

Healthcare:

Accelerating Your Analytics Journey with Applications

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DIUC22

Accelerating Your Analytics Journey with Applications



Discover how Diver Platform and Measure Factory reduce the time, effort and complexity involved in bringing healthcare applications on-line.

Agenda

- ▶ Why applications?
- ▶ Healthcare application example
- ▶ Extending applications for site-specific requirements



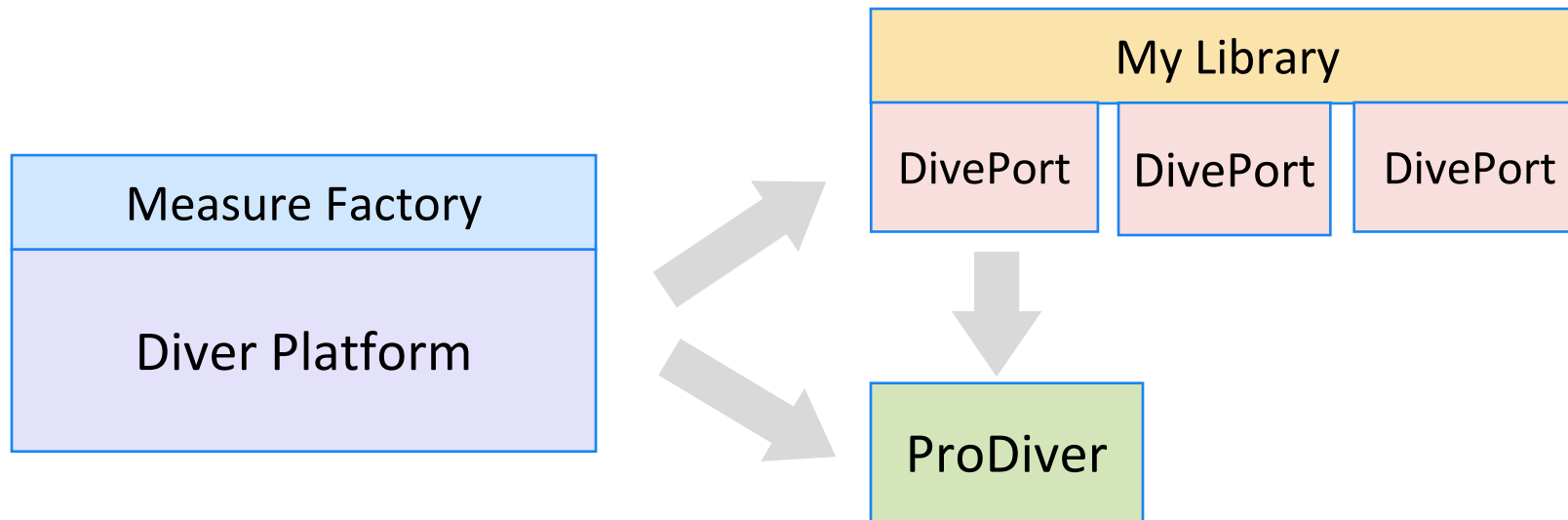
Why Use Applications for Healthcare Analytics?

The Challenges

- Laying a Foundation of Concepts, Data, Logic & Relationships
- Evolving Requirements
- The Race to a Useful Initial Deliverable
- Creeping Complexity
- Ongoing Maintenance



Dimensional Insight Technology Support for Applications



Analytics Capabilities

- Measures / KPIs
- Data Sets
- Business/Clinical Logic
- Reference Data (Lookups)
- Value Sets (Flags)
- Visualizations (Stamps)

Dimensional Insight **Healthcare Applications Suite**

Integration & Attribution Layer

Provider Performance
Advisor

Population
Analytics

Command
Center

Clinical
Analytics

Enhanced Content Layer

Surgery
Advisor

Emergency Dept
Advisor

ICU
Advisor

Outcomes
Advisor

Revenue Cycle
Advisor

Foundation Layer

Hospital
Operations

Ambulatory
Operations

How Applications **Can Help**

For developers & administrators

- **Structure**
Don't need to start from scratch
- **Complexity**
Helps insulate you from it
- **Quick Deployment**
Meaningful data in the hands of users ASAP



