IMPACT of Chronic Liver Disease on Healthcare Systems

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CLDF
Chronic Liver Disease Foundation

The Prevention of Rehospitalization of the Chronic Liver Disease Patient

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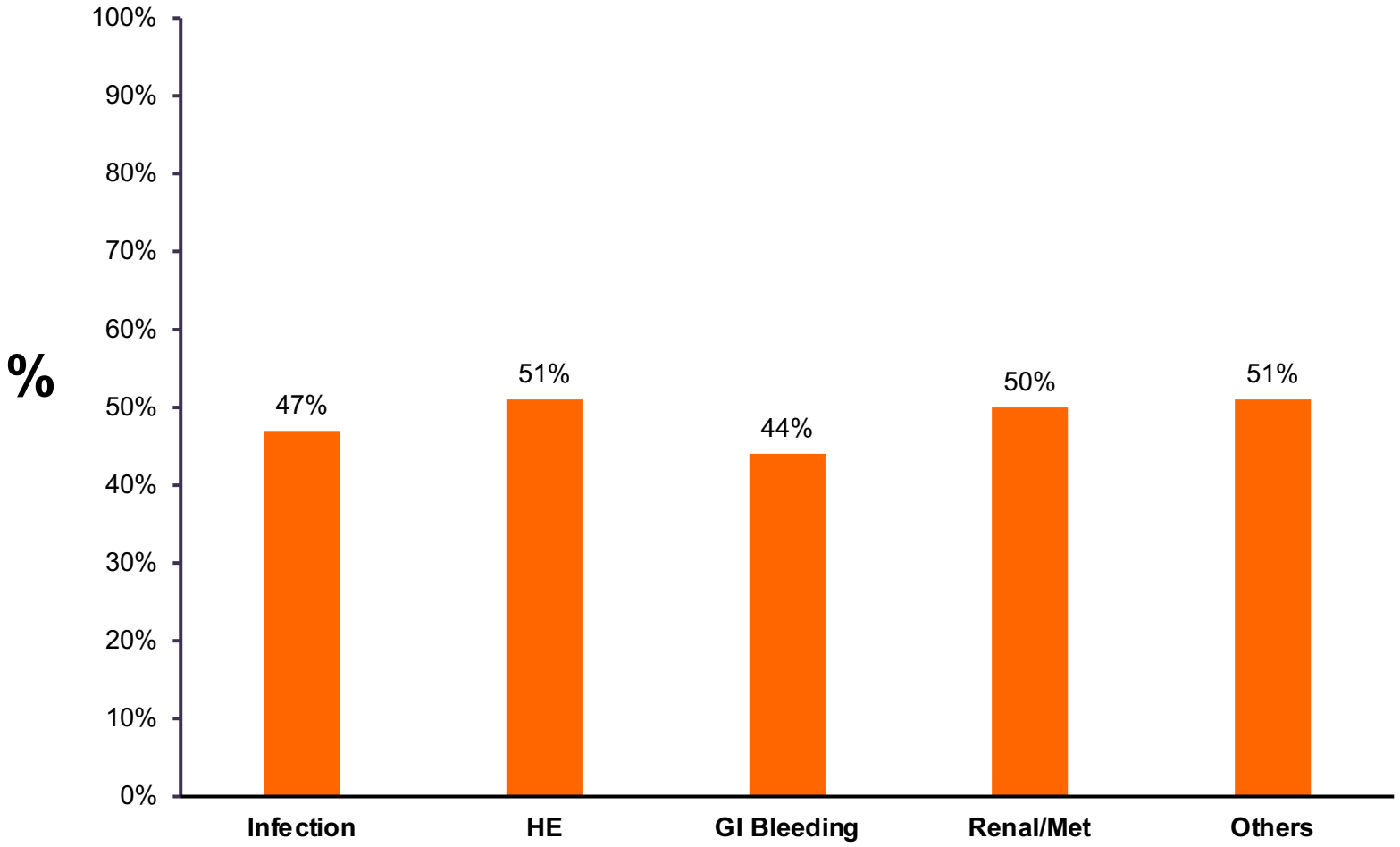
Readmissions in Patients With Cirrhosis

- Readmission rates are frequently used as a quality measure for hospitalized patients
- Patients with cirrhosis have high rates of readmission ranging from 14% at one week to 75% at one year following discharge
- Readmissions have been associated with both increased mortality as well as cost
- Reduction of readmissions should focus first on implementation of strategies prior to discharge which may positively impact risk

Volk M et al. *Am J Gastroenterol*. 2012; 107(2): 247–252; Bini EJ et al. *Hepatology* 2001;34: 1089–1095;
Planas R et al. *J Hepatol*. 2004;40:823–830.

