**Supplementary Material**

**Detailed Search Strategies**

**MEDLINE (Ovid):**

1 exp Patient Readmission/

2 exp Patient Admission/

3 (readmi\* or re admi\* or rehospitali\* or re hospitali\*).mp.

4 exp Liver Cirrhosis/

5 exp End Stage Liver Disease/

6 exp Hepatic Encephalopathy/

7 (cirrhosis or cirrhotic\*).mp.

8 ((end stage or endstage or advanced or chronic or fibrosis or fibrotic or compensat\* or decompensat\*) adj5 (liver or hepatic)).mp.

9 exp Ascites/

10 exp Ascitic Fluid/

11 exp "Esophageal and Gastric Varices"/

12 exp Hepatorenal Syndrome/

13 exp Hepatopulmonary Syndrome/

14 exp Hypertension, Portal/

15 (portopulmonary or porto pulmonary or hepatopulmonary or hepato pulmonary or hepatorenal or hepato renal).mp.

16 (portal vein thrombosis or portal venous thrombosis).mp.

17 bacterial peritonitis.mp.

18 (or/1-3) and (or/4-17)

19 limit 18 to english language

20 limit 19 to yr="2000 -Current"

**PubMed (PubMed.gov):**

#1 readmi\* OR re admi\* OR rehospitali\* OR re hospitali\*

#2 cirrhosis OR cirrhotic\*

#3 ("end stage" OR endstage OR advanced OR chronic OR fibrosis OR fibrotic OR compensat\* OR decompensat\* OR encephalopath\*) AND (liver OR hepatic)

#4 ascites OR ascitic OR ((esophag\* OR oesophag\* OR gastric OR stomach) AND varices) OR "bacterial peritonitis"

#5 "portal hypertension" OR "portal vein thrombosis" OR "portal venous thrombosis"

#6 hepatorenal OR "hepato renal" OR portopulmonary OR "porto pulmonary" OR hepatopulmonary OR "hepato pulmonary"

#7 #1 AND (#2 OR #3 OR #4 OR #5 OR #6)

Filters: Publication date from 2000/01/01 to 2016/12/31; English

#8 #7 NOT medline [sb]

**EMBASE (Embase.com):**

#1  'hospital readmission'/exp

#2  readmi\* OR re NEXT/1 admi\* OR rehospitali\* OR re NEXT/1 hospitali\*

#3  'liver cirrhosis'/exp

#4  'end stage liver disease'/exp

#5  'hepatic encephalopathy'/exp

#6  'chronic liver failure'/exp

#7  'severe hepatic impairment'/exp

#8  cirrhosis OR cirrhotic\*

#9  ('end stage' OR endstage OR advanced OR chronic OR fibrosis OR fibrotic OR compensat\* OR

decompensat\* OR encephalopath\*) NEAR/5 (liver OR hepatic)

#10  'ascites'/exp

#11  'ascites fluid'/exp

#12  'esophagus varices'/exp

#13  'stomach varices'/exp

#14  'hepatorenal syndrome'/exp

#15  'hepatopulmonary syndrome'/exp

#16  'portal hypertension'/exp

#17  'portal vein thrombosis'/exp

#18  hepatorenal OR 'hepato renal' OR portopulmonary OR 'porto pulmonary' OR hepatopulmonary OR 'hepato pulmonary'

#19  'bacterial peritonitis'/exp

#20  (#1 OR #2) AND (#3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 OR #12 OR #13 OR #14 OR #15 OR #16 OR #17 OR #18 OR #19) AND [english]/lim AND [2000-2016]/py

**CINAHL (EBSCOhost):**

S1 (MH "Readmission")

S2 (MH "Patient Admission")

S3 readmi\* OR (re W1 admi\*) OR rehospitali\* OR (re W1 hospitali\*)

S4 (MH "Liver Cirrhosis+")

S5 (MH "Hepatic Encephalopathy")

S6 cirrhosis OR cirrhotic\*

S7 ("end stage" or endstage or advanced or chronic or fibrosis or fibrotic or compensat\* or decompensat\*) N5 (liver or hepatic)

S8 (MH "Ascites")

S9 (MH "Esophageal and Gastric Varices")

S10 (MH "Hepatorenal Syndrome")

S11 (MH "Hepatopulmonary Syndrome")

S12 (MH "Hypertension, Portal+")

