Hospital Readmissions in Patients with ESRD

Definition, Measurement, and Prevention

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Question #1

What is the name of the National Quality Forum endorsed measure that captures a dialysis facilities performance in preventing re-hospitalizations within 30-days of hospital discharge?

A. Standardized Hospitalization Ratio
B. Hospital Reduction Readmission Program
C. Standardized Readmission Ratio

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C. Standardized Readmission Ratio

Objectives

1. Discuss the current definition and application of hospital readmission among patients on dialysis
2. Critically examine the measurement strategy for evaluating dialysis facility national performance in managing hospital readmissions
3. Synthesize approaches for dialysis-related interventions for readmission reduction and prevention

DEFINITION

The Basics

- Some hospital readmissions are unavoidable

- Readmissions may result from poor quality of care
  - Inadequate **coordination of care**
  - Lack of effective **discharge planning**
  - Lack of effective **transitional care**

- Reducing avoidable readmissions is a key component of more efficient, high-quality care

Key Terms

- **Hospital readmission**: an admission to an acute care hospital within 30 days of discharge from the same or another acute care hospital. Excludes certain planned readmissions
  - *Planned readmission*: an intentional readmission within 30 days of discharge from an acute care hospital that is a scheduled part of the patient's plan of care (e.g., maintenance chemotherapy)
  - *Unplanned readmission*: acute clinical events experienced by a patient that require urgent hospital management

IMPACT OF READMISSIONS

Question #2

On average patients with End Stage Renal Disease (ESRD) are admitted on average:

A. Once a year
B. Twice a year
C. Three times a year
D. More than four times a year

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Prevalence and Risk

On average, patients with ESRD are admitted to the hospital nearly **twice** a year.

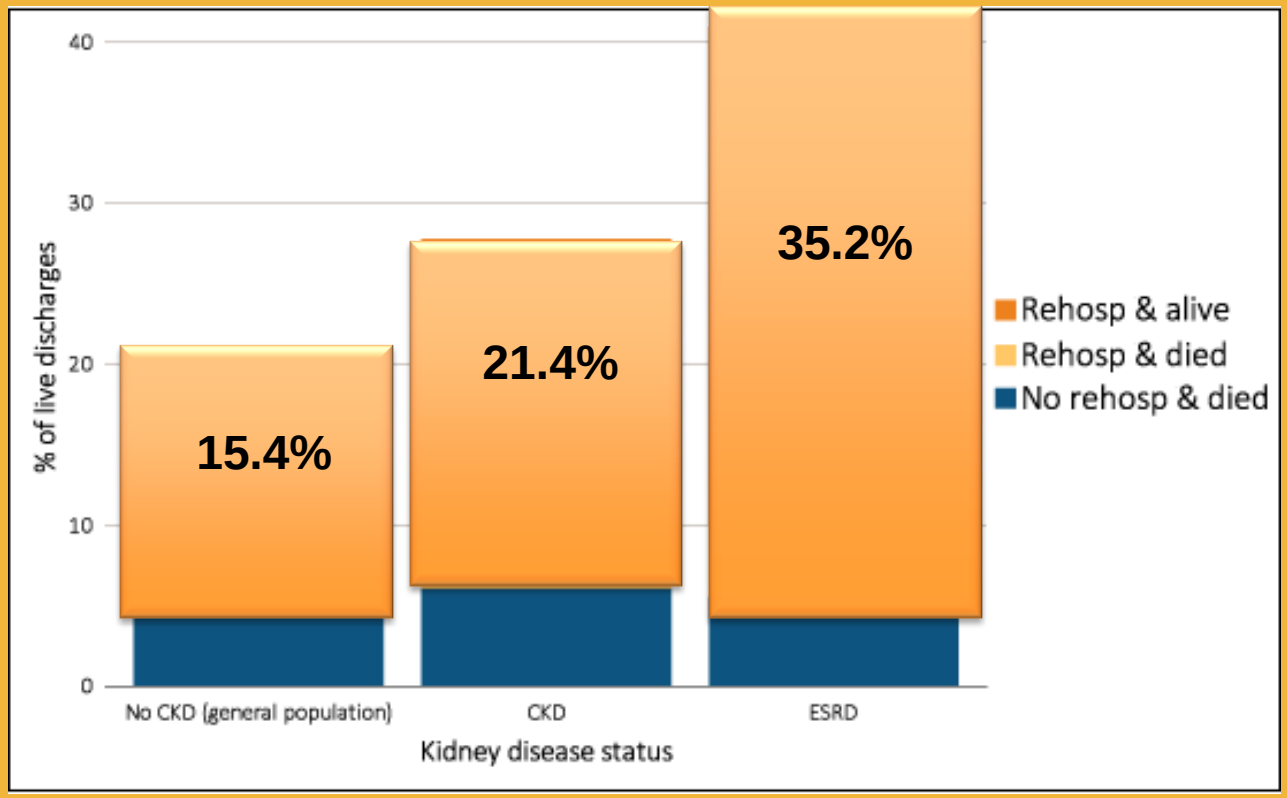
~ 35% of ESRD patients have a rehospitalization within the 30 days following discharge.

Risk for Readmission:

- Age: 22-44 years old
- African Americans followed by other/multiracial groups

(USRDS, 2017)