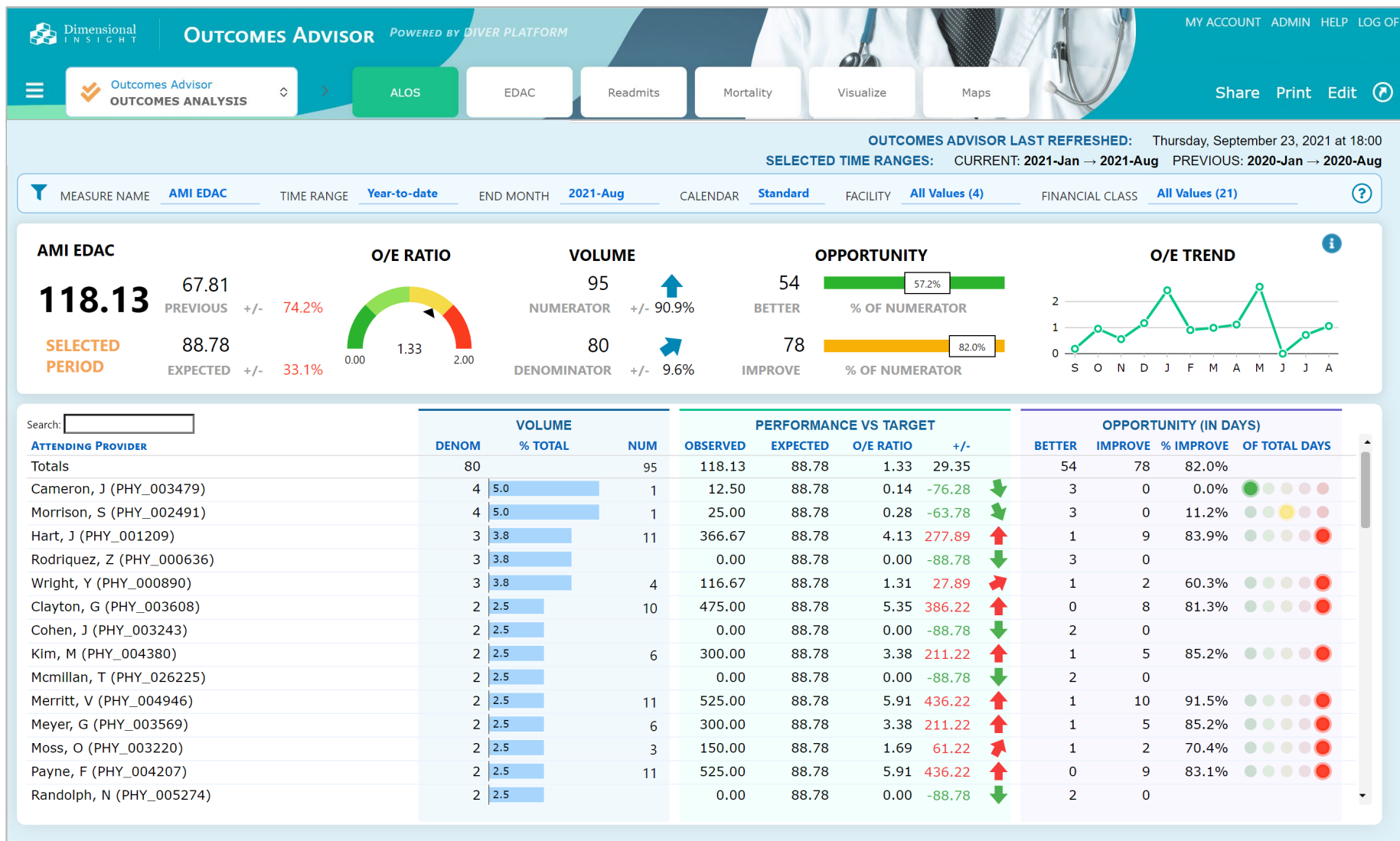
How Applications **Can Help**

For information consumers

- **Accessibility**
Focus on the needs of Stakeholders, SMEs and Info Consumers
- **Extensibility**
Add application content that addresses your own needs
- **Ongoing Relevance**
Updates to keep content fresh and useful



Dimensional Insight Outcomes Advisor





Example Application: **Outcomes Advisor**

Essential Questions:

Which KPIs?

Helpful
Contextualization?

Actionable
Information?

Accessibility to
Diverse User
Community?

Ongoing
Relevance?

Which KPIs?

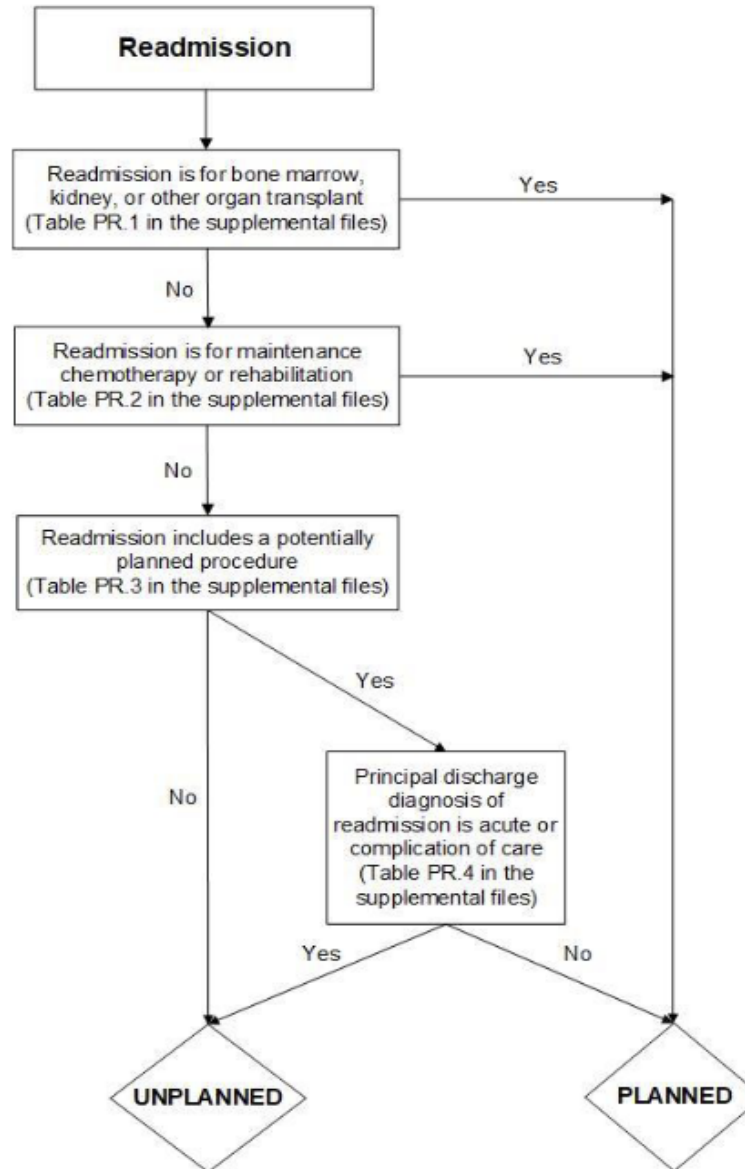
CMS & other Outcomes & Quality Measures:

- Complex logic
- Require translating technical specifications into serviceable code
- Extensive external value sets need to be maintained
- The Diver Platform (& Measure Factory) well-suited



Which KPIs?

