Care Pathways & Data Analytics for the Advancement of Healthcare

Baptist Health South Florida

leidos

Session #18, March 6th, 2018

Donald J. Kosiak, MD, MBA, FACEP, CPE, Chief Medical Officer, Leidos

Jack Ziffer, PhD, MD, Chief Medical Officer, Baptist Health South Florida

DISCLAIMER: The views and opinions expressed in this presentation are those of the author and do not necessarily represent official policy or position of HIMSS.

Conflict of interest

Donald Kosiak, MD, MBA, FACEP, CPE

Has no real or apparent conflicts of interest to report

©HIMSS 2018

Conflict of interest

Jack Ziffer, MD, PHD

Has no real or apparent conflicts of interest to report

©HIMSS 2018

Agenda

- We are familiar with the challenge, so why now?
- The operational pillars needed for success
- Big data vs big workflow orchestration
- Case study on comprehensive joint replacement
- The power of real-time alerts and escalations to the clinical team
- Summary and discussion

©HIMSS 2018

Learning objectives

- Identify operational pillars that are vital to accomplish care redesign
- Recognize how technology can be successfully leveraged to bolster these pillars, allowing for improved care quality and practice transformation
- Identify the relationship between quality improvements, workflow reengineering and financial results
- Summarize the fundamental concepts and features of project implementation, including planning, assessment, and evaluation
- Evaluate the imperative of strategically managing electronic healthcare information to better inform decision making and process improvement to include real time alerts and task escalation

©HIMSS 2018

Niels Bohr:

- Father of the electron and quantum mechanics

https://www.nobelprize.org/nobel_prizes/physics/laureates/1922/bohr-facts.html

©HIMSS 2018

Good luck vs bad luck

https://www.google.com/search?q=images+horseshoe+and+good+luck+or+bad+luck&safe=active&tbm=isch&source=iu&pf=m&ictx=1&fir=jq67UO2BkUlINM%253A%252CP6cU0GsMTuwPlM%252C_&usg=__VVKhafjSgFW2Ett8NAMCtjKaUV4%3D&sa=X&ved=0ahUKEwj9o6L7qPjWAhVH2yYKHW3DACMQ9QEIMTAD#imgrc=jq67UO2BkUlINM:

©HIMSS 2018

Neils Bohr

"Do you, a sober man dedicated to science, believe in that superstition?"

"Of course not," replied Bohr,

but it's supposed to be lucky, whether you believe in it or not."

https://quoteinvestigator.com/2013/10/09/horseshoe-luck/

#HIMSS18
©HIMSS 2018

British Journal of General Practice, 2003, 53, 960-962.

M A Weingarten

With luck, good doctors make a difference

Michael A Weingarten

SUMMARY
The luckiest general practitioners work in an ideal environment with a perfect patient population, their clinical intuitions are always correct, they face difficulties with total equanimity, and they get on with all their patients. In the real world one needs a lot of luck for things to go right. This paper applies the philosophical concept of 'moral luck' to the world of general practice.
Keywords: *intuition; physician–patient relations; luck; ethics.*

- Character luck
- Outcomes luck
- Circumstantial luck

Introduction

WE are acutely aware of the dangers of demoralisation, burnout, and unhappiness in general practice, and in a very real sense we all need a lot of luck to remain happy in clinical practice. Despite our best efforts and intentions, things sometimes turn out for the worst and not for the best. The basic paradox is that you can do the right thing, but you also need good luck for it to turn out right. Who has not had a bereaved patient say something like 'If only you'd have sent him in earlier', when you know very well that you did everything absolutely right, but that you simply cannot save them all? This paradox is not confined to medical practice alone, but applies to all those areas of life where doing the right thing is involved, and it has been called the paradox of 'moral luck'.[1,2] This article examines some of the implications of moral luck for the practice of clinical medicine, following the recent publication of a book by the bioethicist, Donna Dickenson.[3]

June 18, 2016
(Practice until you get it right.)

©HIMSS 2018

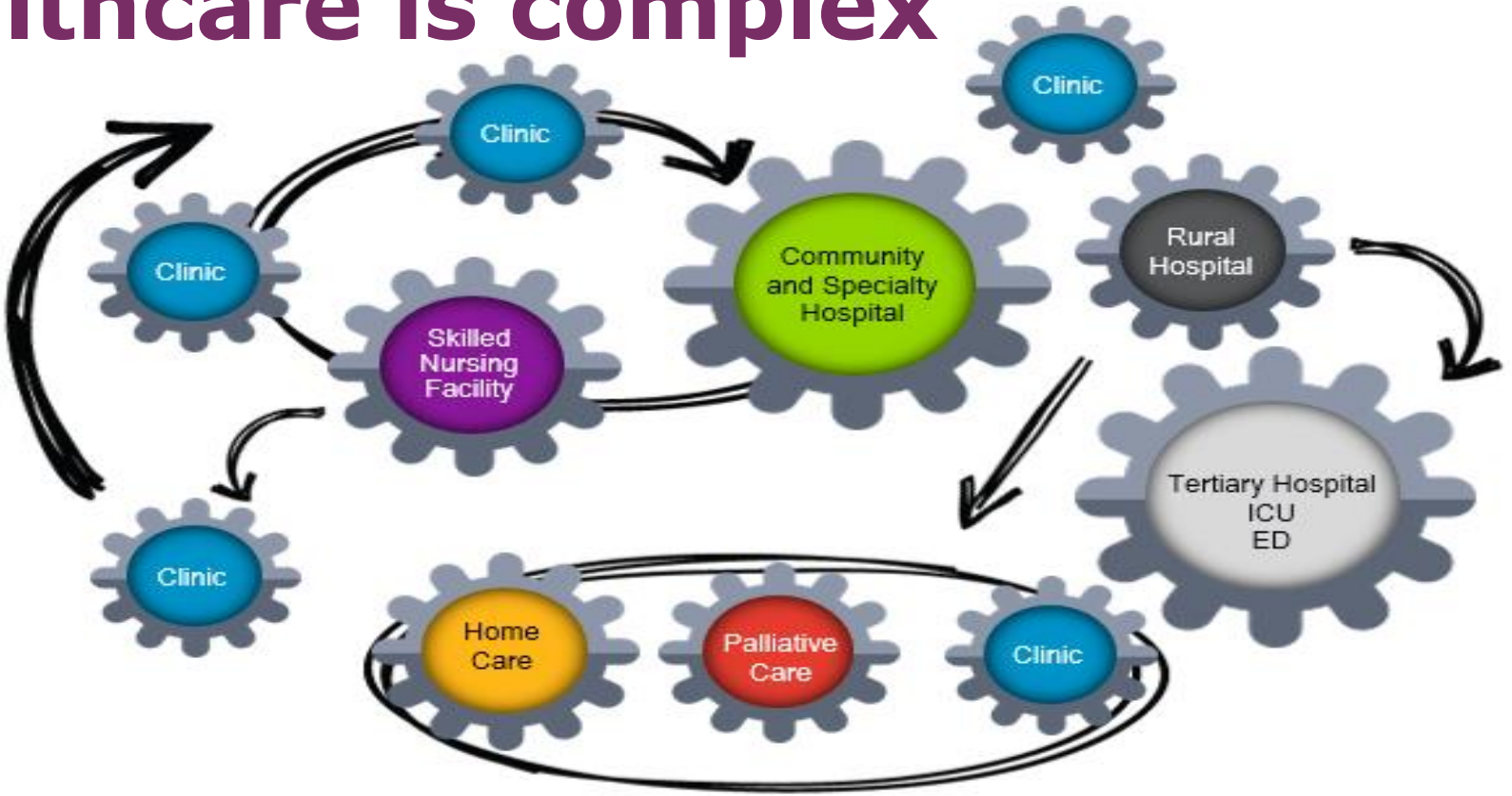
Colorado Symphony Orchestra

"Practice until you can't get it wrong."

