UNIVERSITY of MARYLAND
UPPER CHESAPEAKE HEALTH

The 30 Day Readmit & Decreasing Hospital Length of Stay: Leveraging the DNP in Both a Clinical & Administrative Role

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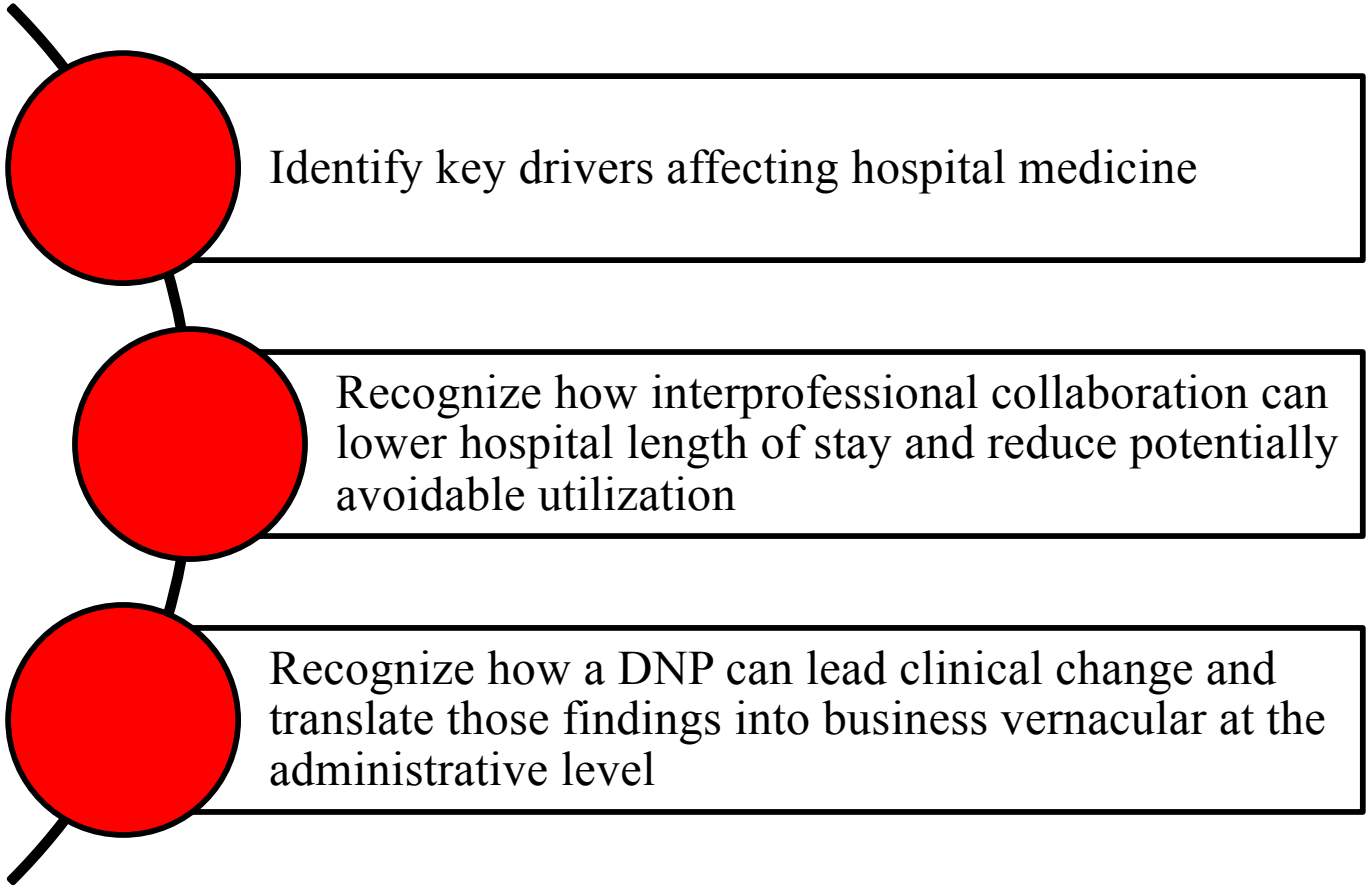
Objectives


Identify key drivers affecting hospital medicine
Recognize how interprofessional collaboration can lower hospital length of stay and reduce potentially avoidable utilization
Recognize how a DNP can lead clinical change and translate those findings into business vernacular at the administrative level

Observation Status & Lots of Questions

- Present in many hospitals
- May have clinical criteria for patient placement
- How long is “observation”?
- What if the patient needs to be converted to “inpatient”?
- Are the patients prioritized for ancillary testing & consulting services?
- What are the measures of success?

Observation

Observation is considered outpatient service & billed under Medicare Part B

Medicare Part B has a deductible and 80/20 cost sharing – applied to all services but does not cover pharmaceutical drugs used in the hospital