Tables refer to Value Sets



Example of (partial) logic for
Hospital-wide 30 Day All Cause
Readmissions Measure

Which KPIs?

CCS Procedure Category or ICD-10-PCS Code? (readmission claim, any procedure position)	Category/Code	Description	Associated CCS Procedure Category (Individual ICD-10-PCS codes only)	Added/Removed/Revised for 2022 (Added = Yellow; Removed = Red; Revised = Green)	Additional Notes
ICD-10-PCS	02173J6	Bypass Left Atrium to Right Atrium with Synthetic Substitute, Percutaneous Approach	CCS 49: Other OR heart procedures	Added	-
ICD-10-PCS	02FP3Z0	Fragmentation of Pulmonary Trunk, Percutaneous Approach, Ultrasonic	CCS 49: Other OR heart procedures	Added	-
ICD-10-PCS	02FP3ZZ	Fragmentation of Pulmonary Trunk, Percutaneous Approach	CCS 49: Other OR heart procedures	Added	-
ICD-10-PCS	02FQ3Z0	Fragmentation of Right Pulmonary Artery, Percutaneous Approach, Ultrasonic	CCS 49: Other OR heart procedures	Added	-
ICD-10-PCS	02FQ3ZZ	Fragmentation of Right Pulmonary Artery, Percutaneous Approach	CCS 49: Other OR heart procedures	Added	-
ICD-10-PCS	02FR3Z0	Fragmentation of Left Pulmonary Artery, Percutaneous Approach, Ultrasonic	CCS 49: Other OR heart procedures	Added	-
ICD-10-PCS	02FR3ZZ	Fragmentation of Left Pulmonary Artery, Percutaneous Approach	CCS 49: Other OR heart procedures	Added	-
ICD-10-PCS	02FS3Z0	Fragmentation of Right Pulmonary Vein, Percutaneous Approach, Ultrasonic	CCS 49: Other OR heart procedures	Added	-
ICD-10-PCS	02FS3ZZ	Fragmentation of Right Pulmonary Vein, Percutaneous Approach	CCS 49: Other OR heart procedures	Added	-
ICD-10-PCS	02FT3Z0	Fragmentation of Left Pulmonary Vein, Percutaneous Approach, Ultrasonic	CCS 49: Other OR heart procedures	Added	-
ICD-10-PCS	02FT3ZZ	Fragmentation of Left Pulmonary Vein, Percutaneous Approach	CCS 49: Other OR heart procedures	Added	-
ICD-10-PCS	OQP405Z	Removal of External Fixation Device from Right Acetabulum, Open Approach	CCS 146: Fracture treatment including reposition with or without fixation; hip or femur fracture or dislocation	Added	-
ICD-10-PCS	OQP435Z	Removal of External Fixation Device from Right Acetabulum, Percutaneous Approach	CCS 146: Fracture treatment including reposition with or without fixation; hip or femur fracture or dislocation	Added	-
ICD-10-PCS	OQP445Z	Removal of External Fixation Device from Right Acetabulum, Percutaneous Endoscopic Approach	CCS 146: Fracture treatment including reposition with or without fixation; hip or femur fracture or dislocation	Added	-
ICD-10-PCS	OQP4X5Z	Removal of External Fixation Device from Right Acetabulum, External Approach	CCS 146: Fracture treatment including reposition with or without fixation; hip or femur fracture or dislocation	Added	-
ICD-10-PCS	OQP505Z	Removal of External Fixation Device from Left Acetabulum, Open Approach	CCS 146: Fracture treatment including reposition with or without fixation; hip or femur fracture or dislocation	Added	-
ICD-10-PCS	OQP535Z	Removal of External Fixation Device from Left Acetabulum, Percutaneous Approach	CCS 146: Fracture treatment including reposition with or without fixation; hip or femur fracture or dislocation	Added	-

