HIMSS18 The leading health information and technology conference

WHERE **THE WORLD** CONNECTS FOR HEALTH

Conference & Exhibition | March 5–9, 2018

Las Vegas | Venetian – Palazzo – Sands Expo Center

Data Visualization and Improving Quality Outcomes: A Davies Story

Session 20, March 6, 2017

Danielle Oryn DO MPH, CMIO, Petaluma Health Center

Shaun Nelson MPH, Senior Data Analyst, Petaluma Health Center

Umesh Khot, MD – Cleveland Clinic

Kathleen Kravitz, MBA – Cleveland Clinic

Tim Sobol, MS – Cleveland Clinic

COMMITMENT

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#HIMSS18

Petaluma Health Center

Conflict of Interest

Danielle Oryn, DO MPH

Shaun Nelson MPH

Umesh Khot, MD

Vice Chairman, Cardiovascular Medicine

Chief Quality Officer, Heart and Vascular Institute

Has no real or apparent conflicts of interest to report

Agenda

- Background about Petaluma Health Center
- Structure of population health program and the role of data and data visualization with the program
- Three clinical examples of the use of analytics to improve population health

Agenda – Heart Failure Checklist

- Foundational Initiatives
- Proof of Concept
- Electronic Multi Disciplinary Documentation
- Multi Level Inclusion Criteria
- Soft/Hard Stop
- Addressing Clinical Reality
- Clinical Impact
- Technology Innovations

Learning Objectives

- Understand how analytics in the outpatient safety net setting can be used to improve care
- Learn how to engage care teams in using data in day to day patient care
- Understand how using data for improvement of one quality measure can become the infrastructure to improve others.
- Planning for discharge begins during the hospitalization
- Emphasis on data accuracy and identification of patients at admission
- Visualization and analytics at the point of care

Petaluma Health Center

Founded in 1996
Became a Federally Qualified Health Center in 2000

Currently caring for 31,000 patients via 150,000 annual visits

Sites:
Petaluma Health Center
Rohnert Park Health Center
Mary Isaak Center – *Homeless Shelter*
San Antonio High School – *School Based Health Center*
Casa Grande High School - *School Based Health Center*
Santa Rosa Junior College Petaluma - *School Based Health Center*

Petaluma Health Center

Full spectrum family centered primary medical care for children and adults

Adult and pediatric dental care

Women's health including pregnancy care and gynecology consultation

Integrated behavioral health and psychiatry consultation

Wellness services

Specialty Care

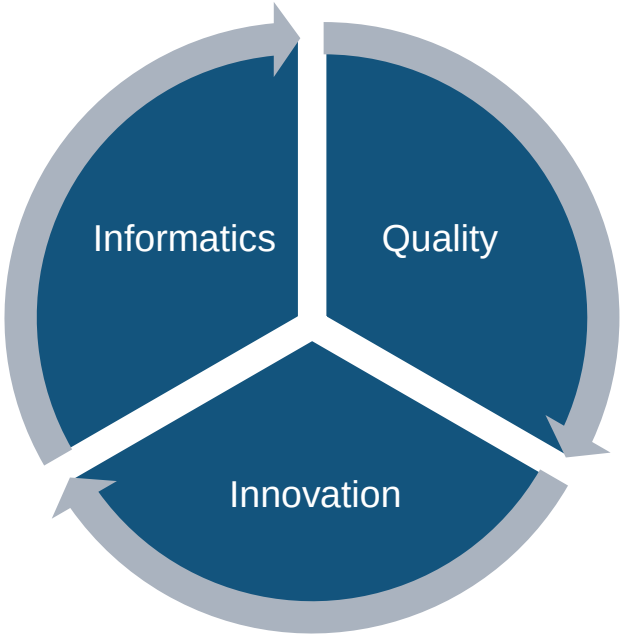
FOCUS ON INTEGRATION OF CARE

Petaluma Health Center

Recognition

- NCQA Patient Centered Medical Home recognition, 2013 – present
- Joint Commission accreditation for Ambulatory Care with Primary Care Medical Home, 2015 - present
- HRSA Health Center Quality Leaders – 2016
- HRSA National Quality Leaders - 2016
- CDC Million Hearts Champion – 2015
- HIMSS Davies Award - 2017

Quality Improvement Components at PHC

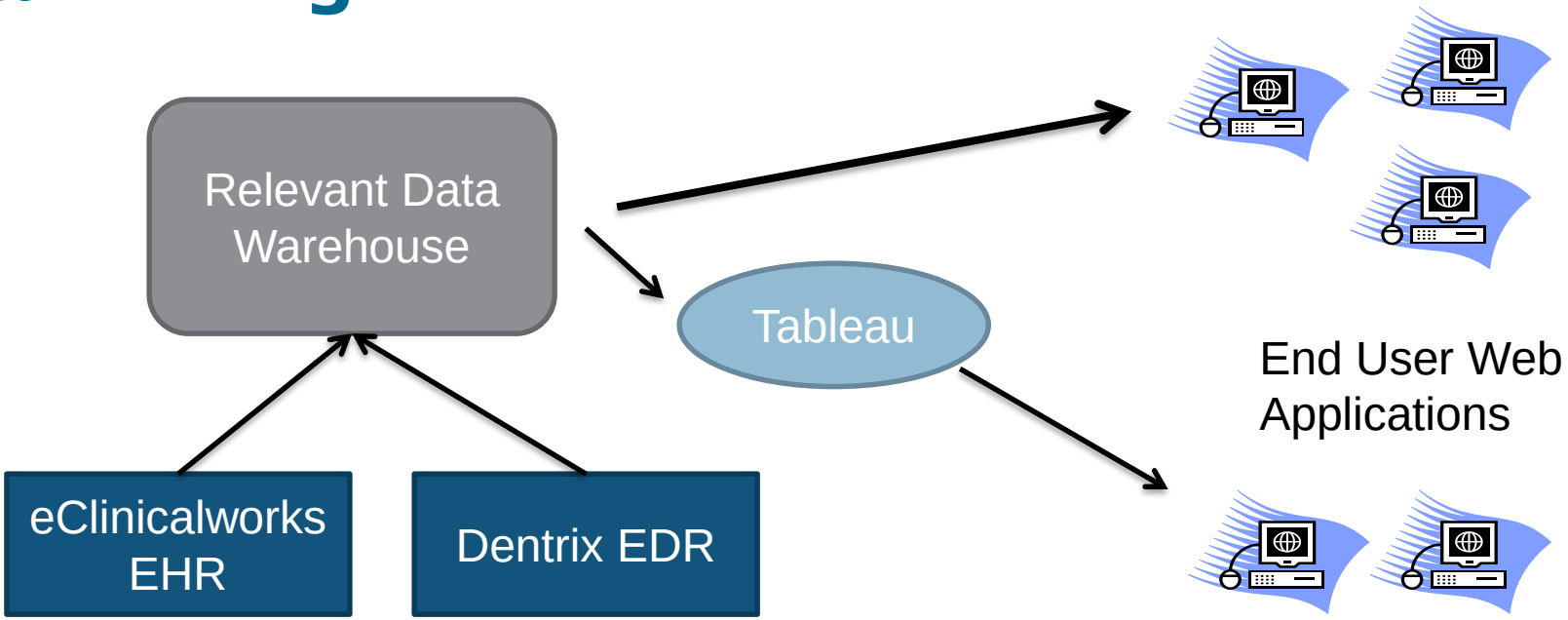


- Structure
- Function
- Culture

Population Health Structural Cornerstones

1. Huddle
2. Recall
3. Time dedicated to panel management of patients with chronic illness
4. Identifying populations for ancillary services to improve health

Data Mining



Data Presentation

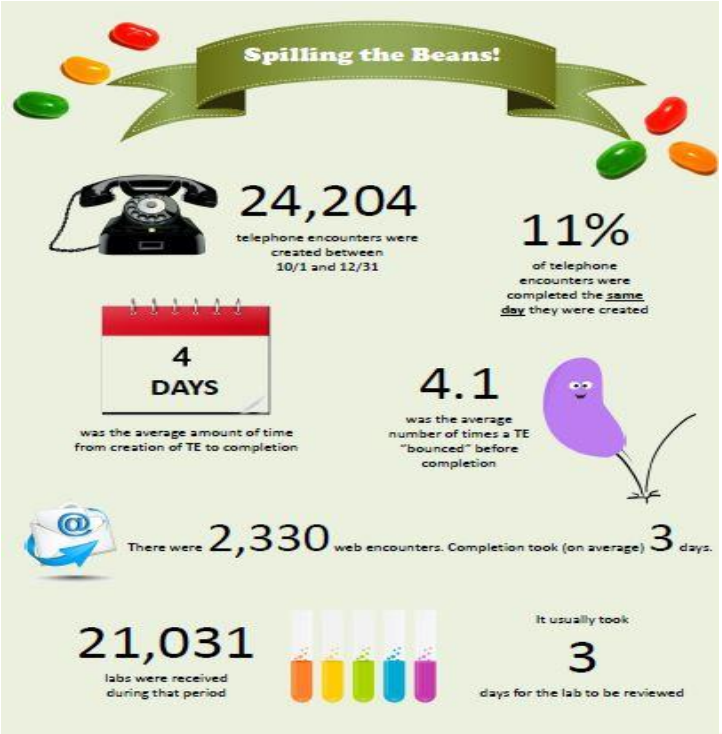
Grounded by QI Plan & PHC measures inventory

Data quality first and ongoing data validation

Data is available online to all care team members at all times

All data is un-blinded and specific to provider and or care team

Dashboards tailored to audience and function



Outline

- Diabetes
  - Care Gaps
  - Recall Campaign
  - Quality measures for population health team time
  - Health Educator report or wellness report specific to diabetes
- Hepatitis C
  - Care Gaps for screening and treatment
  - Quality measures for screening and treatment
  - Report to pull patients who qualify for treatment
- Integrated services reports
  - Integrated Behavioral Health
  - Case Management and Patient Navigation report
  - Care gaps for pediatric or OB dental integration

2:00 PM [redacted]

OV Female born [redacted] 64 years old MRN: 116883 PCG: Sean Upton
Risk Score: 2.5

Care Gaps

Flu Shot (Over 2 Years Old)
Recommended Intervention: Give Flu Shot

Due for Annual Retinal Eye Exam (Dx of Diabetes)
Recommended Intervention: Schedule Eye Exam

Due for Comp (DM, Cirrhosis, HTN, taking an ACE inhibitor ARB or diuretic, Over 18 with BMI >= 30, Under 18 with BMI Percentile > 95)
Recommended Intervention: Order Comprehensive Metabolic Panel

Due for Potassium/Creatinine (DX HTN OR taking an ACE inhibitor ARB or diuretic)
Recommended Intervention: Order Comprehensive Metabolic Panel

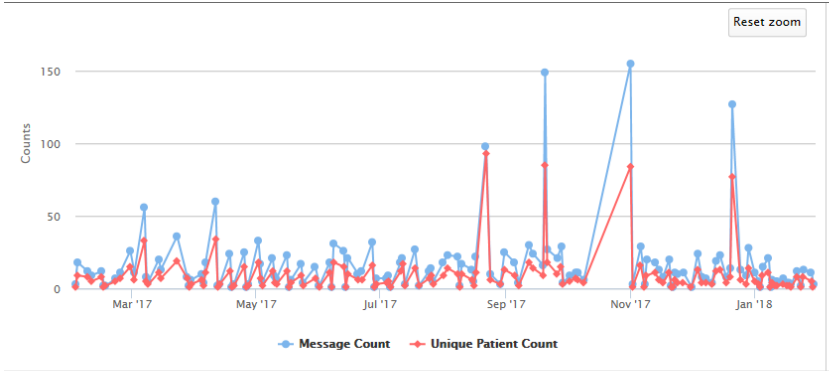
Due for HIV Screening
Recommended Intervention: Order HIV Screening Lab

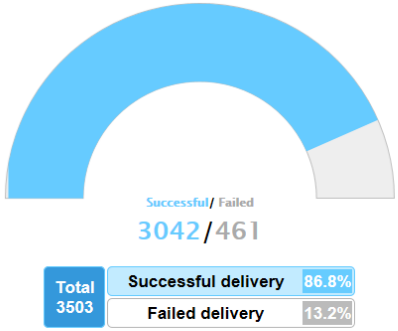
Due for Nephropathy Screening (Dx of Diabetes)
Recommended Intervention: Order Urine Microalbunin/Creatinine Today

Due for Pneumococcal (DX Diabetes)
Recommended Intervention: Order Pneumococcal Vaccine

Due for A1C (Dx of Diabetes)
Recommended Intervention: Complete A1C Test Today

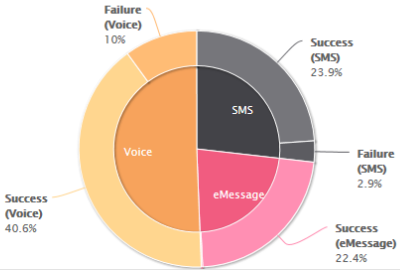
Hemoglobin A1c Campaign





Your message reach

Unique patients vs modality



Your

Messages sent (Last 7 Days)

Trend	Modality	Total messages with success		%
0 8 0 7 0 0	eMessage	15	15	100%
0 6 0 10 0 0	SMS	12	16	75%
0 8 0 12 0 0	Voice	16	20	80%

INCENTIVE - Diabetes: Blood Sugar Control

Measurement period: January 23, 2017—January 22, 2018

COMPLIANCE

75%

1086 / 1448

0 exclusions

TARGET

0

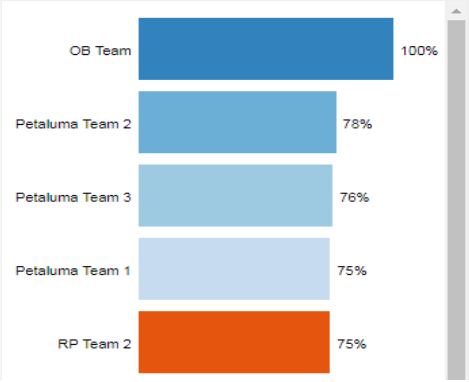
Compliance is 0 percentage points above the organization's target of 75%.

FILTERS

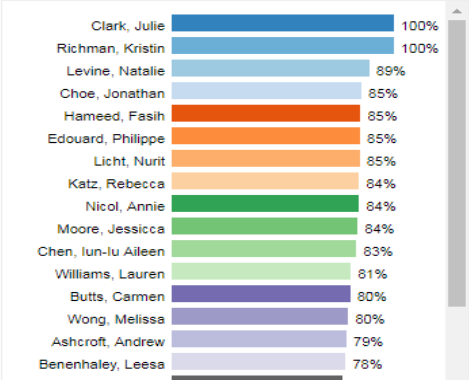
Locations: All	Providers: All	Provider Teams: All	Payers: All
Payer Groups: All	Genders: All	Races: All	Ethnicities: All

Compliance trend

Compliance by Provider Team



Compliance by Provider



QIP - Diabetes Nephropathy Screening

Measurement period: February 22, 2017—February 21, 2018

COMPLIANCE

73%

1288 / 1758

27 exclusions

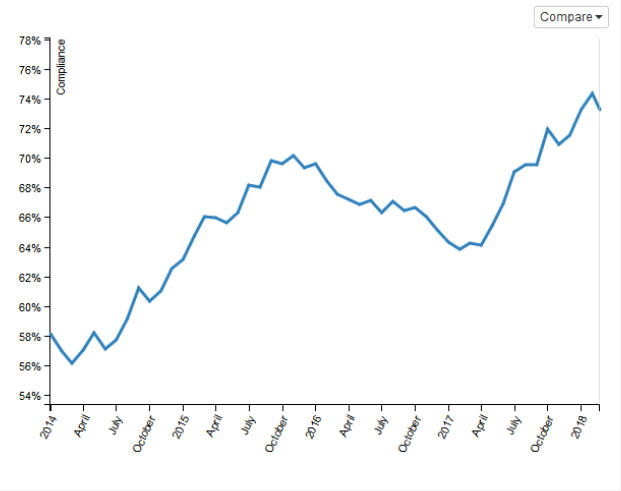
TARGET

-14 Compliance is 14 percentage points below the organization's target of 87%.

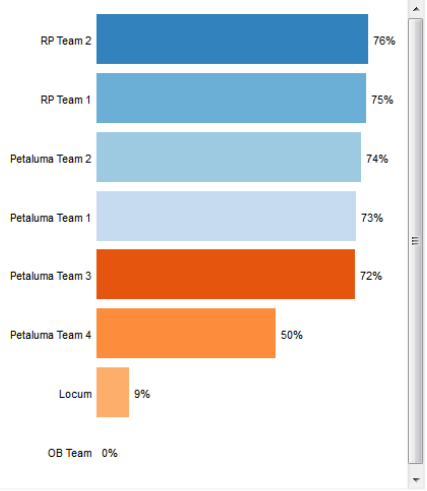
FILTERS

Locations: All	Providers: All	Provider Teams: All	Payers: All
Payer Groups: All	Genders: All	Races: All	Ethnicities: All

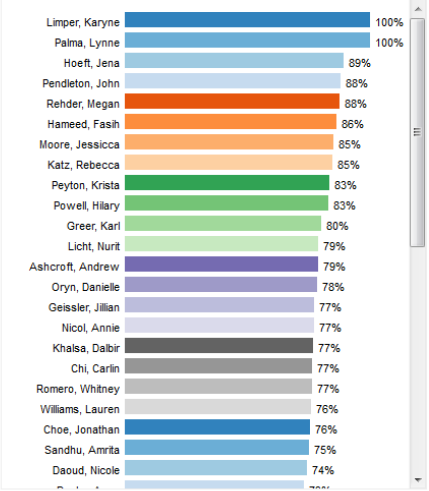
Compliance trend



Compliance by Provider Team



Compliance by Provider



QIP - Diabetes Eye Exam

Measurement period: February 22, 2017—February 21, 2018

COMPLIANCE

41%

732
1785

0 exclusions

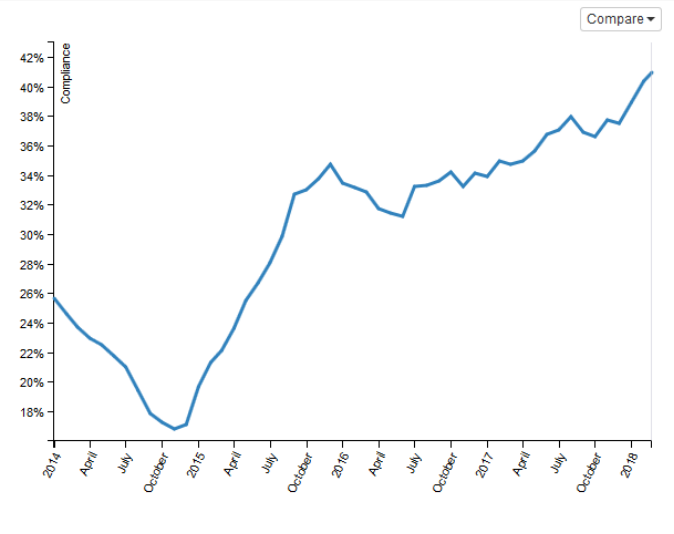
TARGET

-9 Compliance is 9 percentage points below the organization's target of 50%.