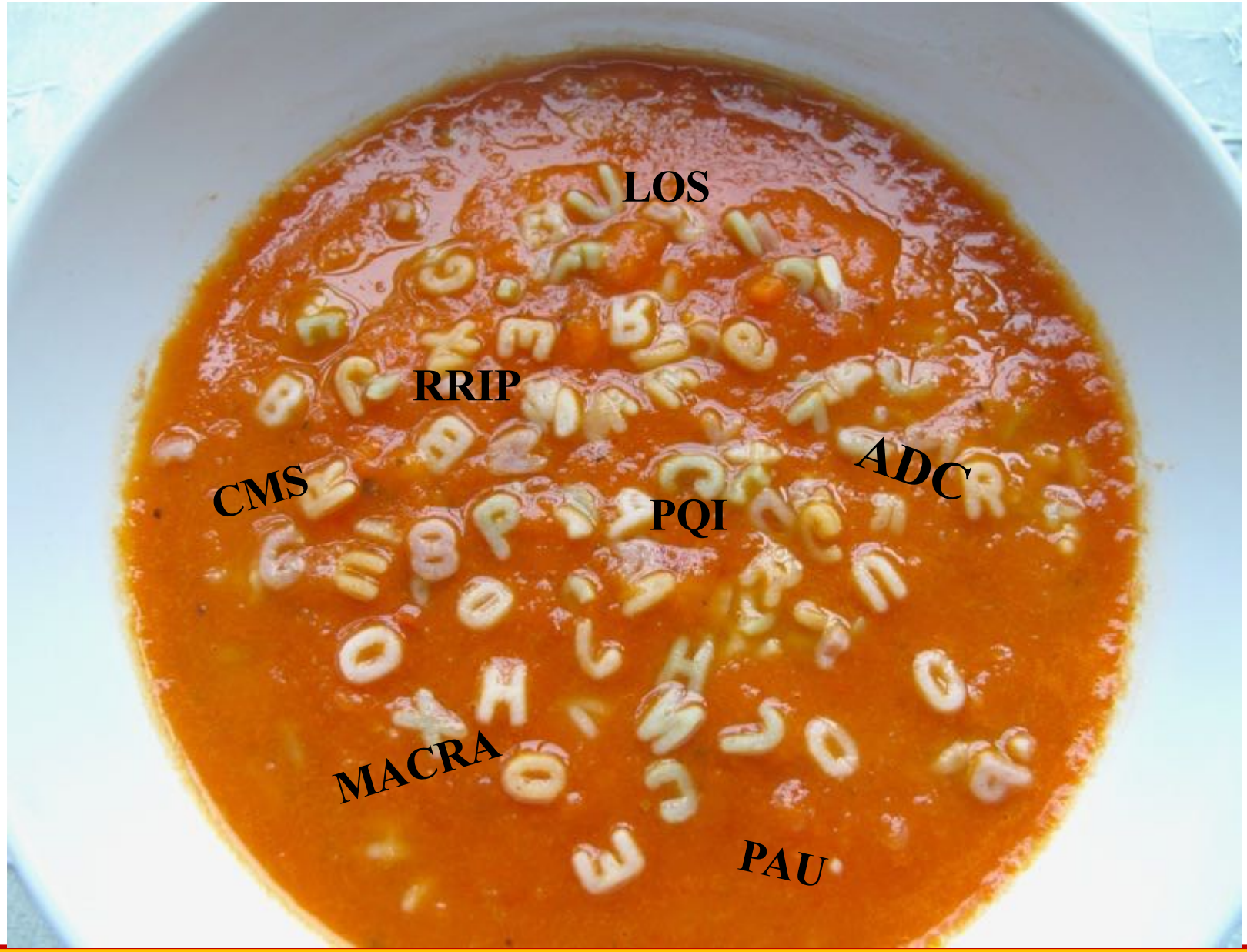
Top 3 observation diagnoses are chest pain, abdominal pain, syncope with collapse

Not meant to exceed 24 hours, yet its not uncommon for patients to be in the hospital longer, despite the 2-midnight rule

MedPAC reports a 47% increase in outpatient services per Medicare beneficiary from 2006-2015 with 19% reduction in inpatient discharges

https://www.hospitalmedicine.org/globalassets/policy-and-advocacy/advocacy-pdf/shms-observation-white-paper-2017

Alphabet Soup



Retrieved: http://foodforvitality.com/cream-of-tomato-alphabet-soup/

Drivers of Hospital Medicine

http://www.uratex.com.ph/industrial-institutional/wp-content/uploads/2013/12/Hospital-Patient-2.jpg

Centers for Medicare & Medicaid Services - CMS

- 30 day readmissions
  - A financial crutch to healthcare organizations
  - Between Oct 1, 2017 & Sept 30, 2018 – 2500+ hospitals will have faced 3% penalties of regular reimbursement if higher than expected number of readmissions occur within 30 days

- Applied to 6 conditions:
  - Chronic lung disease
  - CABG
  - ACS
  - CHF
  - Hip & knee replacements
  - Pneumonia

Length of Stay – LOS
Average Daily Census - ADC

- LOS
  - Sicker on discharge – despite a U.S. average LOS of 5.1 days
  - Includes observation & inpatient status patients

- ADC
  - Only includes inpatient status patients
  - 15%-20% patients are observation status patients
  - Difficult for financial planning

https://www.beckershospitalreview.com/lists/150-hospital-benchmarks-2016.html

Prevention Quality Indicator - PQI

- Agency for Healthcare Quality & Research (AHQR)
  - Set of measures that can be used with hospital inpatient discharge data to identify quality of care for "ambulatory care sensitive conditions"

- What does this mean?
  - Good outpatient care can potentially prevent the need for hospitalization

PQI's

- Diabetes & uncontrolled Diabetes
- Perforated Appendix
- Chronic Obstructive Pulmonary Disease (COPD) or Asthma in Younger & Older Adults
- Hypertension
- Heart Failure
- Dehydration
- Bacterial Pneumonia
- Urinary Tract Infection