Causes of Readmission

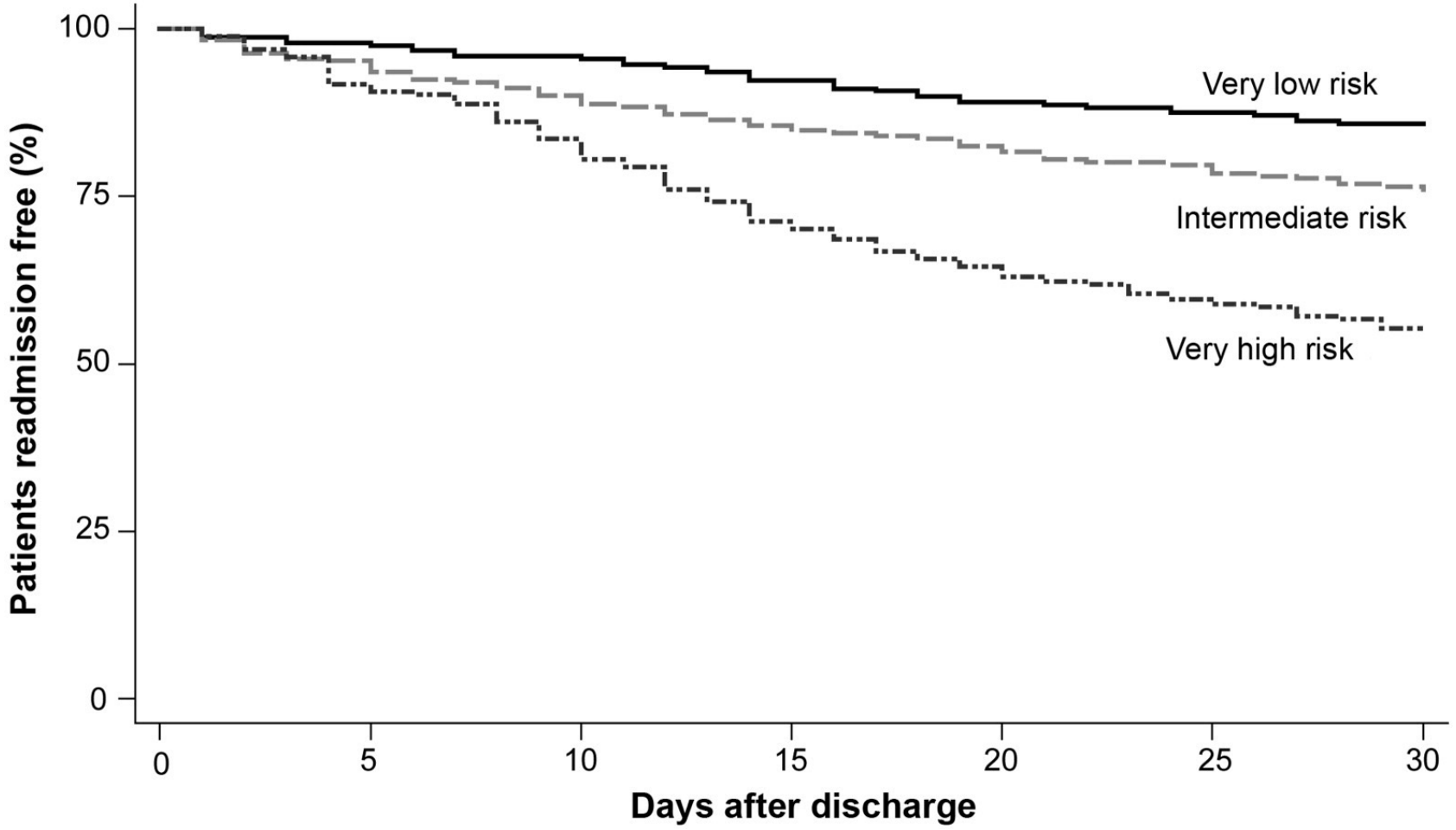


Multi-center North American Study looking at causes of Readmissions in patients with Cirrhosis

1353 patients monitored for Readmission over 3 mo following hospitalization

Bajaj JS et al. *Hepatology.* 2016 Jul; 64(1): 200-208.

Can We Predict Readmission?



