Making the Invisible Visible

Using a Capacity Management Dashboard to Visualize Hospital Patient Flow

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HIMSS Nursing Informatics Event June 29th, 2017

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Agenda

- Background and Business Problem
- Stakeholder Engagement
- Design & Validation
- Implementation
- Outcomes and Lessons Learned

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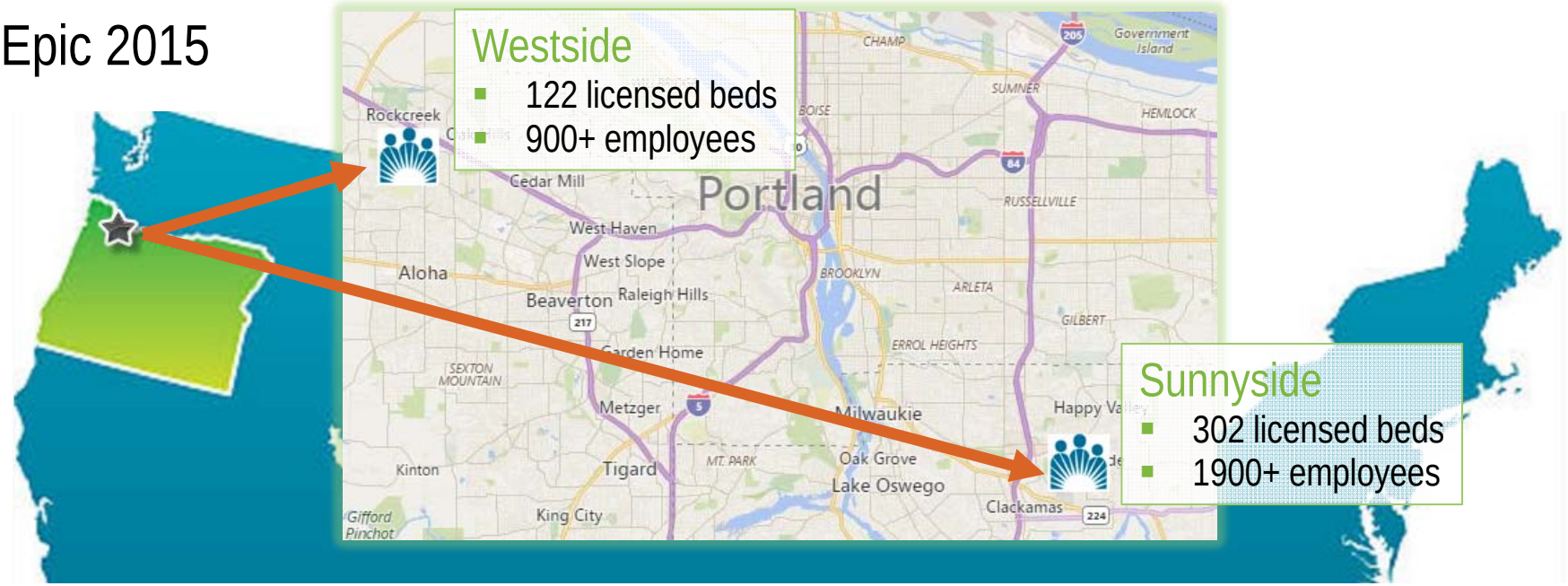
Background

Kaiser Permanente Northwest Region

- 2 Hospitals, in the Portland, Oregon Metro Area
- 34 medical clinics, 19 dental centers
- 11,900+ employees serving 575,000+ members
- Epic 2015



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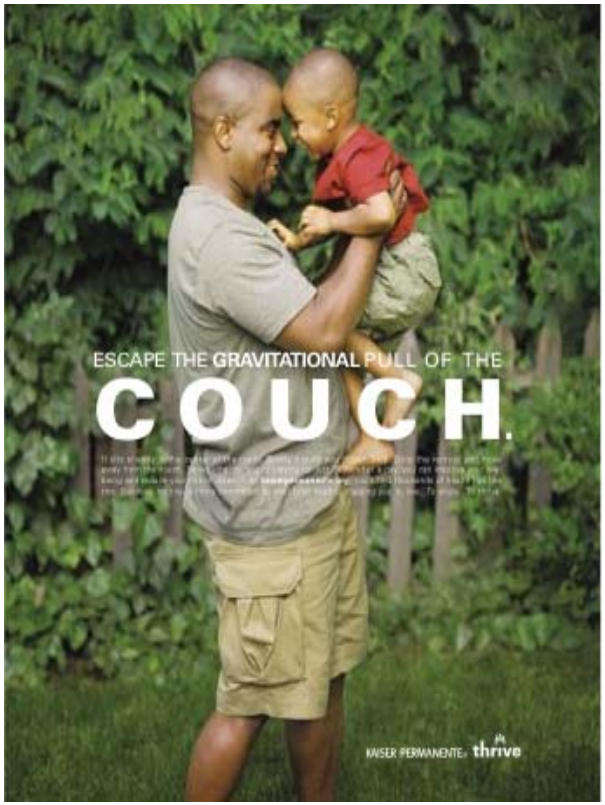
Business Problem