Potentially Avoidable Utilization - PAU

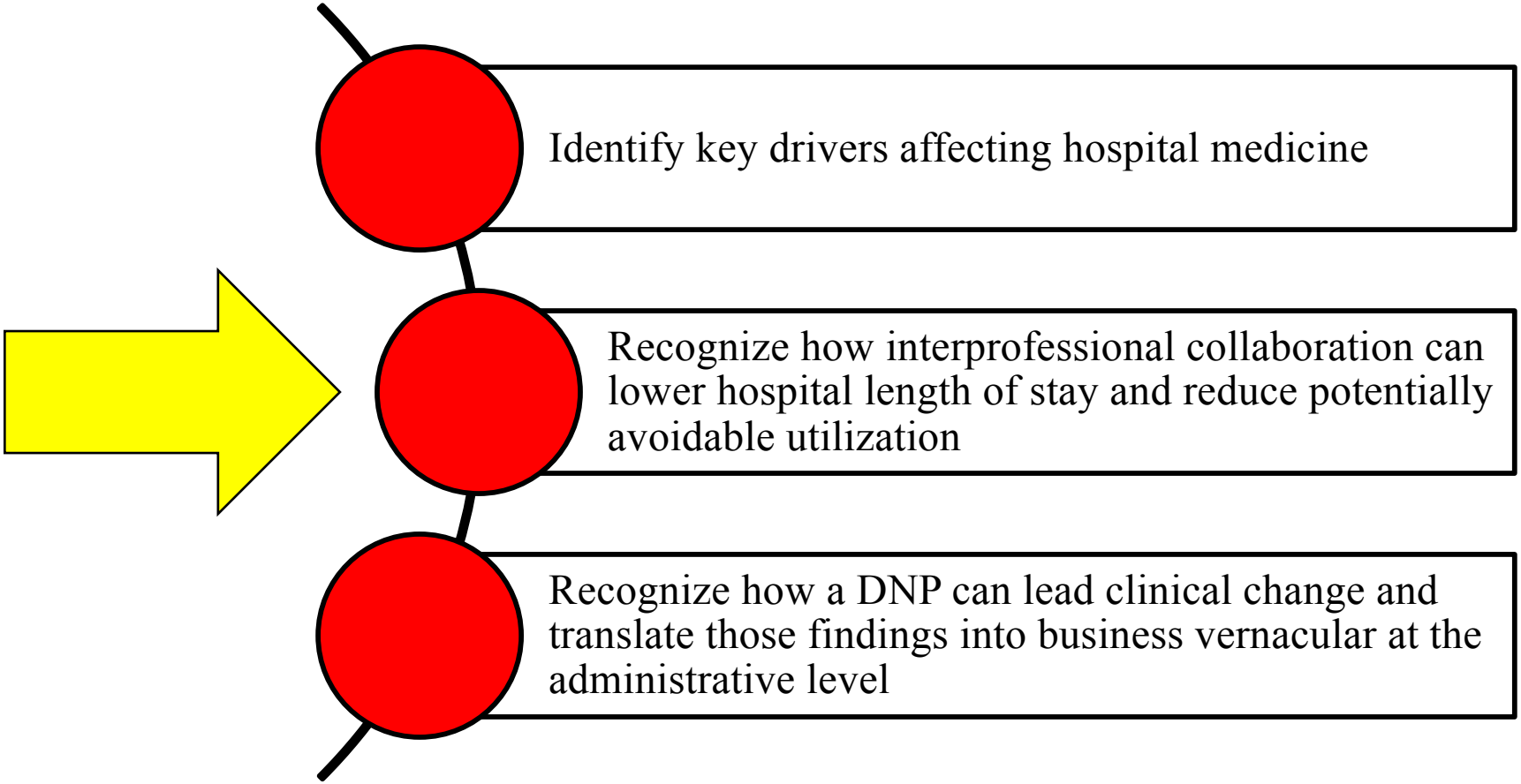
"Components of **Potentially Avoidable Utilization** (PAU) PAU is **defined** as hospital care that is unplanned and can be prevented through improved care, care coordination, or effective community based care or care cost increases that result from a **potentially preventable** complication occurring in a hospital."

http://www.hscrc.state.md.us/documents/HSCRC_Initiatives/GBR-PAU/Components-of-Potentially-Avoidable-Utilization.pdf

PAUs – A closer look

- 30 day, all cause, all hospital inpatient readmissions excluding planned readmissions based on specifications for Maryland Readmission Reduction Incentive Program.
- Prevention quality indicator overall composite measure (PQI #90) as defined by the AHRQ
- 65 potentially preventable conditions (PPCs) calculated under the Maryland Hospital Acquired Conditions Program and estimated average cost of PPCs
- Outpatient rehospitalizations in the emergency room or observation occurring between 1 to 30 days of an inpatient admission.

