> ▶ February 2: Meeting Notes 			

<https://sequoiaproject.org/interoperability-matters/data-usability-workgroup/>
 Interopmatters@sequoiaproject.org

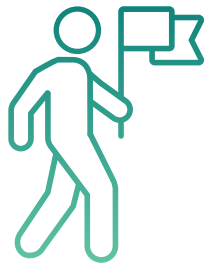
Interoperability Matters Data Usability Workgroup Priorities & 2023 – 2024 Timeline

Meeting Logistics and Timeline

- 2023 – 2024 Planned Schedule
 - Kickoff Call: February 2, 2023
 - Ongoing calls: 1ST Thursday each month
- Next Phase of Activities - Process & Timeframe
 - Phase 1 - Administration and Prioritization
 - February 2023 – June 2023
 - Phase 2: Developing Initial Drafts
 - July 2023 – June 2024
 - Phase 3: Public Comment Period/Recommended Next Steps
 - July 2024 – August 2024
 - Phase 4: Finalizing Implementation Guide and Call to Action
 - August 2024 – December 2024

Your priorities drive our process

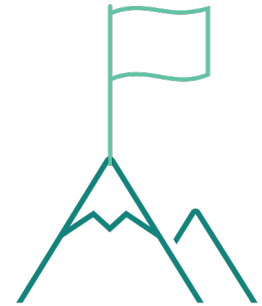
We set our course based on our members' challenges, barriers, gaps, and opportunities.



Identify



Prioritize



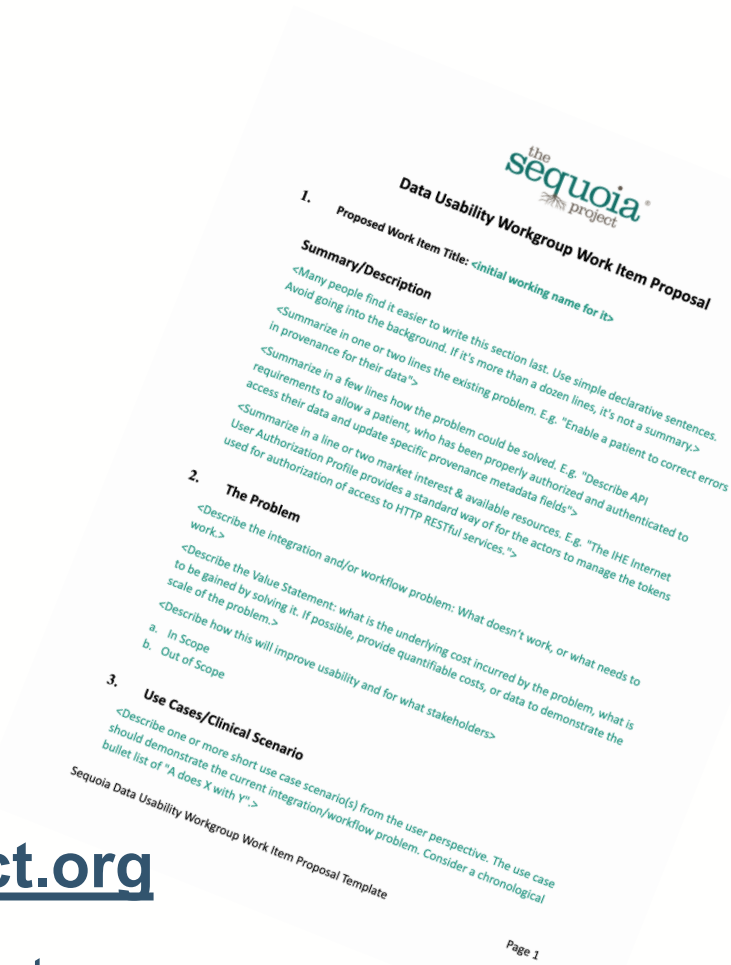
Solve

Data Usability Workgroup Work Item Proposal

- Summary/Description
- The Problem
- Use Cases/Clinical Scenario
- Standards and Systems
- Implementation Guide Applicability
- Risks/Key Challenges
- Open Issues/Notes/Comments
- Status