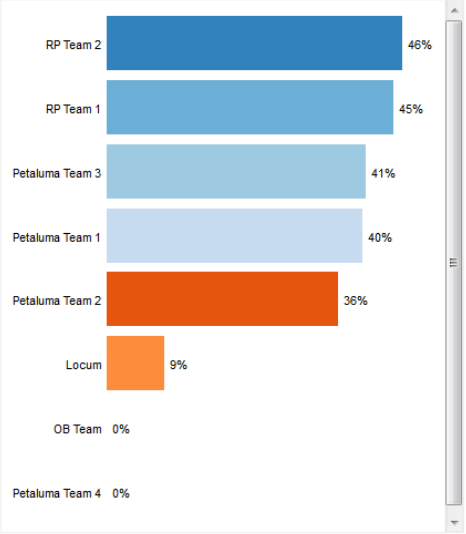
FILTERS

Locations	Providers	Provider Teams	Payers
All	All	All	All
Payer Groups	**Genders**	**Races**	**Ethnicities**
All	All	All	All

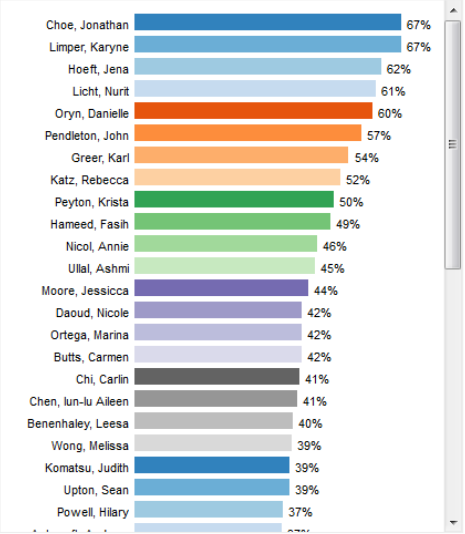
Compliance trend



Compliance by Provider Team



Compliance by Provider



Reports: Diabetes Wellness Group Candidates

Description

Active patients with diabetes and an A1C between 7 and 9

Run Report Expected run time: 3.078 sec.

Export

Patient	Age	Acctno	Language	Provider	A 1 Cresult	Lastgroup	Grouptype
[illegible]	66	34241.1	Spanish	Andrew B. Ashcroft, MD	7.3		
[illegible]	53	172073	Spanish	Iun-lu Aileen Chen DO	7.7		
[illegible]	54	187426	English	Megan Rehder, FNP	8.3		
[illegible]	51	176818	English	Philippe Edouard, MD	7.4		
[illegible]	61	28160.1	Spanish	Jena N. Hoeft, PA	8		
[illegible]	73	47214.1	English	Fasih Hameed, MD	7.8		
[illegible]	53	185450	English	Leesa Benenhaley	7.2		
[illegible]	46	157158	English	Iun-lu Aileen Chen DO	8		
[illegible]	47	31979.1	English	John D. Pendleton, MD	8.1		
[illegible]	68	114146	Spanish	Philippe Edouard, MD	7.3		
[illegible]	57	186906	English	Lauren Williams	7.2	02/15/2017	SMV Diabetes

10:30 AM [redacted]

PROC Male born [redacted] 56 years old MRN: 197227 PCG: Amrita Sandhu

Risk Score: 0.5

Care Gaps

Flu Shot (Over 2 Years Old)
Recommended Intervention: Give Flu Shot

Due for HIV Screening
Recommended Intervention: Order HIV Screening Lab

Not Web-Enabled
Recommended Intervention: Web Enable Patient Today

Needs Advance Directive
Recommended Intervention: Order Advance Directive

Due for Colorectal Cancer Screening
Recommended Intervention: Order Colonoscopy or Fit Kit Today

Due for Hepatitis C Screening
Recommended Intervention: Order Hep C Screening Lab Today

Quality Measure Warnings

Web Enabling for Patients 18 and Older

9:30 AM
ABS

Female born 62 years old MRN: 1878.1 PCG: Karl Greer
Risk Score: 5.5

Care Gaps

Flu Shot (Over 2 Years Old)
Recommended Intervention: Give Flu Shot

Due for Hep B Vaccine (Hep C DX - 3 Vaccines total needed)
Recommended Intervention: Order Hepatitis B Vaccine Today

Due for Hep A Vaccine (Hep C DX - 2 Vaccines total needed)
Recommended Intervention: Order Hepatitis A Vaccine Today

Needs Rx for Naloxone (DX: Substance Abuse)
Recommended Intervention: Prescribe Naloxone/Clean up Med List

Due for PAR (Chronic Pain Dx G89.29)
Recommended Intervention: Order PAR today

Due for HEP C Treatment (DX Hep C)
Recommended Intervention: Complete Work-Up and Refer to SMV Liver Health

Hepatitis C treatment

Pre-treatment

- Up to 8 pts per session
- 1-2x/month
- RN education
- GI-FNP reviews cases with MA prior to visit
- Provider meets 1:1 with patient & MA
- Orders labs, imaging, screening if eligible/ ready for treatment

Initiating Treatment

- 1-2x/month
- provider chart prep/review w/ HCV coordinator
- Education & RX in group setting
- Face to face time is conducted in front of entire group, unless 1:1 time needed
- Vaccines administered
- Lifestyle & global liver health reviewed
- Referred to CERES PROJECT for nutrition/ cooking

Treatment Maintenance

- Up to 10 per group
- 1-2 x/month
- Each cohort starts together regardless of stage of treatment
- Check in, group sharing, discussion of side effects
- Nutritionist, Cooking Demos, Ongoing holistic lifestyle education
- 1:1 if necessary
- Labs ordered & reviewed
- Support, engagement, education

INCENTIVE - Hepatitis C Screening

Measurement period: February 22, 2017—February 21, 2018

COMPLIANCE

66%

3556 / 5403

111 exclusions

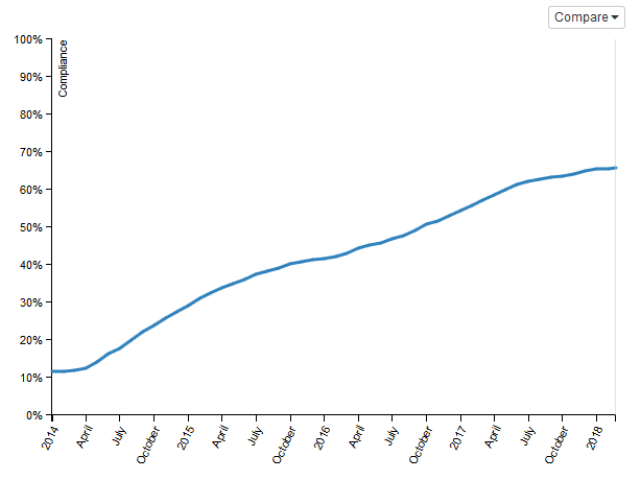
TARGET

6 Compliance is 6 percentage points above the organization's target of 60%.

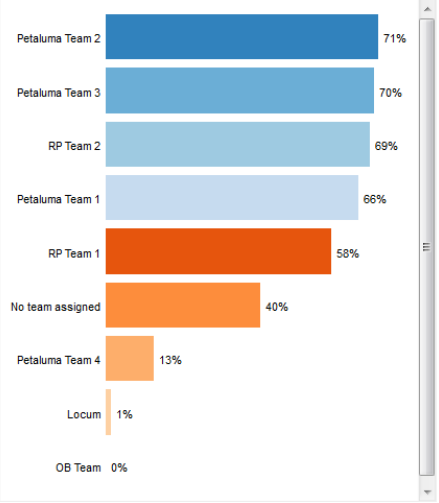
FILTERS

Locations: All	Providers: All	Provider Teams: All	Payers: All
Payer Groups: All	Genders: All	Races: All	Ethnicities: All

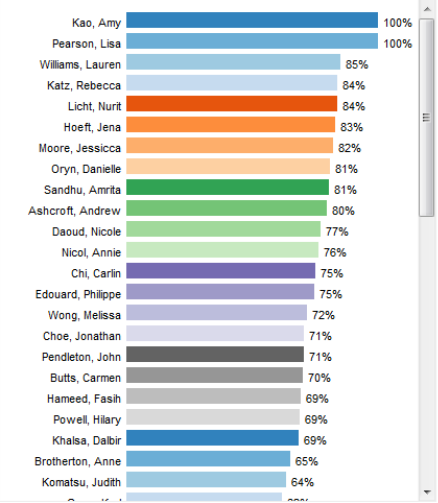
Compliance trend



Compliance by Provider Team



Compliance by Provider



Patients with Chronic Hepatitis C Who Have Received Treatment

Measurement period: February 22, 2017—February 21, 2018

COMPLIANCE

48%

148 / 307

0 exclusions

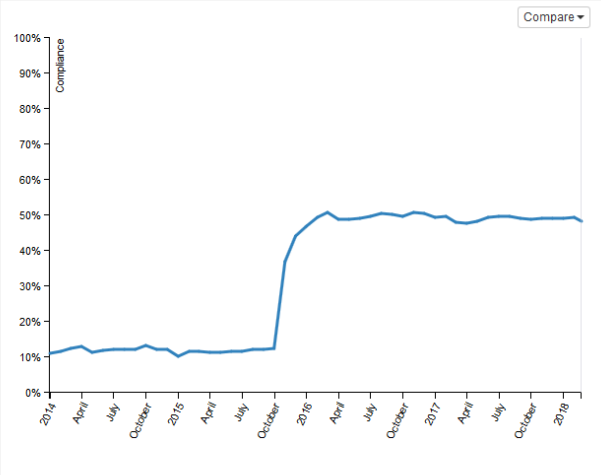
TARGET

-2 Compliance is 2 percentage points below the organization's target of 50%.

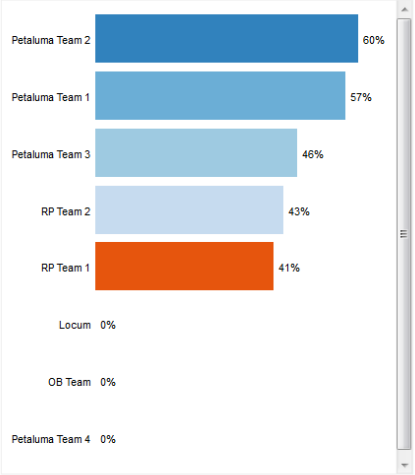
FILTERS

Locations: All	Providers: All	Provider Teams: All	Payers: All
Payer Groups: All	Genders: All	Races: All	Ethnicities: All

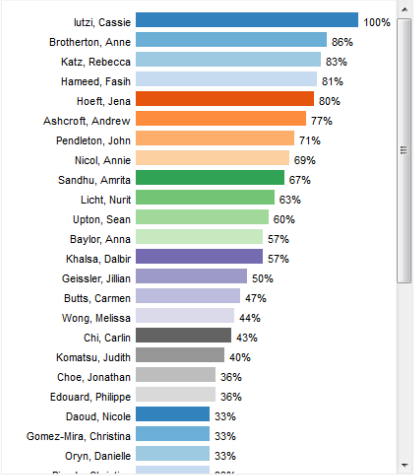
Compliance trend



Compliance by Provider Team



Compliance by Provider



APRI/FIB4 Report

Acct #	DOB	Age	PCP	AST Value	ALT Value	Plt Count	FIB-4	APRI	Primary Insurance
116376		42	Butts	127	104	35	14.94	9.07	PHP Medical
40380.1		62	Nicol	175	139	103	8.93	4.25	Medicare NGS
45968.1		58	Brotherton	111	162	67	7.55	4.14	
164612		63	Sandhu	85	66	60	10.99	3.54	PHP Medical
50512.1		52	Powell	188	178	139	5.27	3.38	PHP Medical
4450.1		59	Ashcroft	106	78	81	8.74	3.27	Meritage Medical Network
117074		59	Butts	90	35	72	12.47	3.13	PHP Medical
162687		62	Nicol	153	97	123	7.83	3.11	PHP Medical
35822.1		63	Choe	126	161	122	5.13	2.58	PHP Medical
157721		49	Upton	67	30	68	8.81	2.46	PHP Medical
175846		56	Sandhu	131	242	133	3.55	2.46	PHP Medical
19957.1		62	Upton	126	137	129	5.17	2.44	PHP Medical

Reports: Patients with an Appointment Today who Might Benefit from BH

Description

Patients with an appointment today who have an A1c > 7, a PHQ-9 > 9, a GAD-7 > 2, a substance abuse diagnosis, positive tobacco screen, OR a chronic pain diagnosis AND have not had a BH visit in the past 3 months. If the patient has had a BH no show in the past 3 months, the date of the no show is also listed.

Petaluma Specialty & Women's Health | RP Team 1 | RP Team 2 | Petaluma Team 1 | Petaluma Team 2 | Petaluma Team 3 | +

starttime	patient	phone	acctnum	visittype	resource	department	a1c	phq9	gad7	subabusedx	smokingstatus	chronicpaindx	bhnoshow
08:45:00	[illegible]	[illegible]	28485.1	RN Visit	Team 1 RN Resource	Petaluma Medical Team 1	9						
	[illegible]	[illegible]	176798	OV	Powell	Petaluma Medical Team 1		18	21	Alcohol dependence in early, early partial, sustained full, or sustained partial remission	current smoker		
	[illegible]	[illegible]	32916.1	ABS	Sandhu	Petaluma Medical Team 1					current smoker		
09:00:00	[illegible]	[illegible]	41231.1	Well Women	Sandhu	Petaluma Medical Team 1		11					
09:15:00	[illegible]	[illegible]	180380	ABS	Ortega	Petaluma Medical Team 1					current smoker		
	[illegible]	[illegible]	48759.1	OV	Hameed	Petaluma Medical Team 1				Alcoholism in remission		Other chronic pain	

Reports: High-Risk Patients With An Appointment Today

Description

A list of patients with an appointment today who have a risk score greater than or equal to 5.0.

Run Report Expected run time: 2.57 sec.

Results table | Petaluma Team 1 | Petaluma Team 2 | Petaluma Team 3 | RP Team 1 | RP Team 2

starttime	patient	acctnum	visittype	resource	department	apptdate	riskscore	Totals
08:45:00	[redacted]	176798	OV	Powell	Petaluma Medical Team 1	2018-01-23	6.5	1
09:15:00	[redacted]	48759.1	OV	Hameed	Petaluma Medical Team 1	2018-01-23	6.0	1
09:30:00	[redacted]	111630	OV	Hameed	Petaluma Medical Team 1	2018-01-23	6.5	1
10:15:00	[redacted]	113270	OV	Hameed	Petaluma Medical Team 1	2018-01-23	7.0	1

9:00 AM [redacted]

OV Female born [redacted] 4 years old MRN: 158497 PCG: Fasih Hameed

Risk Score: 0.0

Care Gaps

Flu Shot (Over 2 Years Old)
Recommended Intervention: Give Flu Shot

Not Web-Enabled
Recommended Intervention: Web Enable Patient Today

Due for Dental Appointment
Recommended Intervention: Offer patient a dental appointment

Due for Vaccines
Recommended Intervention: Administer appropriate vaccine/Update eCW Chart with data from CAIR

Questions

- Danielle Oryn DO MPH, CMIO danielleo@phealthcenter.org
- Shaun Nelson MPH, Senior Data Analyst shaunn@phealthcenter.org

Petaluma Health Center

Please use blank slide if more space is required for charts, graphs, etc.

To remove background graphics,
right click on selected slide,
choose “Format Background” and check
“Hide background graphics”.

Cleveland Clinic

Creating Value from Electronic Medical Records: Heart Failure Checklist

- Umesh N. Khot, MD
- Tim Sobol, MS
- Kathleen Kravitz, MBA
- Colette Einloth
- Anita Ullman, RD
- Cheryll Miller, RN
- Brent Hicks
- Corrine Bott-Silverman, MD
- Randall C. Starling, MD
- Lars Svensson, MD

Heart and Vascular Institute-Miller Pavilion

Heart and Vascular Institute

Facts and Figures

- 23 Years - Ranked #1 US News
- 542,702 Outpatient Visits
- 13,364 Patient Admissions
- 422 Inpatient Beds
- 180 Staff Physicians

2011

Identifying the Correct Attending and the Correct Service:

“Who Is My Doctor?”

Admission

Patient Info
Demographics

Attending
Service

ADTR

Admission System: ADTR

Admissions

Discharges

Transfers

Re-Admission

Legacy Front End Computing System

ADTR = Source Truth for EPIC

Admission System: ADTR

Attend Prov	SERVICE	Bed
BARZILAI, B	Clinical Cardiology	J3-1-01
TUZCU, E	Catherization	J5-2-06
GILLINOV, M	Thoracic Surgery	J6-6-04
LINCOFF, M	Catherization	J3-1-06
NIEBAUER, M	Clinical Cardiology	J5-2-05
RICE, T	Thoracic Surgery	J5-2-11

Attending and Service are linked in EPIC via ADTR interface

Attending Provider: Sung Hee L Cho
Allergies: No Known Allergies
Isolation: (none)
Code Status: Not on File

SERVICE
Clinical Cardiology

Vitals (last 3 days)
** None **

ADTR/EPIC

s report does not show ALL labs in last 72hrs.

Cleveland Clinic

HEART and VASCULAR INSTITUTE
PROGRESS NOTE

Case discussed with Dr. Griffin
SIGNATURE: Barbara Heil, MD
PAGER: 85667

PRIMARY SERVICE: Cardiology: Imaging

Medical Record

Why does it matter?

Case Reports: Patient Care

- Patient Admitted To EP Service.
- Wrong Attending And Wrong Service Are Identified In Epic.
- Nursing Unable To Reach Attending Or Service.
- 8 Hours On The Floor Without Being Seen.
- Patient Had Complete Heart Block And Sent For Urgent Procedure.

Case Reports: Patient Safety

- Patient With End-stage Aortic Stenosis Is On Imaging Service.
- He Has Just Been Made DNR By Primary Team.
- Patient's Vitals Become Unstable.
- Wrong Service Is Listed And Subsequently Contacted.
- "No One On Our Service Is DNR/DNI".
- Code Is Called. Chest Compression, Intubation, Etc
- Actual Team Arrives And Stops Code.