Objectives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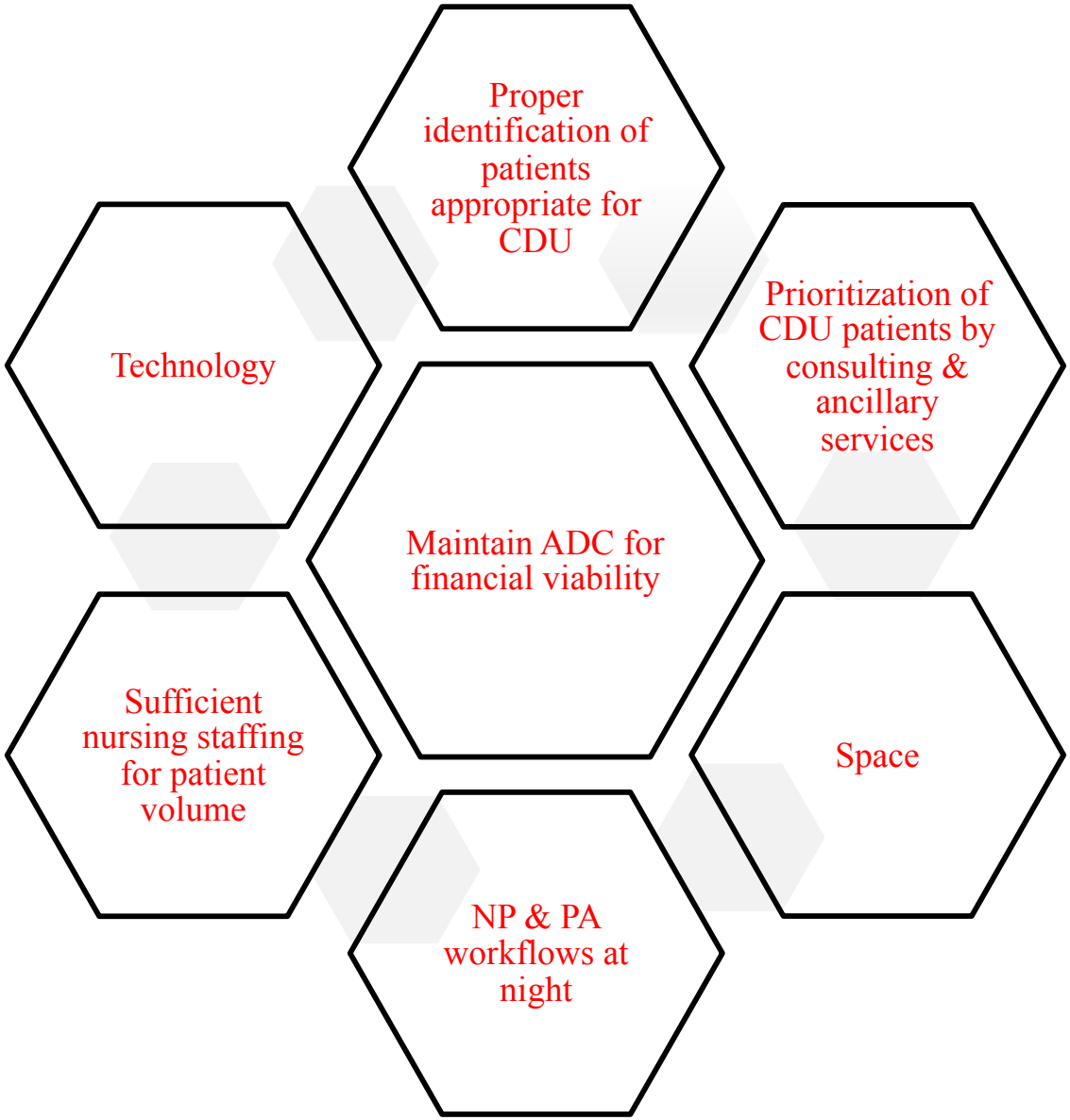
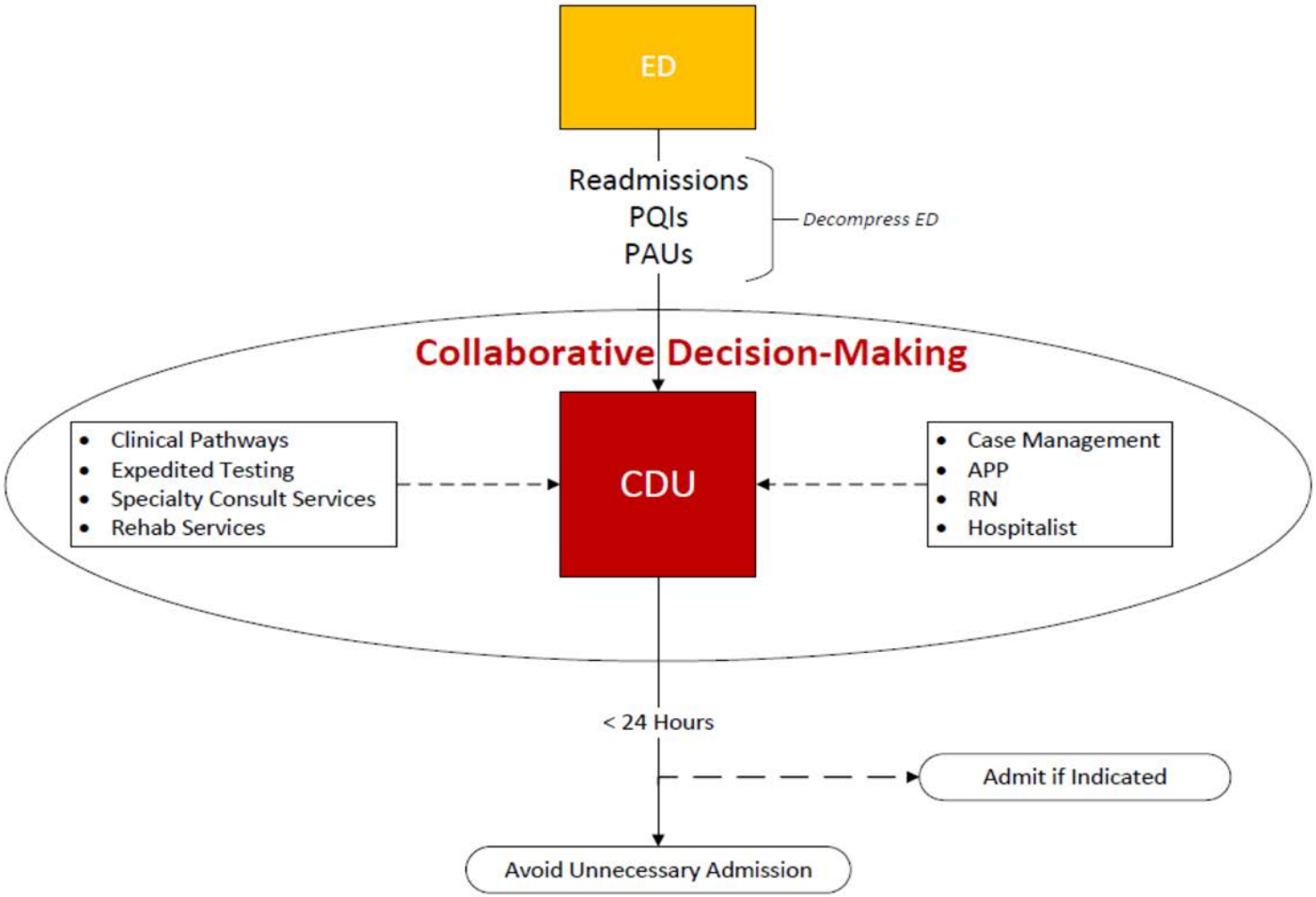
Process Opportunity

The current reimbursement structure in Maryland combined with the continuing need to ensure we provide the right level of care, to the right patient, at the right time requires optimization of processes, environment and resources for our diverse patient population. With an emphasis on collaborative decision making, the Clinical Decision Unit (CDU) will focus on the efficient and effective management of a specific population of patients; specifically, those with a Preventable Quality Indicator (PQI) diagnosis, 30-day readmission or other potentially avoidable utilization (PAU) can help us achieve our mission of "maintaining and improving the health of the people in our communities through an integrated health delivery system that provides high quality care to all, while also exceeding operational efficiencies.