SUBMIT to interopmatters@sequoiaproject.org

[Data Usability Workgroup Work Item Proposal Template](#)



Standardizing Laboratory Result Display in C-CDA

Presented by:

Texas Health Services
Authority (THSA)



Texas Health Services Authority Interoperability Collaborative is multi-disciplinary, vendor agnostic supporting safe-secure electronic exchange of clinical data. The Collaborative serves to address challenges with timely, trusted data exchange across multiple public and private healthcare venues, public health, and vendor platforms. The goal is to assure that clinical information travels with an individual, is trusted and efficiently available to a clinician.

C-CDA Standardization

Problem:

Inconsistent CCDA content is impacting transitions of care in the Texas community.

- Although C-CDA was implemented to make data transfer between various EMR/EHR easier, that is not always the case. C-CDA data received by the clinical community is inconsistent creating frustration with the community and lack of trust in the data received.
- Clinicians have vocalized that data transfer between different EMR / EHR vendors and organizations is inconsistent. When sending patient information from one group to another, fax or printed papers are still used.
- Even if the electronic method of the transfer is used, topics/parts that are filled may differ between organizations.
- There are policy requirements for C-CDA and transitions of care but the application is inconsistent across the ecosystem as such not optimally supporting transitions of care between various healthcare providers.



The final goal of this project is to recommend clinical content to be included in the C-CDA that can be implemented as a standard throughout Texas.

This project aims to identify and suggest a modification to various parts of the C-CDA that will benefit transitions of care.

We are also targeting to pick components of C-CDA that can be made standard so that there is parity between all the patient data transferred between varied health care organizations.

Summary

- Clinicians should view laboratory results in a standardized manner for optimal clinical communication. Laboratory test results received from external sources are inconsistent by EHR vendor. This inconsistency leads to patient safety concerns, data distrust and clinician dissatisfaction.
- EHR vendors should send laboratory results to external organizations in a standard format based on core test with components organized consistent with the manner that laboratory result components are organized internal to the resulting EHR.
- A consistent, standardized view of laboratory test results supports patient safety, efficiency and clinician satisfaction.
- Direction regarding order of laboratory information in the C-CDA Implementation Guide is missing. We are proposing the order be as follows: Result lines first by order type such as microbiology or hematology and then by date / time with components of a given order listed together.

Problem

- Laboratory results received on a C-CDA are grouped inconsistently based on EHR vendor. Athena and Epic are grouped in like manner based on the components of a test i.e. all CBC components are grouped together. Cerner is sending results based on timing of results.
- This inconsistency is leading to distrust in the data, concern that critical information will be missed and requests for “faxed” results to assure appropriate clinical care. This factor is also contributing to clinician dissatisfaction with EHRs and burn-out as they search for the “needle in the hay stack – i.e. laboratory results”.
- Sending laboratory results in a consistent manner from all EHRs will assure a standardized view of laboratory results in a logical clinical grouping regardless of EHR vendor. Creating a safer environment for transitions of care and removing a digital health equity component that is based on vendor.
- The cost would be a one-time cost for each vendor to implement. However, it should ease the burden on integration upon receipt if all sent in a standard manner.

Feedback from Survey pertinent to Laboratory Result Display

- “Entire encounter if it can look succinct, i.e. be in a table that is easy to read”
- “Lab values should be in analyze form.”
- “Standardizing "how" things are displayed is as important as "what" the C-CDA contains.
- “Lab reporting is very slow for cultures, gram stains, sensitivities”

Clinical Scenario

- Clinicians viewing laboratory tests resulted in an external organization is inconsistent leading to distrust in the EHR, cognitive overload searching through data, continuing to ask for a “fax of the lab test” to minimize patient safety concerns. The laboratory results are not grouped with the order and appear to be reported as resulted.
- There are EHRs sending results in a manner consistent with how they are resulted in the organization.
- Laboratory results received from external organizations should be organized in the same manner as provided for the internal organization to standardize user consumption of data.