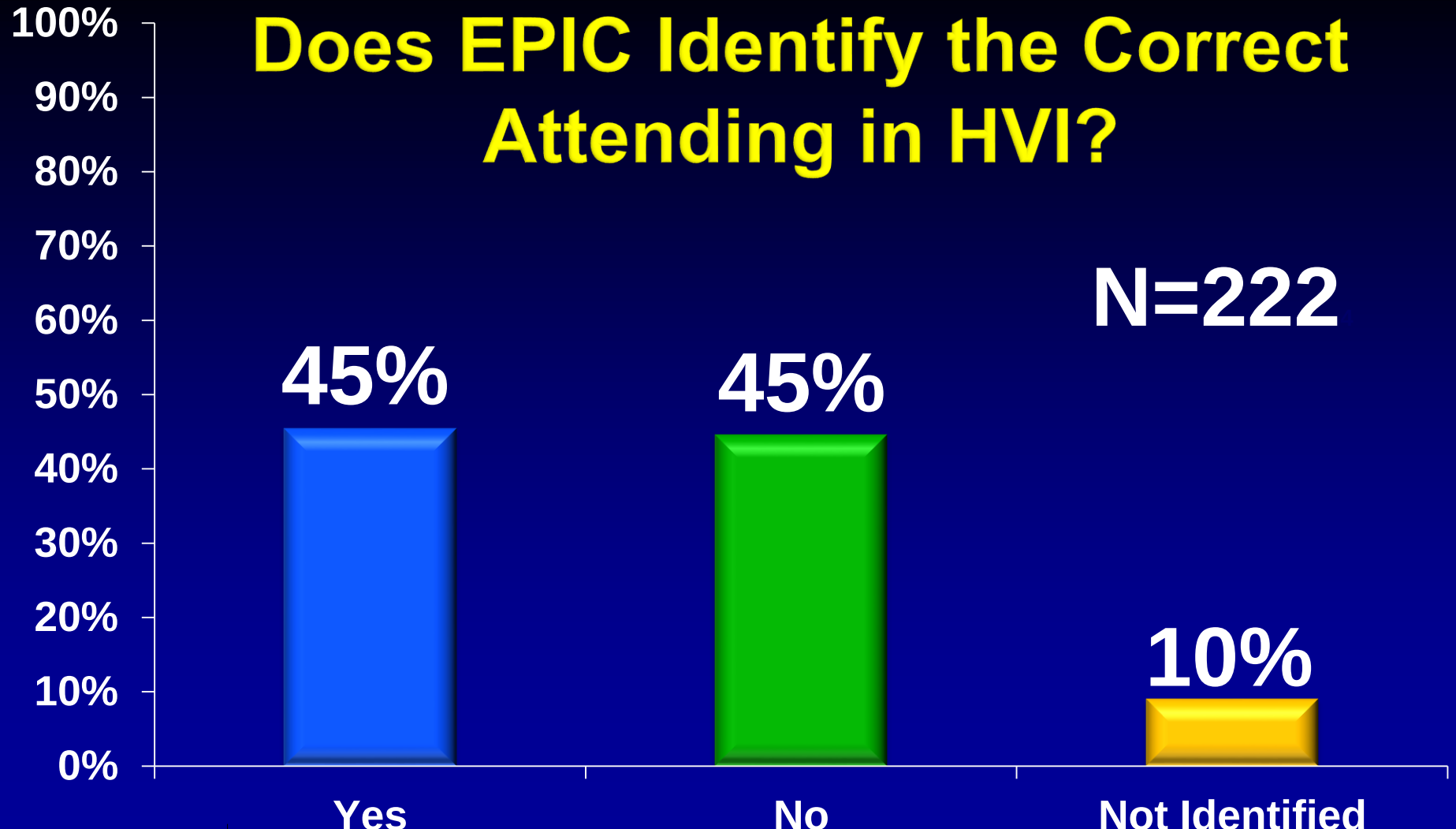
Select Case Reports: From the Chief Fellow Pager

- Nurse Manager Pages With Unable To Find Team Of Patient Going To Surgery …
- Paged At Home As Unable To Find Team …
- Abnormal Lab Of K=8.9, Cannot Find Physician…
- Prescription Needed At Discharged, Team Is Not Identified…
- CMET Called, Primary Team Not Identified…
- Surgeon At Bedside, Trying To Find Primary Service…
- Patient Admitted, Needs Orders And Service/Attending Is Incorrect…
- Patient Has Positive Blood Cultures, Listed Attending Is Incorrect…
- Consult Team At Bedside And Needs To Talk To Primary Team…
- Patient Ready For Cath, Consent, But Patient Has Not Seen Dr. …
- Patient Ready For Discharge. No Team Has Seen Patient In 3 Days …
- New Admission From Yesterday. Needs Orders And H&P …
- Patient Needs Home O2. No Attending Of Record In EPIC…
- Who Is Taking Care Of …
- Transfer From Outside Hospital Arrived This Morning. May Need Intubation. Attending Is Out Of Town…

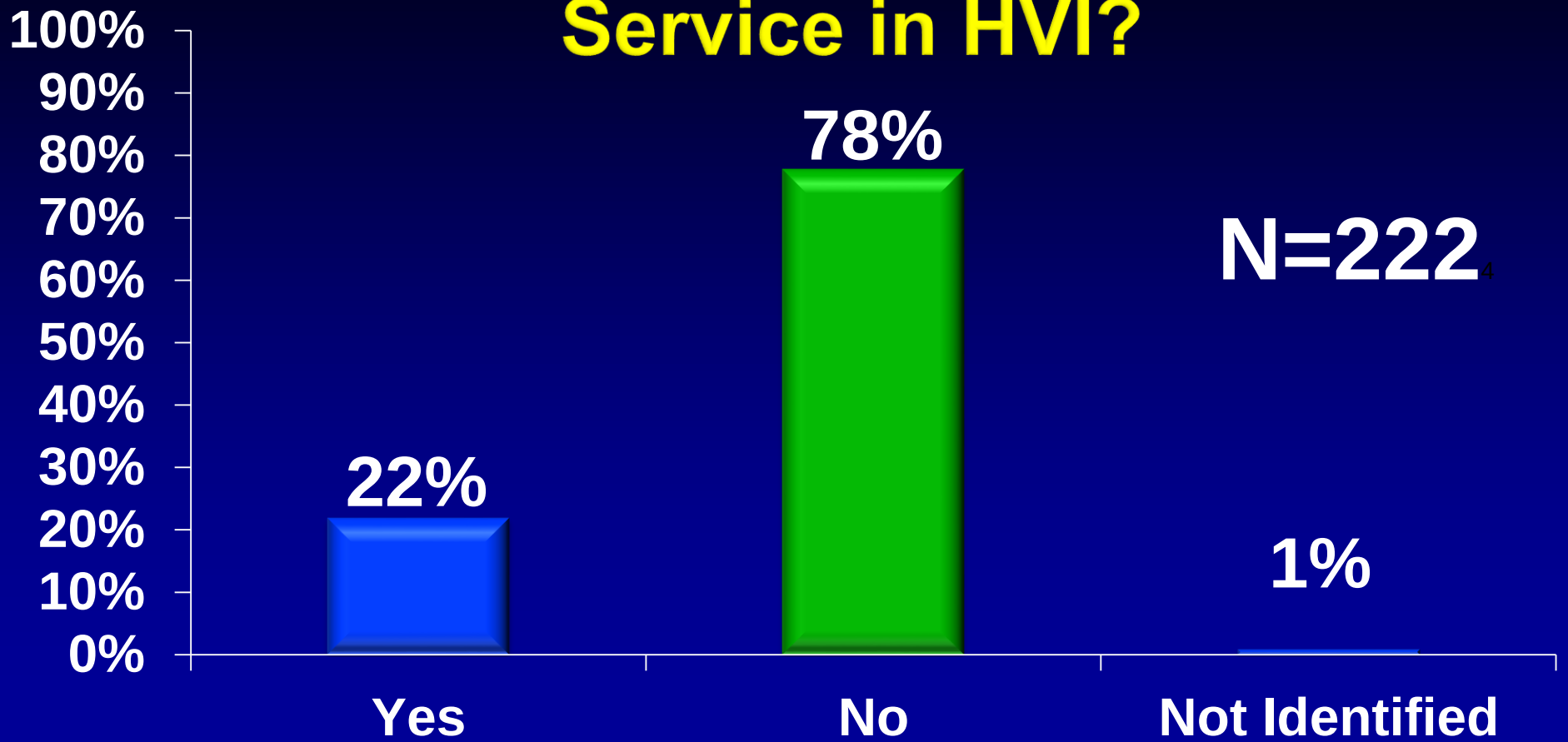
Existing Methods: Attribution

October 5, 2011

Does EPIC Identify the Correct Attending in HVI?



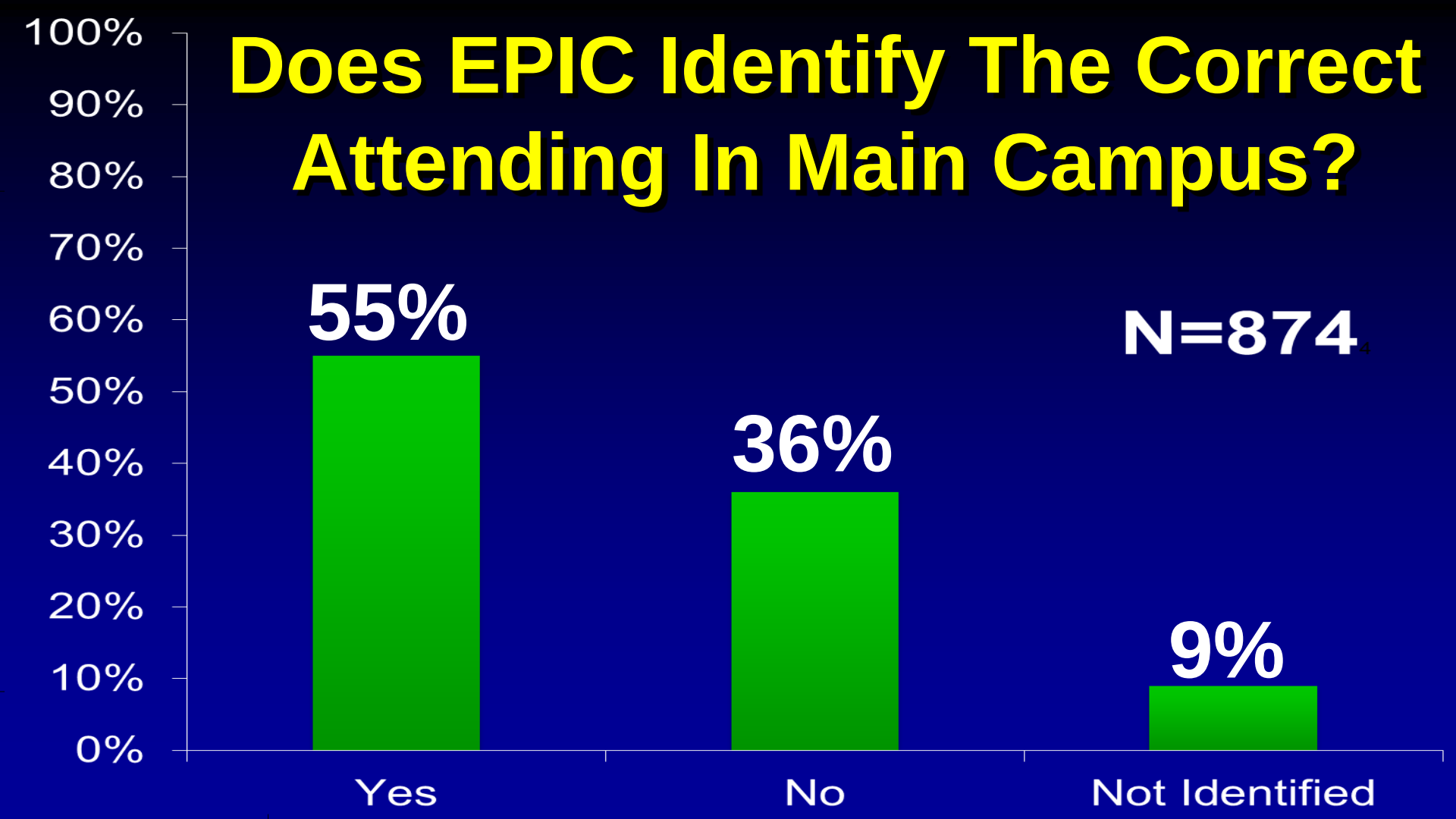
Does EPIC Identify the Correct Service in HVI?



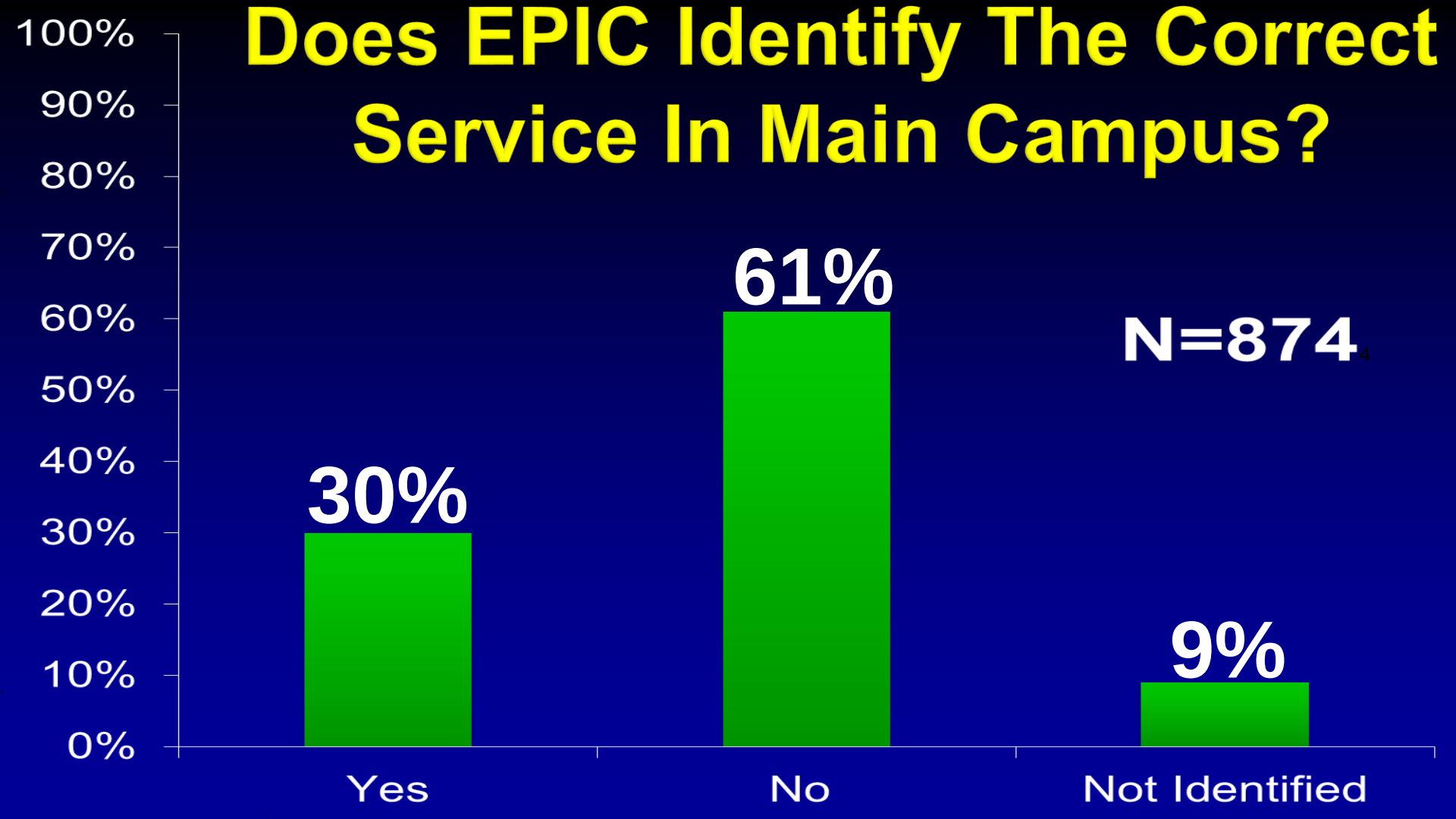
Existing Methods: Main Campus Attribution

November 28, 2011

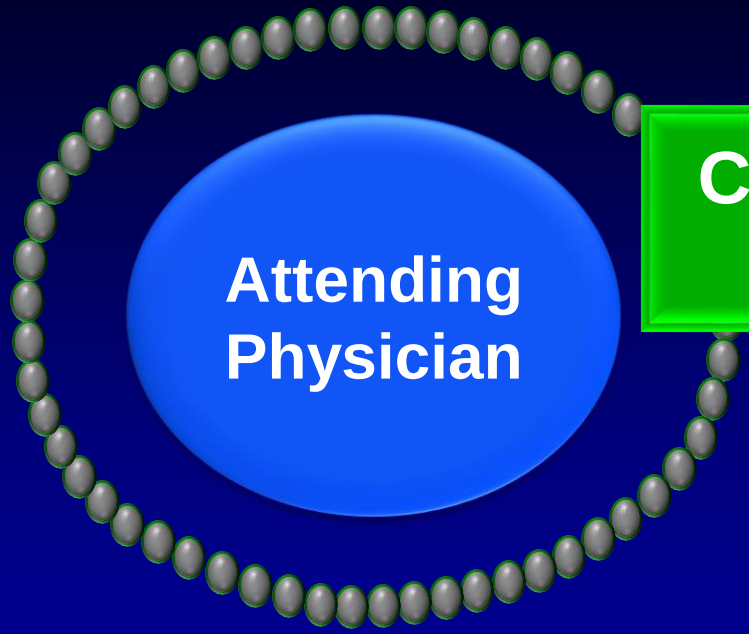
Does EPIC Identify The Correct Attending In Main Campus?



Does EPIC Identify The Correct Service In Main Campus?