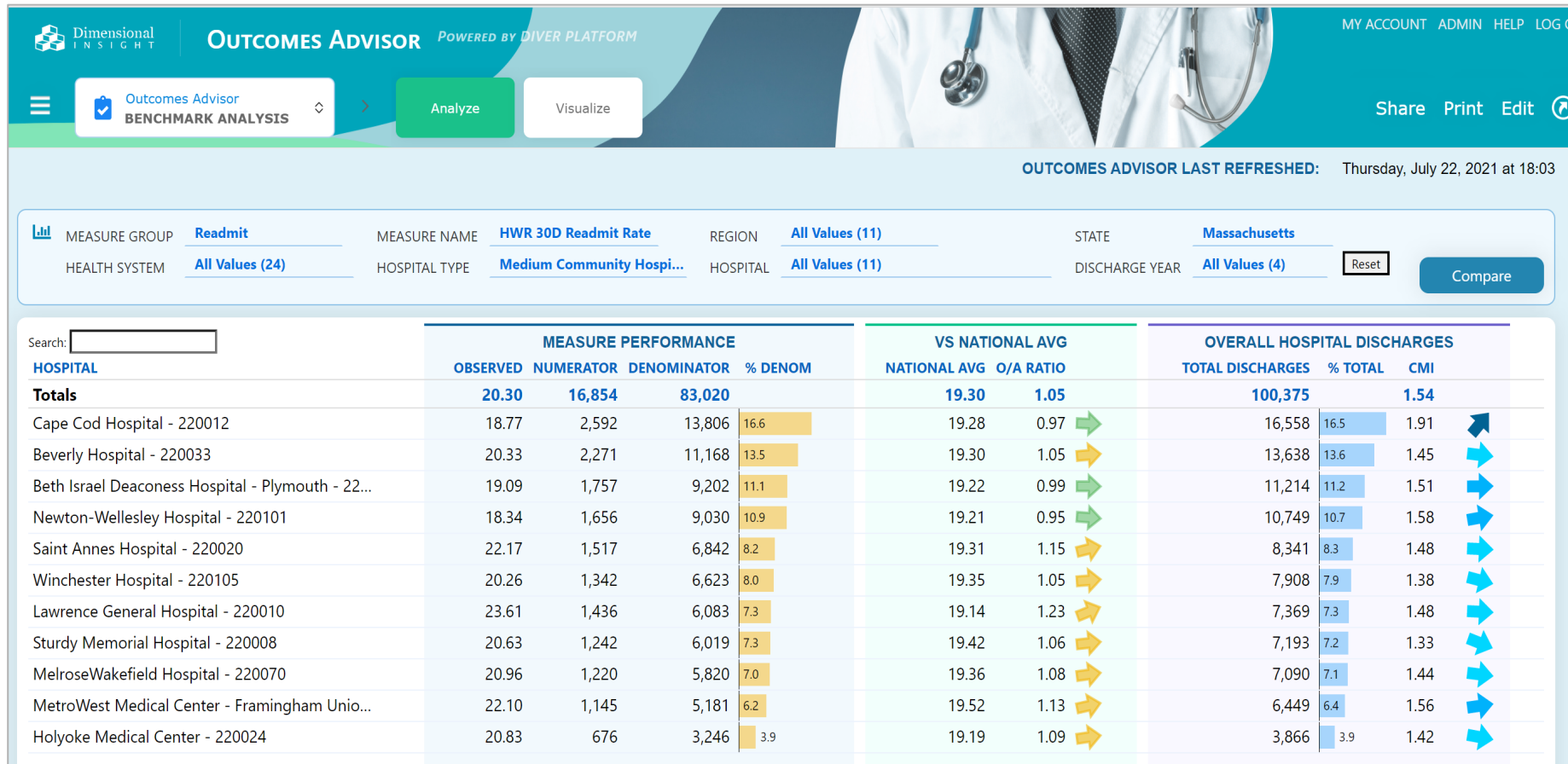
Value sets can contain thousands of entries and are updated annually!

Which KPIs?

 OUTCOMES ADVISOR POWERED BY DIVER PLATFORM MY ACCOUNT MY PROFILE LOG OUT			
 Outcomes Advisor GENERAL Measure Dictionary Ad Hoc Analysis Specification Library [Hidden Pages] Share Print Edit			
Outcomes Measures AHRQ Measures Generic & Benchmark Measures			
Outcomes Advisor - Outcomes Measures			
Average Length of Stay (ALOS)	Excess Days in Acute Care (EDAC)	30 Day Readmissions	Hospital Mortality
Overall Overall ALOS Total Discharge Days Total Discharges	AMI AMI EDAC per 100 Discharges AMI EDAC AMI EDAC Index Population	HWR HWR 30D Readmit Rate HWR 30D Indexes with Readmit HWR 30D Index Population	Overall Overall Hospital Mortality Rate Overall Hospital Mortality Overall Hospital Mortality Denominator
Acute Acute ALOS Acute Discharge Days Acute Discharges	HF HF EDAC per 100 Discharges HF EDAC HF EDAC Index Population	AMI AMI 30D Readmit Rate AMI 30D Indexes with Readmit AMI 30D Index Population	AMI AMI Hospital Mortality Rate AMI Hospital Mortality AMI Hospital Mortality Denominator
AMI AMI ALOS AMI Discharge Days AMI Discharges	PN PN EDAC per 100 Discharges PN EDAC PN EDAC Index population PN EDAC Opp Worse	CABG CABG 30D Readmit Rate CABG 30D Indexes with Readmit CABG 30D Index Population	CABG CABG Hospital Mortality Rate CABG Hospital Mortality CABG Hospital Mortality Denominator
CABG CABG ALOS CABG Discharge Days CABG Discharges		COPD COPD 30D Readmit Rate COPD 30D Indexes with Readmit COPD 30D Index Population	COPD COPD Hospital Mortality Rate COPD Hospital Mortality COPD Hospital Mortality Denominator
COPD COPD ALOS COPD Discharge Days COPD Discharges		HF HF 30D Readmit Rate HF 30D Indexes with Readmit HF 30D Index Population	HF HF Hospital Mortality Rate HF Hospital Mortality HF Hospital Mortality Denominator