- High Census
  - Total Ambulance Divert (TAD)
  - Critical Care Divert
- Lack of Information
  - Multiple huddles per day
  - Constant questions from leadership and staff
- Lack of Accountability
  - What actions need to be taken and by whom?



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Stakeholder Engagement

Consult Early	Create Excitement	Share Outcomes
▪ Engage hospital leadership ▪ Identify champions ▪ Determine “wins”	▪ Communication Plan ▪ Communicate in multiple formats ▪ Communicate often ▪ Focus message on audience	▪ Celebrate “wins” ▪ Show value ▪ Keep finding new uses

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Design

Epic Provided Content

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Design Sessions

Functional Considerations

- Design Sessions with Key Departments
  - 12 sessions with 114 participants
  - ED, OR, Nursing, Care Coordination, Physicians, Patient Placement, EVS, Transport, Ancillary Services, MCWH, and Hospital Leadership
- Focus Customizations on Desired Outcomes
  - Reduce wait times
  - Identify bottlenecks
  - Plan ahead

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Design Validation

Soft Go-Live

- Agile, Iterative Process
- Met with Stakeholders Identified in Communication Plan

Higher Engagement	Medium Engagement	Lesser Engagement
▪ Patient Placement, EVS, Transport, Care Coordination – In person demos – Ownership – Actionable – “Feel” right – Appropriate access	▪ ED, OR, MCWH, Charge RNs, Physicians – In person demos – What’s the win – “Feel” right – Appropriate access	▪ Rehab, Lab, Radiology, Imaging, Staffing, Transfer Center – Electronic – What’s the win – Appropriate access

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Design Validation

Change Management

- Issue Tracker
  - Changes to dashboard
  - Workflow Drift
  - Updates to Epic Build
- Communication Plan
- Weekly Meetings with Core Project Team
- Daily Stand-ups with Build Team