Impact



Clinical Care

HCAPHS

LOS

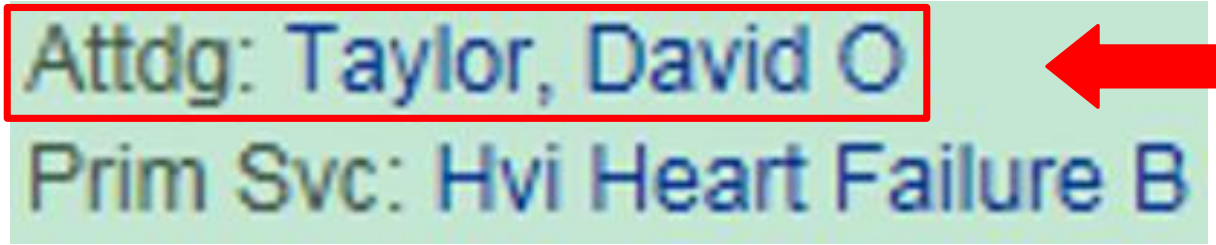
Quality

Readmission

45,000 Messages/Day

16.5 Million/Year

Epic Banner - Visibility



To change the **Attending Physician** that is displayed in the Epic Header, left click **Attdg:**

***Disclaimer – Terms Epic Banner and Epic Header are used interchangeably and are the same**

Attribution Development Arc

All HVI Announcement	December 3, 2012
Final Technical Build	November 2012
Final HVI Rules of Engagement	October 2012
Initial Technical Build	September 2012
Project Initiation	April 2012
Case for Change Presentations	Winter 2012

Compliance

Cleveland Clinic
Sydell and Arnold Miller Family
Heart and Vascular Institute

Standard Opera

Target Group: HVI Inpatient Clinical Teams	Procedure Number: API01	Dat 07/0
Approved by: HVI Executive Leadership	Date Approved:	Prep

Cleveland Clinic
Sydell and Arnold Miller Family
Heart and Vascular Institute

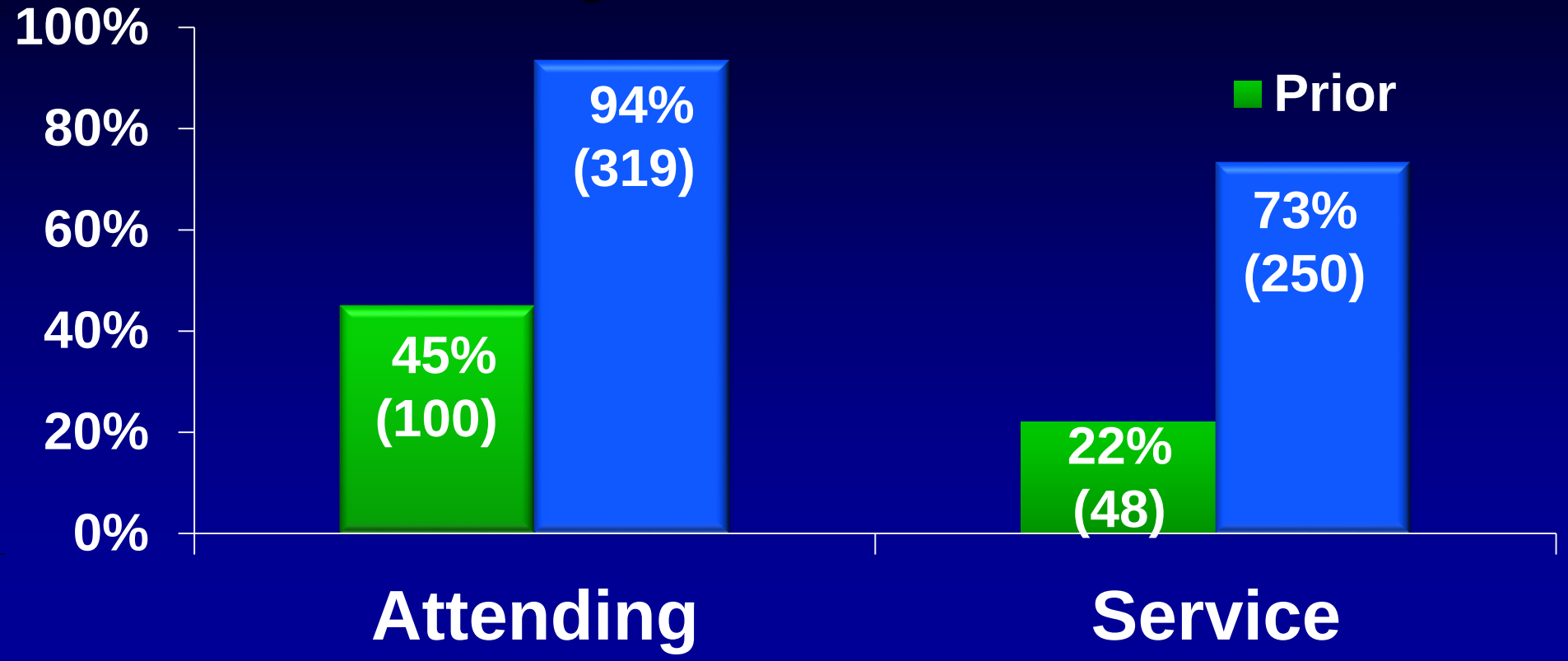
HVI Primary Service

Standard Operating Procedure

Target Group: HVI Inpatient Clinical Teams	Procedure Number: PSI01	Date of Issue: 07/01/2012	Date of Review: 07/01/2012
Approved by: HVI Executive Leadership	Date Approved:	Prepared by:	Date of Revision:

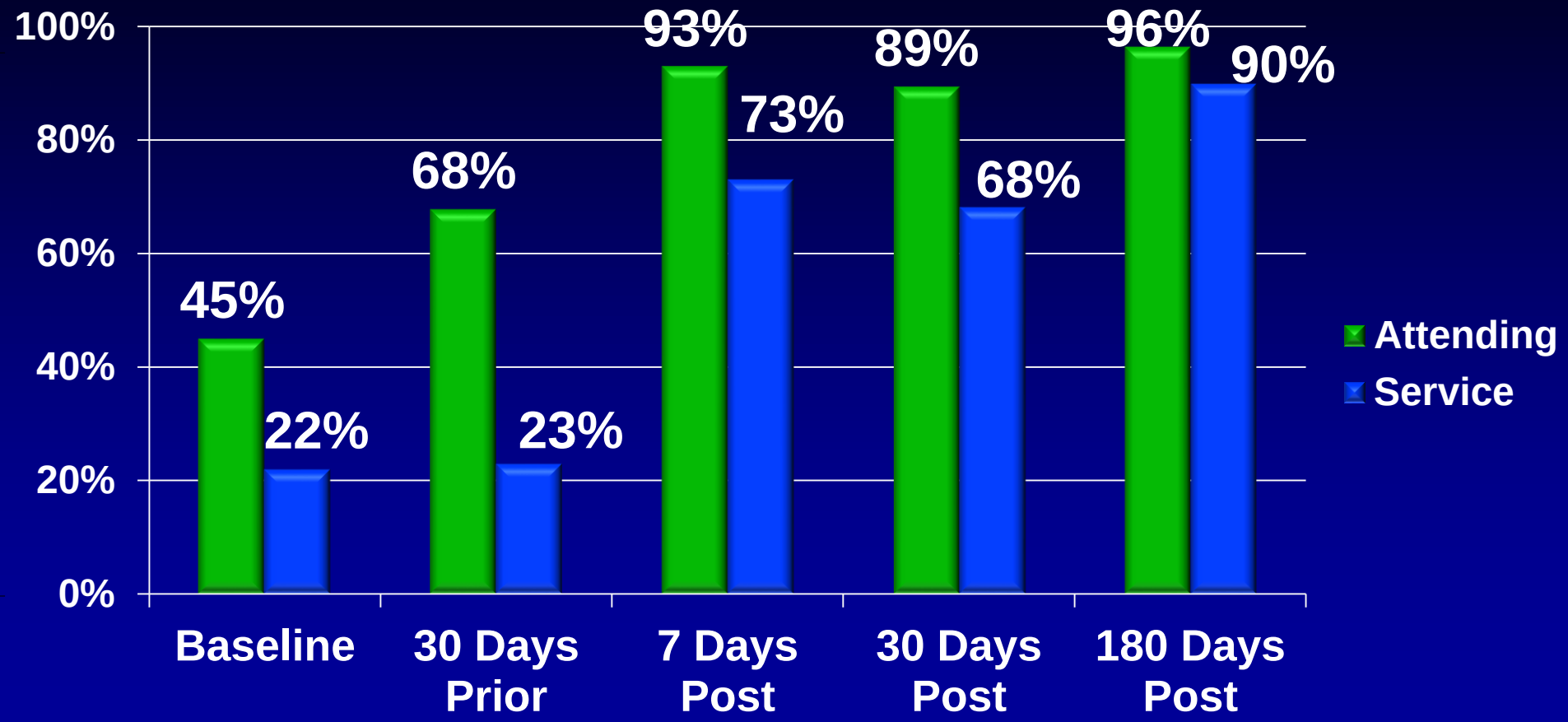
- **Rule 1** – The accuracy of the attending physician and service information is the responsibility of the clinical team (NP, PA, house staff, staff)
- **Rule 2** – At any moment in time, whatever information is listed within the Epic banner is the truth and will be acted upon for the purpose of clinical care

Project Impact - Epic Banner
6 Days Post Go Live



Long-Term Sustainability?

Accuracy of Attending and Service



Identifying Diagnoses: “What Conditions Do Our Patients Have?”

Problem List

Problem List

Patient Care Coordination Note

35 year old male with PMH significant for NICM (EF 19%), Hx NSVT s/p DDD-ICD, prolonged QT, HTN, anxiety, tobacco and mariajuana use (in addition to EtOH use previously) and chronic pain (on opiates) who was admitted from ED with nausea and vomitting.

SnapShot
Summary
Chart Review
History
Problem List
Allergies
Medications
MAR
I/O Summary
Flowsheets
Get Images
Results Review
MyChart Resul...
Manage Orders

Add a new problem | Add

List view: Cardiology Problems | Class | Do not group | Episode | Hospital | Priority | Status | System | Choose Columns

Show: Past Problems

Overview Preview: Paragraph | Show: Deleted | Multidisciplinary | Non-Hospital

Diagnosis	Hospital	Principal	Sort Priority	Updated
Cardiology Problems				
Acute decompensated heart failure (HCC)			Unprioritized	09/25/2017 Abu-Haniyeh...

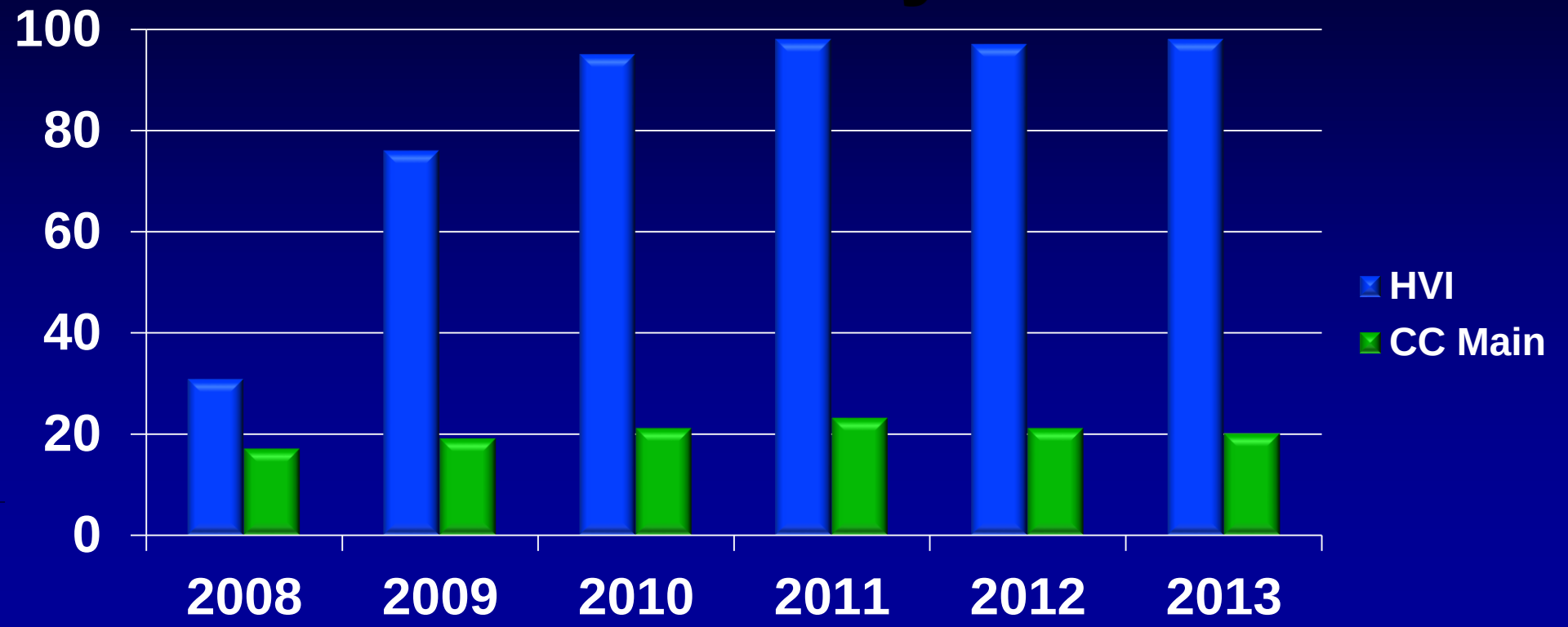
Acute decompensated heart failure (HCC)

Overview - Patient with NICM , recently discharged from the hospital against medical advice
- this time coming with N&V , thought to be related to heart failure
- no new SOB, orthopnea or LE swelling
- On examination Warm and dry
- no JVD or crackles , CXR mild interstitial edema

Plan:
- Resume home Hydral and ISDN
- give 500 cc IV fluid bolus
- Hold diuretics for now

- **Problem List**
- **Standardized Documentation**
- **Diagnosis of Heart Failure**

Problem List Use by Year (%)
Go Live May 2009



How Long Is Our Quality Feedback Cycle to Physicians?

2011 Process

Current Cleveland Clinic Core Measure

Feedback 4 Months After Discharge

Cleveland Clinic CMS Core Measures

- 1. In-Hospital
  - a. "Friendly Reminder" Triggered by Prelim Primary Diagnosis
    - i. Coded on M-F Regular Hours - No Weekends/Holidays
    - ii. Only Coded on ~50% of Admissions - those paid by DRG
    - iii. Delayed a Few Days Depending on Clinical Course
    - iv. Sent to "Attending" but this is often wrong
    - v. Reminds M.D. on ALL core measures but does tell what is compliant and what is not
    - vi. Typically ignored (deleted) by clinicians
    - vii. Does not necessarily correspond to final primary DX - Incomplete Triggering
- 2. After Discharge
  - a. Final Coding
    - i. Coding determines final primary DX
      - 1. ~ 10 Days Post Discharge
    - ii. Sent to SoftMed for Billing, Then Epremise
      - 1. ~20-30 days Post-Discharge
    - iii. Sent to UHC Med Measure - Billing Must Be Finalized First
      - 1. ~30 days Post-Discharge
    - iv. Sent to Quality Abstracters, Pull Hard Chart Where Needed
      - 1. ~45-60 Days Post-Discharge
    - v. Failed Measures Sent to "Failed Case Committee
      - 1. ~60-90 Days Post-Discharge
    - vi. If Nothing Found Sent Back to QIO at Institute/Department, QIO Forwards to Individual Physician
      - 1. ~90-120 Days
    - vii. Can not go through Quality Until Final Billing - Stragglers Come In Over 3-4 Months
      - 1. ~120 Days Process Complete and Finalized

Real-Time Quality Feedback

Core Measure/Yellow Triangle

- Integration of:
  - Problem List
  - Epic Banner
  - Standardized Documentation

Hyperspace - Epic2015/IU2 - Production Central Region (PRD02/eapp2) - CARD HOSP

Epic | IP Cht | Rewv | Encounter | Enter/Edit | Tel Enc | Refill | Letter | MyChart | Patient Station | Log Out

Patient Lists

Edit List | Remove | Add Patient | Copy | Rewv | Patient Report | Rounding

HVI Clinical Cardiology A 19 Patients

Refreshed 1 minute ago | Search All My Lists

Quality Measures

Service

Attending Physician

Problem List DX

D/C Check	HF DC Check	Bed	MRN	Attend Prov	AMI DX/PL	Peak Troponin	Aspirin Extended	Aspirin w/in 24 hrs	Beta Blocker Extended	Statin Extended	HF DX/PL	LVEF %	ACE/ARB Extended	Expe Date of Disc
	Y	J5-3-02		MANSOUR, J	Y	—	⚠	N	meto... tartrate (short acting) 12.5 mg tab(s) (LOPRE	⚠	Y	50 % at 09/06/17 0945	—	0...
N/A	—	J7-3-12		ABDALLAH, M	Y	—	aspirin, enteric coated 81 mg tab(s) (ASPIRIN ENTERIC COATED	Y	meto... tartrat (short acting 25 mg tab(s) (LOPRE				lisinopril 5 mg tab(s) (ZESTRIL, PRINIVIL)	—
N/A	Y	G054-05		ABDALLAH, M	Y	2.000 ng/mL	aspirin 81 mg chewable tab(s)	Y	⚠	atorvast... 40 mg tab (s) (LIPITOR)	Y	29 % at 08/04/17 1000	⚠	—
N/A	Y	J6-4-11		UNAI, S	—	0.678 ng/mL	aspirin 162 mg chewable tab(s)	Y	—	atorvast... 10 mg tab (s) (LIPITOR)	Y	40 % at 09/01/17 1230	⚠	—
N/A	—	J6-2-12		MANSOUR, J	—	<0.010 ng/mL	aspirin, enteric coated 81 mg tab(s) (ASPIRIN ENTERIC COATED	Y	—	—	Y	52 % at 10/21/16 1037	ACE Allergy/Contra Only	0...
N/A	—	J7-2-24		MANSOUR, J	—	<0.010 ng/mL	aspirin, enteric coated 81 mg tab(s) (ASPIRIN ENTERIC COATED	Y	nadolol 40 mg tab(s) (CORGA	atorvast... 40 mg tab (s) (LIPITOR)	—	55 % at 08/03/17 1339	ramipril 10 mg cap(s) (ALTACE)	—

Real Time

TIM SOBOL SA | Charts | Results | 9:43 AM

1. Prescribe Medication
2. Allergy/Contraindication (Permanent)
3. Contraindication Order (Single Admission)
4. Wait to Decide Later Date While in Hospital