Single center
836 patients

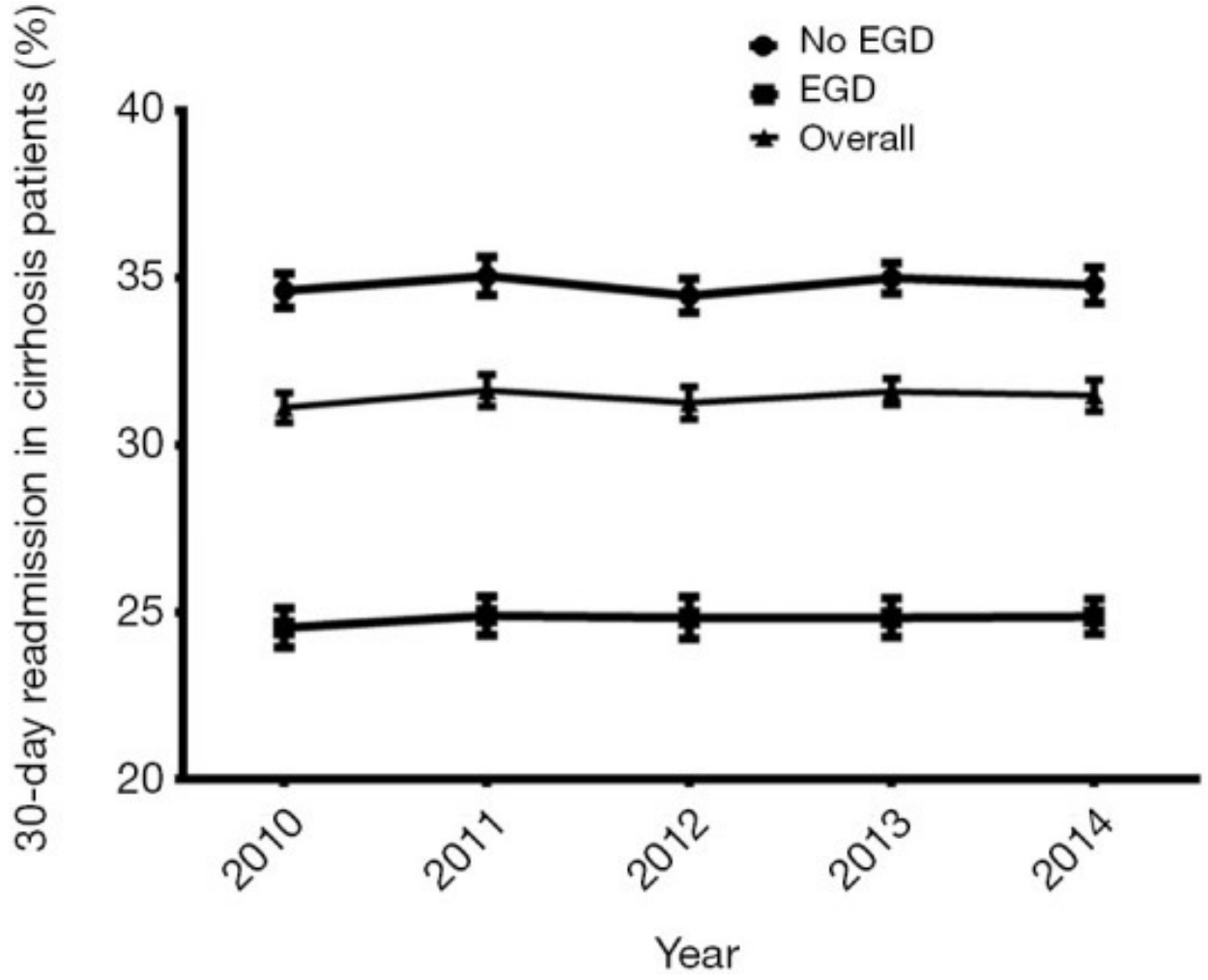
Variables
Extracted from
EMR

Singal AG et al. *Clinical Gastroenterology and Hepatology*. 2013; 11: 1335-1341.

Can We Influence Known Reasons for Readmission?

- The most common causes of readmission in patients with cirrhosis include GI bleeding, Ascites, Metabolic/Renal, HE, Infection
- Can targeted management of these complications influence readmission and are there data to support?
- In the absence of data, are there guidelines to decrease risk of complications which may logically influence readmission rates?