Examples of Laboratory Data

- **Athena**
- **Cerner**
- **Epic**
- **Meditech**

Athena Org A to Epic Org A

results
Lab Results

Date	Name	Specimen	Result	Interpretation	Description	Value	Range	Status	Address
02/05/2019	Pathology Study				Results			Final	
02/01/2019	Cbc		High		White Blood Count	15.5 K/mm3	4.8-10.8 K/mm3	Final	
			Low		Red Blood Count	3.76 M/mm3	4.20-5.40 M/mm3	Final	
					Hemoglobin	12.0 g/dL	12.0-16.0 g/dL	Final	
			Low		Hematocrit	35.5 %	37.0-47.0 %	Final	
					Mean Corpuscular Volume	94.3 fL	81.0-99.0 fL	Final	
			High		Mean Corpuscular	31.8 pg	27.0-31.0 pg	Final	

Athena to Epic Org A

	Urine Urobilinogen - Dipstick	negative mg/dL	0.2-1.0 mg/dL	Final	
	Urine Bilirubin - Dipstick	negative	negative	Final	
	Urine Blood-dipstick	negative	negative	Final	
	Urine WBC	0-2 WBC/hpf	0-5 WBC/hpf	Final	
ABNORMAL	Urine RBC	3-5 RBC/hpf	0-2 RBC/hpf	Final	
	Urine Bacteria	none seen /hpf	none seen /hpf	Final	
ABNORMAL	Urine Squamous Epi Cell	moderate /lpf	none-few /lpf	Final	
	Urine Mucus	rare /lpf	none seen /lpf	Final	
	Performing Lab:			Final	

Athena to Epic Org A

Results

Lab Results

Date	Name	Specimen	Result	Interpretation	Description	Value	Range	Status
07/23/2021	Calcium, Serum or Plasma		Low		Calcium	8.4 mg/dL	8.5-10.5 mg/dL	Final
06/16/2021	Calcium, Serum or Plasma				Calcium	9.5 mg/dL	8.5-10.5 mg/dL	Final
05/28/2021	Calcium, Serum or Plasma				Calcium	8.7 mg/dL	8.5-10.5 mg/dL	Final

Cerner Org A to Epic Org A

Results

Laboratory List

Name	
.Auto Diff	
Basic Metabolic Panel	
CBC with Diff	
Glomerular Filtration Rate	
-	
Most recent to oldest [Reference Range]:	1
eGFR [≥ 60 mL/min/1.73m ²]	>60 mL/min/1.73m ² (3/20/23 8:25 AM)
Creatinine [0.5-1.2 mg/dL]	0.8 mg/dL (3/20/23 8:25 AM)
AGAP [4-12]	10 (3/20/23 8:25 AM)
Basophil Auto [≤ 1.0 %]	0.3 % (3/20/23 8:25 AM)
BUN [6-20 mg/dL]	14 mg/dL (3/20/23 8:25 AM)
Calcium [8.5-10.5 mg/dL]	9.0 mg/dL (3/20/23 8:25 AM)
Chloride [98-107 mmol/L]	107 mmol/L (3/20/23 8:25 AM)

CO2 [21-31 mmol/L]	22 mmol/L (3/20/23 8:25 AM)
Eos Auto [≤ 4.0 %]	1.5 % (3/20/23 8:25 AM)
Glucose Level [70-110 mg/dL]	101 mg/dL (3/20/23 8:25 AM)
Sodium Level [136-145 mmol/L]	139 mmol/L (3/20/23 8:25 AM)
WBC [4.5-11.0 Thou/cu mm]	6.8 Thou/cu mm (3/20/23 8:25 AM)
Hct [37.0-47.0 %]	41.5 % (3/20/23 8:25 AM)
Hgb [12.0-16.0 g/dL]	13.9 g/dL (3/20/23 8:25 AM)
Lymph Auto [30.0-40.0 %]	22.3 % *LOW* (3/20/23 8:25 AM)
MCH [27.0-31.0 pg]	29.3 pg (3/20/23 8:25 AM)
MCHC [32.0-37.0 g/dL]	33.5 g/dL (3/20/23 8:25 AM)
MCV [81.0-99.0 fL]	87.6 fL (3/20/23 8:25 AM)
Mono Auto [≤ 10.0 %]	10.2 % *HI* (3/20/23 8:25 AM)
MPV [8.8-13.5 fL]	9.7 fL (3/20/23 8:25 AM)
Neutro Auto [50.0-65.0 %]	65.1 % *HI* (3/20/23 8:25 AM)
Platelet [150-450 Thou/cu mm]	334 Thou/cu mm (3/20/23 8:25 AM)
Potassium Level [3.5-5.1 mmol/L]	4.3 mmol/L (3/20/23 8:25 AM)
RBC [3.80-5.40 Mill/cu mm]	4.74 Mill/cu mm (3/20/23 8:25 AM)
RDW [11.5-14.5 %]	13.5 % (3/20/23 8:25 AM)