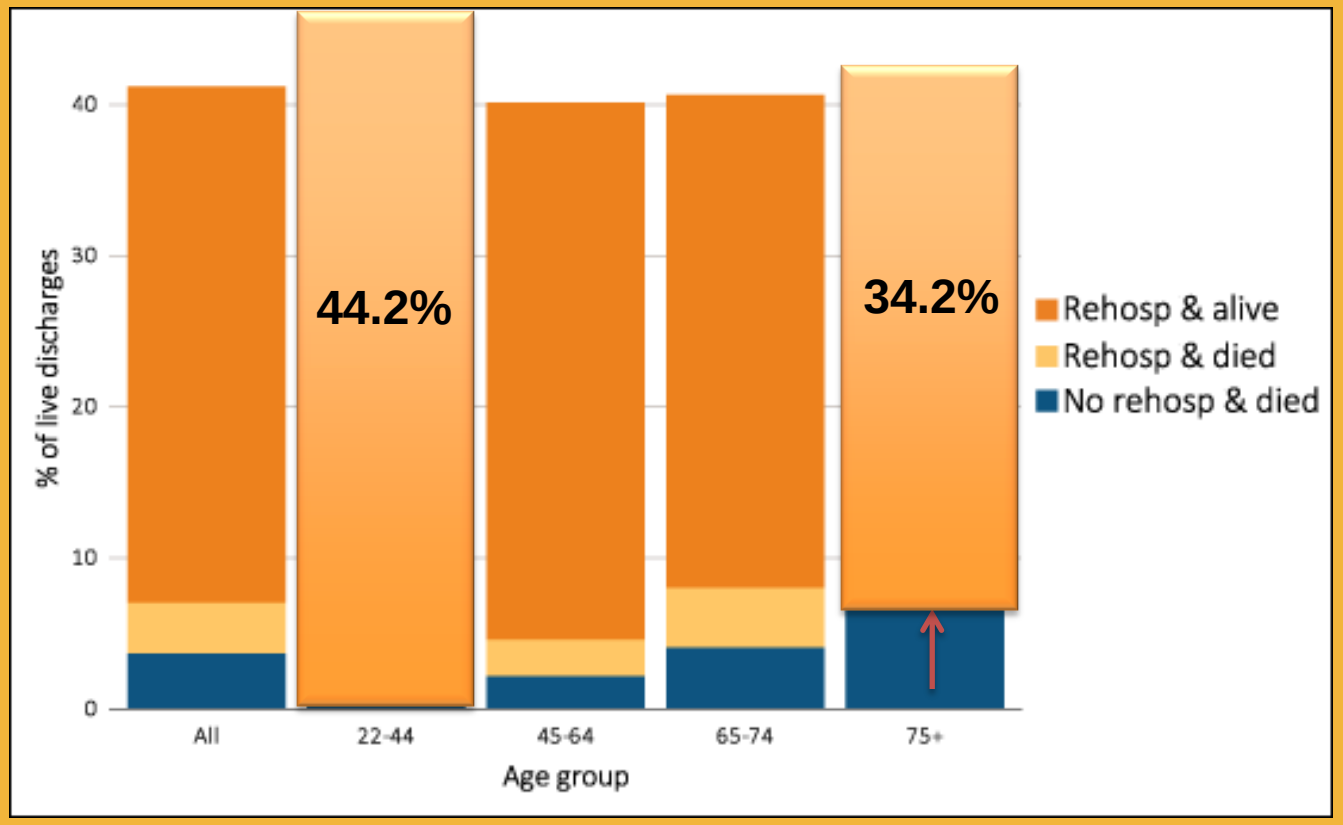
Population Comparison



Patients with CKD and ESRD experienced rehospitalization rates of **21.4**% and **35.2**%, as compared to only **15.4**% of older Medicare beneficiaries without a diagnosis of kidney disease.

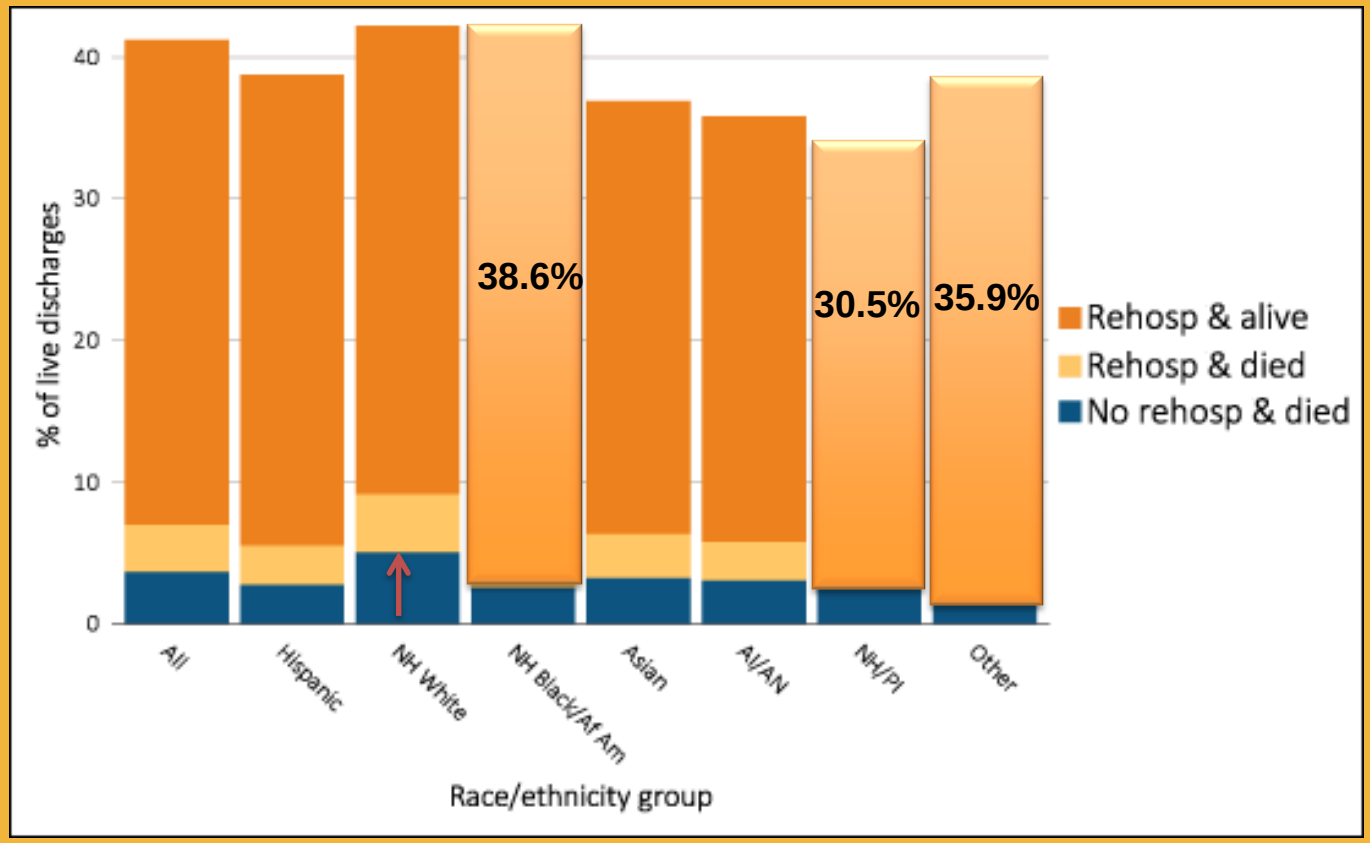
(USRDS Annual Report, 2017)

Rehospitalization by Age, 2015



(USRDS Annual Report, 2017)

Rehospitalization by Race/Ethnicity, 2015



(USRDS Annual Report, 2017)

Impact of the Disease

- Patients undergoing dialysis before total knee arthroplasty (TKA) are significantly more likely to experience 30-day adverse outcomes than matched non-dialysis cohorts (Ottesen et al., 2018)
- Elective endovascular aortic aneurysm repair significant preoperative risk factor associated with readmission included dialysis dependence (Chen, Kuo, Kabutey, Gabra & Fujotani, 2018)
- Lower extremity bypass for critical limb ischemia in patients requiring hemodialysis associated with readmission (Ambur et al., 2018)

Impact of the Disease (cont.)

- Elective spine surgery, dialysis patients were found at significantly greater odds of any adverse event including unplanned readmissions (Ottesen et al., 2018)
- Outpatient rotator cuff repair, dialysis identified as a major prognosticator for readmission (Kosinski et al., 2018)
- Posterior cervical fusion (PCF), renal failure requiring dialysis was a significant predictor of hospital readmission (Choy, Lam, Smith & Dahdaleh, 2018)

Impact of the Disease (cont.)