Complex logic reduced down to a set of intuitive & actionable KPIs

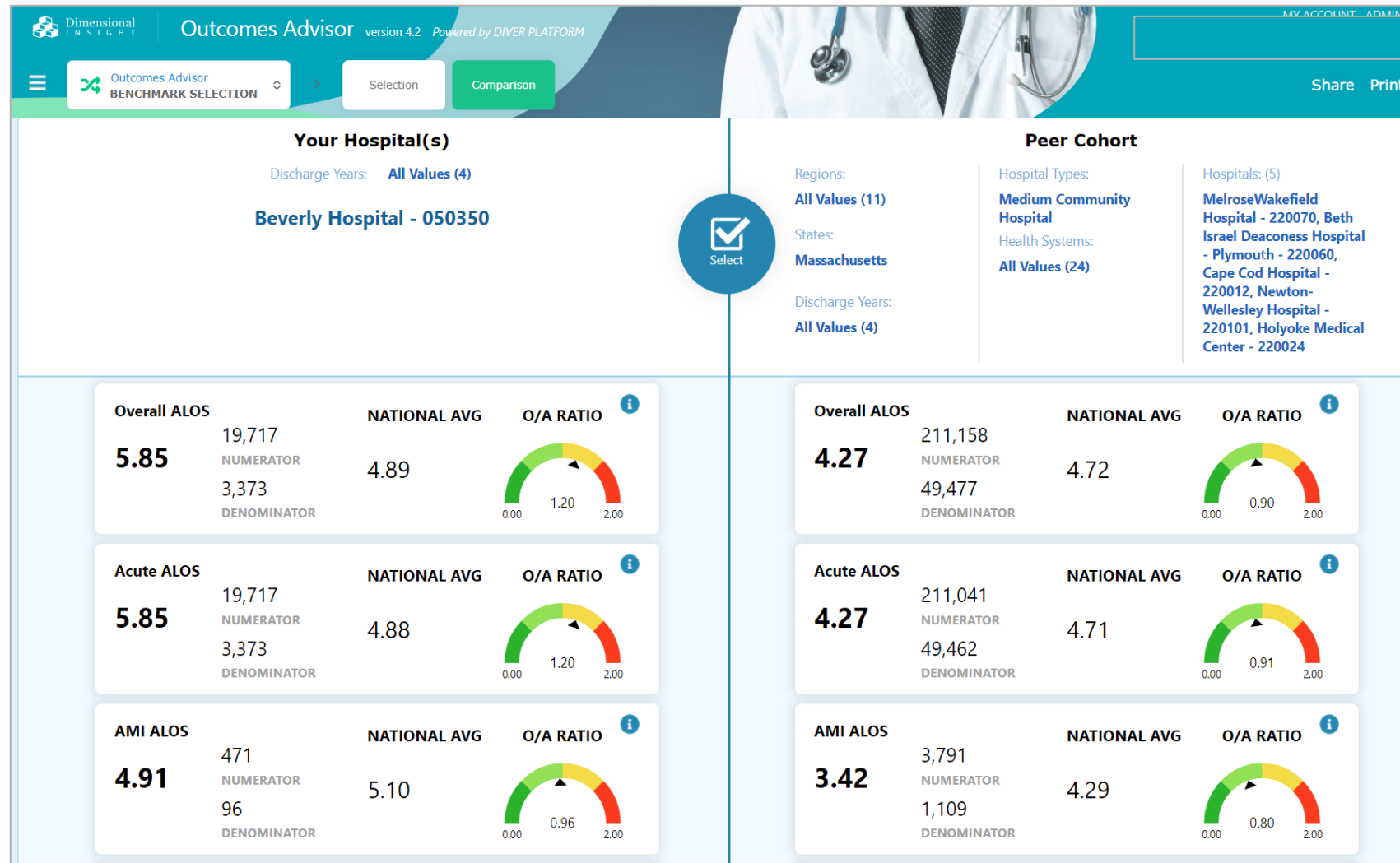
Creating helpful contextualization



Flexible, custom benchmarking

Leveraging external data not otherwise accessible (CMS Limited Data Sets)