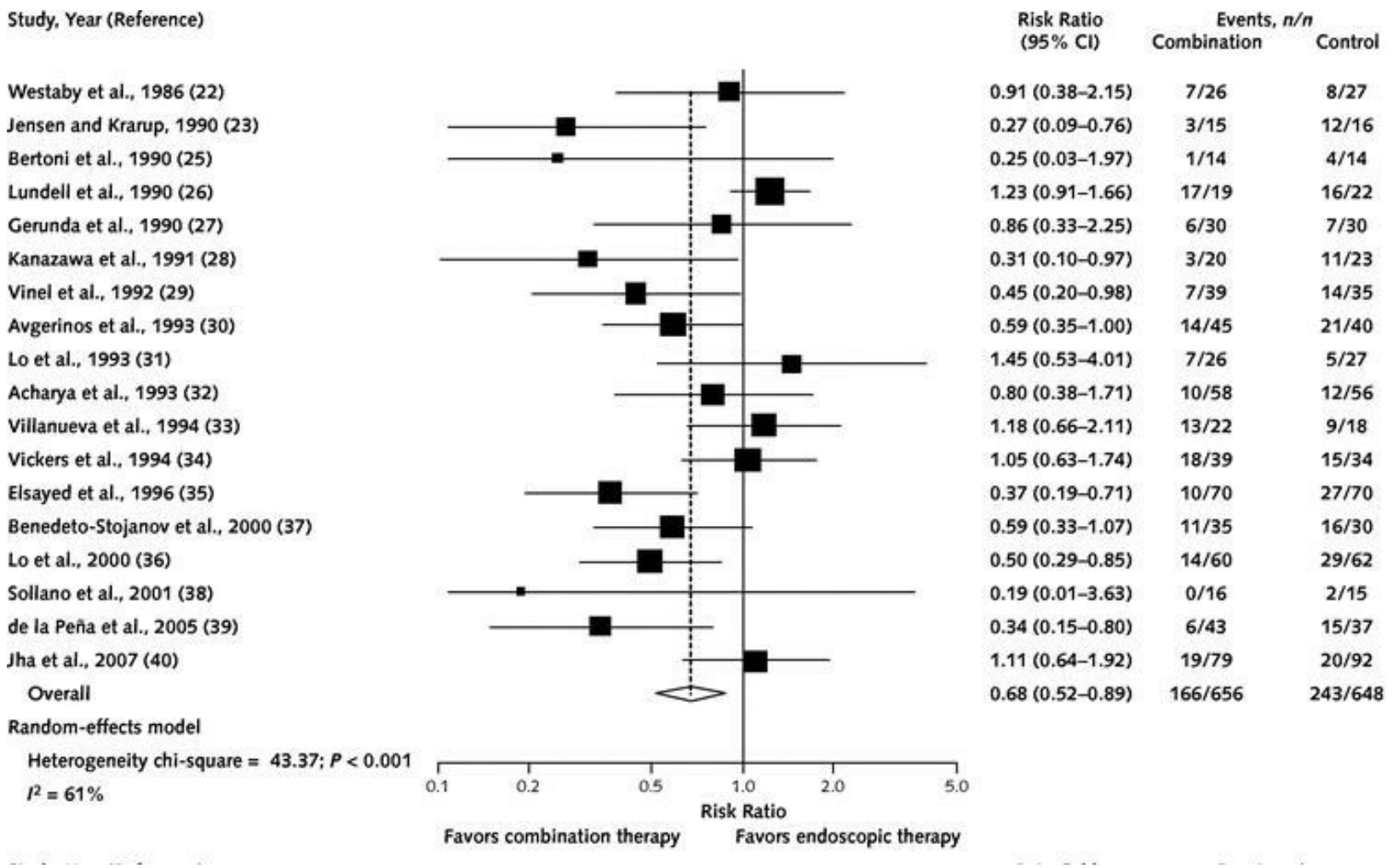
GI Bleeding



Retrospective US National Readmissions Database
303,346 patients

Garg SK et al. *Ann Translational Med*. 2021; Jul 9(13): 1052.

Meta-Analysis Rebleeding



Gonzalez R. *Ann Int Med*. 2008;149:1-9-22.

AASLD Guidelines

- **Prevention of first variceal hemorrhage** includes non-selective beta blockers or endoscopic variceal ligation for patients with medium to large varices
- Combination of non-selective beta blockers and endoscopic variceal ligation is first-line therapy in the **prevention of rebleeding**
- Endoscopic variceal ligation should continue **every 1-4 weeks** until eradication

AASLD Guidelines. *Hepatology*. 2017;65(1): 310-35.

AASLD Guidelines Ascites

- Patients with ascites admitted to the hospital should undergo abdominal paracentesis.
- Discontinue nonsteroidal anti-inflammatory drugs, angiotensin converting enzyme inhibitors, angiotensin receptor blockers
- First-line treatment of patients with cirrhosis and ascites consists of sodium restriction (88 mmol per day [2000 mg per day], diet education,) and diuretics (oral spironolactone with or without oral furosemide).
- Primary prophylaxis with norfloxacin (or trimethoprim/sulfamethasoxazole) can be justified if the ascitic fluid protein $\leq$ 1.5 g/dL
- Patients who have survived an episode of spontaneous bacterial peritonitis (SBP) should receive long-term prophylaxis with daily norfloxacin (or trimethoprim/sulfamethoxazole).

AASLD Practice Guidelines. *Hepatology*. 2021; 74(2): 1015-48.