- With the exception of readmission history, ESRD is the strongest risk factor for 30-day readmissions among Medicare patients (Jenecks, Williams & Coleman, 2009)

Financial & Economic Impact

- On 12/31/2015 there were 703,243 prevalent cases of ESRD in the U.S., an increase of 3.4% since 2014 and 80% increase since 2000.
- Between 2014 and 2015, Medicare fee-for-service spending for beneficiaries with end-stage renal disease (ESRD) rose by 2.4%, from 33.1 billion to 33.9 billion, accounting for 7.1% of the overall Medicare paid claims costs, a figure that has remained stable since 2004.
- Patients with ESRD experienced rehospitalization rates of 35.2%, as compared to only 15.4% for older Medicare beneficiaries without a diagnosis of kidney disease.

(USRDS, 2017)

Financial & Economic Impact (cont.)

# of Patients with ESRD	703,243
Medicare Spending on ESRD	$33,900,000,000
Hospitalization Spending	$11,187,000,000
Readmission Spending	$3,937,824,000

(USRDS, 2017)

MEASURE DEVELOPMENT

Question #3

My dialysis facility has a designated person to track hospitalizations and readmissions that occur among the patients dialyzing at my facility.

A. YES

B. NO

Standardized Readmission Ratio

A Quality Measure for Dialysis Facilities

Medicare Improvements for Patients and Providers Act (MIPPA) of 2008 – Section 153(C)

- Selection of measures and scoring
- Identification of performance standards and periods
- Opportunity for facility review of scores and public reporting

↓

Secretary of the Department of Health and Human Services (HHS)

- Directed by MIPPA to establish quality incentives for facilities furnishing renal dialysis services

↓

End Stage Renal Disease Quality Incentive Program (ESRD QIP)

- Designed to provide better care and promote high quality services in outpatient dialysis facilities treating patients with ESRD

↓

Standardized Readmission Ratio (SRR)

- Measure of 30-day unplanned hospital readmission for dialysis patients discharged from any acute care hospital in the U.S.
- First added to the ESRD QIP in PY2017

(CMS, 2017; UM-KECC, 2014)

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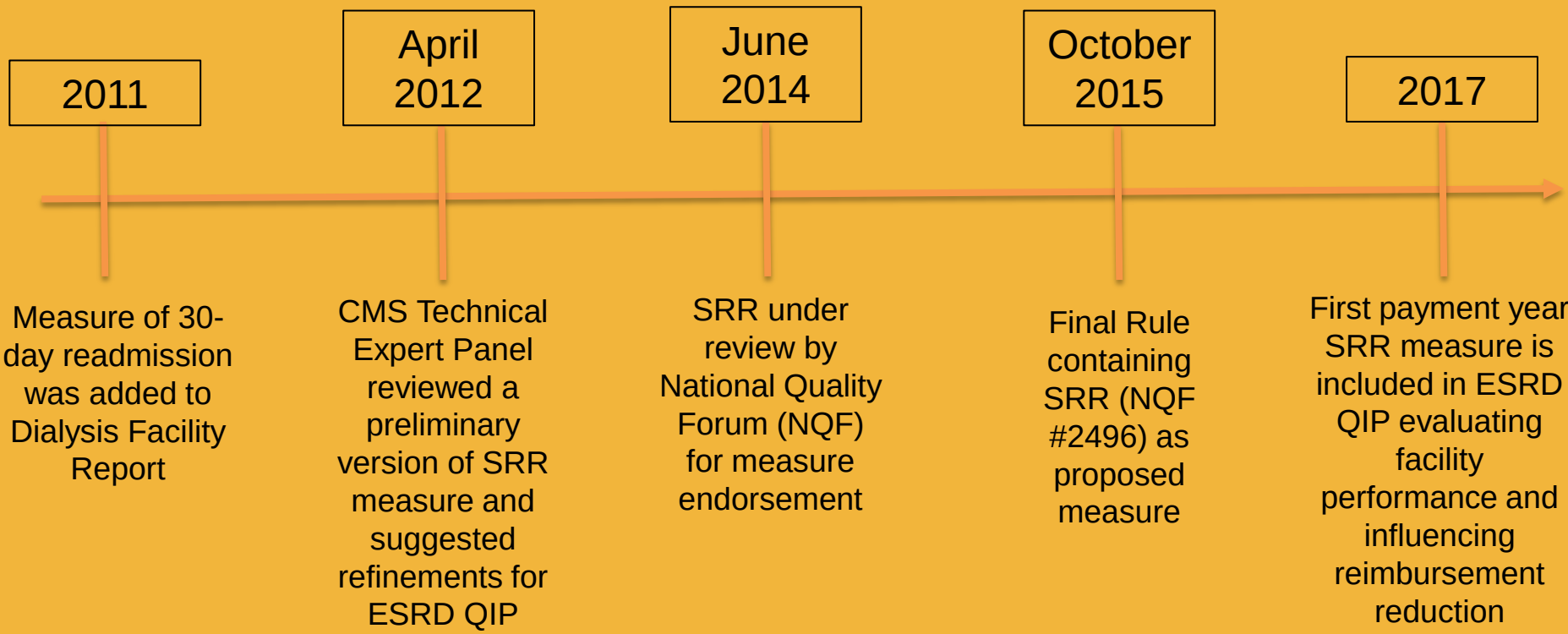
Timeline of SRR Development



PAYER PERSPECTIVE: READMISSIONS

Stakeholder Responsibility

- NQF Measure #2496: Standardized Readmission Ratio (SRR) for Dialysis Facilities captures a high-impact area of measurement
- Care transition measures promote coordination and shared accountability across the care continuum
- **All** stakeholders have a responsibility to collaborate to improve performance – **potentially requiring new roles**

(National Quality Forum, 2015)

SRR: Relevance to Quality & Safety

CMS Quality Strategy

Better care

Smarter spending

Healthier people, healthier communities

VOLUME → VALUE

Readmission measure applicable to ESRD patients (SRR)

1. Encourage improvement in transition of care across various settings
2. Serve as a strong motivation for facilities to coordinate treatment with the discharging hospital to reduce readmission rates
3. Encourage facilities to review readmission practices and identify potential problems
4. Essential for controlling escalating medical costs – can help facilities identify problems and potentially improve care

(CMS, 2013; UM-KECC, 2014)

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MEASUREMENT SPECIFICS

Measurement Programs

- Dialysis Facility Report
  - Annual Performance Report
  - *Intended Audience*: Facilities, Surveyors, Networks
- Quality Incentive Program (ESRD QIP)
  - Penalty Program; associated with reimbursement
- Dialysis Facility Compare
  - Quarterly Performance Update
  - *Intended Audience*: Patients