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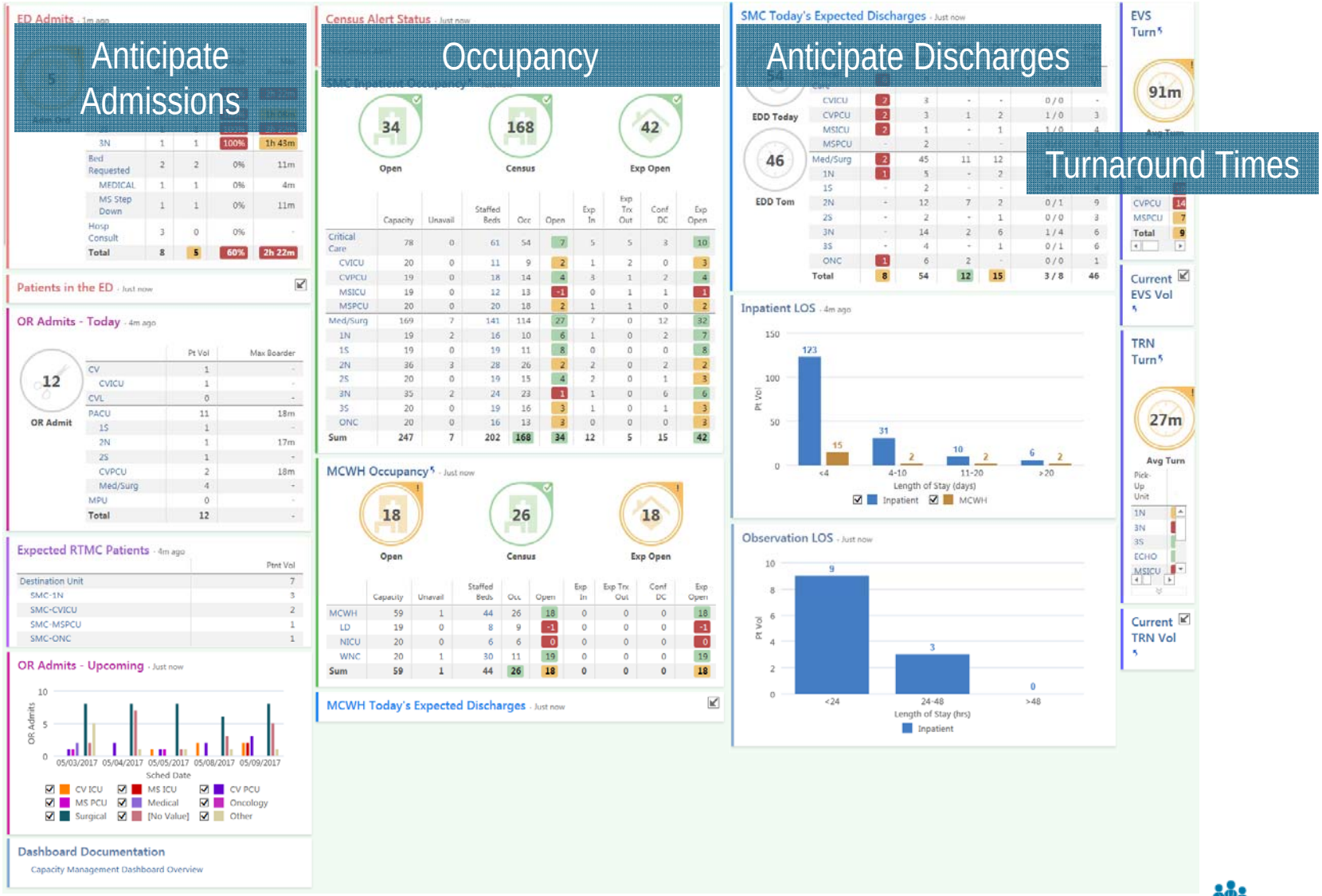
Design Concept



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Design – Anticipate Admissions

ED Admits · 1m ago

	Pt Vol	Adm Ord	% OrdAge >1hr	Max Boarder
Bed Assigned	3	3	100%	2h 22m
2N	1	1	100%	1h 08m
2S	1	1	100%	2h 22m
3N	1	1	100%	1h 43m
Bed Requested	2	2	0%	11m
MEDICAL	1	1	0%	4m
MS Step Down	1	1	0%	11m
Hosp Consult	3	0	0%	-
Total	**8**	**5**	**60%**	**2h 22m**

Patients in the ED · Just now

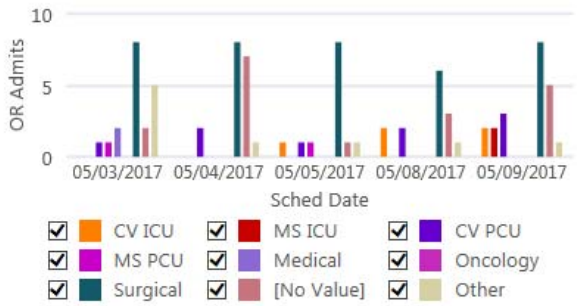
OR Admits - Today · 4m ago

	Pt Vol	Max Boarder
CV	1	-
CVICU	1	-
CVL	0	-
PACU	11	18m
1S	1	-
2N	1	17m
2S	1	-
CVPCU	2	18m
Med/Surg	4	-
MPU	0	-
Total	**12**	-

Expected RTMC Patients · 4m ago

	Ptnt Vol
Destination Unit	7
SMC-1N	3
SMC-CVICU	2
SMC-MSPCU	1
SMC-ONC	1

OR Admits - Upcoming · Just now



Dashboard Documentation

Capacity Management Dashboard Overview

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Design - Occupancy

Census Alert Status · Just now

No Census Alert

SMC Inpatient Occupancy · Just now

34	168	42
Open	Census	Exp Open

	Capacity	Unavail	Staffed Beds	Occ	Open	Exp In	Exp Trx Out	Conf DC	Exp Open
Critical Care	78	0	61	54	7	5	5	3	10
CVICU	20	0	11	9	2	1	2	0	3
CVPCU	19	0	18	14	4	3	1	2	4
MSICU	19	0	12	13	-1	0	1	1	1
MSPCU	20	0	20	18	2	1	1	0	2
Med/Surg	169	7	141	114	27	7	0	12	32
1N	19	2	16	10	6	1	0	2	7
1S	19	0	19	11	8	0	0	0	8
2N	36	3	28	26	2	2	0	2	2
2S	20	0	19	15	4	2	0	1	3
3N	35	2	24	23	1	1	0	6	6
3S	20	0	19	16	3	1	0	1	3
ONC	20	0	16	13	3	0	0	0	3
Sum	**247**	**7**	**202**	**168**	**34**	**12**	**5**	**15**	**42**