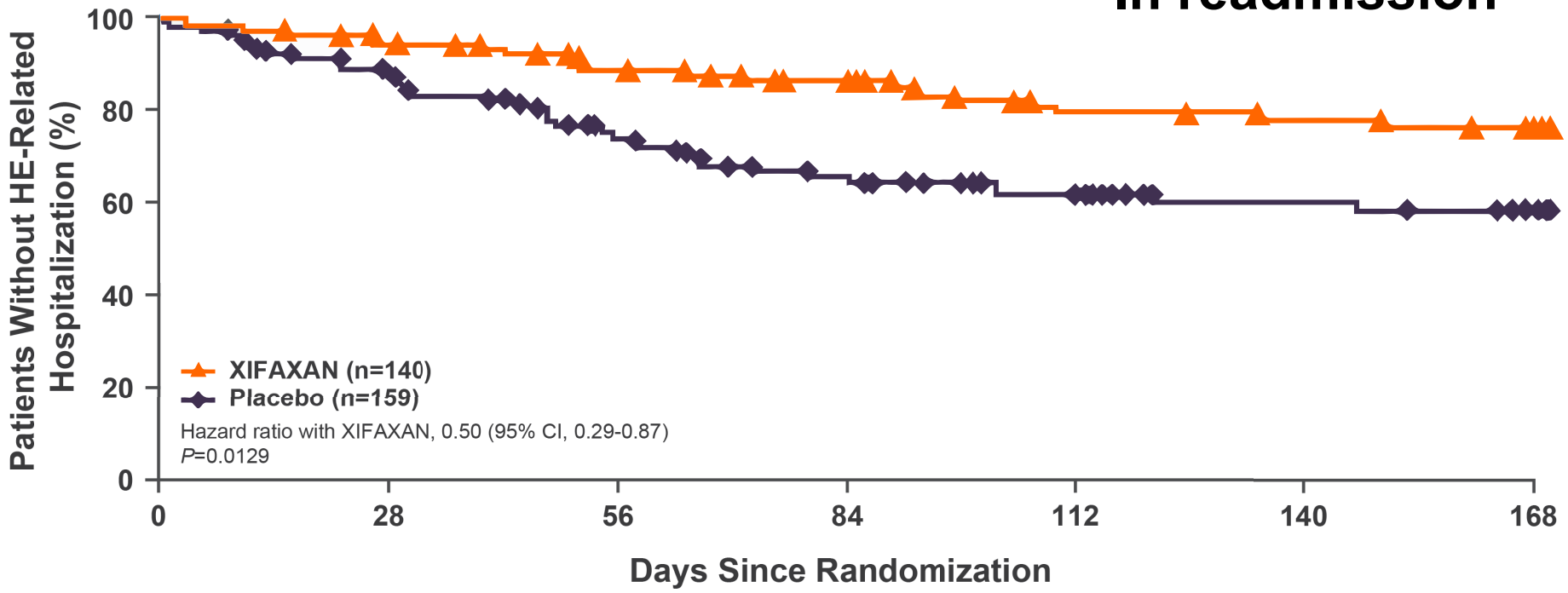
Will Guidelines Reduce Admission?

- Primary prophylaxis of low protein ascites delays HRS and improves survival
- Oral antibiotic prophylactic therapy reduces short term mortality

Fernandez J. *Gastroenterology.* 2007;133:818-824; Saab S. *Am J Gastro*. 2009. 104: 993-1001.