Facility List Search - Zzzec,Boose

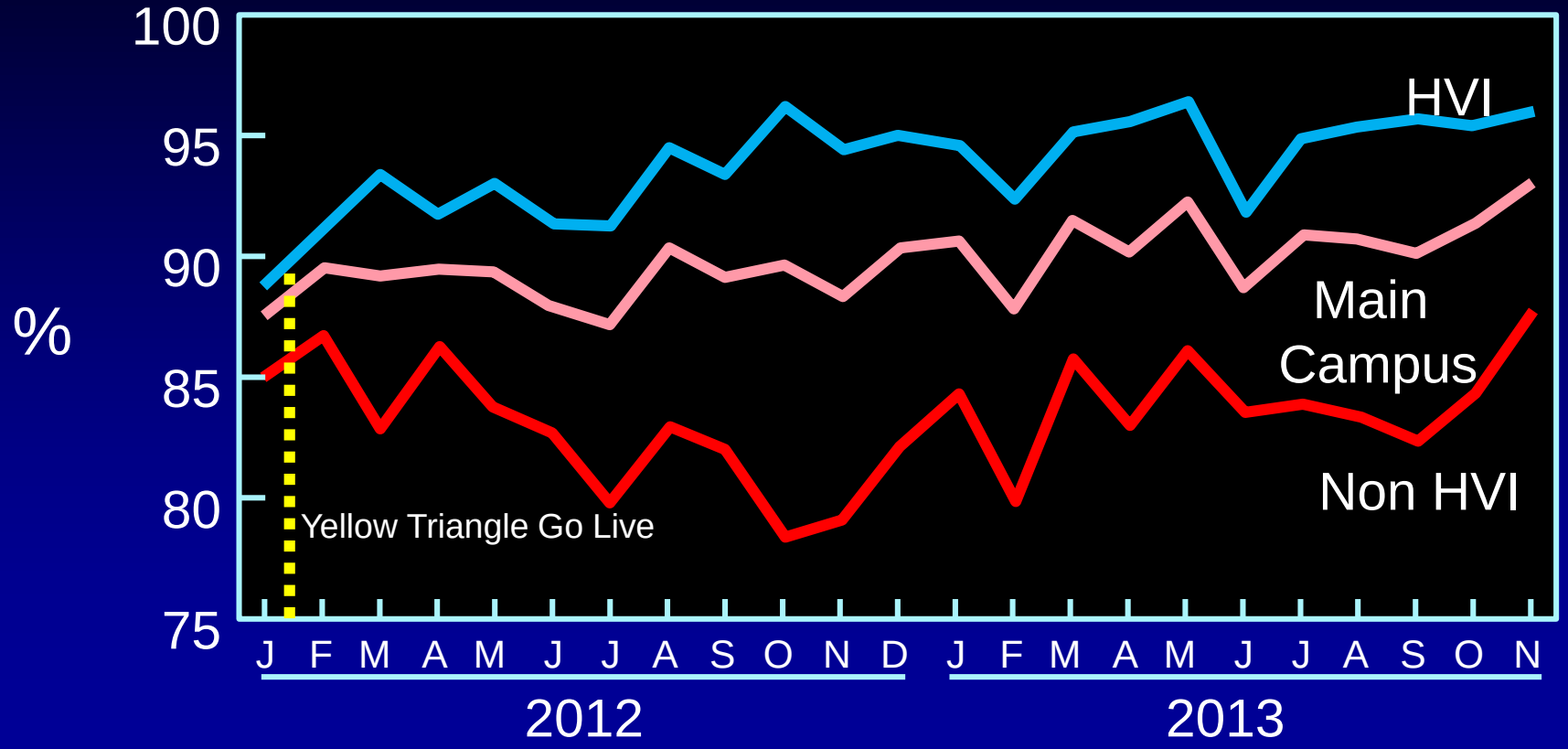
CONTRAINDICATION | Search | Browse (F4) | Preference List (F5) | Facility List (F6) | Database Lookup (F7)

☑ Medications ☑ Procedures ☑ Order Panels ☐ Split

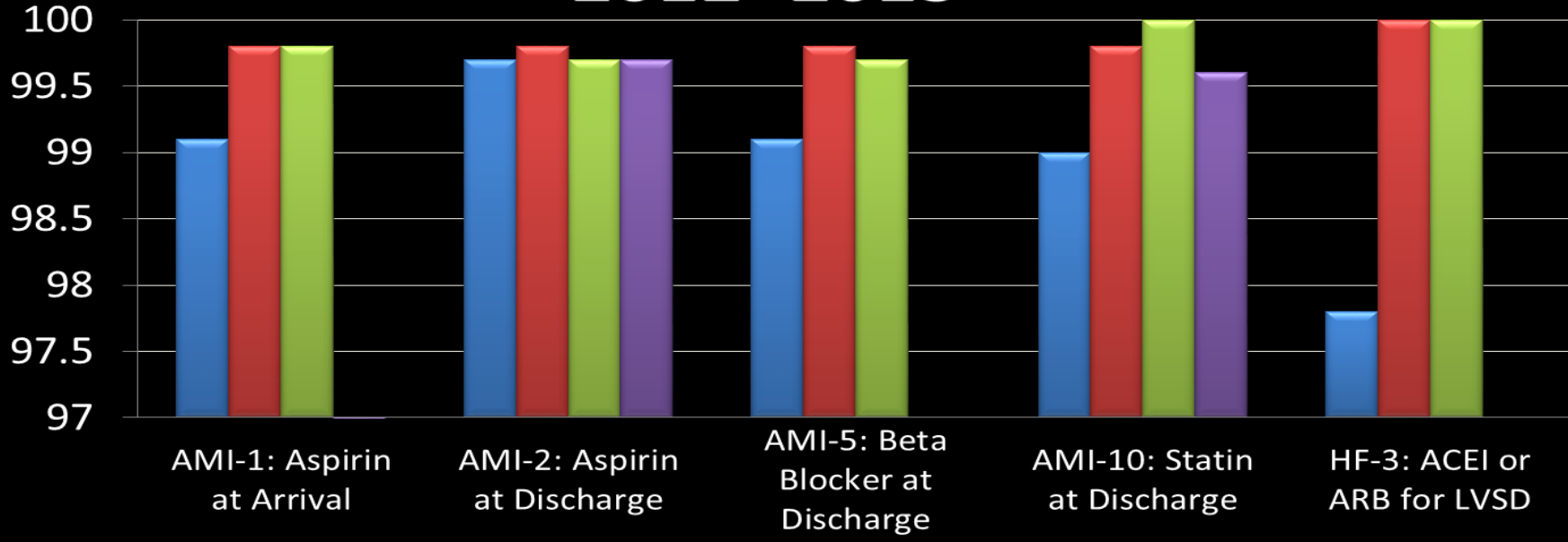
Name	Frequency	Code	Type	Pref List
CONTRAINDICATIONS TO ACE INHIBITOR AND ARB		4002392	GENERAL INF	CCF IP MC FACILITY PROCE
CONTRAINDICATIONS TO ASPIRIN		4002605	GENERAL INF	CCF IP MC FACILITY PROCE
CONTRAINDICATIONS TO BETA BLOCKERS		4002606	GENERAL INF	CCF IP MC FACILITY PROCE
CONTRAINDICATIONS TO STATINS		4116048	GENERAL INF	CCF IP MC FACILITY PROCE

HVI Quality Measures
Yellow Triangle

All Locations Quality Measures
Yellow Triangle



AMI & HF Core Measures 2012- 2015



	AMI-1: Aspirin at Arrival	AMI-2: Aspirin at Discharge	AMI-5: Beta Blocker at Discharge	AMI-10: Statin at Discharge	HF-3: ACEI or ARB for LVSD
2012	99.1	99.7	99.1	99	97.8
2013	99.8	99.8	99.8	99.8	100
2014	99.8	99.7	99.7	100	100
2015	0	99.7		99.6	

ASA at arrival, BB at discharge and ACE/ARB for LVSD is no longer a trackable core meaure for The Joint Commission.

When is the patient scheduled for follow up?

Goals of Follow Up Appointment

- Follow Up Appointment Scheduling Starts At Admission
- All Patients Discharged With Scheduled Appointments

HVI Follow Up Appointment Order

FOLLOW UP APPOINTMENT - HVI

Accept | Cance

Priority: Routine | Routine

Reason/Diagnosis for follow up: MI | Open Heart | Heart Failure | Arrhythmia | Other-Specify in comments

Schedule follow up appointment with physician within: 14-30 days

Schedule Follow-Up Appointment with (Last Name, First Name):

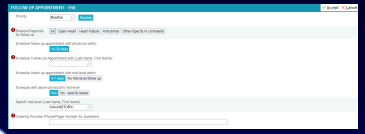
Schedule follow up appointment with mid-level within: 4-7 days | No Mid-level follow up

Schedule with above physician's mid-level: Yes | No - specify below

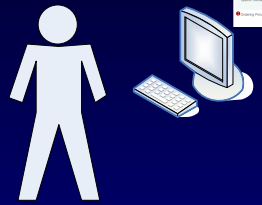
Specifc mid-level (Last Name, First Name): N/A (HISTORY)

Ordering Provider iPhone/Pager Number for Questions

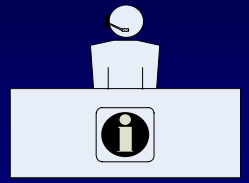
Follow Up Order Communication



Order Routed to Scheduling Pool



Physician Places Order



HVI Scheduling

Text Page Routed to Physician

CCF PAGER Follow up appointment for patient Johnson scheduled 05/27/15 at 2:15 pm

Patient Communication

Future Appointments

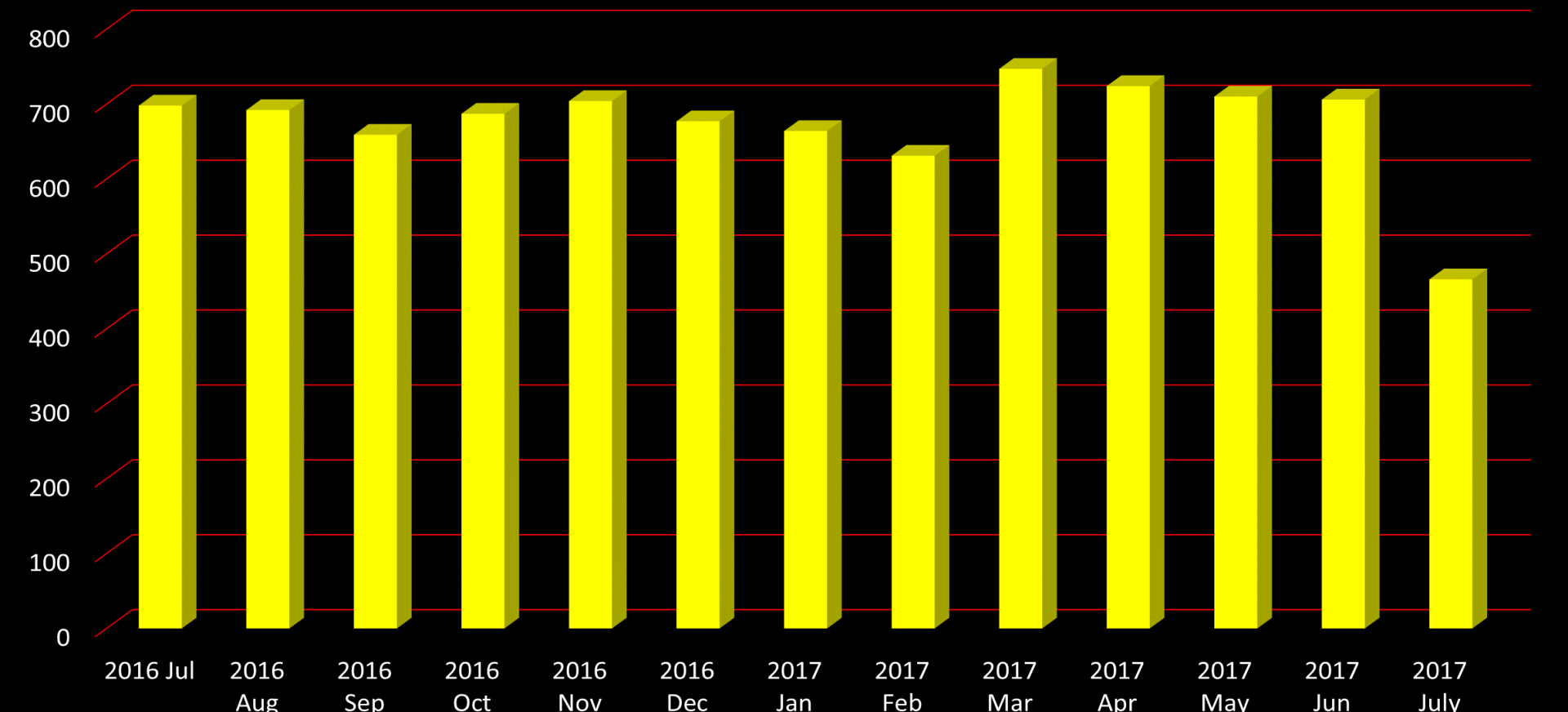
5/6/2015	12:30 PM	Lbj1-4 Main	LBJ1-4	CARD J BLD
5/6/2015	1:00 PM	Tracey D (Pa) Matejka	CARD CHF MAI	CARD J BLD
5/27/2015	12:30 PM	Lab A15 Main	LB15	Mn Ancil
5/27/2015	12:40 PM	Echo A17 Card Main	CFLAMN	CARD A Bldg
5/27/2015	2:15 PM	James B Young	CARD CHF MAI	CARD J BLD

5/27/2015 2:15 PM James B Young CARD CHF MAI CARD J BLD

- Scheduled appointment information included on Discharge Summary

Follow Up Appointment Order

Order Count - All HVI Services



Foundational Initiatives

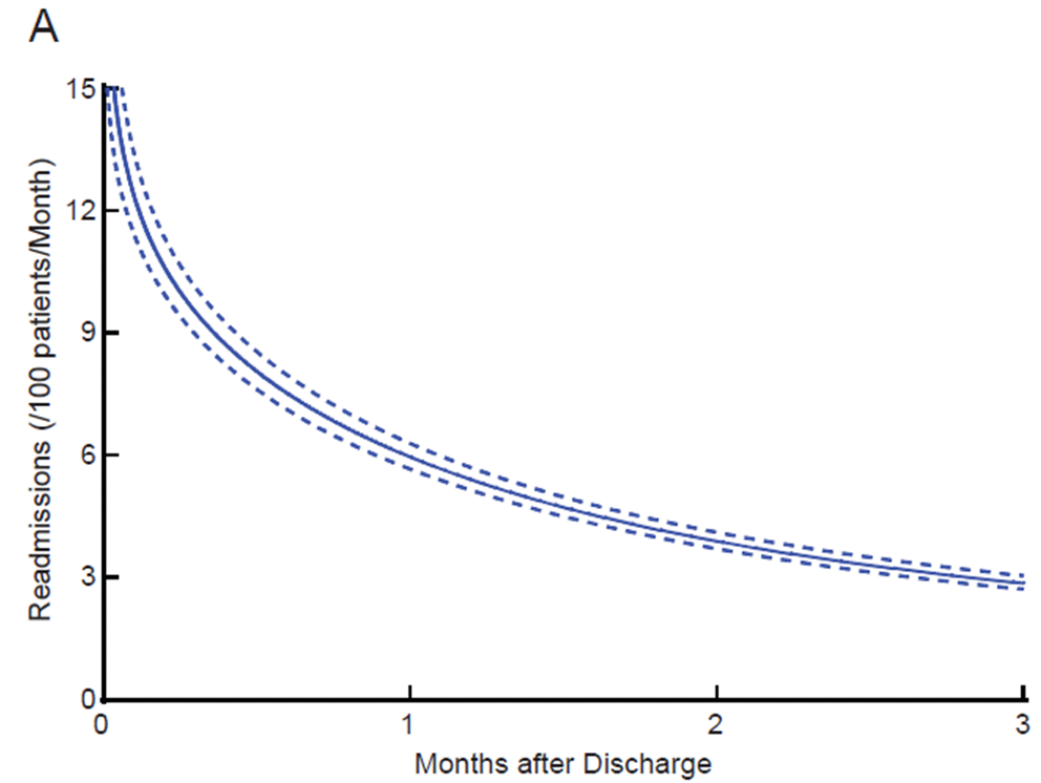
- Integration of:
  - Epic Banner
  - Data Attribution
  - Problem List
  - Standardized Documentation
  - Follow Up Appointment Order

1 Foundational

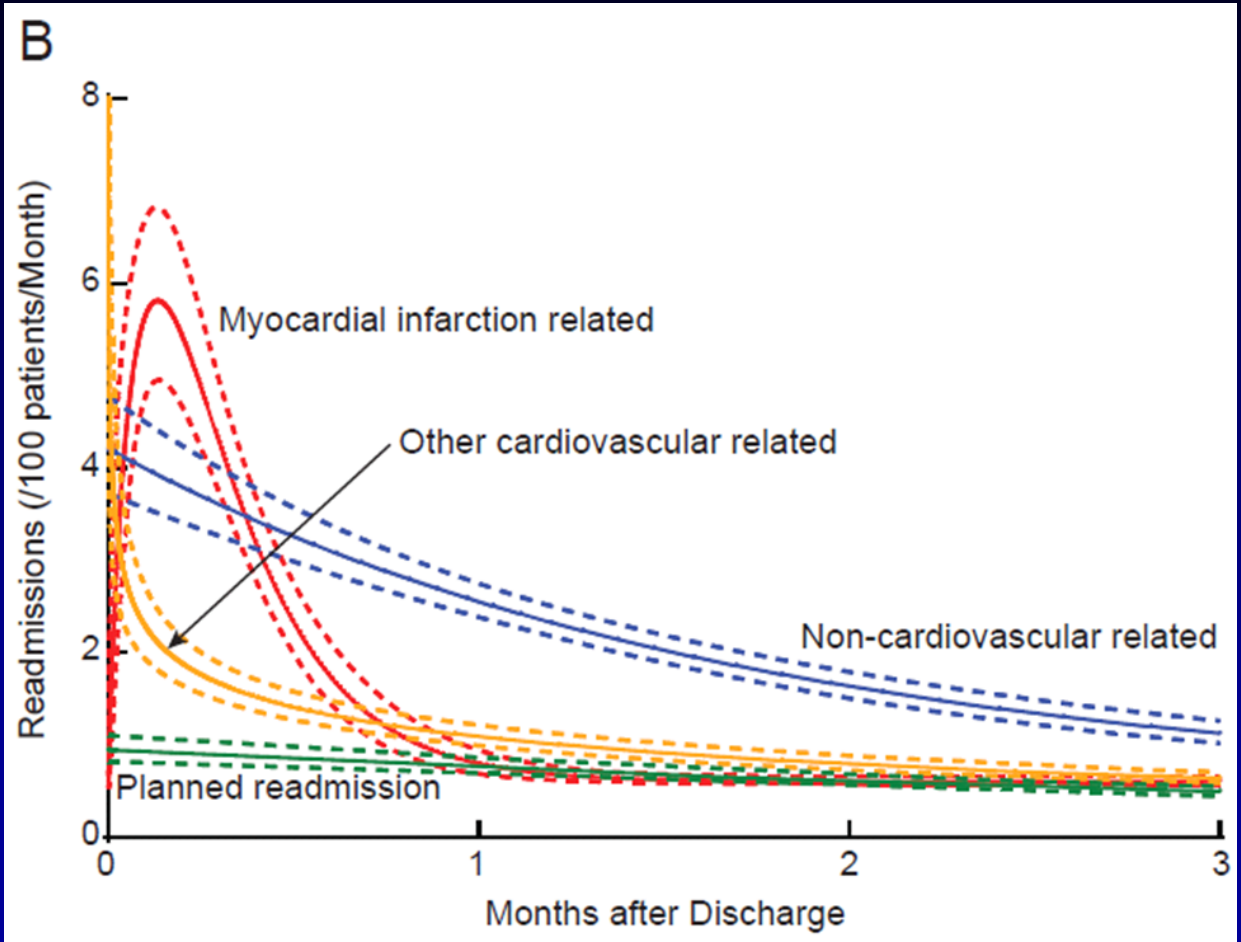
Scope of the Problem

- Readmissions Named Highest Enterprise Priority
- Readmissions Project Fails To Reduce Main Campus Readmissions
- 2012 Enterprise $2 Million CMS Penalty
- HVI Requested To Take Greater Involvement And Leadership
- HVI Proposed Discharge Checklist