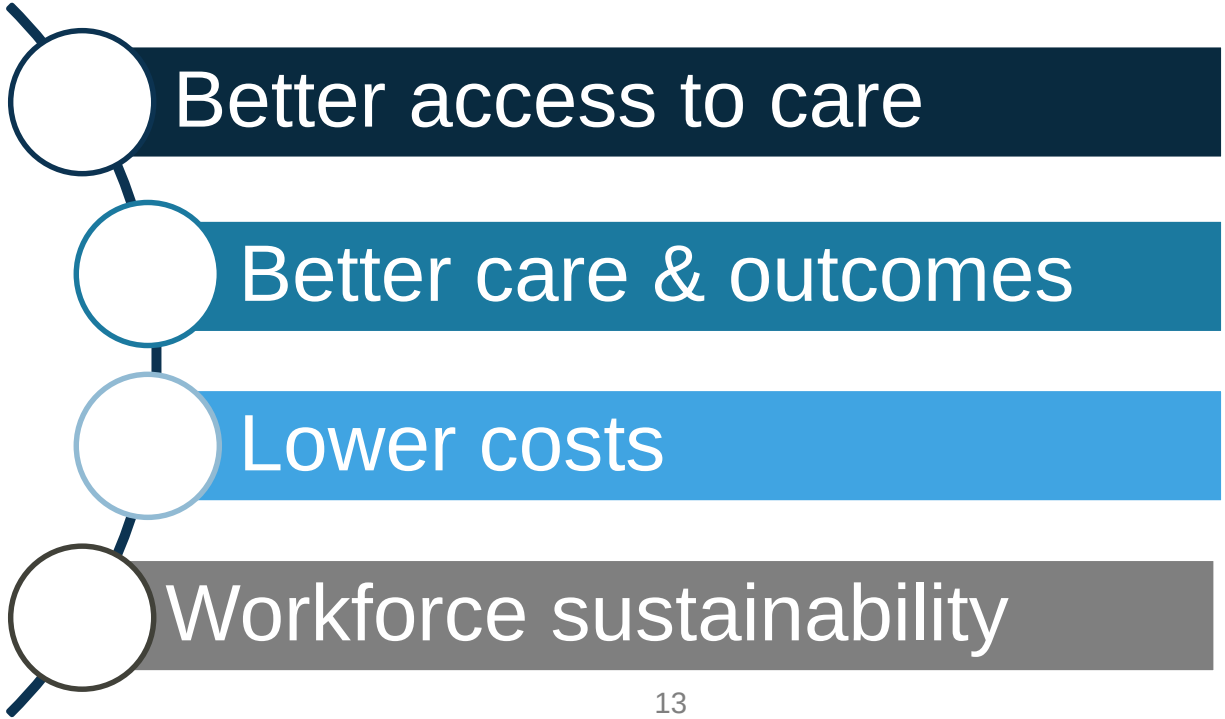
https://images1.westword.com/imager/gene-sobczak-returns-to-head-the-colorado/u/original/6495484/orchestra7460293.28.jpg

©HIMSS 2018

Healthcare is complex



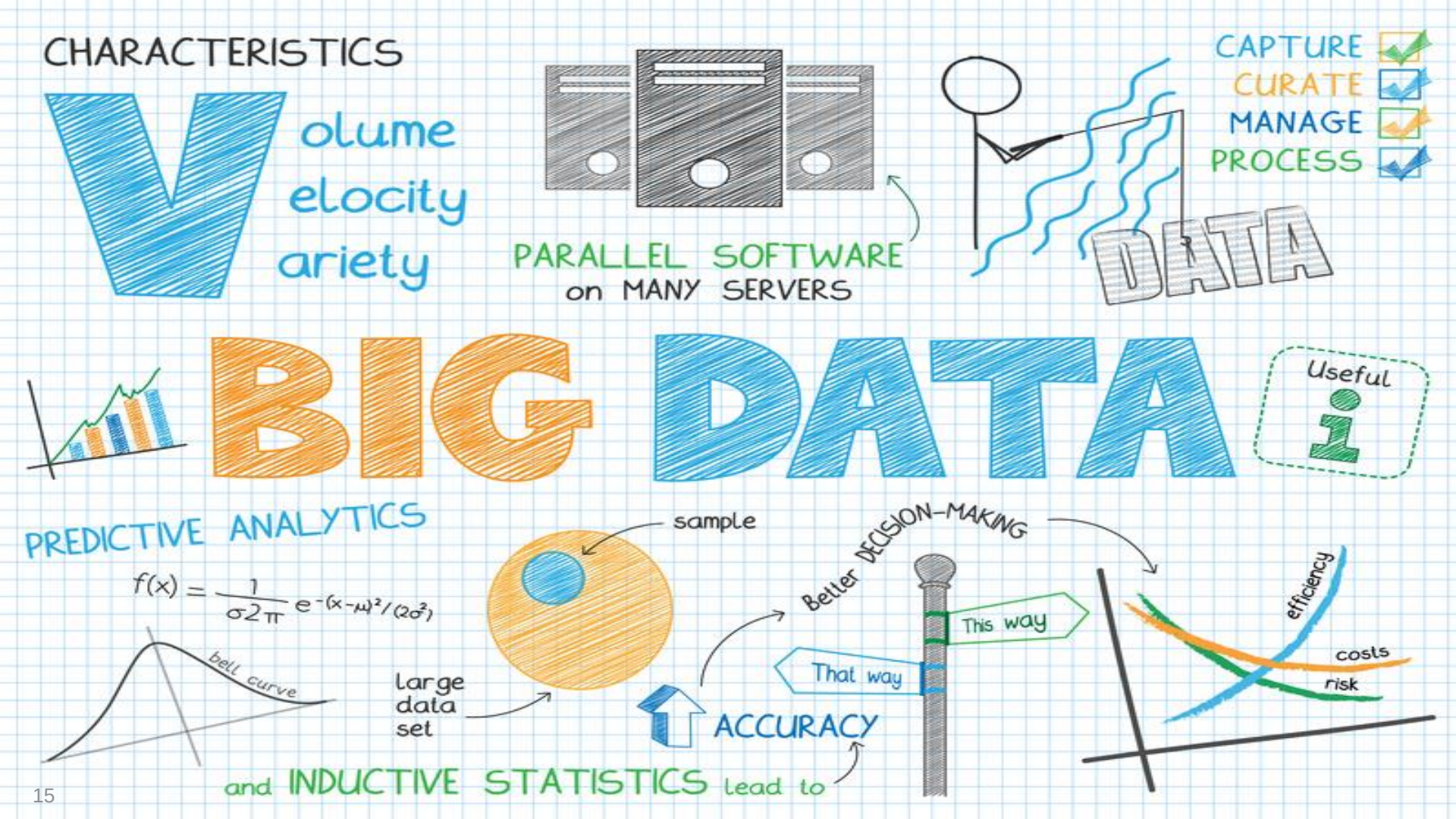
Purpose and vision of change



©HIMSS 2018

VISION FOR IMPACTFUL AND SUSTAINABLE CLINICAL TRANSFORMATION

#HIMSS18
©HIMSS 2018


CHARACTERISTICS
Volume
elocity
ariety
PARALLEL SOFTWARE
on MANY SERVERS
CAPTURE
CURATE
MANAGE
PROCESS
DATA
BIG DATA
Useful
PREDICTIVE ANALYTICS
$f(x) = \frac{1}{\sigma 2\pi} e^{-(x-\mu)^2/(2\sigma^2)}$
bell curve
sample
large
data
set
ACCURACY
and INDUCTIVE STATISTICS lead to
Better DECISION-MAKING
This way
That way
efficiency
costs
risk

The problem:

Retrospective data manipulation…

…a world of dashboards to interpret

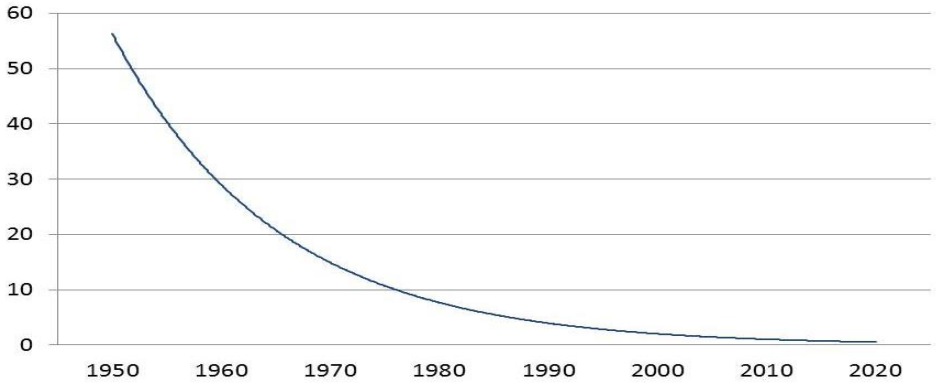
©HIMSS 2018

Typical nursing shift

#HIMSS18

©HIMSS 2018

Medical knowledge doubling time



Densen P. Challenges and Opportunities Facing Medical Education. Trans Am Clin Climatol Assoc. 2011; 122: 48–58

1950 = **50 years**
1980 = **7 years**
2010 = **3.5 years**
2020 > **0.2 years** (=**73 days**)

Challenges and Opportunities Facing Medical Education - NCBI - NIH
https://www.ncbi.nlm.nih.gov/pmc/articles/PMC3116346/

#HIMSS18
©HIMSS 2018

The challenge is about execution and sustainment

- To impact the individual patient and family
- Precision execution of what we already know (or can know) must be executed reliably and repeatedly-
  - ***Every Patient, Every Time***

#HIMSS18
©HIMSS 2018

The challenge is about execution and sustainment

- Systematically marshal and shepherd
  - The people
  - The process
  - The technologies
  - Across multiple care venues in the continuum
  - Across multiple organizations in the system
- This is a workflow issue, not just a data issue
- Optimizing what we do and how we do it, then automating it ***is the solution***