Hepatic Encephalopathy

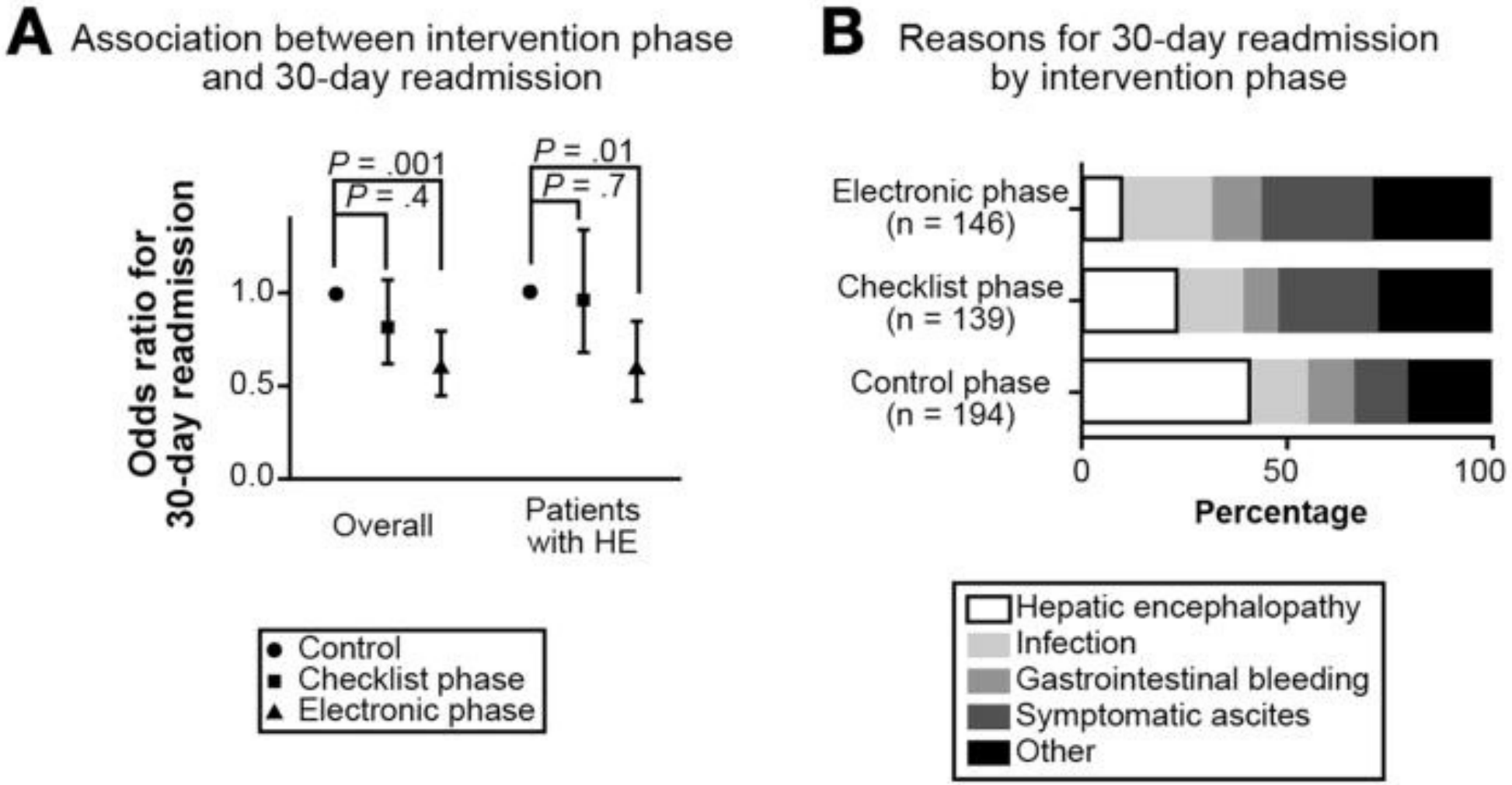
50% reduction
In readmission



Supported by AASLD Guidance to reduce risk of recurrent HE

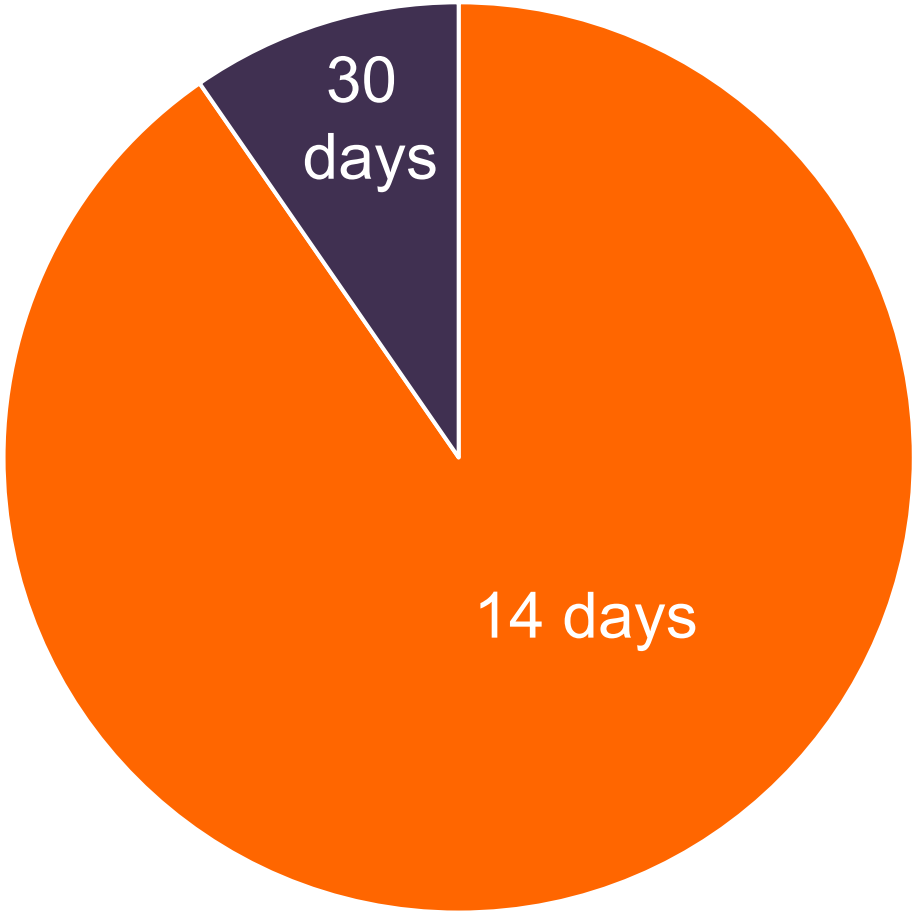
Bass NM et al. *N Engl J Med*. 2010;362(12):1071-1081.

Strategies to Reduce Readmission



Tapper EB et al. *Clin Gastro Hepatol*. 2016; May 14(5): 753-9.

Rifaximin: # Days Supplied 2019



Ensure adequate supply at Discharge

Prior Auth prior to discharge

Provide refills

Rifaximin - Drug Usage Statistics, ClinCalc DrugStats Database.