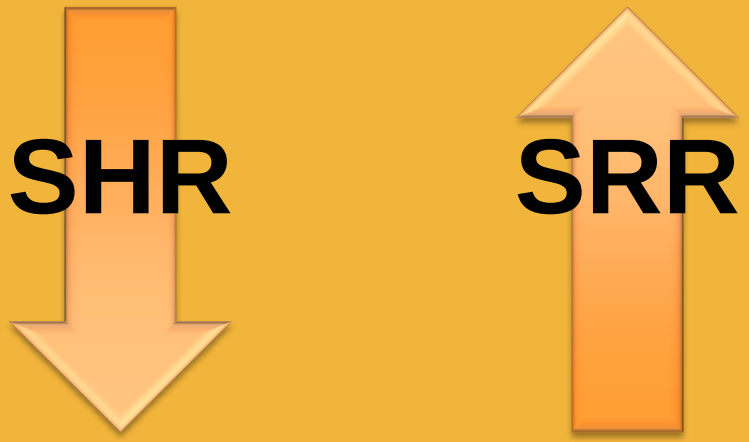
MEASUREMENT SPECIFICS

Hospital Utilization Measures

- **Standardized Hospital Ratio (SHR):** overall measure of hospital usage by patients at a dialysis facility
  - Effectiveness of care for chronically ill patients who frequently have multiple comorbidities

- **Standardized Readmission Ratio (SRR):** overall measure of 30-day unplanned hospital readmission
  - Focuses on communication and care coordination as patients return from acute hospitalization

Measure Comparisons



- Low frequency of hospitalization
- Review processes associated with hospital discharge and care coordination post-discharge

SRR Overview

- Unplanned readmission within 30 days following an index hospital discharge

- **Observed** (numerator): actual number of readmission events over a specified period of time
- **Expected** (denominator): number of readmission events that would be expected if patients discharged while at that facility experienced readmission events at the national median rate for hospitalized patients with similar characteristics

(CMS, 2017)

Question #4

The Standardized Readmission Ratio includes readmissions for patients:

A. That occurs within 0-30 days of hospital discharge
B. Discharged from long term care hospitals
C. Discharged from short-term acute care hospitals and critical access hospitals

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SRR: Inclusion Criteria

- Medicare-covered hospitalizations for inpatient care at short-term acute care hospitals and critical access hospitals
- Patient must be receiving dialysis treatment for ESRD at the time of discharge
- Specifically for Dialysis Facility Report
  - Patients included in SRR as soon as treatment begins at a facility

(CMS, 2017)

SRR: Discharge Exclusion

- Unplanned readmission to an acute care hospital for any cause within 4-30 days of the discharge date for the index hospitalization
  - Readmissions occurring on days 0-3 post-discharge could potentially be before a dialysis facility had the opportunity to see a patient for treatment
  - Information gap between readmitting hospitals and dialysis facilities concerning patients returning to acute care facility shortly after hospital discharge

(CMS, 2017)

SRR: Measurement Exclusions

- Discharges from:
  - Skilled nursing facilities
  - Long-term care hospitals
  - Rehabilitation hospitals
  - PPS-exempt cancer hospitals
  - Separate dedicated units for hospice, rehab and psychiatric care
- Hospitalizations in which the patient discharged against medical advice (AMA)
- Hospitalizations occurring after a patient's 12th hospital admission
- Hospitalizations occurring with a primary diagnosis of medical treatment of cancer, certain psychiatric conditions, or rehabilitation for prosthesis
- DFR
  - Patients are removed from SRR at withdrawal or lost to follow-up

(CMS, 2017)

Patient Attribution

How patients are linked to facilities

- Index discharges are attributed to the dialysis provider to which the patient is discharged at the end of the hospital stay
  - Dialysis Facility Report: SRR is not shown if fewer than 11 index discharges in the year.

- Facility to which the patient is discharged is held responsible for any unplanned readmissions occurring within 4-30 days of the index discharge

Attribution: 30 Day Rule

1. Patient in Dialysis **Facility A** discharged from the hospital 4/1/2018
2. Transfers to Dialysis **Facility B** 4/15/2018
3. Patient readmitted to the hospital on 4/20/2018 after discharge while in Dialysis **Facility B**
4. Readmission is attributed to Dialysis **Facility A**

Note: readmissions are assigned to the index discharge dialysis facility regardless of the treatment facility at the time of readmission

SRR: Risk Adjustment

- Used to compute a facility's "expected" number of readmissions for the SRR measure containing factors thought to be associate with readmission events
  - Age, gender, diabetes, duration of end-stage renal disease, body mass index (BMI) at start of dialysis, past-year comorbidities, length of the index hospital stay, the presence of a high-risk diagnosis at index discharge, and the effect of the discharging hospital

(CMS, 2017)

MEASUREMENT SPECIFICS

DFR

SRR: DFR Example

Measure	2012	2013	2014	2015
Index Discharges	222	185	131	126
Total Readmissions	89	82	43	49
Expected total readmissions	65	56	37	35
Standardized Readmission Ratio (SRR)	**1.38**	**1.46**	**1.15**	**1.41**
P-value	0.011	0.022	0.444	0.099
Confidence interval for SRR				
High (97.5% limit)	1.15	1.21	0.80	0.99
Low (2.5% limit)	1.61	1.70	1.53	1.84

SRR Interpretation

SRR	Interpretation
< 1.0	Facility's total number of readmissions is less than expected, based on national rates
1.0	Facility performing as expected compared to national rates
> 1.0	Facility had a rate of total readmissions higher than would be expected given national rates

(UM-KECC, 2017)

Statistical Significance

- P-Value: probability that the SRR would differ from 1 as much as the observed SRR; often set at 0.05