©HIMSS 2018

The data is everywhere

- Typical large system CIN / ACO has to integrate with over 40 applications, including multiple electronic health records systems
- Financial impact is usually not known in near-real time at the point of care
- To change outcomes and behavior the solution must bring it all together

©HIMSS 2018

What we were seeking

- Transition to value based payments and taking financial risk
  - More than dashboard reporting
  - Incorporating clinical care redesign
  - A basis for further movement later, if required
- Cost reductions and better use of internal resources
- A solution that works now (FFS) and later (value / risk)
- Credible partners; not a bunch of “start ups” or more siloed applications

©HIMSS 2018

Key operational pillars for change

- Clinical
- Finance
- Information Technology
- Supply / Logistics

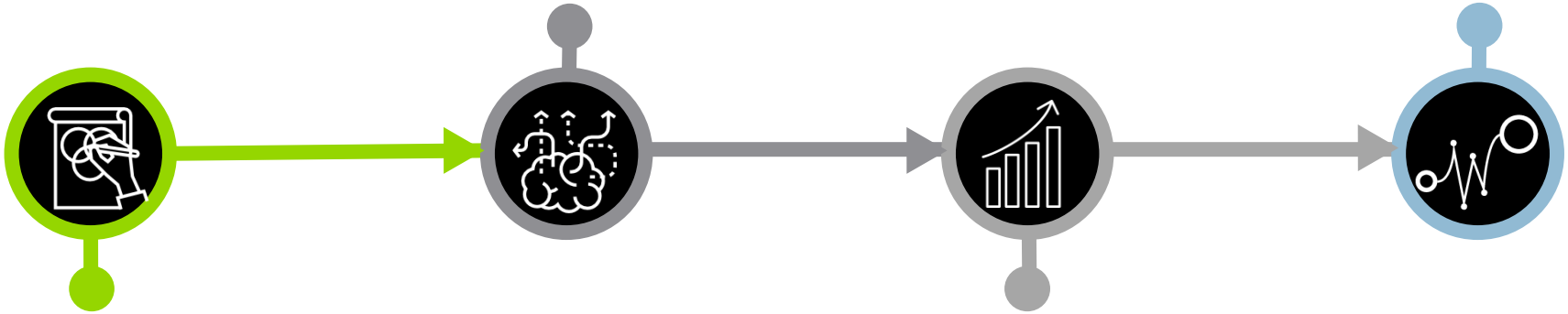
#HIMSS18
©HIMSS 2018

DEPLOYMENT

- Integrate “Metrics that Matter” with the technology
- Physician-led service lines teams deploy Clinical Pathways
- Engage all key stakeholders

SUSTAIN LONG-TERM IMPACT

- Cycle milestones & determine impact monthly, quarterly and annually
- Communicate service line performance internally and externally
- Expand integration of technology



DESIGN APPROACH

- Establish physician and operations leaders and teams
- Launch clinical governance
- Adopt evidence based best practices
- Develop diagnosis specific Clinical Pathways

ASSESS MILESTONE PERFORMANCE

- Evaluate compliance/tracking outcomes concurrently
- Ensure accountability for compliance
- Communicate results
- Adjust processes as needed