MCWH Occupancy · Just now

18	26	18
Open	Census	Exp Open

	Capacity	Unavail	Staffed Beds	Occ	Open	Exp In	Exp Trx Out	Conf DC	Exp Open
MCWH	59	1	44	26	18	0	0	0	18
LD	19	0	8	9	-1	0	0	0	-1
NICU	20	0	6	6	0	0	0	0	0
WNC	20	1	30	11	19	0	0	0	19
Sum	**59**	**1**	**44**	**26**	**18**	**0**	**0**	**0**	**18**

MCWH Today's Expected Discharges · Just now

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Design – Anticipate Discharges

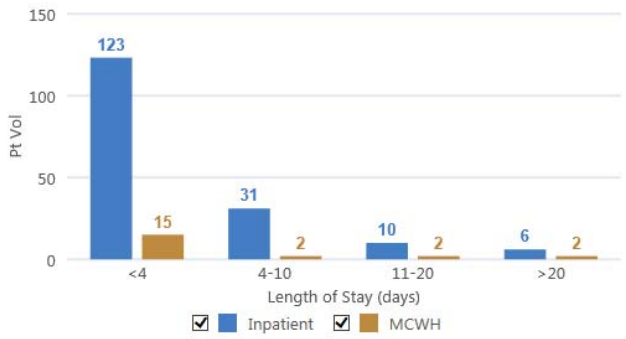
SMC Today's Expected Discharges · Just now

54
EDD Today

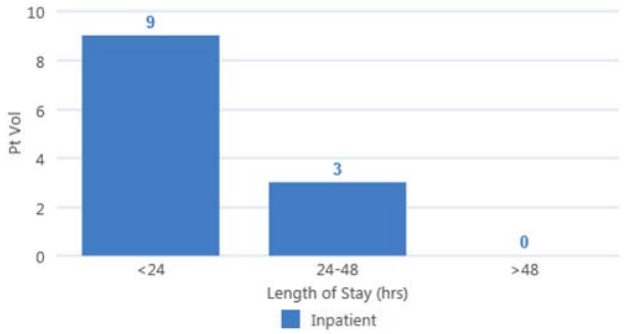
46
EDD Tom

	EDD Past	EDD Today	Cond DC Ord	DC Ord	DC Ord >1hr/>2hr	EDD Tom
Critical Care	6	9	1	3	2 / 0	15
CVICU	2	3	-	-	0 / 0	-
CVPCU	2	3	1	2	1 / 0	3
MSICU	2	1	-	1	1 / 0	4
MSPCU	-	2	-	-	0 / 0	8
Med/Surg	2	45	11	12	1 / 8	31
1N	1	5	-	2	0 / 2	2
1S	-	2	-	-	0 / 0	4
2N	-	12	7	2	0 / 1	9
2S	-	2	-	1	0 / 0	3
3N	-	14	2	6	1 / 4	6
3S	-	4	-	1	0 / 1	6
ONC	1	6	2	-	0 / 0	1
Total	**8**	**54**	**12**	**15**	**3 / 8**	**46**