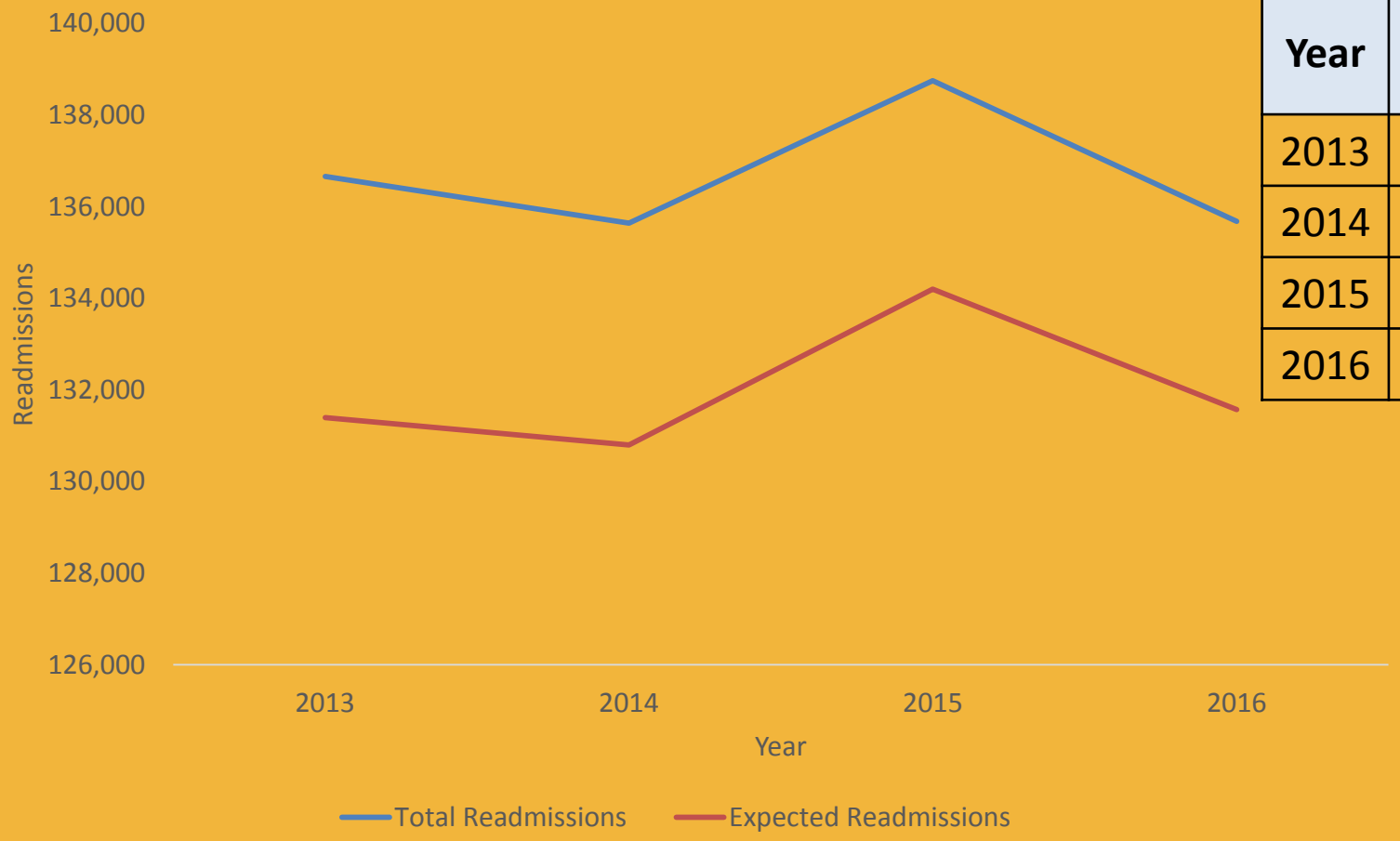
- P-value less than 0.05 would indicate that the difference between a facility's readmission rate and the nation's is unlikely to have arisen from random chance.

(UM-KECC, 2017)