Constraints & Dependencies



CDU Concept Map



Location & Hours

- Located in the main emergency department
- Open 24/7
- Dayshift APP
  - 7a-7pm
- Nightshift APP
  - 5p-5am (2 hour coverage by Cross Cover APP)

Dashboard & Metrics

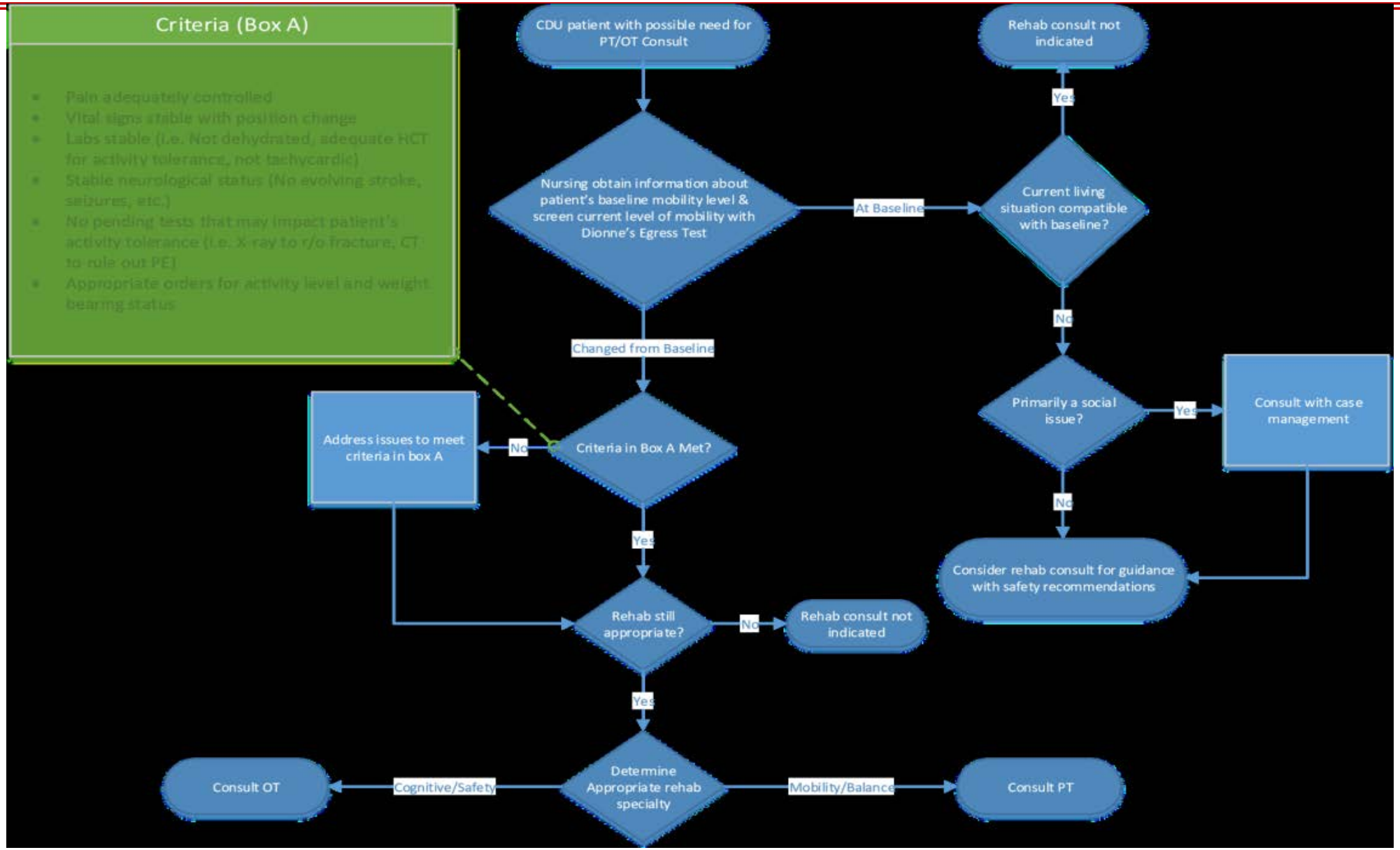
- CDU LOS
- CDU ADC
- # of PQI cases in CDU / # of obs PQI cases house wide
- CDU Primary Diagnosis based on ICD-10
- Admission Conversion %
- OBS patients that move to a unit %
- Direct CDU Discharges %
- LOS of "CDU" patients that are on the unit (1W if the CDU is already full)

Consultants, etc.

- Rehab – 1:00pm
- Pulmonary – 1:30pm
- ID – 2:00pm

- Patient will need to have consult order placed
- Lab draws will have “stat” priority
- AM Labs to be drawn at 4:00am

Rehab Decision Tree



CDU Appropriate Diagnoses, in order of priority

- All 30-day readmits
  - Defer if unstable and require IMC/ICU placement
  - PQI Diagnoses
    - Pneumonia
    - Congestive Heart Failure
    - COPD & Asthma
    - Dehydration
    - UTI
    - Angina (Chest pain)
    - Uncontrolled HTN (not on a vasoactive drip)
    - Hypoglycemia, Hyperglycemia

CDU Appropriate Diagnoses

- OBS Appropriate (with corresponding orderset)
  - Abdominal pain
  - Asthma
  - Atrial fibrillation/flutter
  - Cellulitis
  - Chest pain
  - COPD
  - Dehydration/Vomiting/Diarrhea
  - Headache/Migraine
  - Pneumonia
  - Pyelonephritis
  - Seizure
  - Symptomatic Anemia/PRBC Transfusion
  - Syncope
  - TIA

Other CDU Appropriate Diagnoses

- Weakness
- Chronic Falls
- Vertigo
- Acute on chronic back pain
- Dizziness

CDU Exclusion Criteria

- Airborne & C. Diff isolation
- Weight limit of 500 lbs.

ED Pathways – Chest pain Protocol

The HEART Score for Chest Pain Patients in the ED		
History	• Highly Suspicious • Moderately Suspicious • Slightly or Non-Suspicious	• 2 points • 1 point • 0 points
ECG	• Significant ST-Depression • Nonspecific Repolarization • Normal	• 2 points • 1 point • 0 points
Age	• ≥ 65 years • > 45 - < 65 years • ≤ 45 years	• 2 points • 1 point • 0 points
Risk Factors	• ≥ 3 Risk Factors or History of CAD • 1 or 2 Risk Factors • No Risk Factors	• 2 points • 1 point • 0 points
Troponin	• ≥ 3 x Normal Limit • > 1 - < 3 x Normal Limit • ≤ Normal Limit	• 2 points • 1 point • 0 points
Risk Factors: DM, current or recent (<one month) smoker, HTN, HLP, family history of CAD, & obesity		
Score 0 – 3: 2.5% MACE over next 6 weeks → Discharge Home **Score 4 – 6:** 20.3% MACE over next 6 weeks → Admit for Clinical Observation **Score 7 – 10:** 72.7% MACE over next 6 weeks → Early Invasive Strategies		

ED Pathways – Atrial Fibrillation/Flutter

- **Developed by**: Larry Edelman, M.D. and Lisa Thomas, M.D.

