



## Hospital Readmissions for Decompensated Cirrhosis

Michael L. Volk, MD, MSc

Among patients with decompensated cirrhosis, hospital readmissions are common, costly, partially preventable, and independently associated with mortality.<sup>1</sup> This review will discuss the scope of the problem, emphasize why clinicians should care about this problem, and describe potential solutions that can be readily implemented in clinical practice.

### Scope of the Problem

In all disease states, early hospital readmissions are increasingly being viewed as a public health threat. Among the Medicare population, 19% of those discharged from an acute-care hospital are readmitted within 1 month, at a cost of > \$17 billion, which represents nearly 20% of the Medicare budget.<sup>2</sup> Patients discharged after a hospitalization for decompensated cirrhosis have an even higher rate of early readmission, at 20% to 37% within the first month (see Fig. 1). These readmissions are associated with an increased risk of subsequent mortality, despite adjustment for other risk factors such as severity of liver disease.<sup>1,3</sup>

### Why Should Clinicians Care?

If these readmissions were entirely due to disease exacerbations, they would not garner nearly the attention they have. On the contrary, an extensive body of literature has demonstrated that many of these readmissions are *avoidable*. The discharge process is a time of extreme vulnerability to medical errors; new diagnoses have arisen, new medications are being prescribed, and management of the patient is being transitioned from one group of providers to another. Unfortunately, significant deficits exist in patient education and communication from inpatient to outpatient providers. In various studies, these deficits are felt to account for anywhere from 9% to 48% of readmissions.<sup>4</sup> In our study on cirrhosis readmissions, consensus from independent reviewers attributed 22% of readmissions to errors such as inadequate patient education

about medication dosing (especially how to adjust lactulose) or lack of prompt follow-up labs or clinic visit to adjust diuretics.<sup>1</sup> Table 1 shows common preventable reasons for cirrhosis readmissions, along with potential solutions.

Not only should every clinician want to prevent avoidable readmissions, but there are increasing regulatory and financial incentives to care about this problem. The Centers for Medicare and Medicaid Services Readmission Reduction program currently penalizes hospitals with higher than expected readmissions for myocardial infarction, heart failure, and pneumonia; this is likely to expand to all readmissions in the near future. Following this lead, some private insurers are scrutinizing early readmissions and reimbursing the second stay as an extension of the first, which cuts into the hospital profit. Additionally, the advent of Accountable Care Organizations and other risk-based insurance contracts means that any unnecessary costs incurred by patients in these plans will be shared by the hospital and clinicians. Early readmissions for cirrhosis are quite expensive—direct costs average \$25,000 for these hospitalizations at our institutions (2009 dollars).<sup>1</sup> This means that clinicians interested in preventing readmissions may find their hospital administrators to be willing and eager partners.

### Interventions to Decrease Readmissions

More than 50 randomized trials have tested various interventions, mostly in elderly patients with heart failure, with mixed results.<sup>5</sup> Synthesis of this literature is complicated by bundling of interventions and heterogeneity between studies in the patient populations, methods of implementation, and local health care environment. Only one small pilot study has been done in patients with cirrhosis.<sup>6</sup> Although more research certainly is needed, this does not prevent clinicians from making small changes to their practice to improve care

Abbreviations: PCDI, patient-centered discharge instructions.

From the Division of Gastroenterology and Hepatology, University of Michigan Health System, Ann Arbor, MI

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right now. Several important lessons can be gleaned from the literature on readmissions.

Some of the simplest interventions also appear to be the most effective. A recent systematic review identified a pattern whereby the studies with positive benefit tended to include two components: Patient-Centered Discharge Instructions (PCDI) and an early postdischarge telephone call or clinic visit.<sup>5</sup> PCDI means simply providing discharge instructions in a patient-friendly and readable format. Most discharge summaries are bloated documents with extensive medical jargon, serving more as an exhaustive accounting of the hospital stay rather than a communication tool. The

PCDI, or After Hospital Care Plan, contains in large, readable format only the most important information for patients to know, plus a follow-up plan with calendar and “patient activation” section to encourage patients to write down questions for their next phone call or visit. An early postdischarge telephone call occurs within 72 hours, and reviews patients’ health status, medications, appointments, home services, and plan for what to do if problems arise. These calls should be made by someone involved in the patient’s care in the hospital, the outpatient clinic, or both (called a “transition provider”); and reimbursement for these calls is provided by many insurers in the form of transaction codes. Detailed instructions about how to implement the PCDI and postdischarge telephone calls are available from the Agency for Healthcare Research and Quality-funded Project RED Toolkit at <http://www.bu.edu/fammed/projectred/toolkit.html>. Another toolkit based on similar themes is available from the Care Transitions Program at <http://www.caretransitions.org/>.