Risk of Readmission after Myocardial Infarction (MI)



Risk of Readmission All Cause



HVI Data

- Preventable Readmissions Occur Early
- More Outpatient Followup = More Readmissions
- Discharge Followup Phone Calls = No Impact
- Telemonitoring = No Impact
- Hypothesis: “Defect” Is In-hospital Or In Transition At Discharge
- HVI Proposes Discharge Checklist And In-hospital Care Metrics

Discharge Checklist Pilot

J72 Heart Failure Discharge Checklist PILOT

Sticker

Admission Date: _____

Nursing	Date / Initials
? Care Partner Identified	
? Nursing HF Education with Booklet	
?Disease Education	
?Daily Weights (patient calendar)	
?Activity level	
?I & Os	
?Low Sodium Diet	
?Fluid Restriction	
?Medications	
- Hand-outs given	
- Initial Introduction	
- Reinforcement	
- Teach Back	
? Survival Skills Class/EMMI TV Education (Course 560)	
Multidisciplinary Consults	**Date / Initials**
? Transitional Coach Consult	
? age >65 years	
? if needed, consult for high risk	
? Seen by Transitional Coach	
? If identified on Nursing Assessment: Nutrition consult placed	
? If Nutrition consult not needed: Place Nutrition Screen	
? Seen by Nutrition	
? Pharmacy Education Consult placed for patients admitted w/ primary diagnosis heart failure	
? EXCEPT post-CTS patient	
? Seen by Pharmacy	
Physicians/Nurse Practitioners	**Date / Initials**
? Order for social support services/home care services/Heart Care at Home, if indicated	
? Near optimal pharmacologic therapy initiated or achieved and any intolerances documented	
? No symptomatic supine or standing hypotension (Orthostatic BPs require order)	
? " Dry Weight" established and patient/caregiver informed of this goal	
? Near optimal volume status achieved	
? Stable renal function and acceptable electrolyte panel	
? Core Measure Status Completed: Yellow Triangles Cleared	
? Discharge medication reconciliation completed	
MD/NP: PLEASE **LIST PROVIDER** PATIENT IS TO FOLLOW UP WITH (below and on blue appt. she	
Identify Primary Care Physician - Name _____	
7 Day LIP Appt/30 Day Cardiology MD Appt **BLUE APPT. SHEET COMPLETED**	
7 Day LIP Appt/30 Day Cardiology MD Appt SCHEDULED (per HUC)	
Case Management	**Date / Initials**
? Discharge Needs identified	
? Home Care visit offered	
? Final post-discharge arrangements made	

Methods

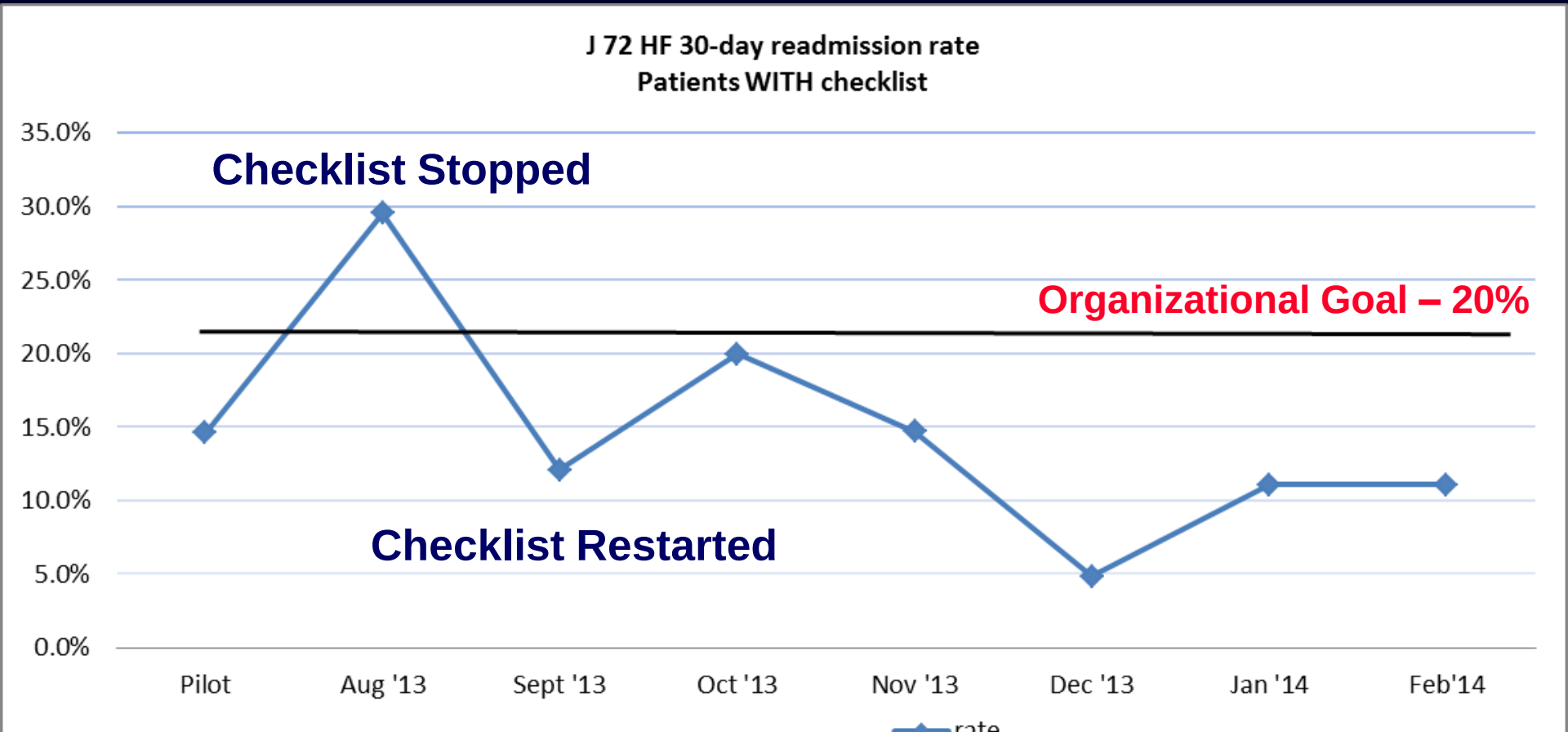
- Paper-Based Checklist
- Heart Failure Patients On Heart Failure A & B Service
- Expected 12 Week Design
- Intention-To-Treat Analysis
- Concurrent And Historical Controls

30 Day Readmission Rates

Target Group	2013 n	2013 Rate	2012 n	2012 Rate
Total 1° dx. HF admissions Main Campus	358		339	
number 30 day readmission	67	18.7%	83	24.5%
Total 1° dx. HF admissions HVI	273		242	
number 30 day readmission	48	17.6%	55	22.7%
Total 1 ° dx. HF admissions J7-2 (with and without DC checklist)	145		107	
number 30 day readmission	29	20.0%	27	25.2%
Total 1° dx. HF admissions J7-2 not included in the Pilot (NO checklist)	77		48	
number 30 day readmission	17	22.1%	12	25.0%
Total 1° & 2° dx. HF admissions J7-2 included in the Pilot (checklist used)	82		68	
number 30 day readmission	12	14.6%	18	26.5%

Source: Outcomes Readmissions System, Business Intelligence

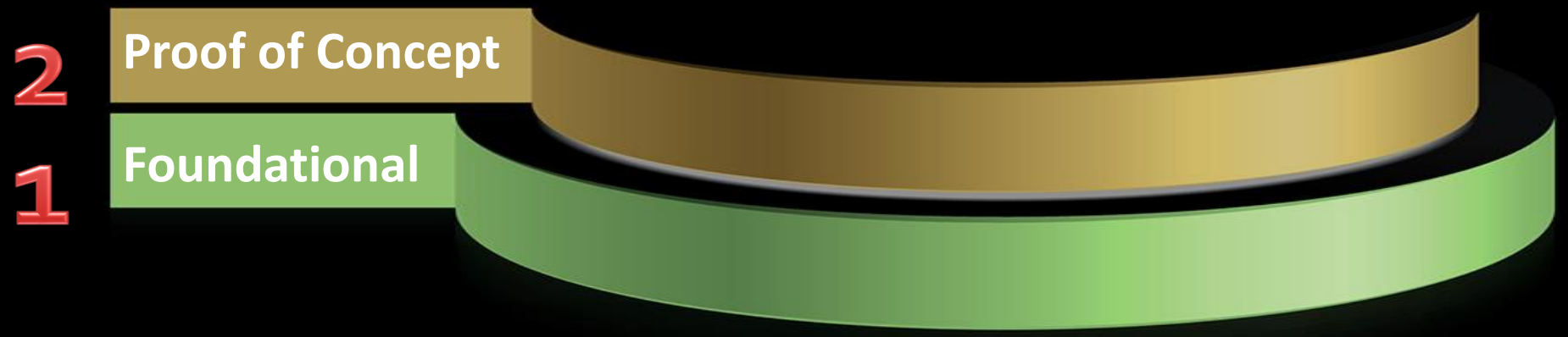
Subsequent Longitudinal Results



Paper HF Checklist

Pilot Issues

- Paper-based Checklist
- Manually Intensive
- Limited Reporting Capabilities
- Could Not Scale Paper Process To Other Areas


2
Proof of Concept
1
Foundational

Transition From Paper To Electronic

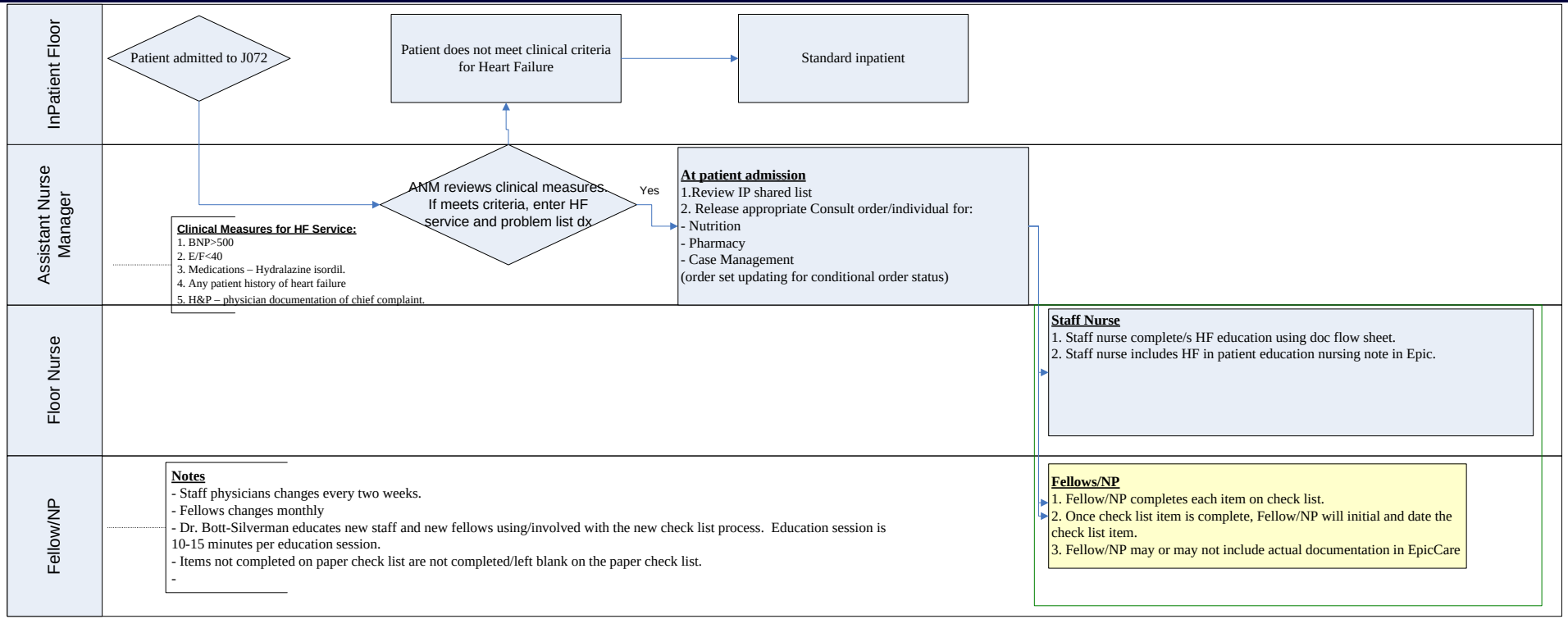
Not So Simple

Paper Check List Workflow

1. Show The Paper Checklist
2. Locate Paper Checklist In Room
3. Update Paper Checklist In The Patient’s Room
4. Display Paper Checklist In The Patient’s Room

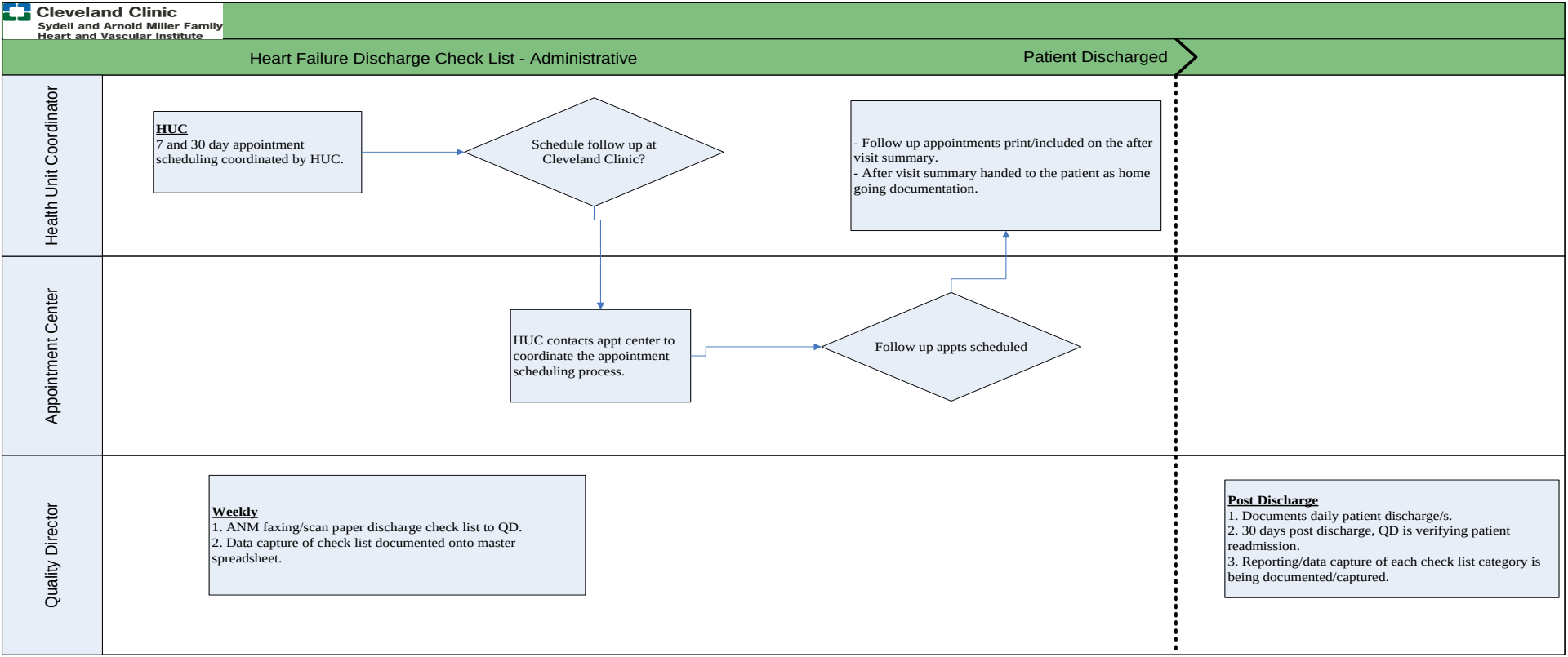
Checklist Workflow

Define Clinical Workflow



Checklist Workflow

Define Shared Medical Appointments



Transition from Paper to Electronic

Planning and Design

Transition Requirements

- Governance Structure For Electronic Checklist
- Funding For Contracted Resources
- Identifying The Key Roles On The Paper Check List And Where The Documentation Will Be Completed In The Electronic Medical Record
- Define Electronic Documentation Clinical Workflow

HF Check List Governance

Cleveland Clinic Executive Team

Clinical Leadership

Khot/Bott-Silverman/Starling/Pengel/Svensson

Multi-Disciplinary Working Team

- Nursing
- Quality
- I.T.
- Nutrition
- Pharmacy
- Care Management

Identifying the Who

Nursing Activities

Nursing
? Care Partner Identified
? Nursing HF Education with Booklet
?Disease Education
?Daily Weights (patient calendar)
?Activity level
?I & Os
?Low Sodium Diet
?Fluid Restriction
?Medications
- Hand-outs given
- Initial Introduction
- Reinforcement
- Teach Back
? Survival Skills Class/EMMI TV Education (Course 560)

rtner identified
HF Education with Booklet
e Education
/eights (patient calendar)
level
?I & Os
?Low Sodium Diet
?Fluid Restriction
?Medications
- Hand-outs given
- Initial Introduction
- Reinforcement
- Teach Back
? Survival Skills Class/EMMI TV Education (Course 560)

ing

s

MR

es

Example – Nursing Documentation

Paper

Nursing
? Care Partner Identified
? Nursing HF Education with Booklet
?Disease Education
?Daily Weights (patient calendar)
?Activity level
?I & Os
?Low Sodium Diet
?Fluid Restriction
?Medications
- Hand-outs given
- Initial Introduction
- Reinforcement
- Teach Back
? Survival Skills Class/EMMI TV Education (Course 560)