©HIMSS 2018

OPERATIONS AND TECHNOLOGY INTEGRATED MODEL

DRG Redesign

Care Management

Capacity Management

Horizontals:
ED
OR
Supply Chain

Technology Solution

Governance

Process Redesign

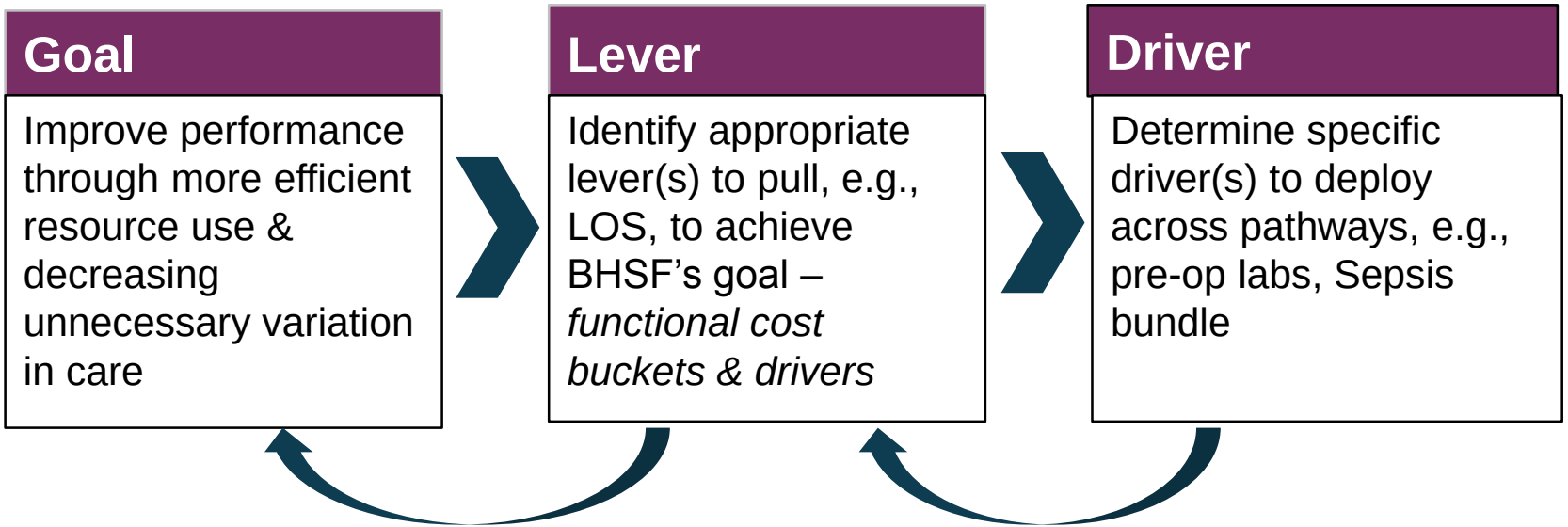
Change Management

Workflow Optimization

Data Integration

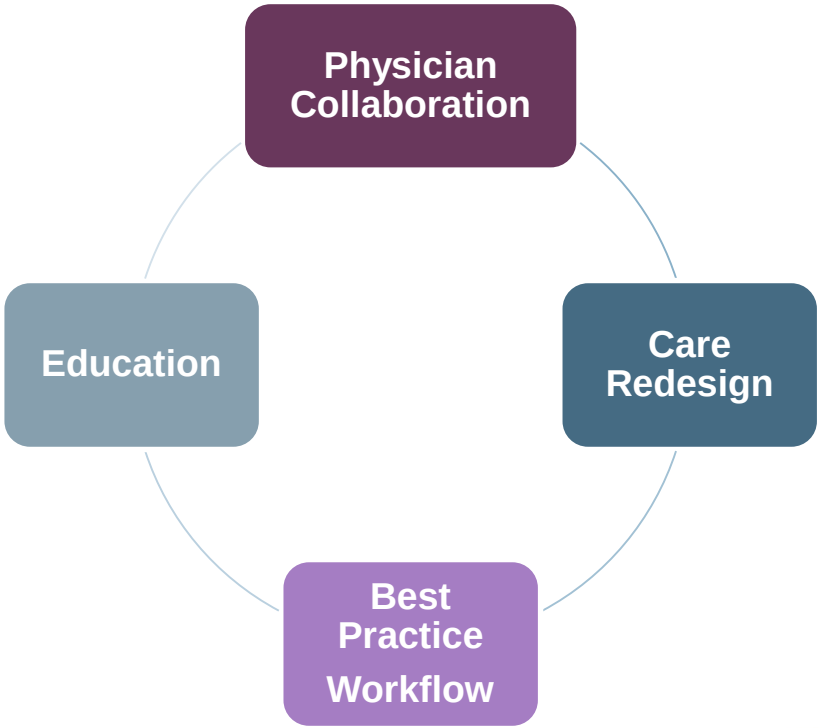
©HIMSS 2018

Clinical care redesign



©HIMSS 2018

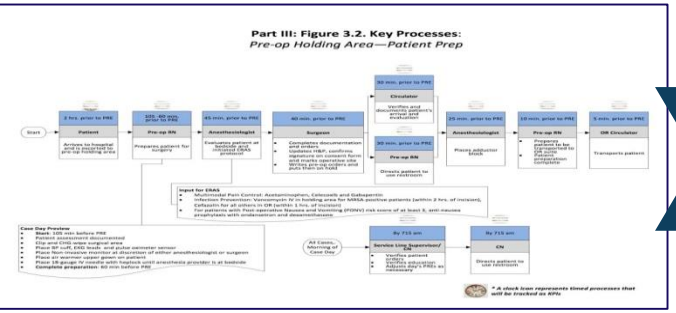
The Evidence Based Care Committee



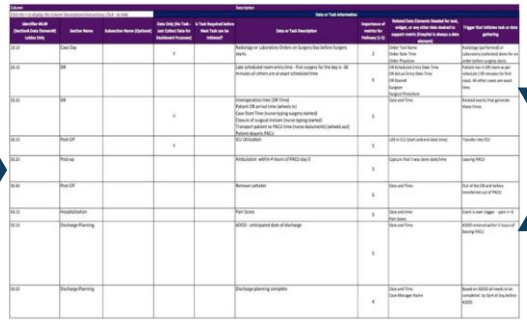
#HIMSS18
©HIMSS 2018

EBCC workflows were converted into workflow visualization for pathway creation

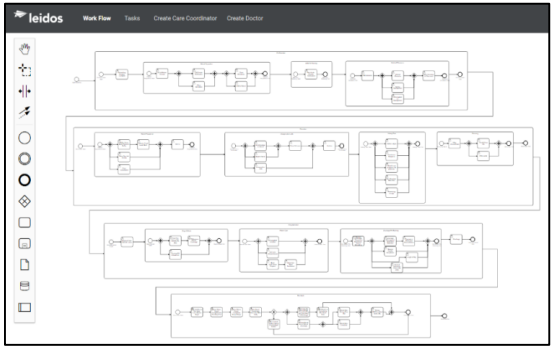
Workflow redesign