- **Purpose:**

To develop a standardized care plan for patients presenting to the ED with new-onset atrial fibrillation or flutter with known duration of less than 48 hours that will reduce hospitalization and costs while increasing patient satisfaction. Additionally, immediate cardioversion may improve patient lifestyle and reduce the unnecessary use of anticoagulation.

ED Pathways – Atrial Fibrillation/Flutter

➢ Background:

Atrial fibrillation (AF) is a common complaint encountered in the emergency department in the U.S. with an estimated overall prevalence of 1.1% in patients presenting to the emergency department. (1) There is a predicted lifetime risk of developing AF in the United States of 1 in 4 in adults 40 years and older. (2) The rate of population-adjusted U.S. emergency department visits for AF is projected to continue to increase, while it is estimated that approximately 64% of these visits result in admission to the hospital with an estimated cost of $8412 per hospitalization. (3; 4) One study shows, that approximately 21% of atrial fibrillation hospitalizations are due to recent-onset AF of less than 48 hours of duration. (5) Recent-onset AF is managed differently than AF of duration >48 hours, due to the decreased risk of thromboembolism or stroke.

Given recent healthcare initiatives both at the state and federal level, there is increasing pressure on physicians to safely manage common conditions outside of the hospital environment. Standard emergency department management of recent onset atrial fibrillation in the United States often includes hospital admission, rate-control, and possible anticoagulation with or without in-hospital or delayed cardioversion. Recently, there has been an adoption of emergency department protocols for recent-onset AF (<48 hours duration) where rhythm control is safely achieved without hospitalization (6; 7; 8; 9; 10; 11; 12). According to the 2014 AHA/ACC/HRS guideline, a rhythm-control strategy may be favored over rate-control due to younger patient age, first episode of AF, and patient preference. (13) These guidelines also note that the longer that a patient remains in AF may decrease future opportunities to successfully achieve rhythm-control.

The above mentioned studies of these emergency department protocols show a high success rate, decreased hospital admission and length of stay, relatively low immediate return rate for recurrent AF, and virtually no significant adverse events at 30 days such as death, stroke or thromboembolism were reported. (6; 7; 8; 12; 9; 10) Though studies are limited, such a protocol has been associated with decreased cost and patient satisfaction. (14)

ED Pathways – Atrial Fibrillation/Flutter

$CHADS_2$		CHA_2DS_2-VASc	
Risk factors	Points	Risk factors	Points
CHF	1	CHF/LVEF ≤ 40%	1
HTN	1	HTN	1
Age≥ 75	1	Age≥ 75	2
DM	1	DM	1
Stroke/TIA/embolism	2	Stroke/TIA/embolism	2
	Max 6	Vascular disease (prior MI, PAD, or aortic plaque)	1
		Age 65-74 years	1
		Sex category (Female)	1
			Max 9

0 points = essentially no risk for TE events (none seen in cohort at one year)

1 point = intermediate risk (0.6% rate at 1 year)

2 points or higher = high risk (3% rate at 1 year)

ED Pathways - TIA

UMUCH Emergency Department Protocol for Management of Transient Ischemic Attack (TIA)

Developed by: Lisa Thomas, MD

Purpose:
To develop standardized care for the ED management of TIA patients with the goal of safely discharging low-risk patients with expedited outpatient neurology follow-up.

Background:

TIA affects an estimated 200,000-500,000 patients per year in the United States and is a true medical emergency since the short-term risk of stroke is high.[1] Approximately 10% will have a subsequent stroke in the first 90 days after a TIA, up to half of which will occur in the first 2 days.[1,2] For this reason, the current practice in the United States is to admit most TIA patients for urgent inpatient evaluation.[3]

A policy on admitting all TIA patients may lead to inefficient resource utilization especially since 40-60% of these patients may be TIA mimics with non-ischemic diagnoses.[4,5] The theoretical advantage of hospitalization with access to thrombolysis has not been shown to justify resource investment unless the risk of stroke is high.[6,7] Furthermore as a result of the Affordable Care Act and recent changes to the health care reimbursement model in the state of Maryland, hospital systems have an incentive to reduce unnecessary hospitalizations and reduce cost. The American College of Emergency Physicians also supports that "a rapid ED-based diagnostic protocol may be used to evaluate patients at low risk for short- term stroke." [8]

Several studies have shown that expedited evaluation of TIA patients in a dedicated TIA clinic or ED setting can decrease the risk of recurrent events as well as need for hospitalization, cost, and length of stay. [9-12] The best evidence from studies most similar to the clinical algorithm derived here show that the 90 day stroke risk can be decreased to <2%.[12-14]

Many efforts have been aimed at stratifying which patients require hospitalization. The ABCD2 score (0-7 points) (see Appendix) was developed to predict the short-term risk of stroke after TIA based on clinical variables[15] but subsequent studies have concluded that It does not reliably discriminate those at low or high risk for early stroke,[16-18] and thus cannot be used alone. Cerebrovascular imaging findings have additional prognostic value. About a third of TIA patients have an infarct on MRI. This is associated with increased risk of short-term stroke, as is the presence of vessel occlusion on brain imaging.[19-20]

Based on the review of available evidence in the literature, national guidelines,[1,21] other local hospital ED TIA policies, and a multidisciplinary consensus, the following clinical algorithm has been developed to evaluate low-risk TIA patients in the UCMC ED.