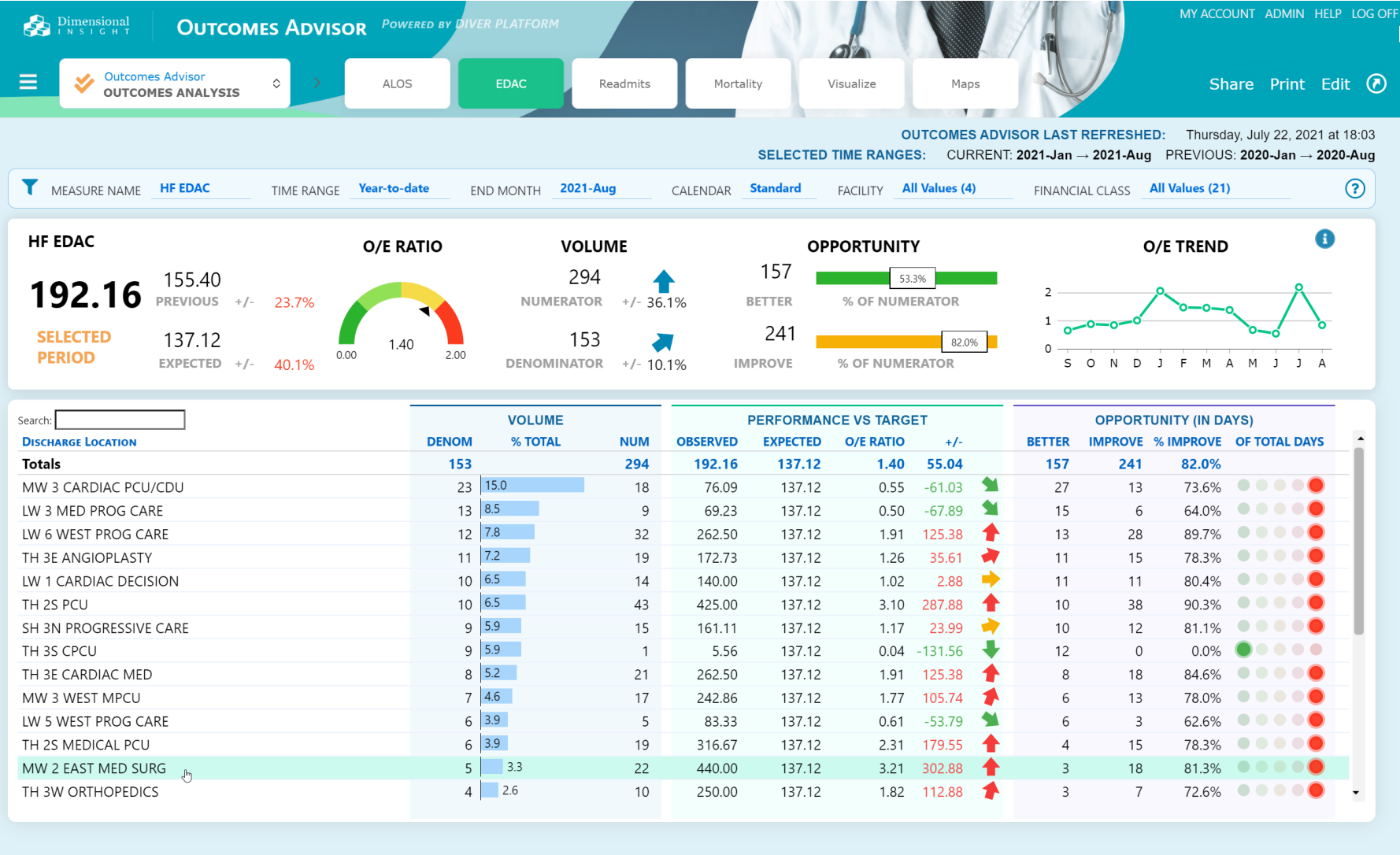
Creating helpful contextualization



Comparisons to peer hospital performance

Intuitive visualizations for quick comprehension

Providing actionable information



Highlight opportunities to improve

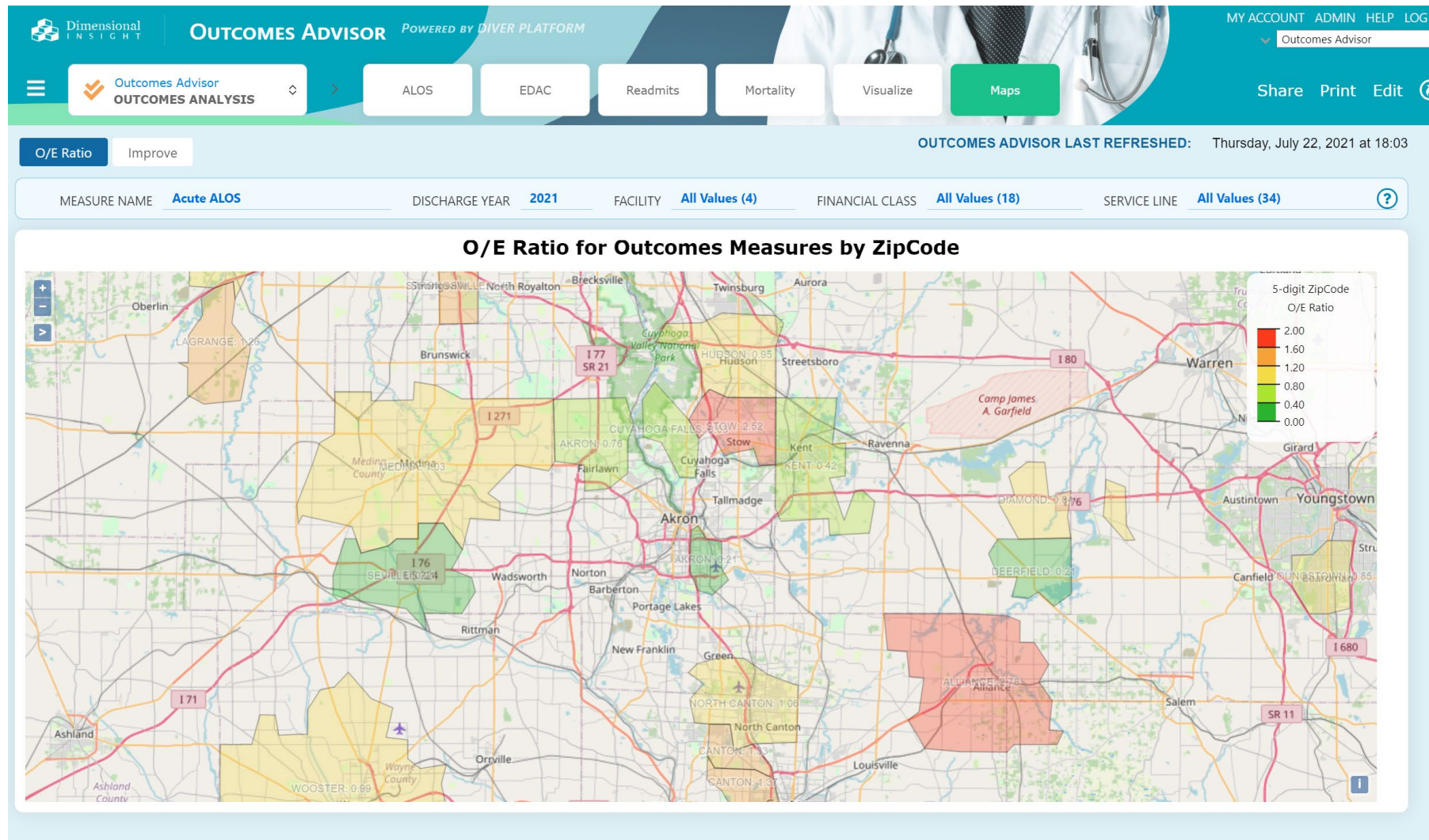
Identify best practice examples & patterns



Making information **accessible to users**

- Creative logic and visualizations
- Integrate with Diver Platform tools:
 - ProDiver
 - DivePort
 - My Library
- Best practice guide for customer created “DIY” applications