Implementation is just as important as the intervention. Unlike a pill, effectiveness of these interventions is significantly influenced by the person who delivers them, as well as the local health care environment. A glossy, colorful and easily readable PCDI packet will be only marginally effective if it is simply dropped in the patient’s lap. Instead, these instructions need to be carefully reviewed with the patient and the family caregiver, and the importance of the PCDI needs to be reinforced by the outpatient providers. At our institution, for example, patients are instructed to bring their Cirrhosis Toolkit to every visit; if they show up to the clinic empty-handed, then we remind them.<sup>7</sup> Similarly, the postdischarge telephone calls need to

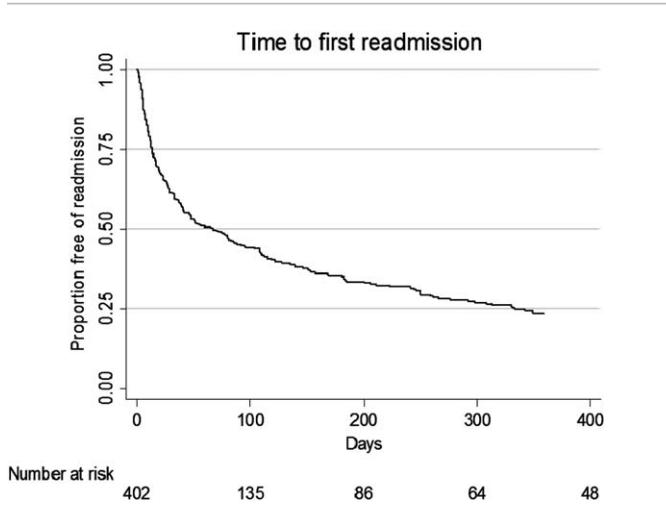


Figure 1 Time to first readmission among patients with decompensated cirrhosis. Reproduced from Volk et al.<sup>1</sup>

TABLE 1 Common Preventable Reasons for Early Readmission Among Patients With Decompensated Cirrhosis, Along With Potential Solutions

Deficit	Goal	Intervention(s)
Patient stops having bowel movements, yet fails to adjust lactulose, leading to readmission for encephalopathy.	Improve patient/caregiver knowledge about lactulose.	PCDI. Involve/train caregivers. Postdischarge telephone call.
Patient takes incorrect dose of diuretics, leading to readmission for under- or over-diuresis.	Improve patient/caregiver knowledge about medications and dosing Transition care from inpatient to outpatient team.	PCDI Postdischarge telephone call. Medication reconciliation at outpatient clinic.
Patient waits until ascites is severe before calling, leading to admission for urgent paracentesis.	Improve patient/caregiver knowledge about when and where to call.	PCDI Postdischarge telephone call. Accessible phone triage system in outpatient clinic.
Patient is discharged on increased dose of diuretics, then presents to the ER with overdiuresis.	Improve postdischarge monitoring.	PCDI with clear instructions for follow-up labs or clinic visit. Postdischarge telephone call Home health referral.
Patient has slow bleeding from portal hypertensive gastropathy or GAVE, and presents to the ER with symptomatic anemia.	Improve postdischarge monitoring.	PCDI with clear instructions for follow-up labs or clinic visit. Post-discharge telephone call Home health referral.

ER = emergency room; GAVE = gastric antral vascular ectasia; PCDI = patient-centered discharge instructions.



be made by an experienced nurse educator trained in techniques to facilitate patient understanding, such as the “teach-back” method.<sup>8</sup>

**Preventing readmissions is a continuous process.** Local healthcare environments vary significantly, so an intervention proven in one setting may need to be modified to apply to another. For this reason, readmission interventions are often mini-experiments: It is not practical to conduct a randomized trial for each change, so follow-up is needed to determine whether the change worked as intended. This is the basis behind the “Plan-Do-Study-Adjust” cycle of quality improvement popularized by W. Edwards Deming.<sup>9</sup> In order to determine effectiveness, it is helpful to measure not only hospital readmissions over time, but also intermediate endpoints such as patient understanding of their discharge instructions. Second, clinical medicine changes: What was appropriate care one year may be outdated the next. Third, the individuals in

an organization change, and “institutional memory” about process changes can wane over time. Finally, a continuous effort to prevent readmissions makes this problem an appropriate focus of emphasis in the organizational culture.

## Summary

Preventable hospital readmissions are common among patients with decompensated cirrhosis. Not only are they harmful to patients, they also negatively impact the financial margin for hospitals and clinicians. In the future, advanced technology will likely be used to improve patient education and in-home monitoring.<sup>10,11</sup> For now, however, clinicians can help prevent readmissions with simple interventions such as PCDIs and early postdischarge telephone calls.

### CORRESPONDENCE

Michael L. Volk, MD, MSc, Division of Gastroenterology and Hepatology, University of Michigan Health System, 1500 E Medical Center Drive, 3912 Taubman, Ann Arbor, MI 48109. E-mail: mvolk@med.umich.edu.

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