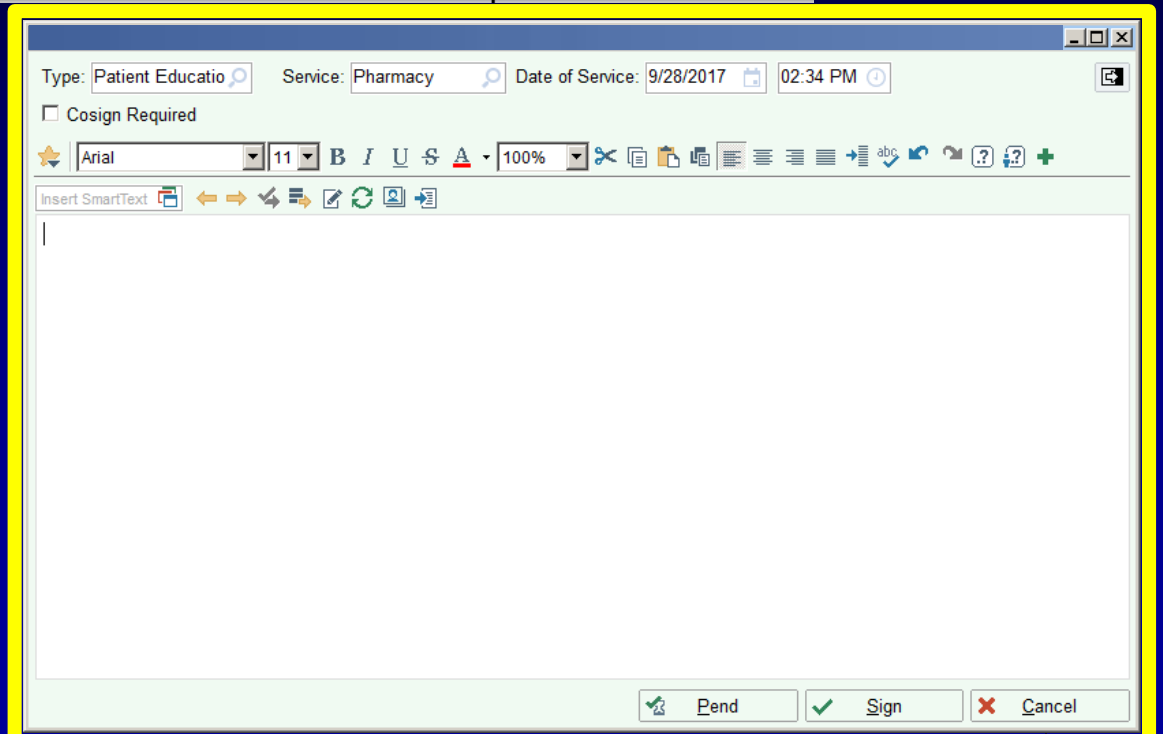
Discrete Data Capture Of Nursing Documentation In The Patient Chart

Example – Pharmacy Documentation

Paper

? Pharmacy Education Consult placed for patients admitted w/ primary diagnosis heart failure	
? EXCEPT post-CTS patient	
? Seen by Pharmacy	

Discrete Data Capture Of Pharmacy Documentation In The Patient Chart



Example – Care Management Documentation

Paper

Case Management
? Discharge Needs identified
? Home Care visit offered
? Final post-discharge arrangements made

Discrete Data Capture Of Care Management Documentation In The Patient Chart

Example – Physician Documentation

Paper

Physicians/Nurse Practitioners	Date / Initials
? Order for social support services/home care services/Heart Care at Home, if indicated	
? Near optimal pharmacologic therapy initiated or achieved and any intolerances documented	
? No symptomatic supine or standing hypotension (Orthostatic BPs require order)	
? " Dry Weight" established and patient/caregiver informed of this goal	
? Near optimal volume status achieved	
? Stable renal function and acceptable electrolyte panel	
? Core Measure Status Completed: Yellow Triangles Cleared	
? Discharge medication reconciliation completed	
MD/NP: PLEASE **LIST PROVIDER** PATIENT IS TO FOLLOW UP WITH (below and on blue appt. she	
Identify Primary Care Physician - Name _____	
7 Day LIP Appt/30 Day Cardiology MD Appt **BLUE APPT. SHEET COMPLETED**	
7 Day LIP Appt/30 Day Cardiology MD Appt SCHEDULED (per HUC)	

Discrete Data Capture Of Physician Documentation In The Patient Chart

HF D/C Checklist

Heart Failure Discharge Checklist

Near optimal pharmacologic therapy initiated or achieved and any intolerances doumented?	☐ Yes
No symptomatic supine or standing hypotension (Orthostatic BPs require order)?	☐ Yes
"Dry Weight" established and patient/caregiver informed of this goal?	☐ Yes
Near optimal volume status achieved?	☐ Yes
Stable renal function and acceptable electrolyte panel?	☐ Yes
Patient to have Follow Up Appointment with (select one)	CCHS Physician / Outside CCHS Physician

Electronic Unified Documentation

- Multi-disciplinary, Multiuser
  - Physician
  - Nursing
  - Nutrition
  - Pharmacy
  - Care Management
- Check List Report Updates <u>Immediately</u> As Items Are Completed

Multi User/Multi Disciplinary

Nursing Documentation

Physician Documentation

Pharmacy Documentation

Care Management Documentation

Nutrition Documentation

Congestive Heart Failure Discharge Checklist

Sex
Male

08/22/17 1148 NUTRITION CONSULT [1035566599] ONCE
Comments: CHF

ATION

[1035566600] ONCE

lerances docu
uire order)?

Post Discharge Arrangements Finalized?

Med Reconciliation Status
Med Rec complete Yes

Quality Metrics
Ace ARB?
ASA Extended?
ASA Within 24 hours?
Beta Blocker Extended?
Statin Extended?

Discharge Follow up Order
Start
08/24/17 0730 FOLLOW UP APPOINTMENT - HVI [1036260308] ONCE

Real Time Check List Report

Congestive Heart Failure Discharge Checklist

Patient Info

Sex	DOB
Male	01/29/1945

Nursing Patient Education

Heart Failure	Done

Nutrition Consult Order

Ordered		Start
08/22/17 1148	NUTRITION CONSULT [1035566599] ONCE Comments: CHF Question: Consult Type Answer: DIET EDUCATION	08/22/17 1200

Nutrition Education Note Completed?

Signed

Pharmacy Consult Order

Start		Ordered
08/22/17 1200	PHARMACY HEART FAILURE EDUCATION [1035566600] ONCE	08/22/17 1148

Pharmacy Education Note Completed?

Signed

Heart Failure D/C Checklist Form - Provider

Near optimal pharmacologic therapy initiated or achieved and any intolerances documented?	Yes
No symptomatic supine or standing hypotension (Orthostatic BPs require order)?	Yes
Dry Weight established and patient/caregiver informed of this goal?	Yes
Near optimal volume status achieved?	Yes
Stable renal function and acceptable electrolyte panel?	Yes
Patient to have Follow Up Appointment with?	CCHS Physician

Heart Failure D/C Checklist Form - Care Coordination

Post Discharge Arrangements Finalized?	Home with no post-acute needs

Med Reconciliation Status

Med Rec complete	Yes

Quality Metrics

Ace ARB?	ARB Allergy/Contra Only & Contraindication Order
ASA Extended?	aspirin 81 mg chewable tab(s)
ASA Within 24 hours?	Y
Beta Blocker Extended?	metoprolol succinate ER 25 mg tab(s) (TOPROL XL)
Statin Extended?	Allergy/Contra

Discharge Follow up Order Expand

Start		Ordered
08/24/17 0730	FOLLOW UP APPOINTMENT - HVI [1036260308] ONCE Comments: Please change Dr Raymond and D...	08/24/17 0717

Nursing

Nutrition

Pharmacy

Care Management

Real Time Check List Report

Congestive Heart Failure Discharge Checklist

Patient Info

Sex	DOB
Male	01/29/1945

Nursing Patient Education

Heart Failure	Done

Nutrition Consult Order

Ordered		Start
08/22/17 1148	NUTRITION CONSULT [1035566599] ONCE Comments: CHF Question: Consult Type Answer: DIET EDUCATION	08/22/17 1200

Nutrition Education Note Completed?

Signed

Pharmacy Consult Order

Start		Ordered
08/22/17 1200	PHARMACY HEART FAILURE EDUCATION [1035566600] ONCE	08/22/17 1148

Pharmacy Education Note Completed?

Signed

Heart Failure D/C Checklist Form - Provider

Near optimal pharmacologic therapy initiated or achieved and any intolerances documented?	Yes
No symptomatic supine or standing hypotension (Orthostatic BPs require order)?	Yes
Dry Weight established and patient/caregiver informed of this goal?	Yes
Near optimal volume status achieved?	Yes
Stable renal function and acceptable electrolyte panel?	Yes
Patient to have Follow Up Appointment with?	CCHS Physician

Physician

Heart Failure D/C Checklist Form - Care Coordination

Post Discharge Arrangements Finalized?	Home with no post-acute needs

Med Reconciliation Status

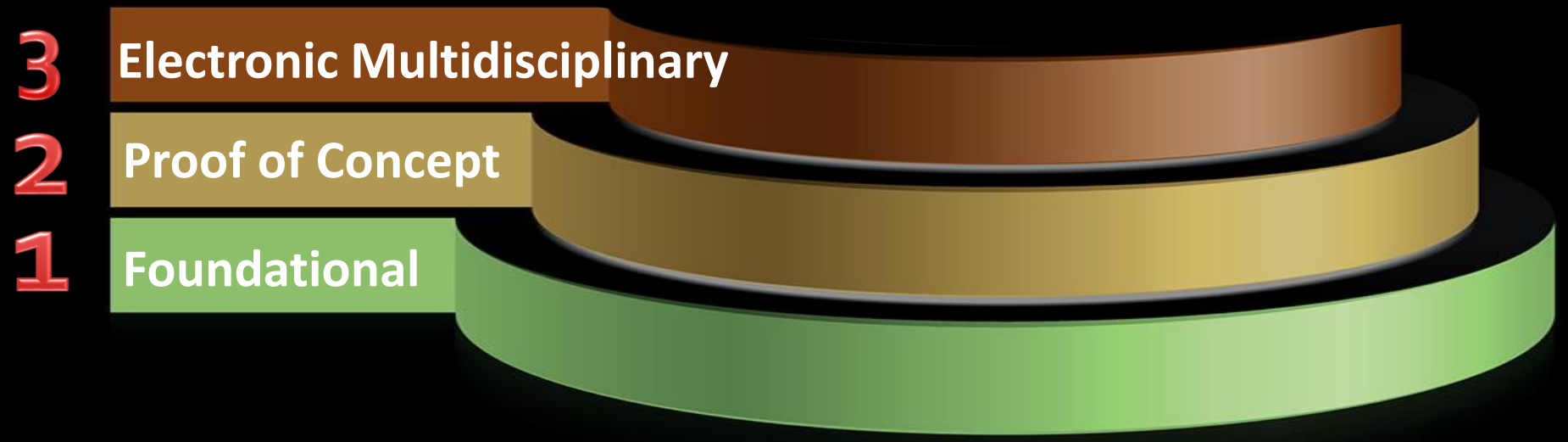
Med Rec complete	Yes

Quality Metrics

Ace ARB?	ARB Allergy/Contra Only & Contraindication Order
ASA Extended?	aspirin 81 mg chewable tab(s)
ASA Within 24 hours?	Y
Beta Blocker Extended?	metoprolol succinate ER 25 mg tab(s) (TOPROL XL)
Statin Extended?	Allergy/Contra

Discharge Follow up Order Expand

Start		Ordered
08/24/17 0730	FOLLOW UP APPOINTMENT - HVI [1036260308] ONCE Comments: Please change Dr Raymond and D...	08/24/17 0717


3
Electronic Multidisciplinary
2
Proof of Concept
1
Foundational

Challenge

Most Patients Admitted to Hospital Do Not Have Heart Failure

Multi level Inclusion Criteria

HVI Heart Failure B 29 Patients

1. Cardiology Service

2. Non-ICU Building Nursing Unit

D/C Checklist	HF DC Checklist	Bed	Patient		L	Peak Troponi	Aspirin Extende	Aspirin w/in 24 hrs	Beta Blocker Extende	Statin Extend	HF DX/PL
	Y	J7-2-20	44128	TAYLOR, D	—	0.06...	—				Y

3. Problem List Documented

Inclusion Criteria:

1. Cardiology Service
2. Non-ICU J Building Units
3. Problem List Dx of HF

Exclusion Criteria:

1. Patients Admitted with Observation Status

Technology Enablement

21 Units

J31 J32 J33 J51 J52 J53 J54 J55 J56 J61 J62 J63 J64 J65 J66 J71 J72 J73 J81 J82 J83

HF DC Check

List Patients Meet Criteria = 62

22 Services

Heart Failure A
Heart Failure B
Clinical Card A
Clinical Card B
EP
Midlevel
Intervention
Imaging
ICU
CTS Team A - E
Vasc Surg Blue
Vasc Surg Black
Vasc Surg Green

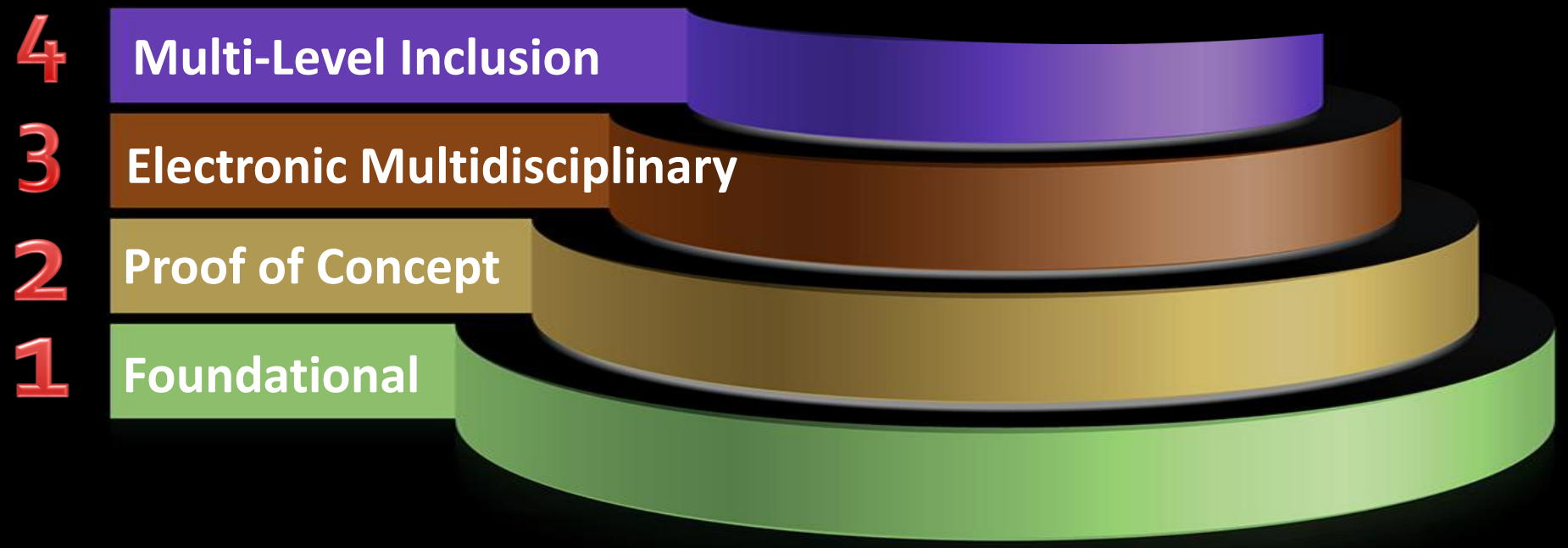
Diagnosis - Thousands

AMI
AFIB
Open Heart
Thoracic
Heart Failure
Vascular

Exclusion Criteria

Census =344

Patients admitted with Observation Status


4
Multi-Level Inclusion
3
Electronic Multidisciplinary
2
Proof of Concept
1
Foundational

Real Time Check List and Visualization

Cardiovascular Medicine - Central 269 Patients

Refreshed 1 minute ago | Search All My Lists

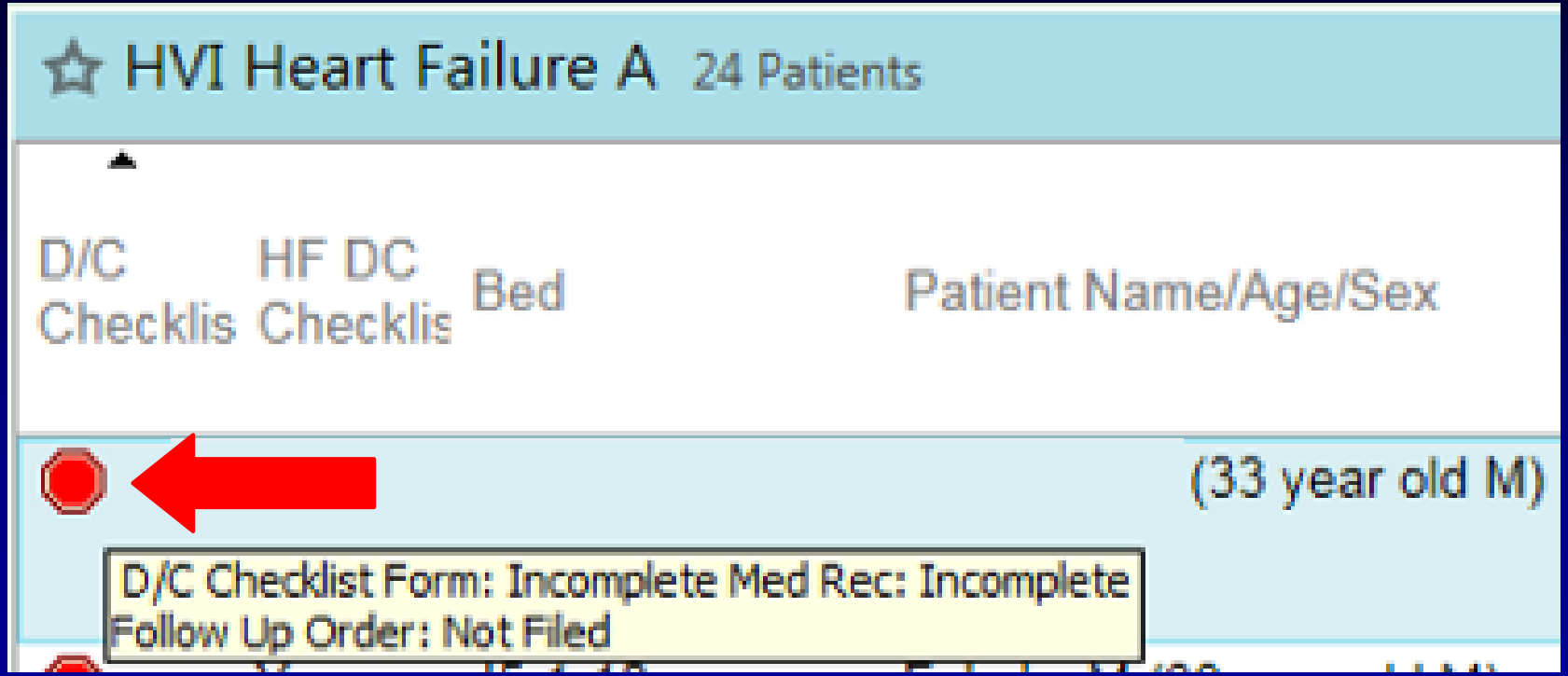
D/C Checklist	HF DC Checklist	Bed	Patient Name/Age/Sex	ZIP Code	MRN	Attend Prov	AMI DX/PL	Peak Troponi	Aspirin Extended	Aspirin w/in 24 hrs	Beta Blocker Extended	Statin Extended	HF DX/PL	LVEF %	ACE/ARB Extended	Expect Discha
Discharge Checklist Complete		J7-3-02	old F) (97 year	44123		KRISHNA... A	—	0.015 ng/mL	aspirin 81 mg chewable tab (s)	N	—	Heart Failure Documented On problem list	Y	54 % at 07/21/16 0844	ACE Allergy/Contra Only	—
Discharge Checklist not Complete		J7-2-20	old M) (84 year	44128		TAYLOR, D	—	0.060 ng/mL	—	N	—		Y	45 % at 07/21/16 1411	lisinopril 10 mg tab(s) (ZESTRIL, PRINIVIL)	—

D/C Checklist **column provides current status of checklist items**

Discharge Checklist complete

Discharge Checklist **not** complete

Real Time Check List and Visualization



Hover over red stop sign shows which check list items are not complete.

