Cirrhosis Care Pathways: Optimizing Chronic Disease Management

Cirrhosis Care Clinic
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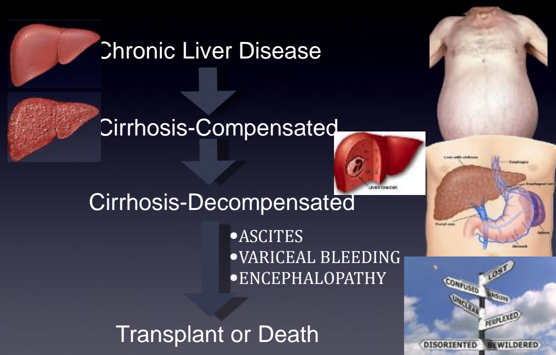
June 5, 2015

Objectives

- Problem:
  - Understand the burden of Liver Cirrhosis
  - Review health system utilization
  - Determine what is bringing patients into hospital
- Review current approaches to Care Improvement, locally & internationally
- Formulate barrier based recommendations for improved care

Natural Progression of Cirrhosis



Cirrhosis Management Guidelines

Table 1. Guidelines for Cirrhosis Care Supported by Level 1 Evidence

Cirrhosis care category	Recommendation
TIPS	In patients with good liver function, either a TIPS or a surgical shunt is an appropriate choice for the prevention of rebleeding in patients who have failed medical therapy
	TIPS will decrease the need for repeated large-volume paracentesis in patients with refractory cirrhotic ascites
	Prophylactic use of nonabsorbable disaccharides or antibiotics does not appear to lower the risk of encephalopathy after TIPS creation
	ePTFE-covered stents are preferred to bare stents to lower the risk of shunt dysfunction
Varices	In patients with medium/large varices who have not bled but have a high risk of hemorrhage, nonselective β-blockers or EVL may be recommended for prevention of first variceal hemorrhage
	In patients with medium/large varices who have not bled and are not at highest risk for hemorrhage, nonselective β-blockers are preferred and EVL should be considered in patients with contraindications, intolerance, or noncompliance to β-blockers
	Short-term (maximum, 7 d) antibiotic prophylaxis should be instituted within 24 hours in any patient with cirrhosis and gastrointestinal hemorrhage; oral norfloxacin or intravenous ciprofloxacin are the recommended antibiotics
	Therapy with somatostatin or its analogues, octreotide and vapreotide, or terlipressin should be initiated as soon as variceal hemorrhage is suspected and continued for 3–5 days after diagnosis is confirmed
	Esophagogastroduodenoscopy, performed within 12 hours, should be used to make the diagnosis and to treat variceal hemorrhage, either with EVL or sclerotherapy
	If patients with cirrhosis are found to have bleeding esophageal varices, they should receive EVL or sclerotherapy at time of index endoscopy
	Patients with cirrhosis who survive an episode of active variceal hemorrhage should receive therapy to prevent recurrence of variceal hemorrhage
	Combination of nonselective β-blockers plus EVL is the best option for secondary prophylaxis of variceal hemorrhage
Ascites	If patients have clinically apparent moderate to severe ascites, they should be managed with a combination of sodium-restricted diet and diuretics (including a combination of both spironolactone and loop diuretics)
	If hospitalized patients with ascites have ascitic fluid PMN count ≥250 cells/mm³, they should receive empiric antibiotics within 6 hours of their test result
	If ambulatory patients with ascites have an ascites fluid PMN count ≥250 cells/mm³, they should receive empiric antibiotics within 24 hours of their test result
	If patients have ascites fluid total protein <1.1 g/dL and serum bilirubin >2.5 mg/dL, they should receive prophylactic antibiotics
	Patients who have survived an episode of spontaneous bacterial peritonitis should receive long-term outpatient prophylaxis with daily norfloxacin (or trimethoprim/sulfamethoxazole)
Hepatic encephalopathy	Patients with cirrhosis who have persistent hepatic encephalopathy should receive oral disaccharides or rifaximin
Hepatocellular carcinoma	If patients have cirrhosis, they should receive surveillance for HCC by using imaging with or without α-fetoprotein every 6–12 mo

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Liver Disease in Canada

A CRISIS IN THE MAKING

AN ASSESSMENT OF LIVER DISEASE IN CANADA

MARCH 2013

CANADIAN LIVER FOUNDATION

FONDATION CANADIENNE DU FOIE

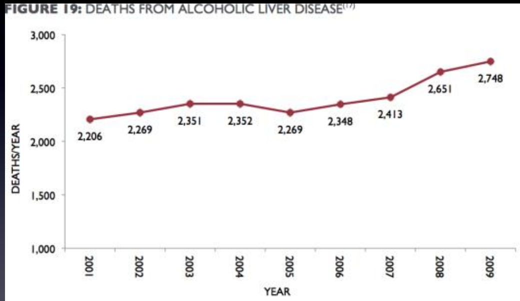
Non-Alcoholic Fatty Liver Disease

FIGURE 20: TRENDS IN OBESITY IN CANADA[1]