S13 hepatorenal OR "hepato renal" OR portopulmonary OR "porto pulmonary" OR hepatopulmonary OR "hepato pulmonary"

S14 "portal vein thrombosis" OR "portal venous thrombosis"

S15 "bacterial peritonitis"

S16 (s1 OR s2 OR s3) AND (s4 OR s5 OR s6 OR s7 OR s8 OR s9 OR s10 OR s11 OR s12 OR s13 OR s14 OR s15) Limiters - Published Date: 20000101-20161231; English Language

**Cochrane Library (Wiley):**

#1 (readmi\* or re next admi\* or rehospitali\* or re next hospitali\*):ti,ab,kw

#2 (cirrhosis or cirrhotic\*):ti,ab,kw

#3 (("end stage" or endstage or advanced or chronic or fibrosis or fibrotic or compensat\* or decompensat\* or encephalopath\*) near/5 (liver or hepatic)):ti,ab,kw

#4 (ascites or ascitic or ((esophag\* or oesophag\* or gastric or stomach) and varices) or "bacterial peritonitis"):ti,ab,kw

#5 ("portal hypertension" or "portal vein thrombosis" or "portal venous thrombosis"):ti,ab,kw

#6 (hepatorenal or "hepato renal" or portopulmonary or "porto pulmonary" or hepatopulmonary or "hepato pulmonary"):ti,ab,kw

#7 #1 and (#2 or #3 or #4 or #5 or #6) Publication Year from 2000 to 2016

**Scopus (Scopus.com):**

#1 TITLE-ABS-KEY (readmi\* OR (re PRE/1 admi\*) OR rehospitali\* OR (re PRE/1 hospitali\*))

#2 TITLE-ABS-KEY (cirrhosis OR cirrhotic\*)

#3 TITLE-ABS-KEY (("end stage" OR endstage OR advanced OR chronic OR fibrosis OR fibrotic OR compensat\* OR decompensat\* OR encephalopath\*) W/5 (liver OR hepatic ))

#4 #1 AND (#2 OR #3) AND (LIMIT-TO (LANGUAGE, "English"))

#5 PUBYEAR > 1999

#6 #4 AND #5

**Study Inclusion and Exclusion Criteria**

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| **Study** | **Inclusion Criteria** | **Exclusion Criteria** |
| Bini 200113 | Decompensated cirrhosis admission diagnosis | Cirrhosis admitted for any other reason;  Gastrointestinal bleeding |
| Berman 201114 | Discharged from hepatology service | Previous liver transplant;  Discharged against medical advice;  Died during index admission;  Observation admission;  Readmission for liver transplant;  Planned readmission;  Admission in the 30 days prior to index admission |
| Johnson 201115 | Gastrointestinal hemorrhage with known or suspected chronic liver disease | Transferred from another hospital or from another level of inpatient care |
| Volk 201216 | Cirrhosis admitted with any of: hepatic encephalopathy, variceal bleeding, spontaneous bacterial peritonitis, renal failure with ascites, ascites requiring paracentesis | Discharge to hospice;  Liver transplant before or during index admission |
| Barsuk 201317 | Admitted to hepatology service;  Paracentesis during index admission | Separate paracenteses in radiology and at the bedside during index admission;  Missing paracentesis details;  Paracentesis with another simultaneous interventional radiology procedure |
| Deitelzweig 201318 | Principal discharge diagnosis of cirrhosis;  Age 18 or older | Observation admission;  Transferred from or to another hospital;  Discharged against medical advice;  Lack of cost information;  Admission to labor & delivery unit |

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| **Study** | **Inclusion Criteria** | **Exclusion Criteria** |
| Morando 201319 | Cirrhosis and ascites;  Admission for cirrhosis complication;  Admission via Emergency Department | Age < 18 or > 80;  Admission for scheduled procedure;  Decompensation following liver resection;  Hepatocellular carcinoma beyond Milan criteria;  Chronic severe extrahepatic disease;  HIV;  Listed for liver transplant |
| Singal 201320 | Cirrhosis | Died during index admission;  Died within 30 days of discharge;  Liver transplant;  Admission in the 30 days prior to index admission |
| Desai 201421 | Chronic liver disease and spontaneous bacterial peritonitis | Age < 18;  Non-cirrhotic ascites;  No confirmation of SBP;  Suspected secondary peritonitis;  Direct admission to ICU |
| Fagan 201422 | Chronic liver disease;  Paracentesis during the study period |  |
| Gaduputi 201423 | Admission for hepatic encephalopathy | Portosystemic shunt |
| Ghaoui 201424 | Decompensated cirrhosis | Non-cirrhotic ascites |
| Ghaoui 201525 | Age 18 or older;  Decompensated cirrhosis | Ascites with insufficient fluid for paracentesis |
| Agrawal 201526 | Discharged with diagnosis of decompensated cirrhosis;  Main diagnosis of cirrhosis | Elective admission;  Died during index admission;  Died within 30 days of discharge;  Discharge to hospice |
| Tapper 201527 | Cirrhosis with admission to dedicated liver unit | Lack of complete frailty data |