Abs Lymph	1.53 Thou/cu mm *NA* (3/20/23 8:25 AM)
Abs Monocyte	0.70 Thou/cu mm *NA* (3/20/23 8:25 AM)
Abs Immature Grans	0.04 Thou/cu mm *NA* (3/20/23 8:25 AM)
Immature Grans Auto	0.6 % *NA* (3/20/23 8:25 AM)
Automated Nucleated RBC's	0.0 /100 WBC *NA* (3/20/23 8:25 AM)

Cerner Org A to Epic Org A

Glucose Level [70-110 mg/dL]	127 mg/dL *HI* (5/10/22 3:42 PM)
Sodium Level [136-145 mmol/L]	141 mmol/L (5/10/22 3:42 PM)
Total Protein [6.7-8.2 g/dL]	7.3 g/dL (5/10/22 3:42 PM)
UA pH [5.0-9.0]	6.0 (5/10/22 6:56 PM)
Specific Gravity Urine [<=1.030]	1.015 (5/10/22 6:56 PM)
WBC [4.5-11.0 Thou/cu mm]	8.4 Thou/cu mm (5/10/22 3:42 PM)
Troponin-I [<=0.04 ng/mL]	<0.01 ng/mL (5/10/22 3:42 PM)
HCO3 Ven [23.0-27.0 mmol/L]	25.1 mmol/L (5/10/22 3:44 PM)
Hct [40.0-54.0 %]	48.1 % (5/10/22 3:42 PM)
Hgb [14.0-18.0 g/dL]	16.1 g/dL (5/10/22 3:42 PM)
Lipase Level [8-78 unit(s)/L]	30 unit(s)/L (5/10/22 3:42 PM)
Lymph Auto [30.0-40.0 %]	18.3 % *LOW* (5/10/22 3:42 PM)

	(5/10/22 3:42 PM)
eGFR (AA) [>=60 mL/min/1.73m2]	>60 mL/min/1.73m2 (5/10/22 3:42 PM)
Abs Immature Grans	0.04 Thou/cu mm *NA* (5/10/22 3:42 PM)
Immature Grans Auto	0.5 % *NA* (5/10/22 3:42 PM)
Influenza A (rapid) [Negative]	Negative (5/10/22 3:44 PM)
Influenza B (rapid) [Negative]	Negative (5/10/22 3:44 PM)
Influenza A/B (rapid) Interp	Negative: No Influenza A or Influenza B antigen detected A negative result does not completely rule out influenza activity in the community to decide if you should be tested for influenza. As recommended by the CDC, use clinical signs and symptoms, such as fever, cough, sore throat, muscle aches, and fatigue, to decide if you should be tested for influenza. Initiate antiviral treatment as soon as possible if you have a high suspicion of influenza, especially if you are at high risk for complications, progressive disease, or are being admitted to the hospital. Consider additional influenza testing if indicated. Consider additional diagnostic testing for other respiratory viruses if indicated. *Unknown* (5/10/22 3:44 PM)
Service Resource	Comment ² *NA*