Making information accessible to users

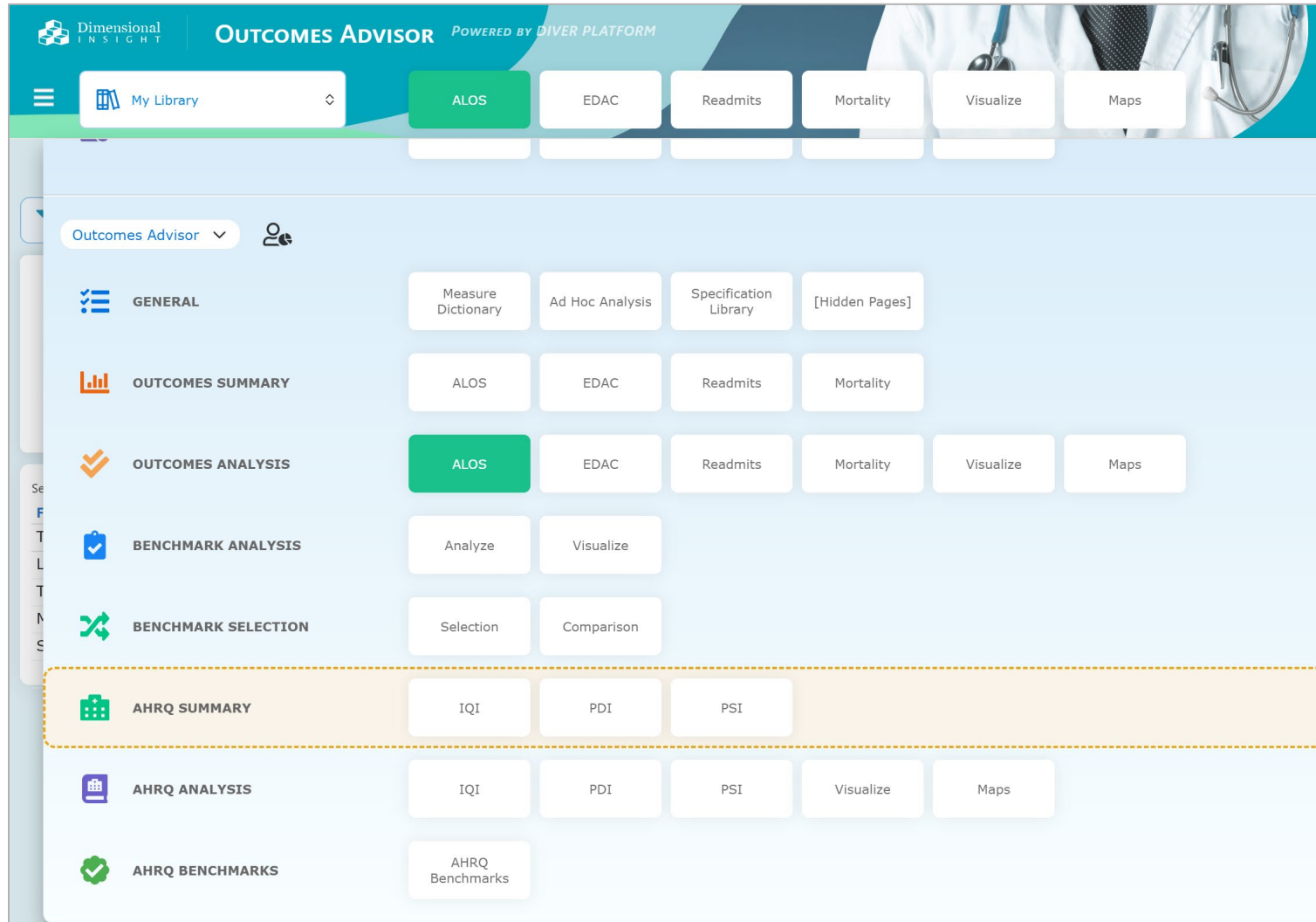


Use familiar metaphors

Leverage visualization techniques

Build-in interactive analysis

Making information **accessible to users**



My Library:

Provides a consistent user experience across applications

Allows users & teams to organize their own content

Ensuring that applications **stay relevant**

- Manage organization and timeline details
- Provide annual updates to value sets and logic
- Master data management for reference data





Example Application: **Outcomes Advisor**

Essential Questions:

Which KPIs?

Helpful
Contextualization?

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Information?

Accessibility to
Diverse User
Community?

Ongoing
Relevance?

UPMC WM Lab Advisor

The screenshot displays the 'UPMC WMD Lab Advisor' interface. At the top, there is a blue header bar with the 'Dimensional INSIGHT' logo and the title 'UPMC WMD Lab Advisor'. Below the header, a navigation bar includes a 'Home' link and a 'Measure Dictionary' link. The main content area is titled 'Hospital Operations - Lab Measures' and contains three columns of measures:

Covid Measures	TAT Measures	Test Measures
% Covid Detected	Avg Order To Collect Minutes	Avg Tests Per Patient
Total Covid Detected	Avg Collect To Receive Minutes	Total Cancelled Tests
Total Covid Not Detected	Avg Received To Verify Minutes	Total Completed Tests
Total Covid Pending Tests	Avg Lab TAT Minutes	Total High Priority Tests
Total Covid Presumed Positive		% High Priority
Total Covid Tests		Total Non-Normal Results
		% Tests Non-Normal
		Tests Resulted Post Discharge
		Total Routine Tests
		Total Stat Tests
		Total Tests
		Total Urgent Tests