MEASURE PERFORMANCE

DFR

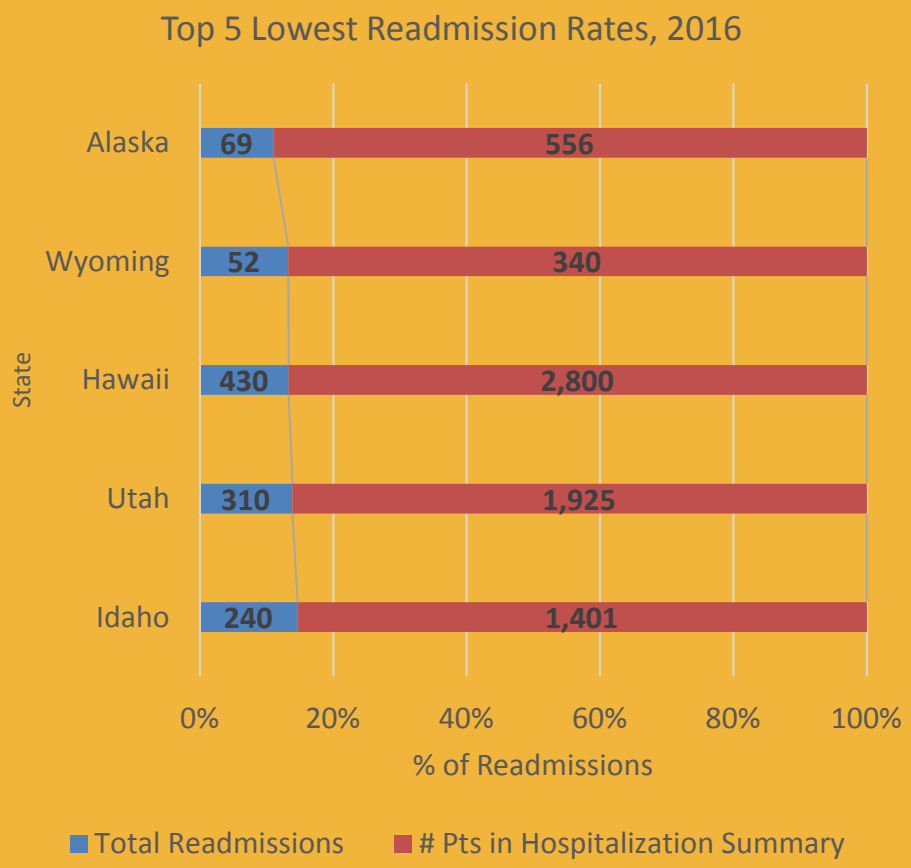
Total vs. Expected Readmissions

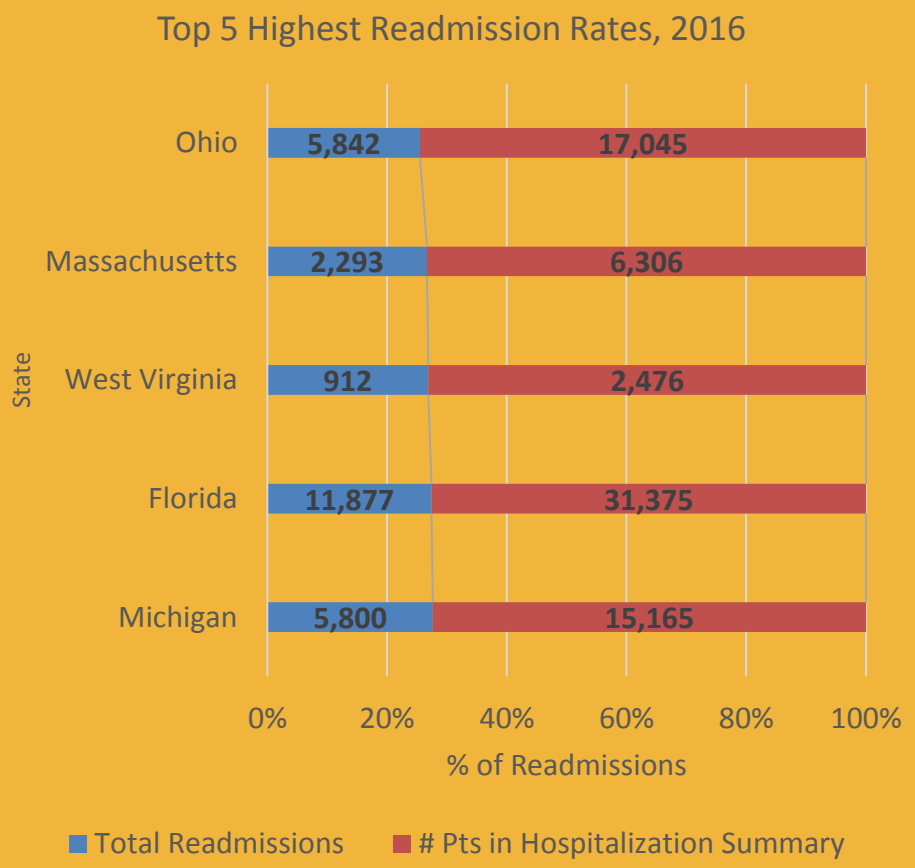


Year	Index Discharges
2013	506,060
2014	506,703
2015	517,224
2016	538,422

Source: FY2018 DFR Table 4

FY2018: High and Low Performers

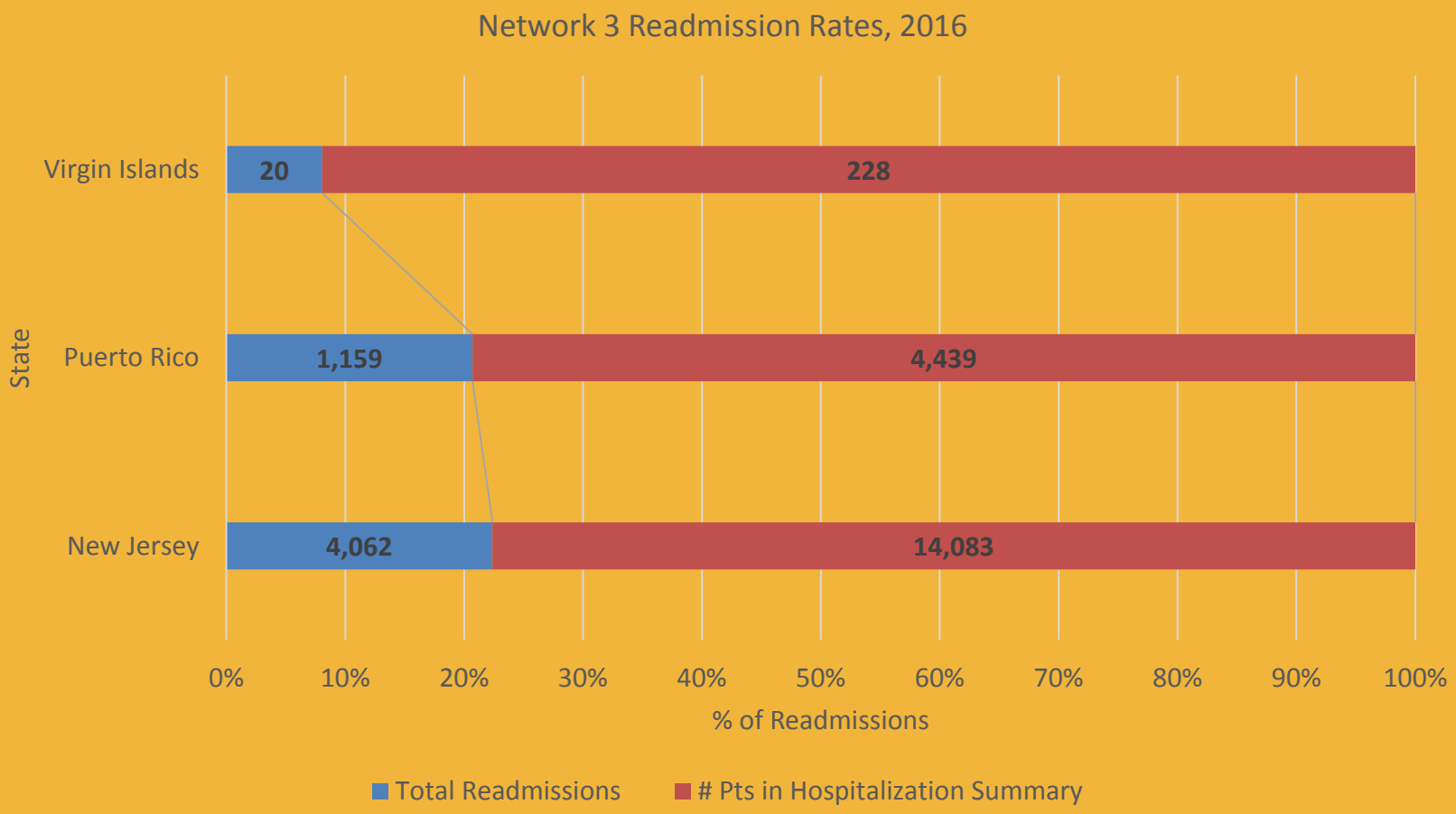




Source: FY2018 DFR Table 4

Note: Islands and territories are excluded from the state ranking; American Samoa (1%), Virgin Islands (9%), Guam 9%), Mariana Islands (14%)

FY2018: Network 3



Source: FY2018 DFR Table 4
Note: VI=9%, PR=26%, NJ=29%

SRR Performance, 2016

- Of the 6,574 facilities
  - 48% had an SRR < 1 indicating facility's total number of readmissions was less than expected, based on national rates
  - 2% had an SRR = 1 indicating total readmissions were as expected, based on national rates
  - 47% had an SRR > 1 rate of total readmissions higher than would be expected given national rates

Source: FY2018 DFR Table 4
Note: 238 (4%) facilities had an SRR=0, or did not receive an SRR