Cerner Org B to Epic Org B

06/13/2022	BMP, Serum or Plasma	Normal	Glucose	94 mg/dL	65-139 mg/dL	Final
Cerner to Epic		High	Urea Nitrogen (BUN)	51 mg/dL	7-25 mg/dL	Final
		High	Creatinine	2.38 mg/dL	0.70-1.33 mg/dL	Final
		Low	eGFR Non-afr. American	29 mL/min/1.73m2	> or = 60 mL/min/1.73m2	Final
		Low	eGFR African American	34 mL/min/1.73m2	> or = 60 mL/min/1.73m2	Final
		Normal	BUN/creatinine Ratio	21 (calc)	6-22 (calc)	Final
		Normal	Sodium	135 mmol/L	135-146 mmol/L	Final
		High	Potassium	6.4 mmol/L	3.5-5.3 mmol/L	Final
		Normal	Chloride	107 mmol/L	98-110 mmol/L	Final

Cerner Org C to Epic Org B

No data available for this section

Jump to Section ▾

Results

Laboratory List

Name	Date
BNP	12/29/22
Complete Blood Count With Auto Differential (CBC w/auto Diff)	12/29/22
Comprehensive Metabolic Panel (CMP)	12/29/22
Troponin I	12/29/22

- Most recent to oldest

[Reference Range]: 1

NRBC Auto Abs	<0.01 x10(3)/mcl
[0.00-0.00 x10(3)/mcl]	(12/29/22 12:34 PM)
eGFR CKD-EPI [> =90 mL/min/1.73m2]	30 mL/min/1.73m2
	LOW
	(12/29/22 12:34 PM)
Imm Gran Rel [0.0-3.0 %]	0.2 %
	(12/29/22 12:34 PM)
Imm Gran Abs	<0.03 x10(3)/mcl
[0.00-0.30 x10(3)/mcl]	(12/29/22 12:34 PM)
AGAP	10
	NA
	(12/29/22 12:34 PM)
RBC [4.40-5.80 x10 (6)/mcl]	3.79 x10(6)/mcl
	LOW
	(12/29/22 12:34 PM)
Sodium Lvl [136-149 mEq/L]	142 mEq/L
	(12/29/22 12:34 PM)
Total Protein [6.0-8.2 g/dL]	5.5 g/dL
	LOW
	(12/29/22 12:34 PM)
Albumin Lvl [3.2-5.5 g/dL]	2.5 g/dL
	LOW
	(12/29/22 12:34 PM)
Alk Phos [40-150 units/L]	60 units/L
	(12/29/22 12:34 PM)
ALT [0-55 units/L]	41 units/L
	(12/29/22 12:34 PM)
AST [0-40 units/L]	57 units/L
	HI

Cerner
to
Epic

Cerner Org D to Epic Org B

Find:	lab			← Previous	Next →	4 of 42
	ABN					
	(12/21/22 3:07 PM)					
UA RBC [0-2 /hpf]	0-2 /hpf					
	(12/21/22 3:07 PM)					
UA Squam Epith [Moderate /hpf]	None /hpf					
	(12/21/22 3:07 PM)					
UA Urobilinogen [Normal mg/dL]	Normal mg/dL					
	(12/21/22 3:07 PM)					
UA WBC [0-5 /hpf]	0-2 /hpf					
	(12/21/22 3:07 PM)					
AGAP	11	10	9			
	NA	*NA*	*NA*			
	(12/27/22 2:49 AM)	(12/26/22 3:54 AM)	(12/25/22 4:42 AM)			
Chol/HDL [0.0-4.9]	3.3					
	(12/21/22 12:07 PM)					
Iron Sat [20-50 %]	33 %					
	(12/24/22 6:17 AM)					
Creat U24 [1.00-1.80 g/24hr]	1.24 g/24hr					
	(12/22/22 7:02 AM)					
RBC [4.40-5.80 x10 (6)/mcl]	2.82 x10(6)/mcl	2.98 x10(6)/mcl	3.12 x10(6)/mcl			
	LOW	*LOW*	*LOW*			
	(12/27/22 2:49 AM)	(12/26/22 3:54 AM)	(12/25/22 4:42 AM)			
Retic Relative [0.50-3.00 %]	1.53 %					
	(12/24/22 6:17 AM)					
Sodium Lvl [136-149 mEq/L]	140 mEq/L	140 mEq/L	140 mEq/L			
	(12/27/22 2:49 AM)	(12/26/22 3:54 AM)	(12/25/22 4:42 AM)			
T4 Free [0.70-1.48 ng/dL]	0.95 ng/dL ⁵					
	(12/24/22 6:17 AM)					
TIBC [252-461 mcg/dL]	200 mcg/dL					
	LOW					
	(12/24/22 6:17 AM)					
Total Protein [6.0-8.2 g/dL]	5.7 g/dL					
	LOW					
	(12/21/22 10:20 AM)					
Trig Lvl [10-200 mg/dL]	160 mg/dL					
	(12/21/22 12:07 PM)					
TSH [0.35-4.94 uIU/mL]	4.14 uIU/mL	3.84 uIU/mL				
	(12/24/22 6:17 AM)	(12/21/22 12:07 PM)				
UA pH [5.0-7.9]	6.5					
	(12/21/22 3:07 PM)					
Albumin Lvl [3.2-5.5 g/dL]	1.9 g/dL	2.5 g/dL				