Documentation Compliance

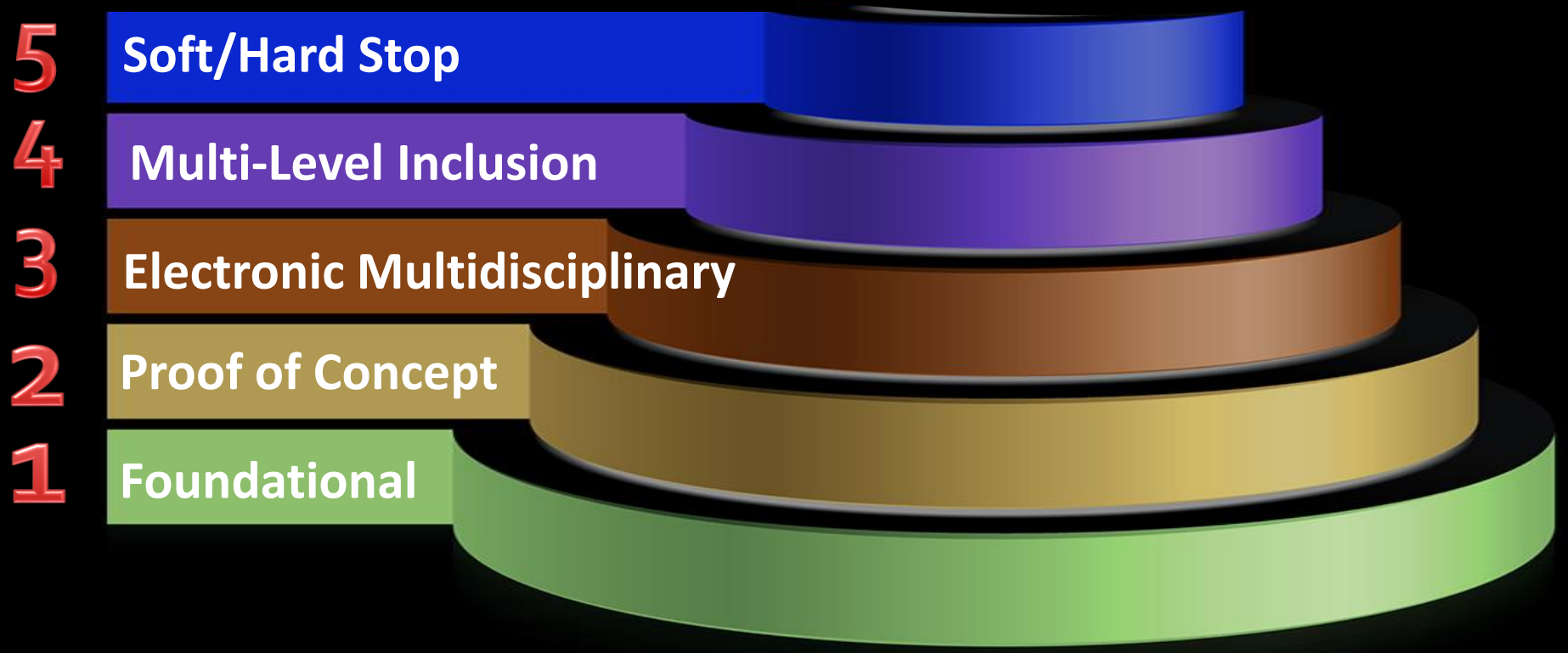
- Electronic Soft Stop
  - Temporary
  - Can Bypass Check List Logic
- Electronic Hard Stop (05/13/14)
  - Force Check List Compliance
  - Cannot Write DC Order

Electronic Soft Stop

Electronic Soft Stop – Order can be bypassed

Electronic Hard Stop

Electronic Hard Stop – Order <u>cannot</u> be bypassed


5
Soft/Hard Stop
4
Multi-Level Inclusion
3
Electronic Multidisciplinary
2
Proof of Concept
1
Foundational

Discharge Checklist
Development Arc

HVI Full Go-Live	November 1, 2014
J72 Pilot Initiation	May 7, 2014
Final Technical Build	April 9, 2014
Initial Technical Build	April 4, 2014
Project Initiation	February 25, 2014
HVI Case for Change	January 10, 2014
Governance Presentation	September 11, 2013

Check List Evolution

Paper to Electronic

J72 Heart Failure Discharge Checklist PILOT

Sticker

Admission Date: _____

Nursing	Date / Initials
? Care Partner Identified	
? Nursing HF Education with Booklet	
?Disease Education	
?Daily Weights (patient calendar)	
?Activity level	
?I & Os	
?Low Sodium Diet	
?Fluid Restriction	
?Medications	
– Hand-outs given	
– Initial Introduction	
– Reinforcement	
– Teach Back	
? Survival Skills Class/EMMI TV Education (Course 560)	
Multidisciplinary Consults	**Date / Initials**
? Transitional Coach Consult	
? age >65 years	
? if needed, consult for high risk	
? Seen by Transitional Coach	
? If identified on Nursing Assessment Nutrition consult placed	
? If Nutrition consult not needed: Place Nutrition Screen	
? Seen by Nutrition	
? Pharmacy Education Consult placed for patients admitted w/ primary diagnosis heart failure	
? EXCEPT post-CTS patient	
? Seen by Pharmacy	
Physicians/Nurse Practitioners	**Date / Initials**
? Order for social support services/home care services/Heart Care at Home, if indicated	
? Near optimal pharmacologic therapy initiated or achieved and any intolerances documented	
? No symptomatic supine or standing hypotension (Orthostatic BPs require order)	
? " Dry Weight" established and patient/caregiver informed of this goal	
? Near optimal volume status achieved	
? Stable renal function and acceptable electrolyte panel	
? Core Measure Status Completed: Yellow Triangles Cleared	
? Discharge medication reconciliation completed	

MD/NP: PLEASE **LIST PROVIDER** PATIENT IS TO FOLLOW UP WITH (below and on blue appt. she

Identify Primary Care Physician – Name

7 Day LIP Appt/30 Day Cardiology MD Appt **BLUE APPT. SHEET COMPLETED**
7 Day LIP Appt/30 Day Cardiology MD Appt SCHEDULED (per HUC)

Case Management	Date / Initials
? Discharge Needs identified	
? Home Care visit offered	
? Final post-discharge arrangements made	

Congestive Heart Failure Discharge Checklist

Patient Info

Sex: Male — DOB: 01/29/1945

Nursing Patient Education

Heart Failure — Done

Nutrition Consult Order

Ordered: 08/22/17 1148 — **NUTRITION CONSULT** [1035566599] ONCE — Start: 08/22/17 1200
Comments: CHF
Question: Consult Type Answer: DIET EDUCATION

Nutrition Education Note Completed?

Signed

Pharmacy Consult Order

Start: 08/22/17 1200 — **PHARMACY HEART FAILURE EDUCATION** [1035566600] ONCE — Ordered: 08/22/17 1148

Pharmacy Education Note Completed?

Signed

Heart Failure D/C Checklist Form - Provider

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Heart Failure D/C Checklist Form - Care Coordination

Post Discharge Arrangements Finalized?	Home with no post-acute needs

Med Reconciliation Status

Med Rec complete	Yes

Quality Metrics

Ace ARB?	ARB Allergy/Contra Only & Contraindication Order
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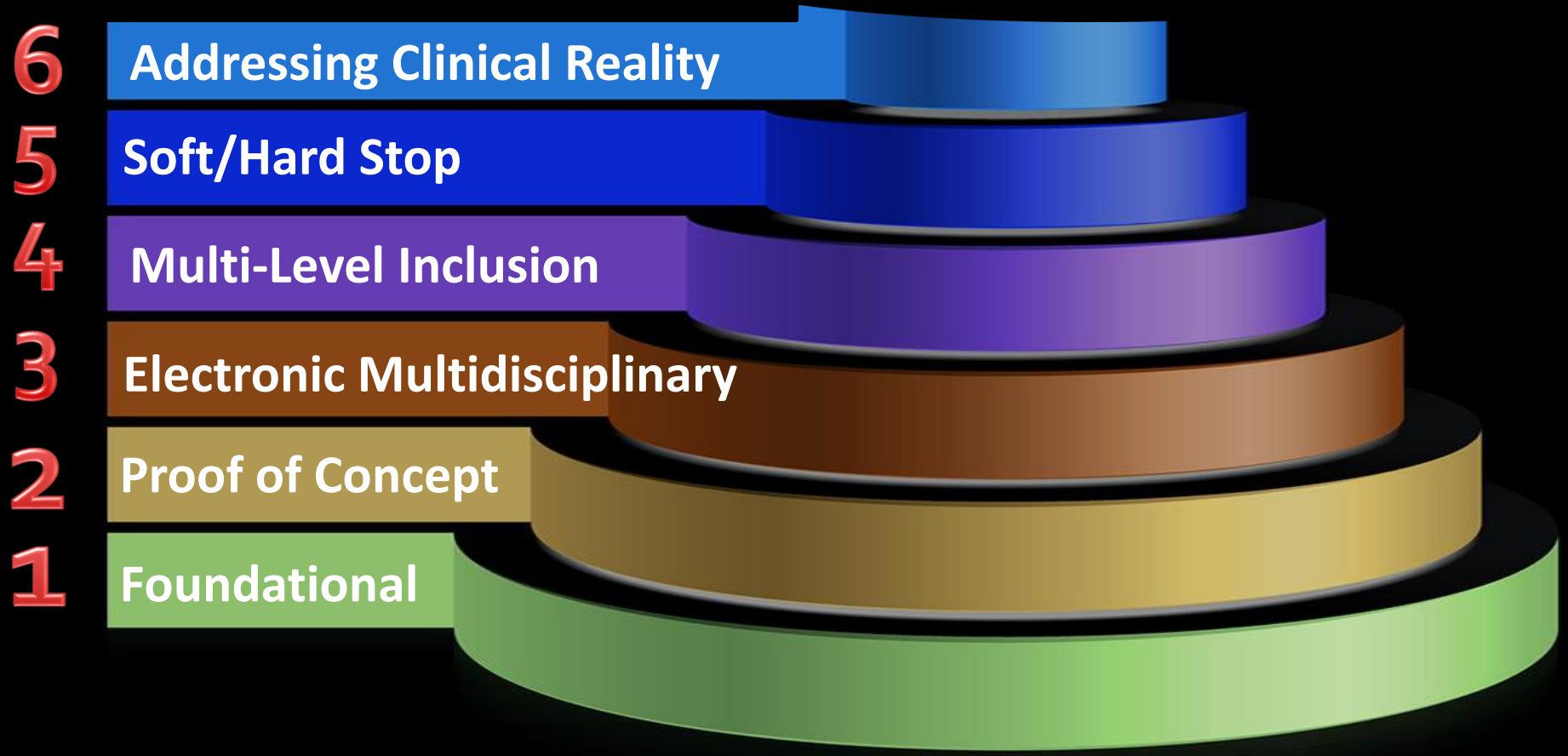
Statin Extended?	Allergy/Contra

Discharge Follow up Order — Expand

Start: 08/24/17 0730 — **FOLLOW UP APPOINTMENT - HVI** [1036260308] ONCE — Comments: Please change Dr Raymond and D... — Ordered: 08/24/17 0717


6
Addressing Clinical Reality
5
Soft/Hard Stop
4
Multi-Level Inclusion
3
Electronic Multidisciplinary
2
Proof of Concept
1
Foundational

Program Costs

Operational

Initial Implementation	
Development Hours	1,982
Contracted Resource Cost	$208,375
Optimization Efforts	
Development Hours	117
Contracted Resource Cost	$5,850
Total IT Cost	**$214,225**

Acknowledgements

Tim Sobol
Kathleen Kravitz
Colette Einloth
Anita Ullman
Cheryll Miller
Brent Hicks
Randall Starling, MD
Corrine Bott-Silverman, MD
Josalyn Meyer
Debbie Brosovich
Gary Kish
Joy Yuhas
Molly Loy
Bonnie Javurek
Mike Militello
Eric Sokn
Kate Sibila
Sue Gatchel

Technology Summary

Ten Information Technology Innovations

- ✓ Patient Banner
- ✓ Problem List
- ✓ Real Time Core Measures
- ✓ Multidisciplinary Documentation
- ✓ Multi Level Inclusion Criteria

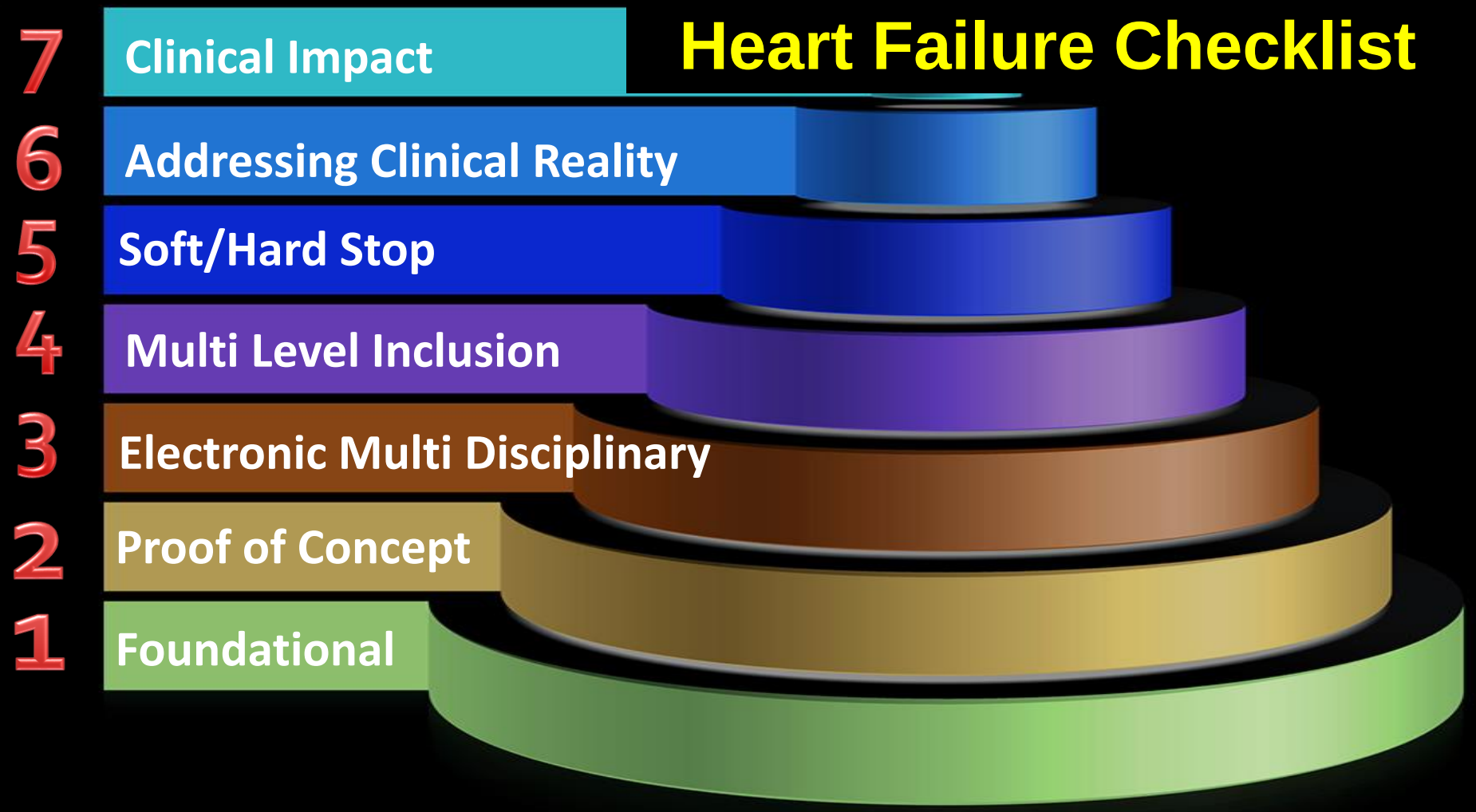
Ten Information Technology Innovations

- ✓ Follow Up Appointment
- ✓ Electronic Order Hard Stop
- ✓ Shared Medical Appointments
- ✓ Tableau Reporting
- ✓ Hover Over

Heart Failure Checklist

- ✓ Technical And Operational Success With 100% HVI Implementation
- ✓ Important Lesson: We Underappreciated The Importance Of Human/Technology Interface
- ✓ Reflects True Multidisciplinary Coordination Of Care
- ✓ Decrease In Readmissions Locally And Public Reporting

Heart Failure Checklist



Questions

Cleveland Clinic

- Speaker Contact Information
  - Umesh Khot – khotu@ccf.org
  - Kathleen Kravitz – kravitk@ccf.org
  - Tim Sobol – sobolt@ccf.org

- Please complete online session evaluation

Please use blank slide if more space is required for charts, graphs, etc.

To remove background graphics,
right click on selected slide,
choose “Format Background” and check
“Hide background graphics”.