MEASURE PERFORMANCE

ESRD QIP

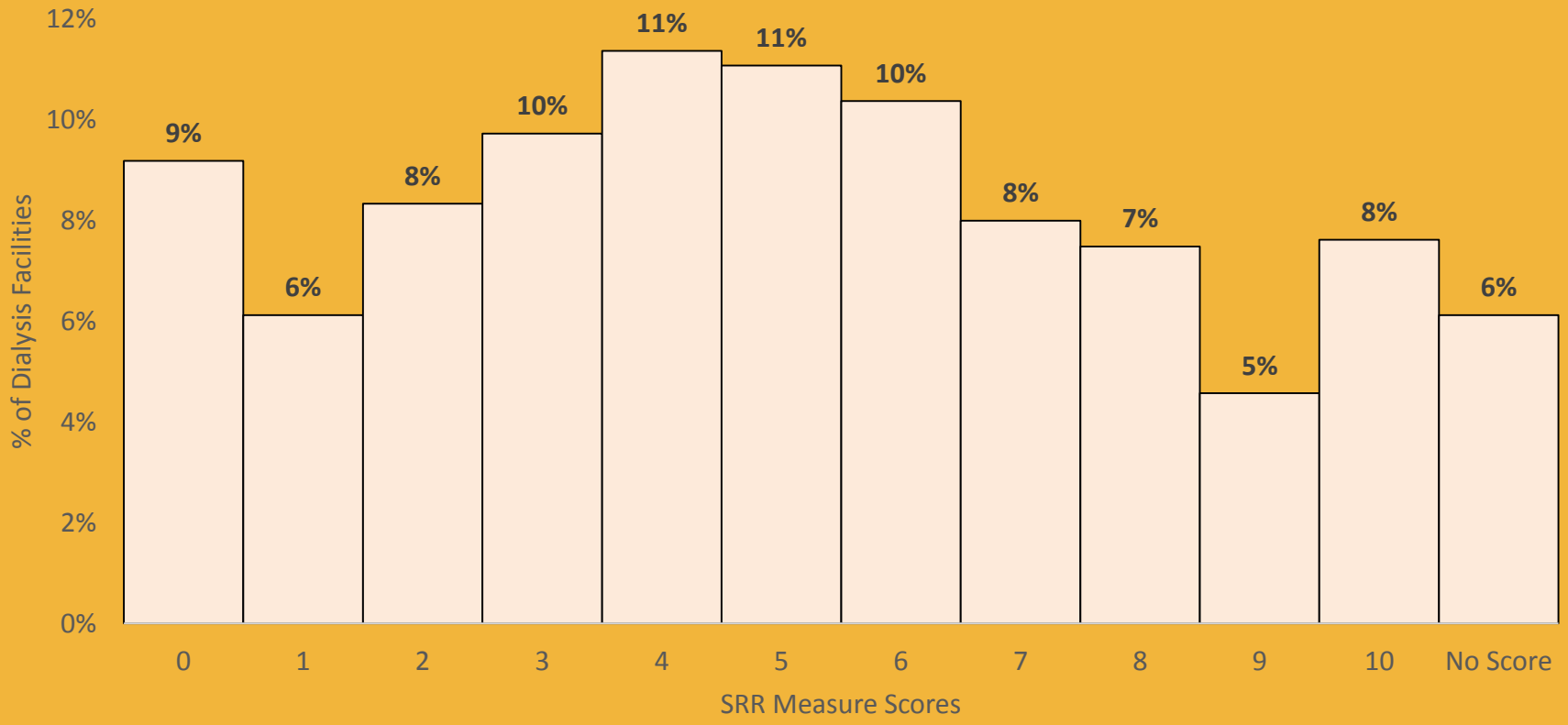
ESRD QIP PY2018

- Standardized Readmission Ratio
  - Patient and Family Engagement/Care Coordination Subdomain
  - Subdomain shared with ICH CAHPS measure

- Facilities receive score 0 to 10 points based on achievement score or improvement score
  - **Achievement**: comparing facility CY 2016 to nation CY 2014
    - 100% of SRR scores for PY 2018 among dialysis facilities were achievement scores
  - **Improvement**: comparing facility CY2016 to previous performance CY 2015

(CMS ESRD QIP PY2018 Final Rule)

PY2018 SRR Performance



Source: ESRD QIP PY2018 PSSR; Calendar Performance Year = 2016
Note: 6,407 received an SRR Measure Score

PY2018 ESRD QIP, State Averages

LOW PERFORMERS: SRR

State	SRR Measure Score
Florida	3
New York	4
Rhode Island	4
Massachusetts	4
New Jersey	4

HIGH PERFORMERS: SRR

State	SRR Measure Score
Maine	7
North Dakota	7
South Dakota	7
Alaska	8
Wyoming	9

Source: ESRD QIP PY2018 PSSR; Calendar Performance Year = 2016
Note: Islands and territories are excluded from the state ranking; *Low Performers*: Puerto Rico = 3, Washington DC = 3; *High Performers*: American Samoa=10, Guam=8, Virgin Islands=7

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PREVENTION

Predictors of Readmission: Patient

PATIENT-RELATED

<u>Comorbid Conditions</u>:
- Heart Failure
- Myocardial Infarction
- Malignancy
- Depression

BIOCHEMICAL MARKERS

- Anemia
- Hypoalbuminemia

DIALYSIS-RELATED

- Shorter Vintage
- Catheter Vascular Access

HOSPITAL-RELATED

- Day of Discharge
- Discharging service

(Powe et al., 1994; Flythe et al., 2016; Flythe, Hilbert, Kshirsagar & Gilet, 2017; Chan, Lazarus, Wingard & Hakim, 2009, Flythe, Hilbert & Gilet, 2017)

Question #5

My dialysis facility **has access** to hospital medical records for the patients dialyzing at my facility through a health information exchange or access to the hospitals electronic health record system (e.g., EPIC, Cerner, Meditech, etc.)?

A. YES

B. NO

Impact of Hospitalization

FINDINGS

- Hospitalization associated with significant decreases in albumin, hemoglobin, and phosphorus; increased impact with longer LOS

PREVENTION

- Appropriate anemia management and the administration of vitamin D within the first 7 days after discharge from hospital
- Eliminate “resume previous orders” post-hospital discharge for a patient returning to dialysis
- Consider promotion of oral intake and use of nutritional supplements to impact albumin levels/malnutrition
- Activate clinical judgement for mineral-metabolism monitoring and volume management post-hospitalization

(Chan, Lazarus, Wingard & Hakim, 2009)

Post-Discharge Patient Review

FINDINGS

- Patient management care plans
- Risks of adverse drug effects, inadvertent therapy duplications, and harmful drug interactions
- Incompatible electronic health records and breakdown or delayed communication between inpatient and outpatient providers

PREVENTION

- Review discharge summary to gain insight on future treatments or plan of care related to hospitalization; patient engagement, education and reinforcement
- Reconciliation of Medication Lists
- Obtain access to hospital-based computer system; develop an ongoing relationship with hospital case manager and/or acute care dialysis nurses, discharge rounds

(Castner, 2011)