Outgoing Epic Org A

Results - documented in this encounter

Table of Contents for Results

(ABNORMAL) UA WITHOUT CULTURE (ASYMPTOMATIC) (04/21/2023 9:21 AM CDT)

(ABNORMAL) UA WITHOUT CULTURE (ASYMPTOMATIC) (04/07/2023 1:41 PM CDT)

HEMOGLOBIN A1C-HPLC (04/07/2023 1:41 PM CDT)

TSH (04/07/2023 1:41 PM CDT)

METABOLIC, COMPREHENSIVE (04/07/2023 1:41 PM CDT)

(ABNORMAL) CBCW/DIFF (AUTO) (FW) (04/07/2023 1:41 PM CDT)

(ABNORMAL) LIPID PANEL (04/07/2023 1:41 PM CDT)

(ABNORMAL) UA WITHOUT CULTURE (ASYMPTOMATIC) (04/21/2023 9:21 AM CDT)

Component	Value	Ref Range	Test Method
Color, UA	YELLOW	Yellow	
Appearance, Fluid	CLEAR	Clear	
U/SG	<=1.005	1.005 - 1.030	
Leukocytes (#/Volume) in Urine	NEGATIVE	Negative	
Nitrite, UA	NEGATIVE	Negative	
pH	6.0	5 - 9	
Protein, Ur	NEGATIVE	Negative-Trace	
Glucose, Ur	NEGATIVE	Negative	
Ketones, Urine	NEGATIVE	Negative	
Urobilinogen, UA	0.2	0.2 - 1.0 E.U./dL	
U/Bili	NEGATIVE	Negative	
Erythrocytes, Urine	2+ (A)	Negative	
Urine Microscopic	See Below (A)		
WBC	0-2	0 - 5 /HPF	
RBC	2-5 (A)	0 - 2 /HPF	
Epi Urine	0-2 (A)	None /HPF	
Bacti Urine	Trace (A)	None	
Mucus, Urine	None	None	

METABOLIC, COMPREHENSIVE (04/07/2023 1:41 PM CDT)

Component	Value	Ref Range	Test Method
Sodium	141	135 - 145 mm/L	
Potassium	3.6	3.5 - 5.4 mm/L	
Chloride	105	96 - 109 MM/L	
ECO2	23	19 - 31 mm/L	
Glucose	86	74 - 109 mg/dL	
Comment: Nonfasting Range: 70-130 mg/dl			
BUN	11	7 - 22 mg/dL	
Creatinine Plus	0.78	0.60 - 1.40 mg/dL	
eGFR	112.83	>60.00 mL/min/1.73m ²	
Calcium	9.8	8.4 - 10.2 mg/dL	
Total Bilirubin	0.6	0.0 - 1.2 mg/dL	
ALT	22	5 - 50 U/L	
AST	20	9 - 50 U/L	
Alkaline Phosphatase	96	40 - 129 U/L	
Total Protein	7.8	6.7 - 8.8 g/dl	
Albumin	4.5	3.5 - 5.2 g/dL	
Globulin Total	3.3	2.1 - 3.8 g/dl	
A/G Ratio	1.4	0.7 - 2.3 ratio	
Anion Gap	13	8 - 16 mmol/L	
B/C Ratio	14.2	8.0 - 28.0 ratio	