After excluding patients with known high-risk clinical conditions, the algorithm is centered on performing the most important aspects of the standard

ED Pathways - TIA

inpatient work-up expeditiously in the ED setting. Cerebrovascular imaging work-up can be readily obtained from the ED 24 hours a day, especially with our ability to call in MRI as needed. The implementation of this protocol is also made possible by the commitment of the UCMC neurologists for immediate phone consultation for all ED TIA patients, and rapid follow-up in the neurology clinic within 24 -72 hours. Echocardiogram will be obtained when available (730am-230am), or the patient will be given a prescription to return within 24-72 hours for the test to be completed. It is estimated that echocardiogram changes management in only about 7% of patients who present with TIA,[22] so it is likely to have even less of an impact on the low risk population being discharged. Patients will be placed on telemetry during the ED course and if there is persistent concern for paroxysmal atrial fibrillation, arrangements will be made for further outpatient cardiac monitoring.

Extrapolating from prior UCMC CDU data as well as other studies which have used similar inclusion criteria, at least 20% of current TIA admissions may be avoided with the implementation of this strategy. [11] In conclusion, the application of this clinical algorithm will allow comprehensive evaluation and treatment followed by discharge of low risk TIA patients in the ED setting, thus reducing unnecessary admissions and associated costs.

Cardiac CT Angio

- Patient Appropriateness
  - Patient meets criteria per ED chest pain protocol

- Contraindications
  - Contrast allergy unless pretreated per protocol
  - Pregnancy
  - Sickle cell anemia

Cardiac CT Angio

- Relative Contraindications
  - Renal insufficiency (GFR < 30)
  - Multiple myeloma
  - Untreated hyperthyroidism
  - Inability to perform breath hold
  - Atrial fibrillation or other irregular rhythm or frequency ectopy
  - Severe anxiety or claustrophobia
  - BMI > 40 or weight > 300 pounds

Cardiac CT Angio

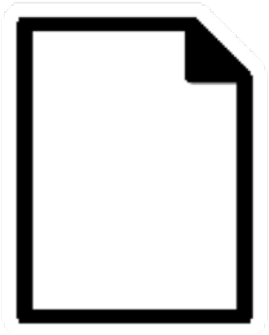
- Patient History Exclusions
  - History of coronary artery disease with known stenosis greater than 50% or calcium score greater than 400
  - History of coronary artery stents or percutaneous transluminal coronary angioplasty
  - History of coronary artery bypass grafting

Daily Huddles

- 10:30 am

- CDU APP
- CDU TNN
- Bedside RN

- ED Breakroom

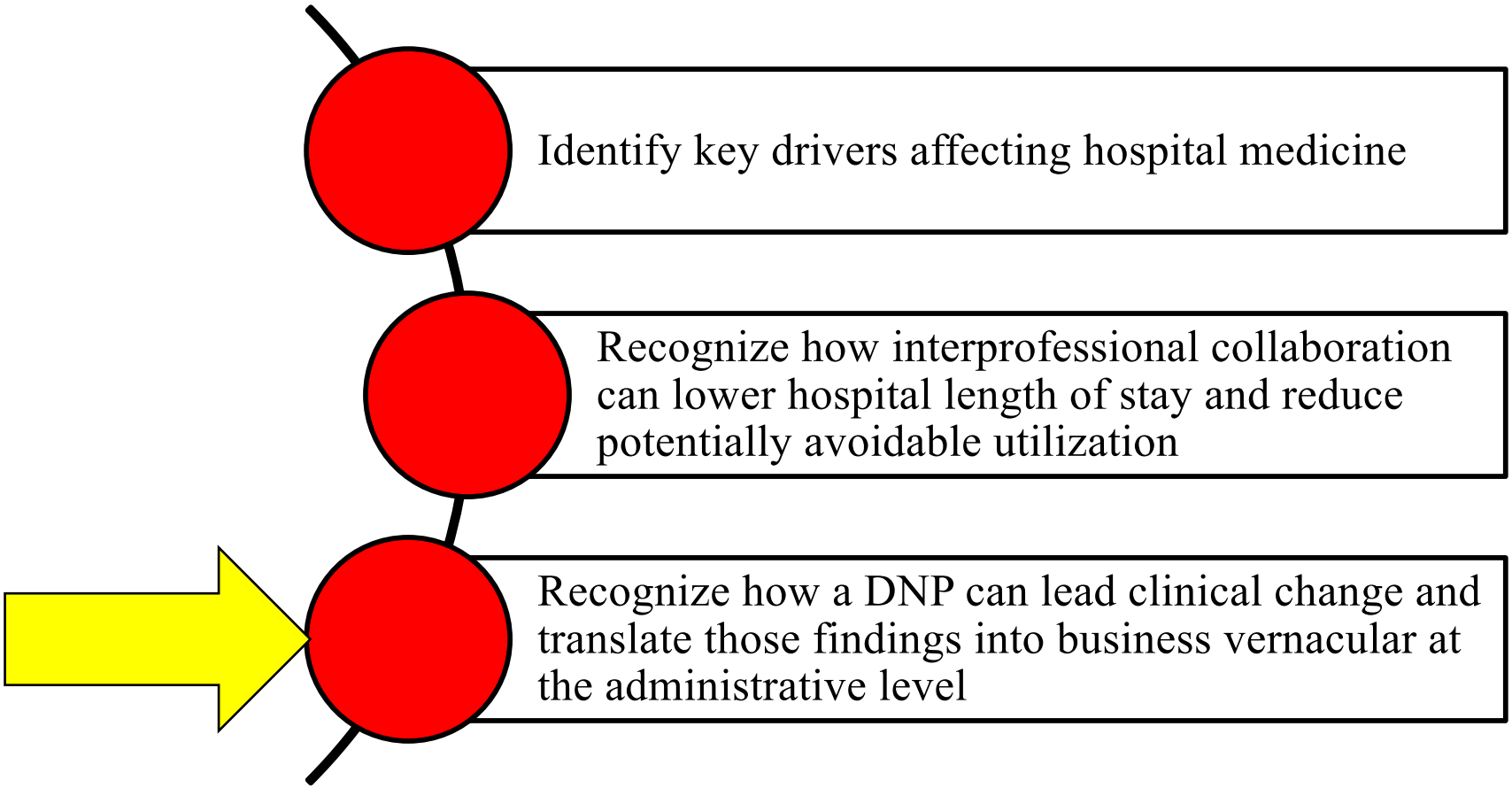


CDU Daily Huddle Form

Date: _____

10:30 AM Huddle			4:00 PM Huddle		
Patient Name & Room #	Targeted Discharge Date and Time	Pending Actions Before Discharge	Patient Name & Room #	Targeted Discharge Date and Time	Pending Actions Before Discharge