Systems engineering

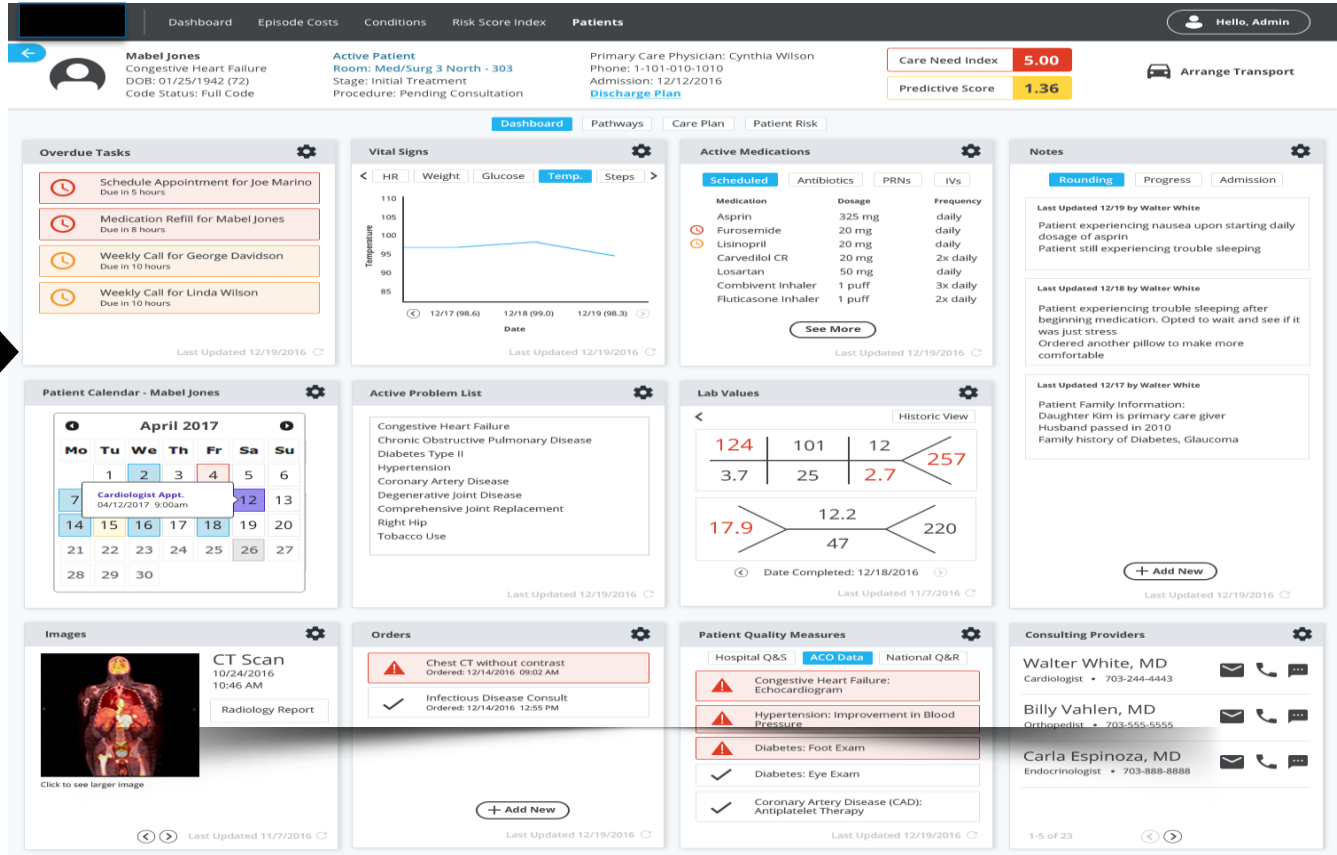


Workflow in application

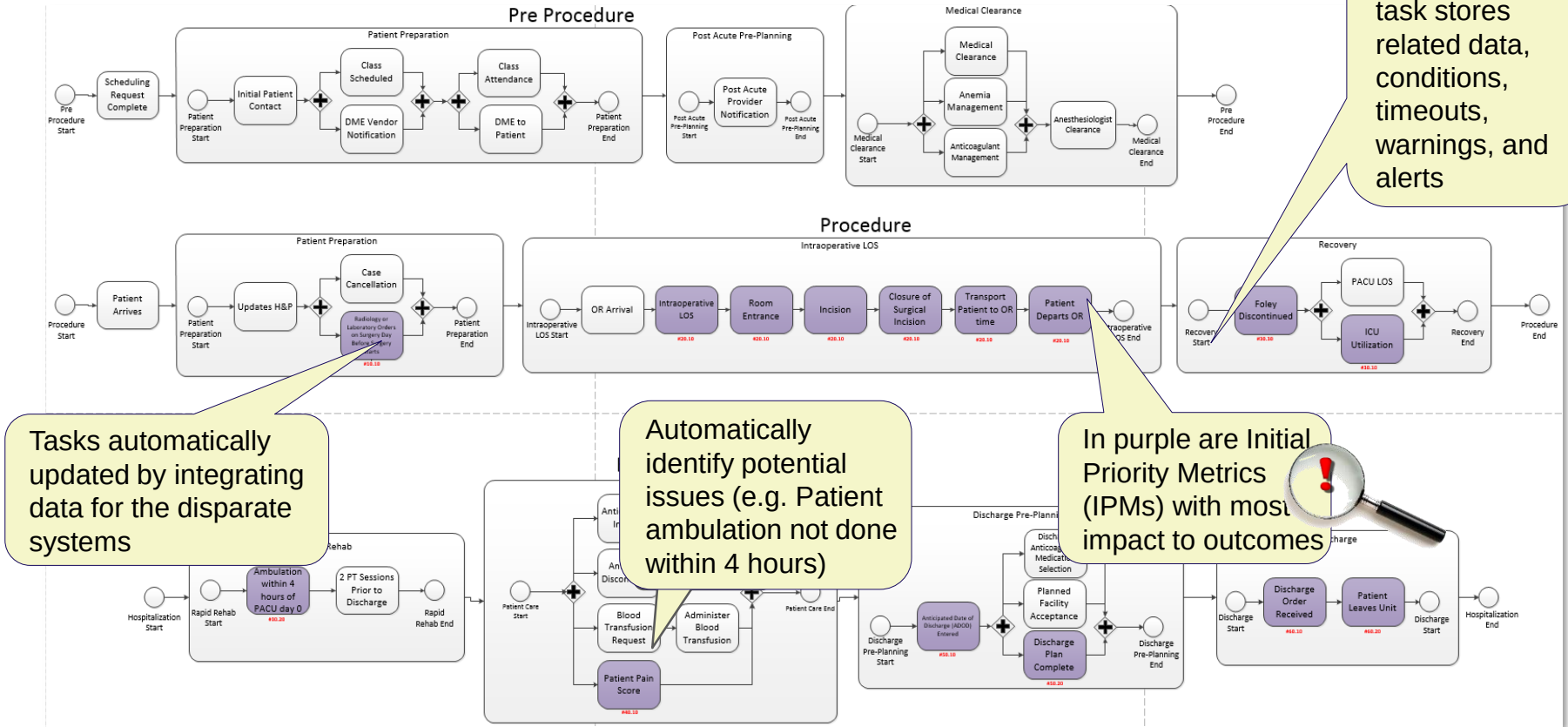


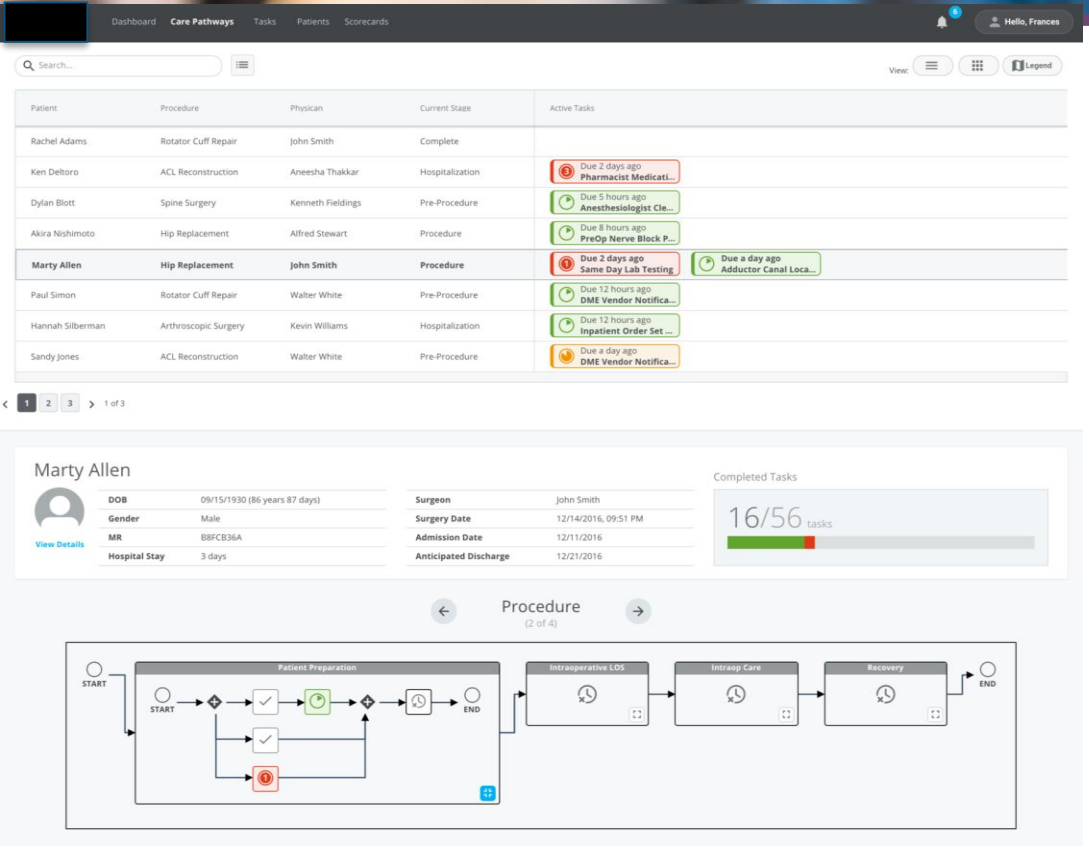
#HIMSS18
©HIMSS 2018

INTEGRATED SINGULAR VIEW DASHBOARDS MAXIMIZE IMPACT AND EFFICIENCY FOR CLINICAL TEAMS



Clinical Pathway (for a DRG or Bundle)

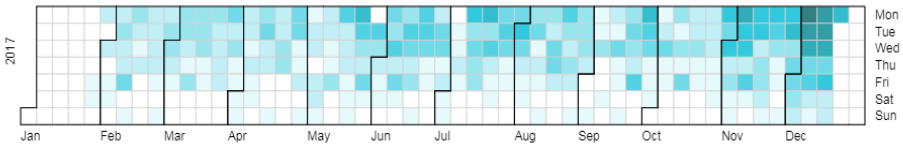




Real time metrics available to the care providers

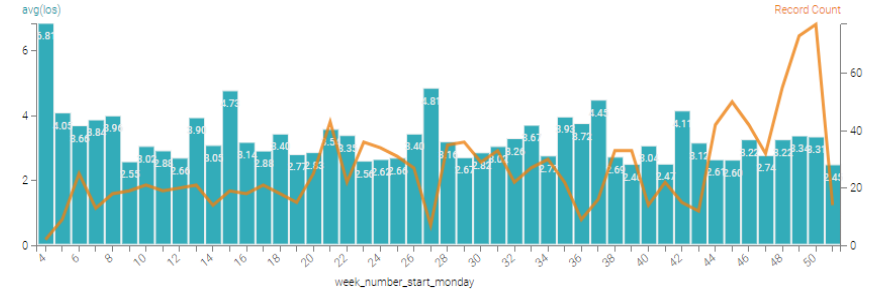
#HIMSS18
©HIMSS 2018

CJR Admit Date Heat Map

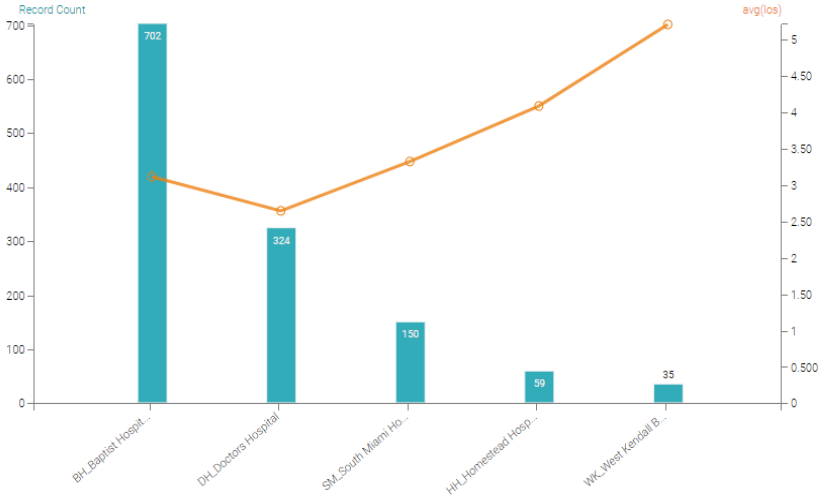


Avg. LOS vs. Number of Patients per Week

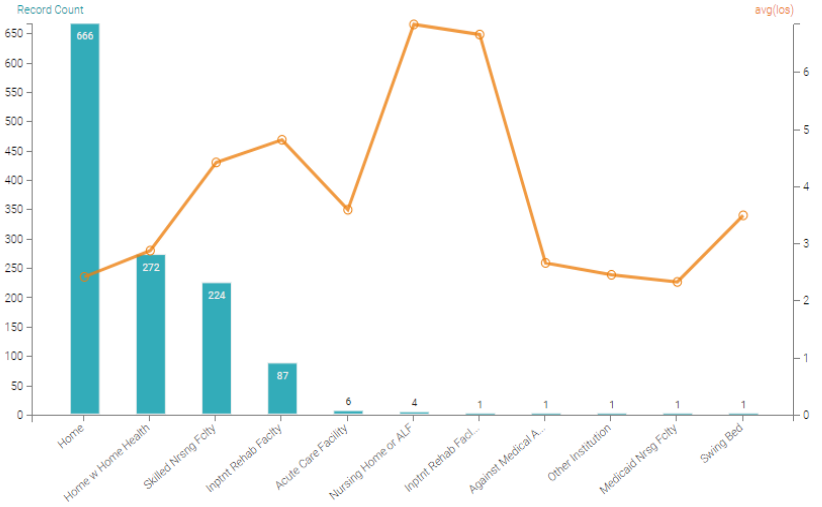
Blue Bar: Avg LOS, Orange Line: Unique FINS