Inpatient LOS · 4m ago



Observation LOS · Just now



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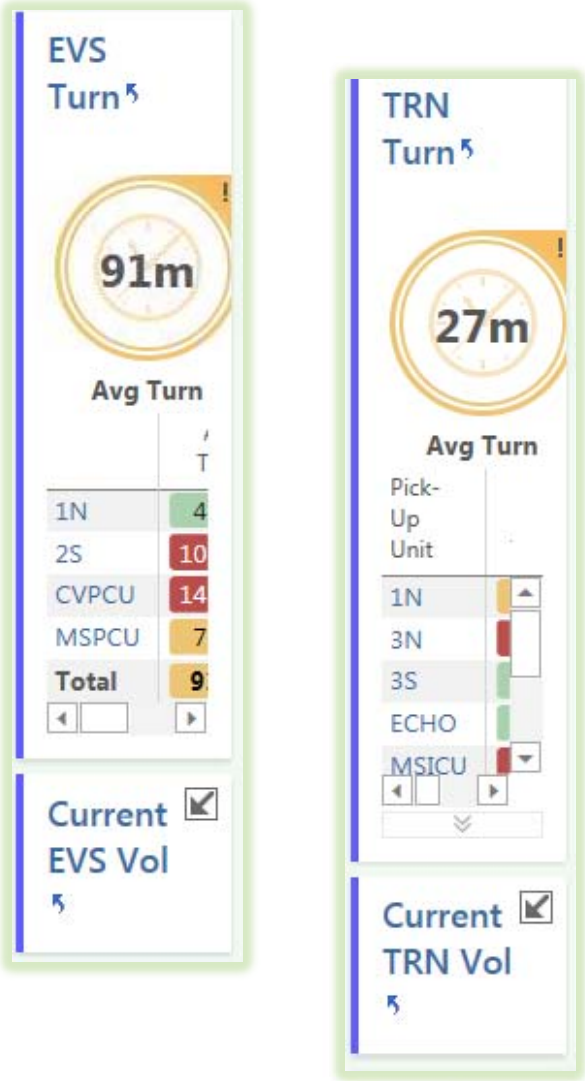
Design – Turnaround Times



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Implementation

Go Live	Workflow Optimization	Meeting Optimization
▪ 30 minute training sessions ▪ Unit rounding for nursing ▪ Large monitors in key areas	▪ Expected Discharge Date documentation ▪ Discharge within 2 hours of order ▪ Census management plan	▪ Daily safety/bed huddle ▪ Admin huddle with Executive leadership

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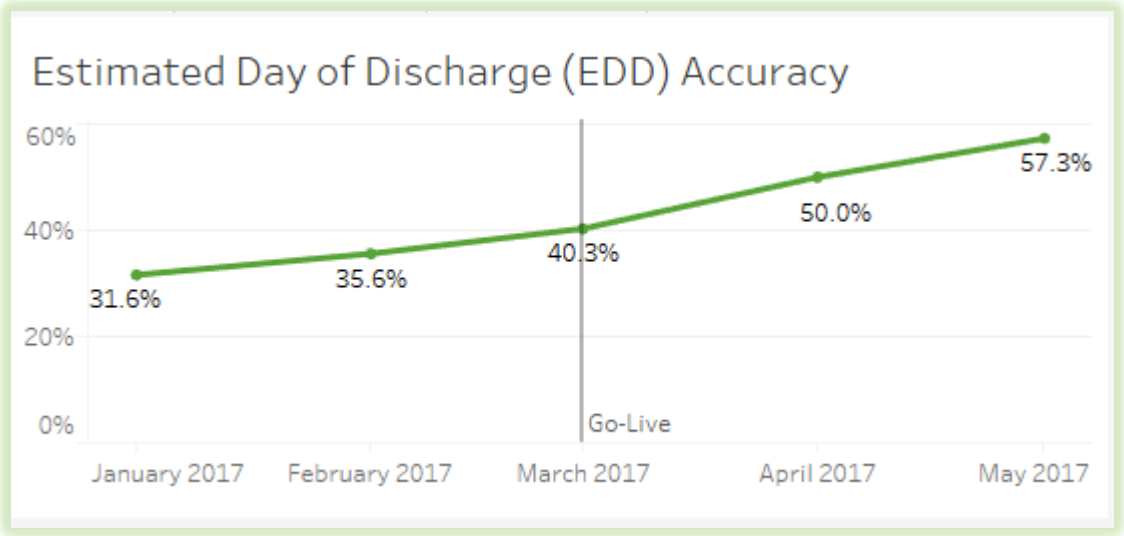
Outcomes

- Increased Accuracy of Estimated Day of Discharge (EDD)



- Decrease of Missing EDD data
- More Transparency
  - Focus on actions rather than finding information
  - Huddle as needed

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Lessons Learned

- Capitalize on Strengths of Core Team
- Subject Matter Expertise is Necessary
- Filter and Prioritize Change Requests through an “Owner”
- Soft Go-Live Validation Strategy
  - High quality product by go-live
  - Highly engaged stakeholders
  - Many opportunities for communication
  - Time commitment

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