Epic Org D to Epic Org A

IgA (04/24/2023 10:02 AM CDT)			
Component	Value	Ref Range	Test Method
IgA	251	85 - 499 mg/dL	
Specimen (Source) Anatomical Location / Laterality Collection Method / Volume			
Blood			
(ABNORMAL) Electrolyte Panel (04/24/2023 10:02 AM CDT)			
Component	Value	Ref Range	Test Method
Sodium Lvl	143	136 - 145 mEq/L	
Potassium Lvl	4.4	3.5 - 5.1 mEq/L	
Chloride	105	98 - 107 mEq/L	
CO2	30 (H)	22 - 29 mEq/L	
Anion Gap	8	4 - 14 mEq/L	

Epic Org C to Epic Org B

Component	Value	Range	Test Method	Time	Performed At
WBC	8.01	4.90 - 13.40 K/mcL	COMPLETE BLOOD COUNT	02/07/2023 10:59 AM CST	UNIVERSITY HOSPITAL LABORATORY
Neutrophils Absolute Preliminary	5.83	2.10 - 8.90 K/mcL	COMPLETE BLOOD COUNT	02/07/2023 10:59 AM CST	UNIVERSITY HOSPITAL LABORATORY
Red Blood Cell Count	4.00	3.84 - 4.92 M/mcL	COMPLETE BLOOD COUNT	02/07/2023 10:59 AM CST	UNIVERSITY HOSPITAL LABORATORY
Hemoglobin	13.1 (H)	10.2 - 12.7 g/dL	COMPLETE BLOOD COUNT	02/07/2023 10:59 AM CST	UNIVERSITY HOSPITAL LABORATORY
Hematocrit	35.9	31.2 - 37.8 %	COMPLETE BLOOD COUNT	02/07/2023 10:59 AM CST	UNIVERSITY HOSPITAL LABORATORY
MCV	89.8 (H)	71.3 - 85.0 fL	COMPLETE BLOOD COUNT	02/07/2023 10:59 AM CST	UNIVERSITY HOSPITAL LABORATORY
MCH	32.8 (H)	23.7 - 28.6 pg	COMPLETE BLOOD COUNT	02/07/2023 10:59 AM CST	UNIVERSITY HOSPITAL LABORATORY
MCHC	36.5 (H)	31.8 - 34.7 g/dL	COMPLETE BLOOD COUNT	02/07/2023 10:59 AM CST	UNIVERSITY HOSPITAL LABORATORY
RDW	14.8	12.4 - 14.9 %	COMPLETE BLOOD COUNT	02/07/2023 10:59 AM CST	UNIVERSITY HOSPITAL LABORATORY
Platelet Count	215	186 - 403 K/mcL	COMPLETE BLOOD COUNT	02/07/2023 10:59 AM CST	UNIVERSITY HOSPITAL LABORATORY
Mean Platelet Volume	9.5	8.9 - 11.0 fL	COMPLETE BLOOD COUNT	02/07/2023 10:59 AM CST	UNIVERSITY HOSPITAL LABORATORY
NRBC Percent Auto	0.0	%	COMPLETE BLOOD	02/07/2023	UNIVERSITY

Meditech Org B to Epic Org A - 5 pages of scrolling

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Relevant Diagnostic Tests and/or Laboratory Data					
Laboratory Results					
Test	Date/Time	Result	Interpretation	Reference Range	Result Comment
White Blood Count	April 28th, 2023 11:48am	13.2		4.5-11.0	
Red Blood Count	April 28th, 2023 11:48am	5.3		4.00-5.50	
Hemoglobin	April 28th, 2023 11:48am	15.1		12.0-16.0	
Hematocrit	April 28th, 2023 11:48am	45.2		37.0-47.0	
Mean Corpuscular Volume	April 28th, 2023 11:48am	85.8		80.0-100.0	
Mean Corpuscular Hemoglobin	April 28th, 2023 11:48am	28.7		27.0-34.0	
Mean Corpuscular Hemoglobin Concent	April 28th, 2023 11:48am	33.4		32.0-40.0	
Red Cell Distribution Width	April 28th, 2023 11:48am	13.4		11.0-15.0	