Metabolic/Renal

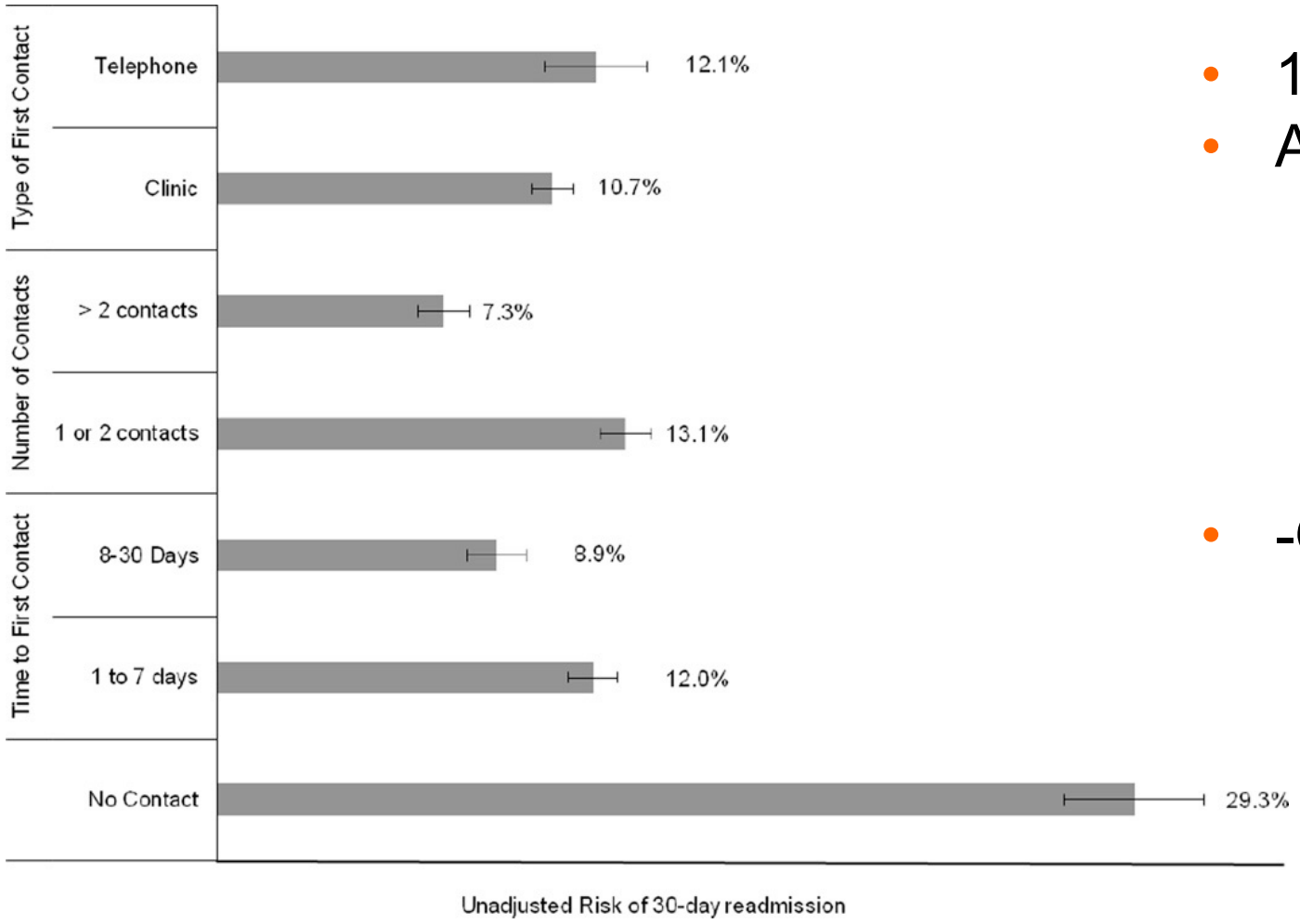
- Strategies to prevent readmission due to metabolic/renal disease
  - Discontinuation/avoidance of NSAIDS
  - Discontinuation of ACE/ARB
  - Prophylaxis for infection (SBP)
  - Reduction/withdrawal of diuretics in decompensated patients
  - Management of lactulose to achieve 2-3 BM daily to avoid dehydration
  - Management of BP to maintain adequate mean arterial pressure (midodrine)
  - Monitoring of beta blockers to avoid hypotension
  - Early follow-up of electrolytes and renal function following changes in diuretics or medications

Early Follow-Up Post Discharge

- Systematic review in Ontario of 7 or 30 day follow-up as compared with no or longer follow-up showed a reduction in readmissions, ER visits and mortality in patients with CHF and COPD
- 578 patients discharged from the hospital showed readmission rates of 8% vs 14.3% if they received a scheduled appointment.
- Patients who received an appointment prior to discharge had a 61% lower chance of readmission as compared with those who did not (OR 0.383)

Ont Health Technol Assess Ser. 2017; 17(8): 1–37; Baky V. *Int J Card*. 2018;257:12-15.