Objectives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Dashboard & Metrics

- CDU LOS
- CDU ADC
- # of PQI cases in CDU / # of obs PQI cases house wide
- CDU Primary Diagnosis based on ICD-10
- Admission Conversion %
- OBS patients that move to a unit %
- Direct CDU Discharges %
- LOS of "CDU" patients that are on the unit (1W if the CDU is already full)

CDU Successes

- 30 day readmit – 9.4%
  - Best out of University of Maryland Medical System
- Organization LOS – 2.8 days
  - Lowest in State of Maryland

Top 15 diagnosis groups, discharged & Median LOS 7/1/2017 – 2/28/18

Diagnosis Name (group)	Median LOS Calculated	Number of Patients
Cellulitis	22	54
Orthostatic hypotension	22	17
Dehydration	22	16
Heart disorders	22	90
Weakness	22	14
Respiratory disorders	22	92
Dizziness and giddiness	22	54
UTI, Pyelo, Cystitis	20	33
Hypertensive urgency	21	14
Transient cerebral ischemic attack	21	27
Syncope and collapse	20	119
Chest/Precordial Pain	20	496
Diabetes-related complications	21	23
Headache	19	15
Unspecified convulsions	17	15

Patients Discharged from UCMC
9 months prior to CDU opening (11/1/16-6/31/18)
Organized by Median Length of Stay

Diagnosis Name (group)	Median LOS Calculated	Number of Patients
Diabetic complications	71	199
Respiratory disorders	53	1,328
UTI, Pyelo, Cystitis	52	263
Heart disorders	50	933
Orthostatic hypotension	50	73
Weakness	49	48
Cellulitis	46	221
Dehydration	44	124
Unspecified convulsions	39	54
Hypertensive urgency	32	50
Syncope and collapse	28	288
Dizziness and giddiness	26	105
Headache	26	46
Transient cerebral ischemic attack	25	83
Chest/Precordial Pain	24	971

CDU Successes – 30 day readmit reduction

Cardiology (Includes Heart Failure)

Facility	Jan - Sept O/E	Oct- Dec O/E	% Change
UMMC	1.17	1.15	-1.8%
UM BWMC	1.22	0.95	-21.6%
UMMC Midtown Campus	1.47	2.08	41.1%
UM Shore Regional Health	1.13	0.72	-36.7%
UM Upper Chesapeake Health	0.82	0.66	-19.0%
UM CRMC	0.89	1.18	32.5%
UM SJMC	0.82	0.84	2.3%
UM Capital Region Health	0.96	1.20	24.4%
UMMS	1.04	1.02	-2.0%

CDU Successes – 30 day readmit reduction

Pulmonary Medicine (Includes COPD)

Facility	Jan - Sept O/E	Oct- Dec O/E	% Change
UMMC	1.08	1.04	-3.8%
UM BWMC	0.97	0.94	-2.7%
UMMC Midtown Campus	1.41	1.64	16.2%
UM Shore Regional Health	0.98	0.90	-8.7%
UM Upper Chesapeake Health	0.89	0.57	-36.8%
UM CRMC	0.70	1.07	52.9%
UM SJMC	0.82	1.00	21.9%
UM Capital Region Health	1.17	1.12	-4.8%
UMMS	0.97	0.96	-1.3%

Metrics that also matter

STATIT DASHBOARDS SCORECARDS INDICATORS Tonya Appleby

Status	Indicator	Current Value	Target	SPC Alert	Updated	Fiscal Cumulative Year (Indicator basis) Value	Start
CDU Dashboard > A - Volume and LOS							
▼	CDU Average Daily Volume	6.9	-		Jul 2018	6.9	Jul 2018
▲	CDU Average LOS in CDU (Hrs)	19.4	20.0		Jul 2018	19.4	Jul 2018
▼	CDU Average LOS for CDU patients Moved to Other Units	65.6	-		Jul 2018	65.6	Jul 2018
▲	CDU Average LOS for Direct Departures	20.2	20.0		Jul 2018	20.2	Jul 2018
▼	CDU Daily Patient Count	3	-		Jul 14 2018	96	Jul 01 2018
CDU Dashboard > B - Departure Outcomes							
▲	CDU % Admitted as Inpatients	19.0%	10.0%		Jul 2018	19.0%	Jul 2018
▼	CDU % Moved to a Unit as OBS	16.2%	20.0%		Jul 2018	16.2%	Jul 2018
▲	CDU % Direct Discharge from CDU	65.7%	70.0%		Jul 2018	65.7%	Jul 2018
▼	CDU % of Direct Discharges in < 24 Hrs	81.2%	70.0%		Jul 2018	81.2%	Jul 2018
CDU Dashboard > C - Patient Population							
▲	CDU PQI %	83.3%	80.0%		Jul 2018	83.3%	Jul 2018
▼	CDU Hospital wide PQI patients in CDU %	33.9%	-		Jul 2018	33.9%	Jul 2018
▼	CDU Readmit %	5.7%	-		Jul 2018	5.7%	Jul 2018
▼	CDU Hospital wide Readmits in CDU %	25.0%	-		Jul 2018	25.0%	Jul 2018
CDU Dashboard > D - Miscellaneous							
—	CDU % of Discharges with Delay Reason Documented	0.0%	-		Jul 2018	0.0%	Jul 2018
▼	CDU Consult Order %	59.0%	-		Jul 2018	59.0%	Jul 2018
▼	CDU Consult Order Volume	97	-		Jul 2018	97	Jul 2018
▼	CDU 30 Day Return Discharge Efficiency	33.3%	50.0%		Jul 2018	33.3%	Jul 2018

Thank you!

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43