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| **Study** | **Inclusion Criteria** | **Exclusion Criteria** |
| Atla 201628 | Cirrhosis;  Hepatitis C infection;  Hispanic ethnicity | Unavailability of data pertinent to the study;  Death or discharge to hospice care;  Liver transplant prior to or during the discharge hospitalization;  Other forms of liver disease;  Previously treated hepatitis C |
| Bajaj 201629 | Cirrhosis;  Non-elective admission | HIV;  Unclear diagnosis of cirrhosis;  Post-transplant;  Elective admission;  No consent obtained;  Died during index hospitalization;  Transplanted during index hospitalization;  Discharge to hospice;  Lost to follow-up |

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| **Study** | **Inclusion Criteria** | **Exclusion Criteria** |
| Courson 201630 | Diagnosis of cirrhosis and hepatic encephalopathy;  Age 18 or older;  Admission for hepatic encephalopathy and received lactulose | Neurologic diseases;  Glomerular filtration rate < 30 mL/min/1.73m2;  Hepatorenal syndrome;  History of ischemic stroke with neurological deficit;  Cerebral abscess;  Encephalitis;  Meningitis;  Neoplasm;  Delirium tremens;  Subdural hematoma;  Intracranial hemorrhage;  Gastrointestinal hemorrhage;  Continuous intravenous sedation;  Acute liver failure;  Oral neomycin, vancomycin, or metronidazole;  History of liver transplant;  Possible liver transplant within one month of starting treatment for hepatic encephalopathy;  Transjugular intrahepatic portosystemic shunt |
| Graupera 201631 | Cirrhosis;  Hospitalized for acute decompensation of liver disease | Chronic kidney disease on hemodialysis prior to admission;  Prior liver or kidney transplant;  Hepatocellular carcinoma beyond Milan criteria;  Advanced respiratory or heart disease (NYHA class III or IV);  Severe extrahepatic disease with poor short-term prognosis;  Death or transplantation during index hospitalization;  No urine sample |

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| **Study** | **Inclusion Criteria** | **Exclusion Criteria** |
| Kanwal 201632 | Hospitalized with cirrhosis;  Discharged home | Discharged to hospice, another Veterans Affairs facility, or skilled nursing facility;  Died or readmitted within seven days of discharge |
| Le 201633 | Age 18 and older;  Admitted with new onset cirrhotic ascites;  At least 60 days of follow-up (except those who died or underwent liver transplant) | Acute alcoholic hepatitis;  Non-cirrhotic portal hypertension;  Malignancy other than hepatocellular carcinoma;  Ovarian hyperstimulation syndrome;  Chylous ascites |
| Moon 201634 | Admission for upper gastrointestinal bleed;  Cirrhosis;  Age 18 or older |  |
| Rassameehiran 201635 | Admission with a diagnosis of hepatic encephalopathy;  Age older than 18 | Prior liver transplant;  Discharged against medical advice;  Died during index admission;  Fewer than 90 days of follow-up |
| Tapper 201636 | Age 18 or older;  Discharge diagnosis of cirrhosis | Died during index admission;  Discharge to hospice;  Transfer to another hospital;  Liver transplant |
| Lyon 201737 | Age 18 or older;  Documented hepatic encephalopathy;  New prescription for rifaximin during index hospitalization | Pregnancy;  Incarceration;  Receipt of rifaximin prior to admission;  Rifaximin prescribed for other indications |
| Morales 201738 | Cirrhosis;  Admission for decompensation of liver disease | Death during the index admission;  Voluntary discharge from the index admission;  HIV infection |
| Strömdahl 201739 | Age 18 or older;  Upper gastrointestinal bleed (variceal) | No overt upper GI bleeding;  Lower GI bleeding |