Centralized system for lab metrics

Highly COVID driven

Physician Ordering Practices need tracked

More simple visualizations

Application Design

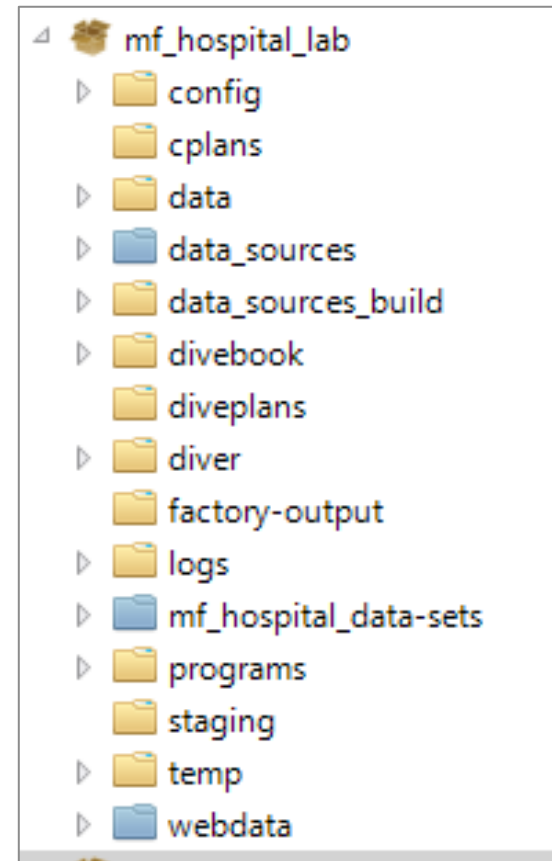
- Turnaround times
- Provider test practices
- Test utilization
- Self service



Integrated Datasets

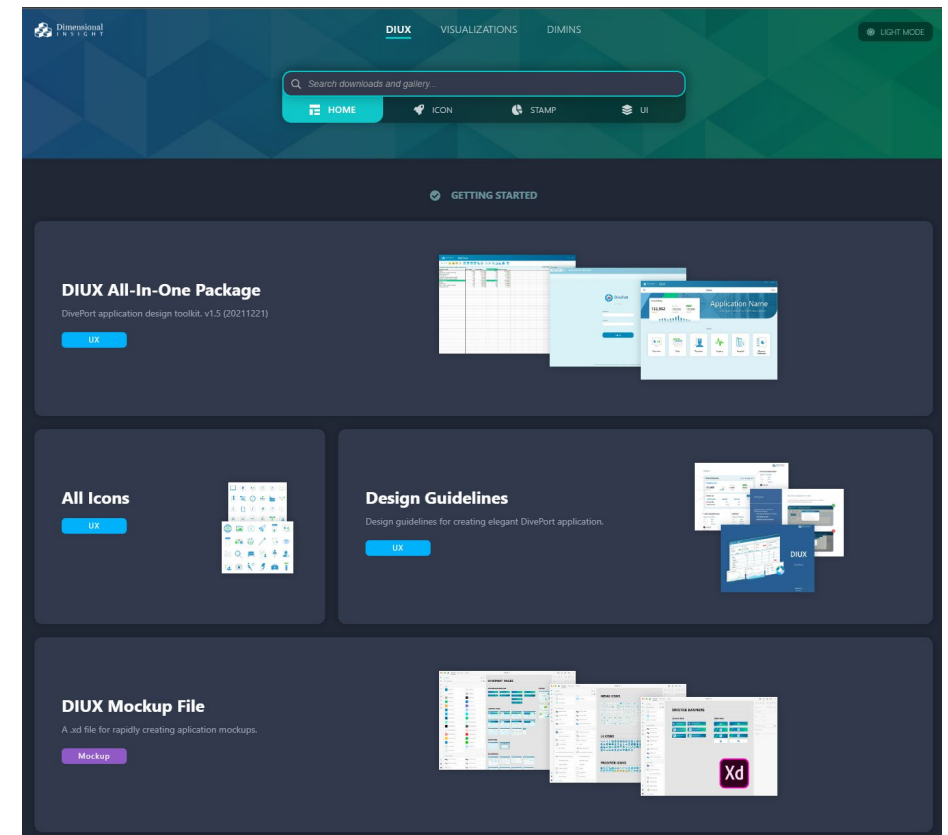
- Accounts and diagnoses
 - 5 minutes implementation
 - > Create alias to project datasets
 - > Create dataset inside factory cfg
- Provided validation assistance
 - Blank account links
 - > Deleted Account
 - > Environmental Tests
 - > Incorrect Account

```
data-sets {  
  data-set "Accounts" {  
    cbase-input "/mf_hospital_data-sets/Accounts.cbase"  
  }  
}
```



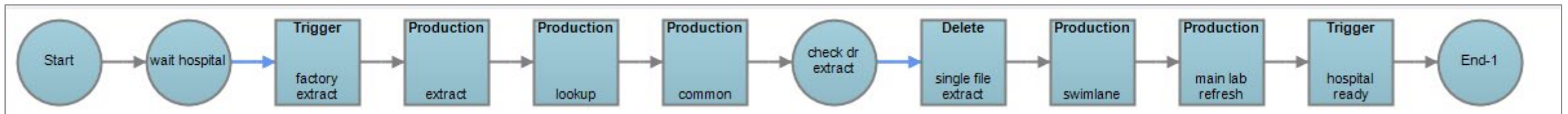
Visualizations

- Leverage DIUX
 - <https://dimins.com/diux/>
- Download Stamps
 - Create custom with copy/paste/combine
- Use pre-created icons
- Standardize UI elements for application consistency



Lab Advisor Implementation

- Total time < 3 weeks
- Create Flags, Extracts, Lookups, Common, Swimlane – 3 days
- Creating Factory (minus measures) – 2 days
- Identifying/integrating measures – 2 days
- Dashboard creation – 2 days
- Validation and adjustments – 2 days
- Reintegration into custom reporting – 1 day



Questions?

*Please join us at the **Product Showcase tonight** at the **Air & Space Museum** to learn more about our **Healthcare Applications Product Family!***



Thank you!