Communication

FINDINGS

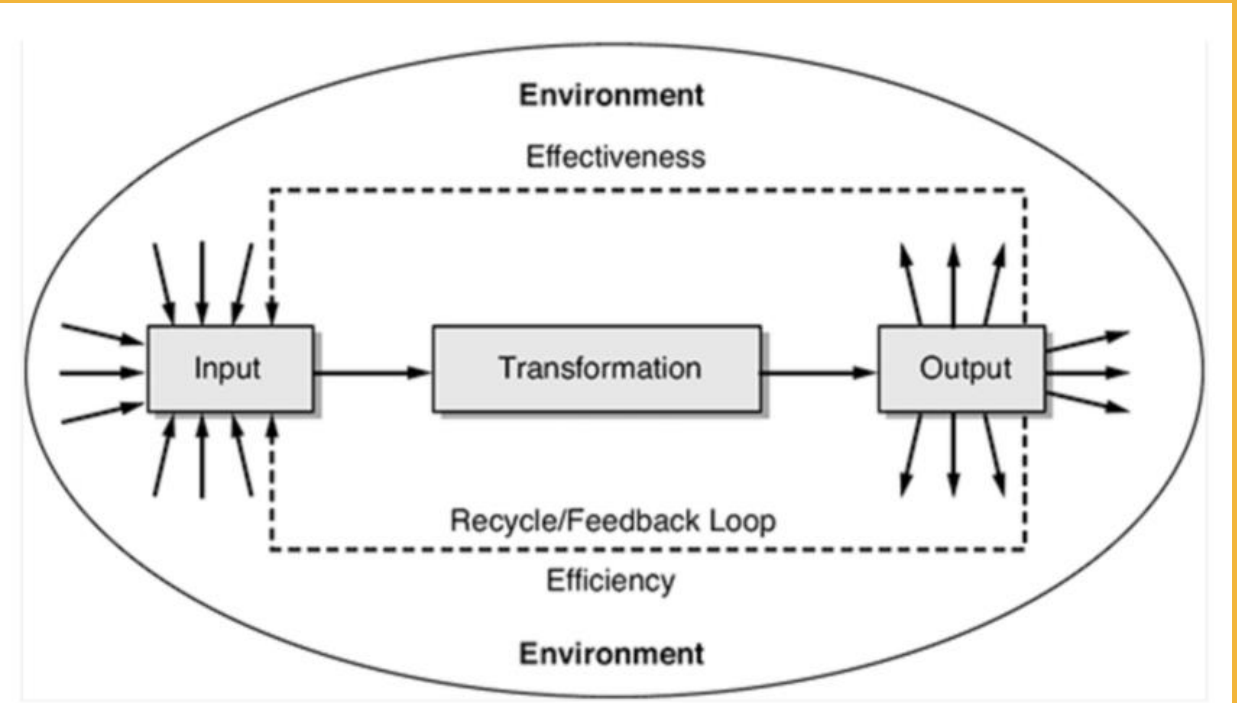
- Lack of standardized communication
- Time/workload imbalance
- Incompatible electronic records between facilities
- Unawareness of pending discharge plans

PREVENTION

- Creating explicit standards for communication
- Fostering accountability
- Documenting receipt in the outpatient clinic
- Continual feedback from outpatient to inpatient

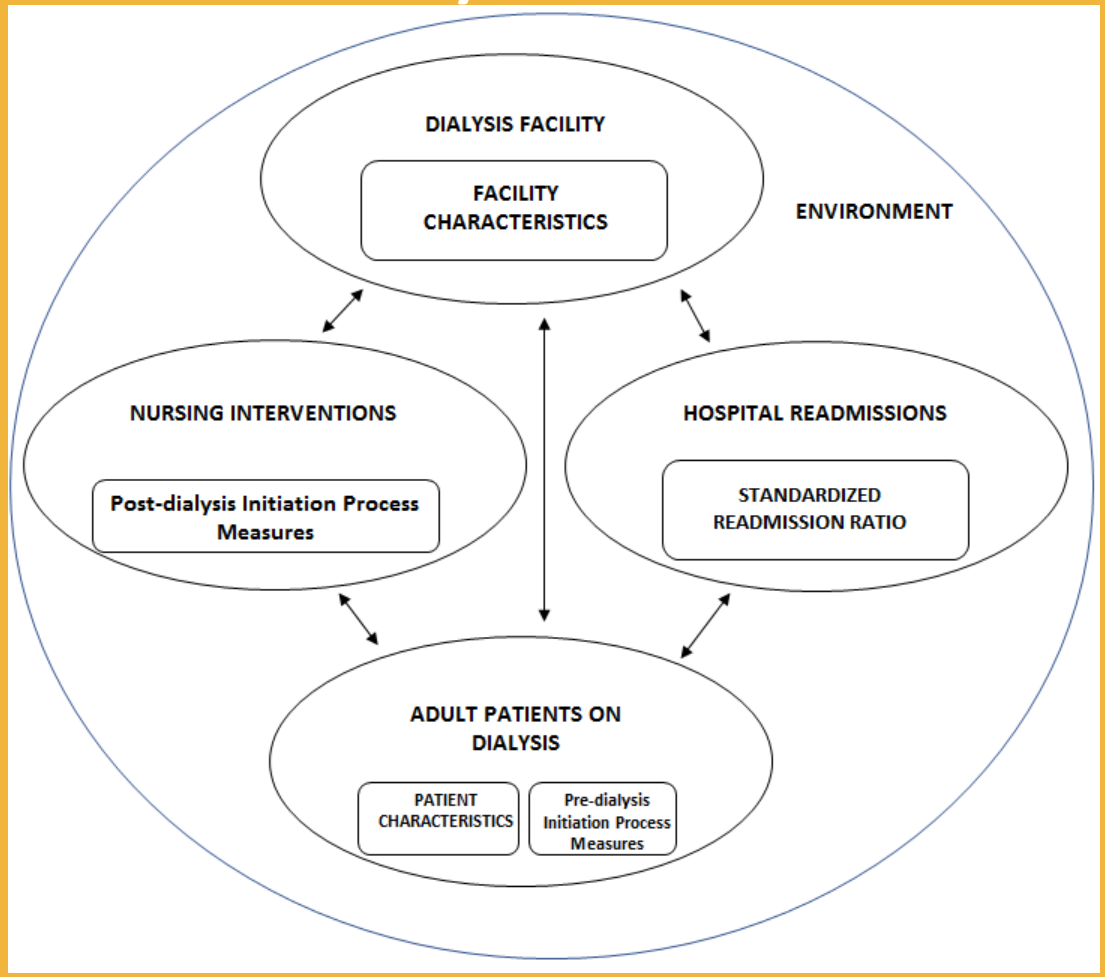
(Reilly, Marcotte, Berns & Shea, 2013)

Theoretical Foundation:
Open Systems Theory



Open Systems Theory (Katz & Kahn, 1978)

Shared Accountability in Health Outcomes in Dialysis Model



(Paulus, 2018)
Adapted from the Quality Health Outcomes Model (Mitchell, Ferketich & Jennings, 1998) and Open Systems Theoretical Framework (Katz & Kahn, 1978)

Areas of Focus:
How, What, Who

- **Where is the patient receiving dialysis?**
  - Organization affiliation
  - Size of clinic

- **Who is taking care of patients in the dialysis facility?**
  - Staff

Areas of Focus:
How, What, Who

- **How did the patient come to dialysis?**
  - Pre-nephrology care prior to dialysis initiation
  - Modality (Home HD, PD, In-center HD)
  - Transplant Waitlisting
  - Vascular Access

Areas of Focus:
How, What, Who

- **What do we do with the patient once they are on dialysis?**
  - Vascular Access Management
  - Mineral Metabolism Disorders
  - Anemia
  - Adequacy
  - Access to treatment options (modality, transplant)

Questions/Feedback

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