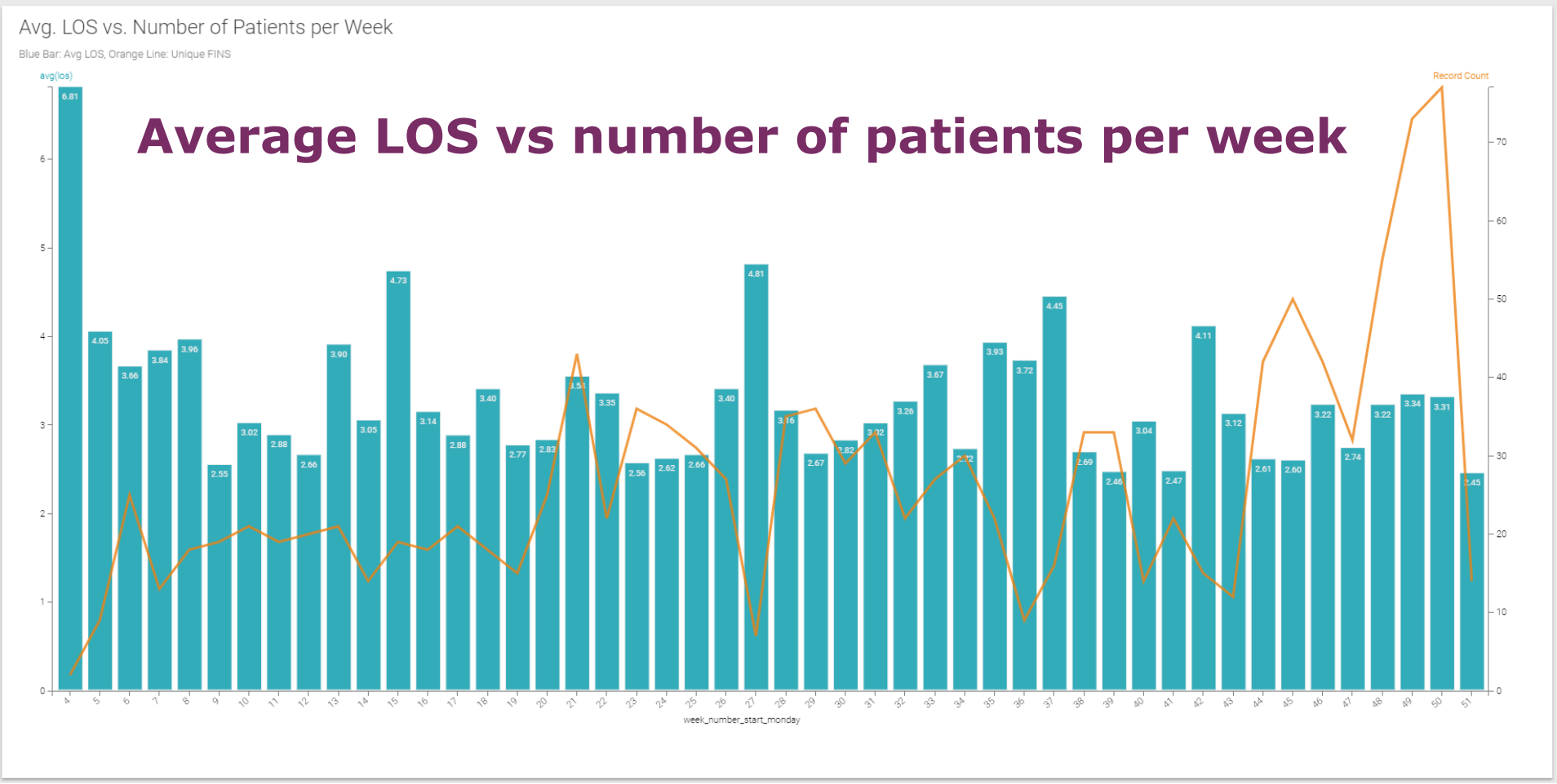
Number of CJR Patients per Facility Compared to Average LOS



Discharge Disposition Compared to Average LOS



#HIMSS18
©HIMSS 2018



#HIMSS18
©HIMSS 2018

CJR Metrics Pre and Post Pathways

admit_date_time1: 2017-01-27 - 2017-12-18 | discharge_disposition: (All) | post_pathways: (All) | Facility Name: (All)

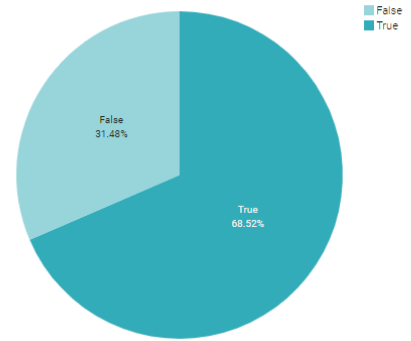
CJR Patients Evaluated
Filters: admit_date_time1
1270

Percentage of CJR Patients Evaluated
Filters: admit_date_time1
Including only those recorded in Cerner from January - December 2017
100.00%

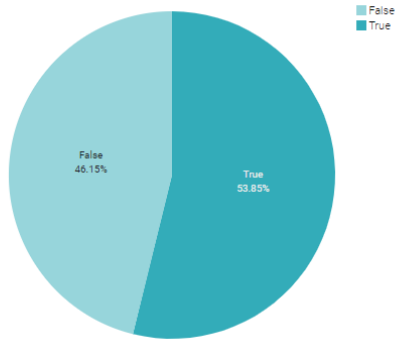
Average LOS of CJR Patients (Hours)
Filters: admit_date_time1
75.07

Average LOS of CJR Patients (Days)
Filters: admit_date_time1
3.13

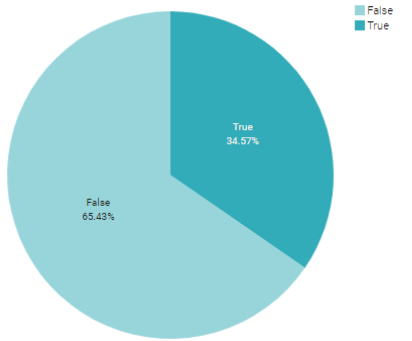
Pain Above 6
Filters: admit_date_time1
Patient Population of 1,131



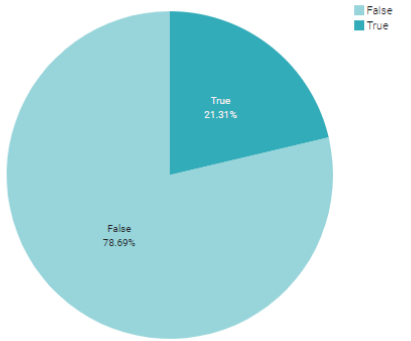
Pain Above 7
Filters: admit_date_time1
Patient Population of 1,131