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Platelet Count	April 28th, 2023 11:48am	442		150-450	
Mean Platelet Volume	April 28th, 2023 11:48am	10.2		9.0-11.5	
Neutrophils %	April 28th, 2023 11:48am	68.2		50.0-75.0	
Immature Granulocytes %	April 28th, 2023 11:48am	0.30		0.0-1.0	
Lymphocytes %	April 28th, 2023 11:48am	23.3		20.0-44.0	
Monocytes %	April 28th, 2023 11:48am	7.5		2.0-9.3	
Eosinophils %	April 28th, 2023 11:48am	0.4		1.0-5.0	
Basophils %	April 28th, 2023 11:48am	0.3		0.0-2.0	

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Nucleated Red Blood Cells %	April 28th, 2023 11:48am	0			
Neutrophils #	April 28th, 2023 11:48am	9.0		1.5-7.5	
Absolute Immature Granulocyte (auto)	April 28th, 2023 11:48am	0.04		0.0-0.1	
Lymphocytes #	April 28th, 2023 11:48am	3.1		1.2-3.4	
Monocytes #	April 28th, 2023 11:48am	1.0		0.1-0.6	
Eosinophils #	April 28th, 2023 11:48am	0.1		0.0-2.7	
Basophils #	April 28th, 2023 11:48am	0.0		0.0-0.2	
Nucleated Red Blood Cells #	April 28th, 2023 11:48am	0.00		<1.30	
Sodium Level	April 28th, 2023 11:48am	136		136-145	

Continued -
Meditech Org B to **Epic Org A** - 5 pages of scrolling

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Potassium Level	April 28th, 2023 11:48am	3.3	3.5-5.1
Chloride Level	April 28th, 2023 11:48am	101	98-107
Carbon Dioxide Level	April 28th, 2023 11:48am	24	22-29
Anion Gap	April 28th, 2023 11:48am	11.00	7-16
Glucose Level	April 28th, 2023 11:48am	104	70-110
Blood Urea Nitrogen	April 28th, 2023 11:48am	15	7-18
Creatinine	April 28th, 2023 11:48am	0.7	0.6-1.3
Estimated GFR (CKD-EPI 2021)	April 28th, 2023 11:48am	107	>60

Estimated Creatinine Clearance Calc	April 28th, 2023 11:48am	93.00	30-
Calcium Level	April 28th, 2023 11:48am	9.6	8.8-10.5
Total Protein	April 28th, 2023 11:48am	8.0	6.4-8.5
Albumin	April 28th, 2023 11:48am	4.1	3.4-5.0
Total Bilirubin	April 28th, 2023 11:48am	0.20	0.0-1.0
Aspartate Amino Transf (AST/SGOT)	April 28th, 2023 11:48am	6	15-37
Alanine Aminotransferase (ALT/SGPT)	April 28th, 2023 11:48am	19	13-50
Alkaline Phosphatase	April 28th, 2023 11:48am	66	50-136
Alkaline Phosphatase	April 28th, 2023 11:48am	66	50-136
Lipase	April 28th, 2023 11:48am	180.0	73-393
Serum Pregnancy Test, Qualitative	April 28th, 2023 11:48am	NEGATIVE	NEGATIVE

Meditech Org A to Epic Org B

San Antonio, TX 78216
(210) 804-5470 (Work Place)

Results
Lab Results

Date	Name	Specimen	Result	Interpretation	Description	Value	Range	Status
12/24/2017	PT/INR				Prothrombin Time Patient	12.8 seconds	12.0-15.0 seconds	Final
					International Normal Ratio	1.0	0.8-1.2	Final
12/24/2017	Activated Partial Thromboplastin Time, Coagulation Assay, Blood		Normal		PTT Activated	26.2 seconds	21.0-35.0 seconds	Final

SAVE THE DATE:
Sequoia Annual Member Meeting

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Annual Meeting • NOV 15 - 17

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