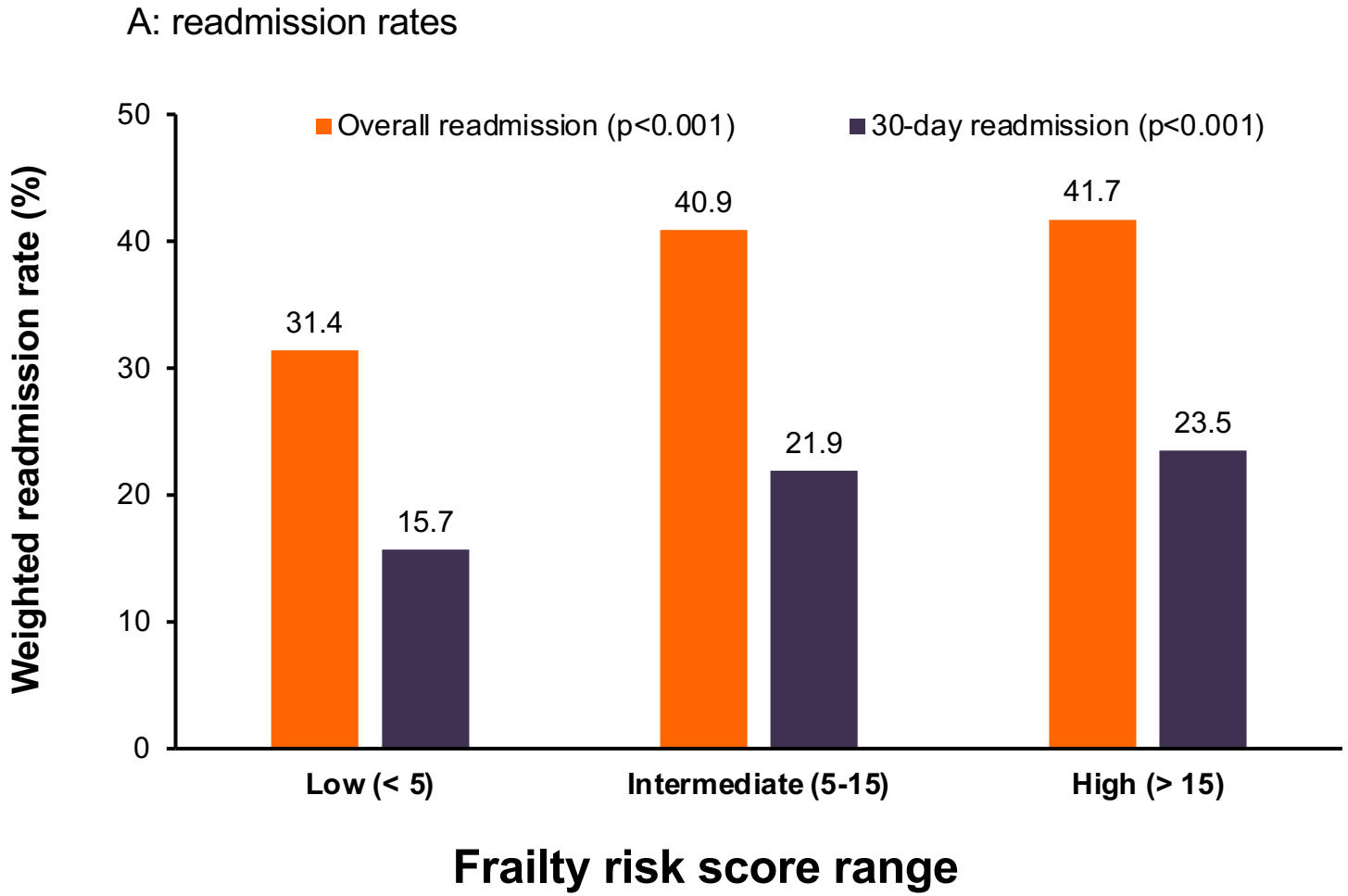
Early Follow-up Reduces Readmissions in Heart Failure



- 11,985 adults hospitalized for HF
- Adjusted for
  - Socioeconomic and clinical factors
  - Severity of illness
  - Hospital characteristics
  - Discharge medication changes
  - Laboratory testing
- -Odds of readmission
  - 7 day follow-up OR 0.81
  - 8-30 day follow-up OR 0.99

Lee KK et al. *Med Care.* 2016;54(4):365-72.

Frailty as a Risk Factor for Readmissions



Retrospectively assessed 2016 US Nationwide Readmissions Database (NRD) adults ≥ 65 years with pre-existing CHD

Intermediate and High Frailty scores were associated with increased risk of readmissions as compared with low scores

Davis-Ajami ML. *Aging and Health Research.* 2001; 1(4).

Summary

- Guidance driven quality measures can be incorporated into the care of inpatients with cirrhosis
- Although not all have been proven to reduce readmissions specifically, they have been shown to decrease the risk of occurrence of the primary drivers of readmission
- Establishing follow-up prior to discharge for laboratory evaluation, paracentesis, endoscopy and clinical assessment is critical to ensure continuity of care inpatient to outpatient with the goal to decrease the risk of complications and readmissions and ensure appropriate quality measures are established and enforced