Pain Above 8
Filters: admit_date_time1
Patient Population of 1,131

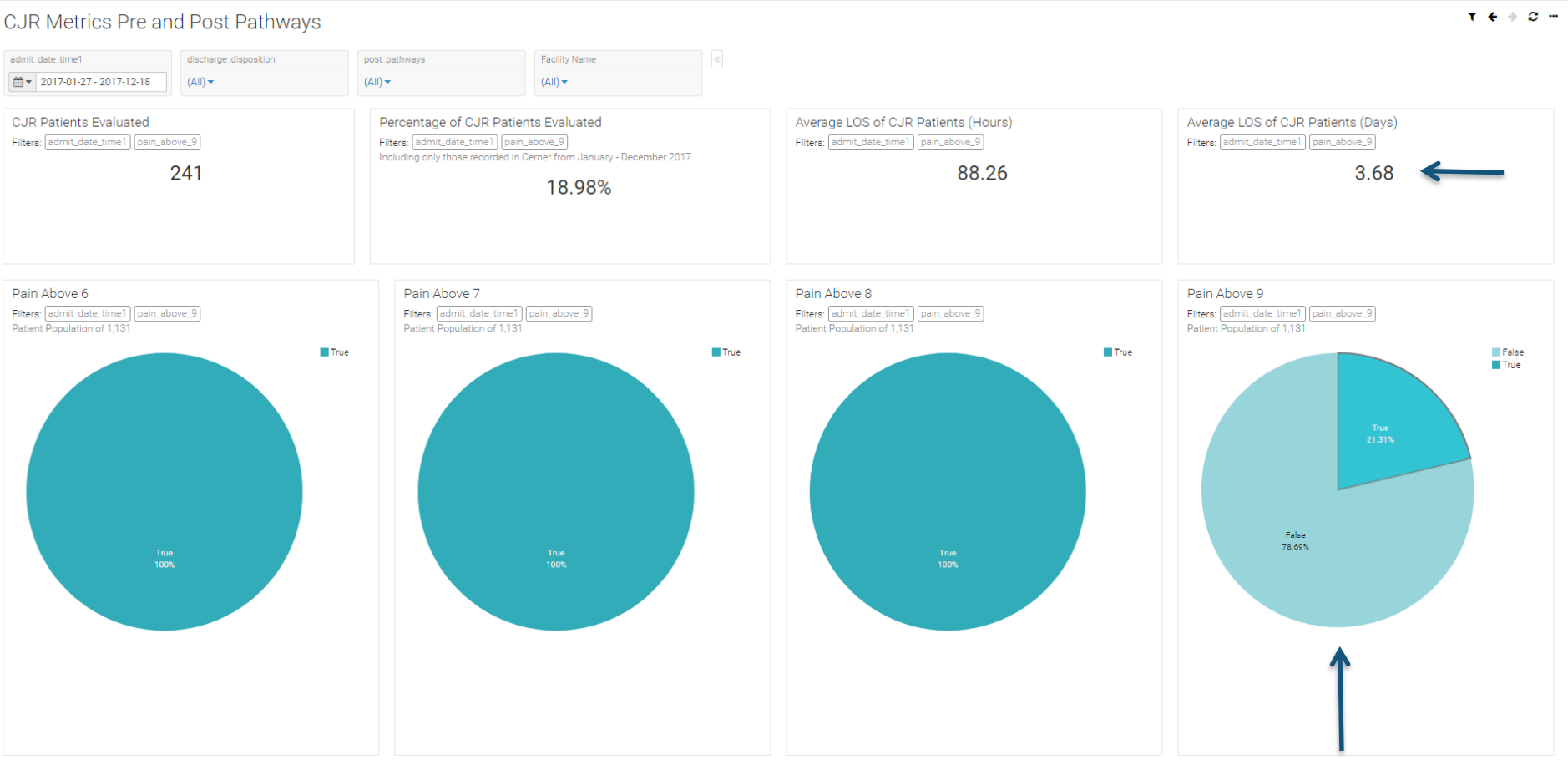


Pain Above 9
Filters: admit_date_time1
Patient Population of 1,131



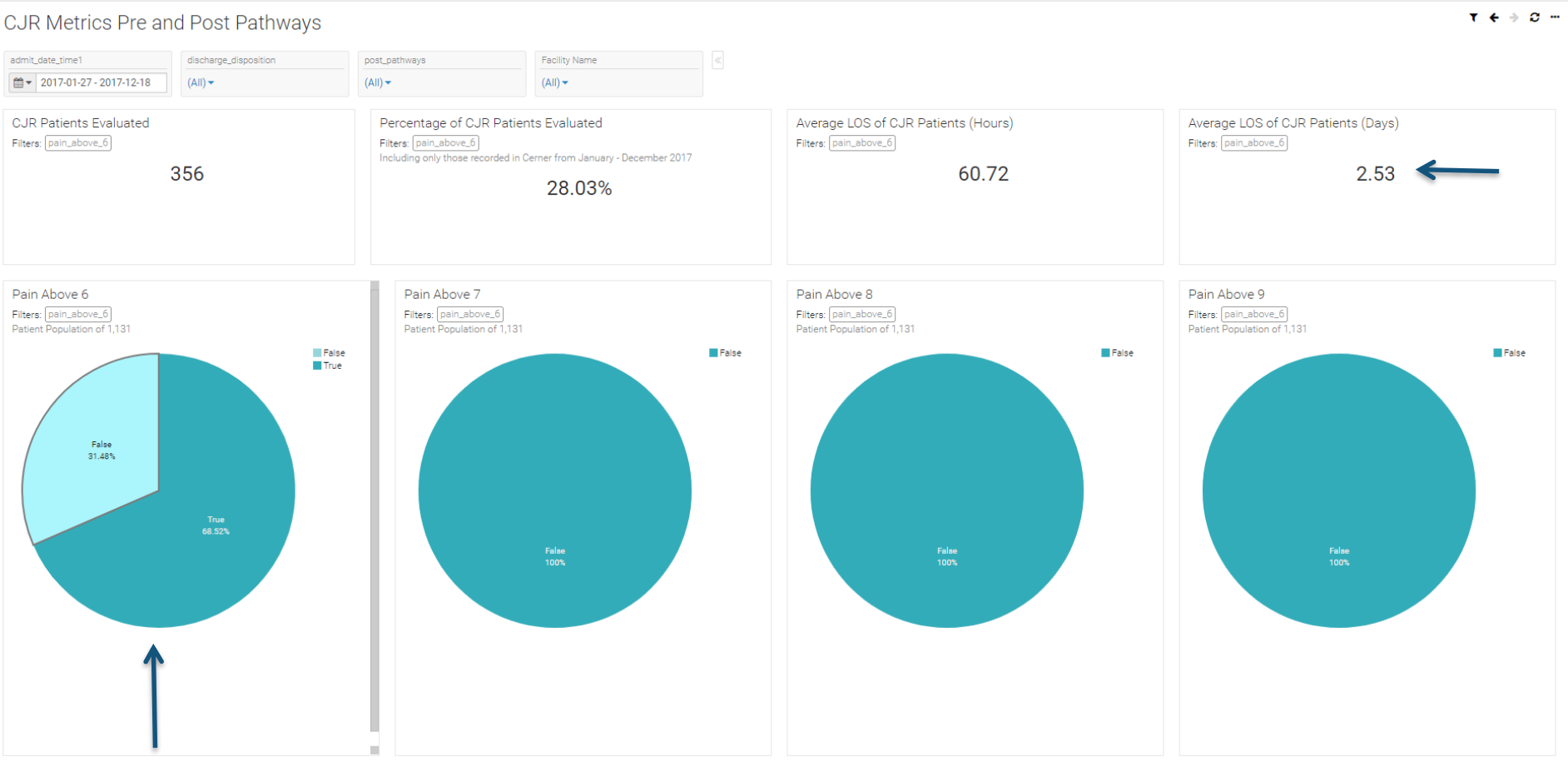
Pain score vs. LOS --all patients

#HIMSS18
©HIMSS 2018



LOS for patients who reported pain of 10

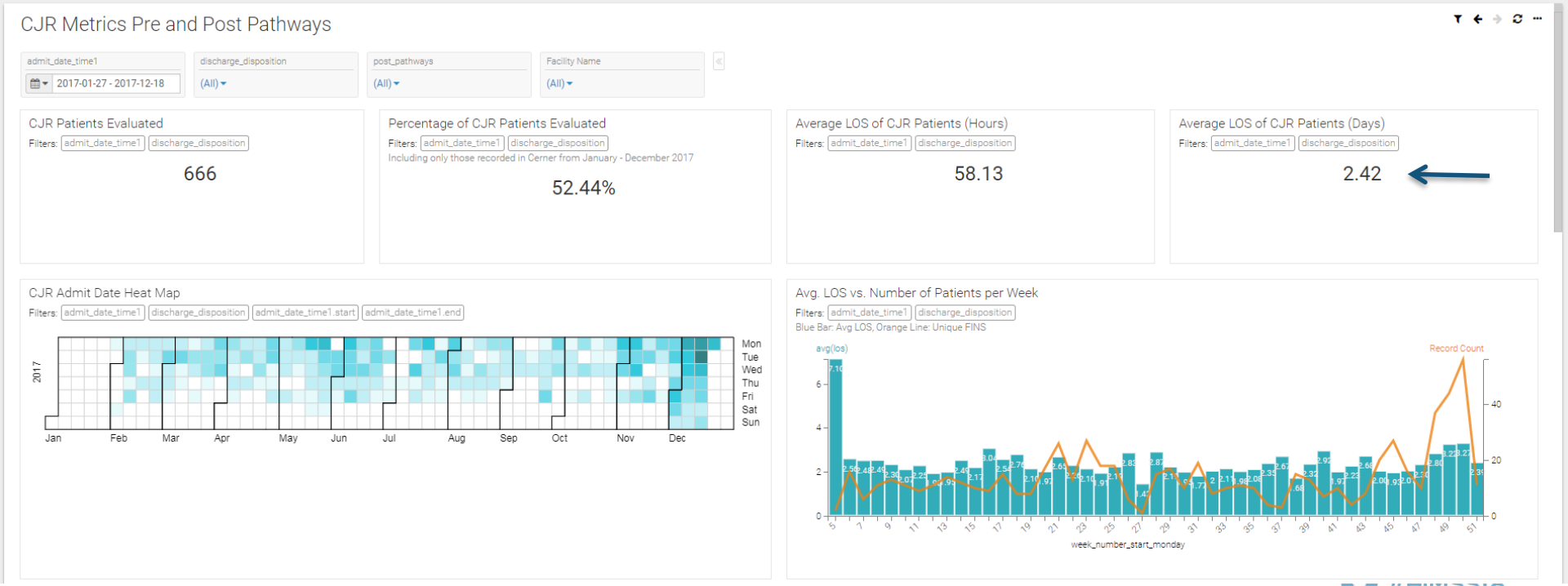
#HIMSS18
©HIMSS 2018



LOS for patients who never reported pain > 6

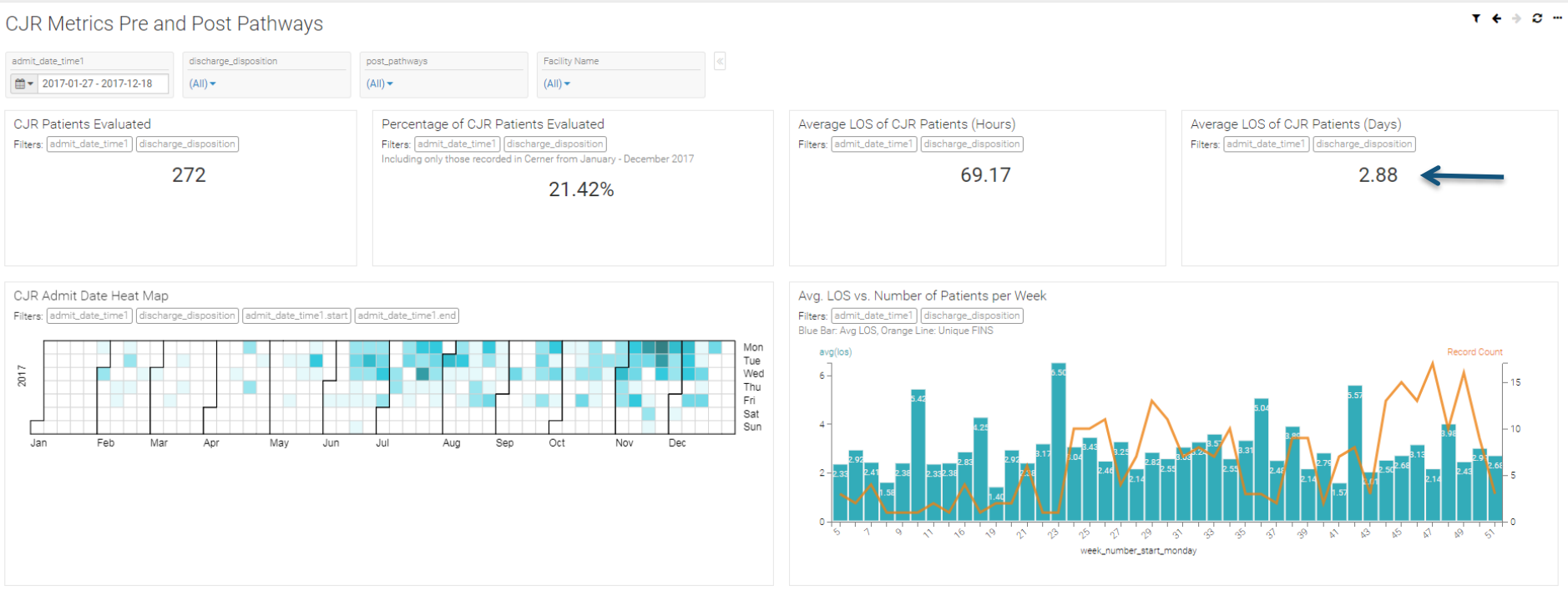
#HIMSS18
©HIMSS 2018

Disposition = home



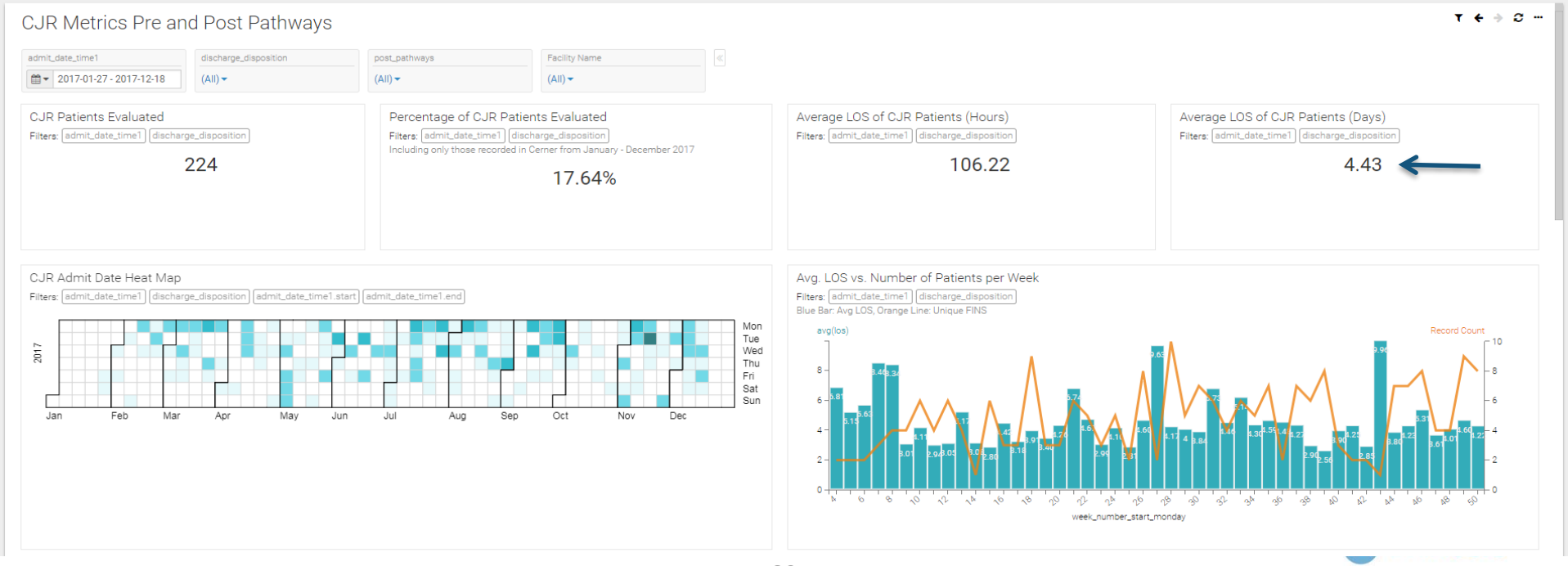
#HIMSS18
©HIMSS 2018

Disposition= home health



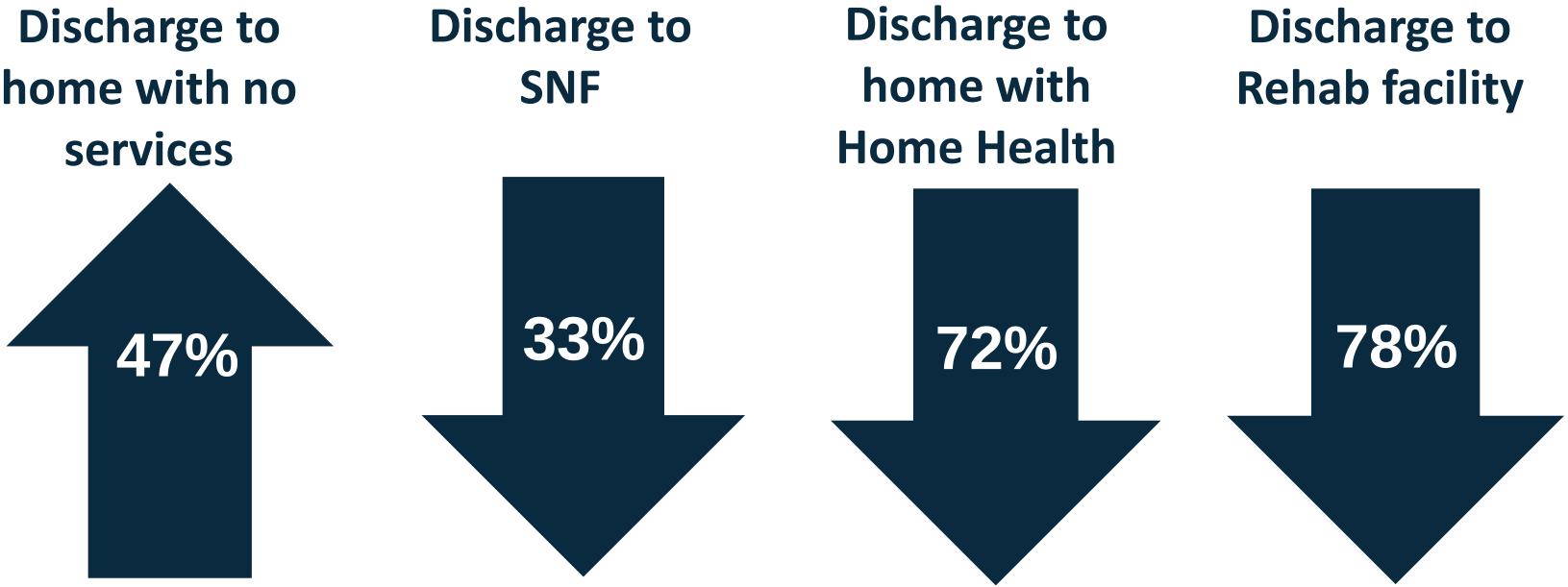
©HIMSS 2018

Disposition = skilled nursing facility



©HIMSS 2018

Clinical impact - disposition



#HIMSS18
©HIMSS 2018

What is next?

- Adding clinical conditions – total of 20 in flight by June, 2018
  - Hip fracture / long bone fracture
  - Congestive heart failure (CHF)
  - Sepsis
  - Spine procedures
  - OB/GYN
- Command center modeling
- Measuring and refining the clinical and financial outcomes

#HIMSS18
©HIMSS 2018

What we learned – so far

- The information is everywhere….but it's not integrated into a practical use at point of care
- It's not about the next cool "product"…. it's about complex systems integration
- It's not about Big Data….it's about Little Data and Big workflow
- It's not about technology… it's about people and process
- It's not about inventing new ways to practice medicine… it's about practicing with precision

©HIMSS 2018

Questions

- donald.kosiak@leidos.com; Twitter: @drkosiak
- JZiffer@baptisthealth.net
- **Please complete online session evaluation**

#HIMSS18
©HIMSS 2018