YEAR	PREVALENCE OF OBESITY (%)
1978	13.8
1989	14.8
2004	23.1
2005	24.2
2006	
2007	
2008	25.4

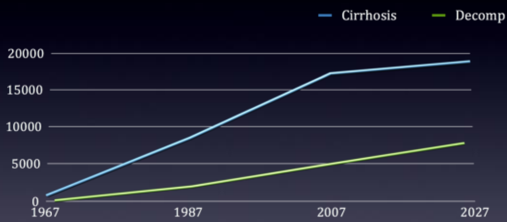
Canadian Liver Foundation, 201

Alcoholic Liver Disease Death in Canada



Canadian Liver Foundation, 2013

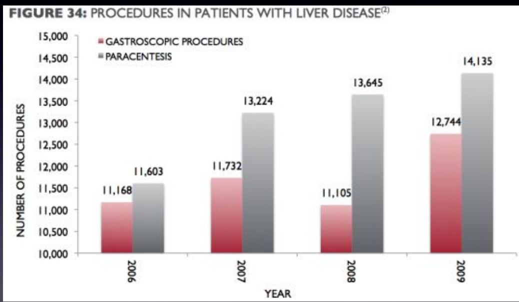
Hepatitis C in Canada



Public Health Agency of Canada, 2007

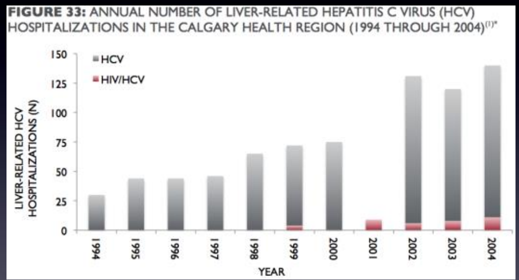
Utilization and Cost

Gastroscopy and Paracentesis-Canada



Canadian Liver Foundation, 2013

Hepatitis C admissions-Calgary



Canadian Liver Foundation, 20

In Hospital Costs-Canada

TABLE 15: IN-HOSPITAL COSTS FOR PROCEDURES REQUIRED BY LIVER DISEASE PATIENTS ACROSS CANADA 2006-2009 [3]

Diagnosis	In-Hospital costs
GI bleed	$54,498,246
Liver transplant	$28,521,333
Other major intervention	$32,818,416
Cirrhosis/alcoholic hepatitis	$31,000,037
Other liver disease (excluding malignancy)	$10,266,708
Total	$157,104,740

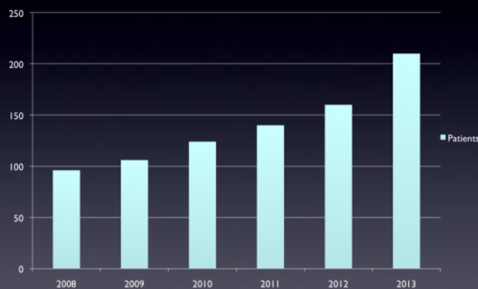
Canadian Liver Foundation, 2013

What is bringing patients into Hospital?

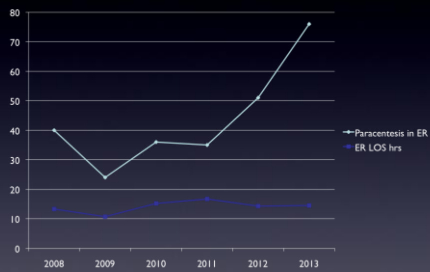
UAH ER Sample

- 30 consecutive ER visits by cirrhotic patients
- Cirrhosis Etiology
  - 14 Alcohol
  - 3 Hep C
  - 3 NASH
- Reasons for visit
  - 15 ascites/volume overload
  - 6 encephalopathy
  - 3 Infection
  - 3 bleeding
  - 3 renal failure

UAH ER for Ascites

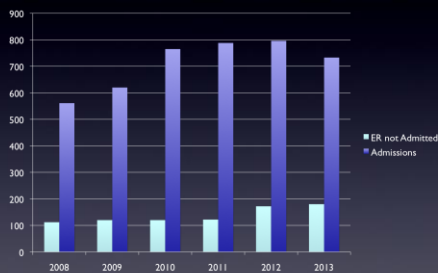


UAH ER Paracentesis



AHS Health Records

ER & Inpatients UAH



AHS Health Records

From Literature

309 patients at academic liver clinic centre

- 20% had admission within 1 year
- Admission factors: MELD, HCC, diuretic use, prior admission, being unmarried

402 patients followed after cirrhosis admission,

- 69% had re-admission within 203days follow up, 37% were within 1 month and of these, 22% were felt to be preventable
- Readmission factors: MELD, sodium, # medications, # cirrhosis complications, being on transplant list

Recognized need for change at UAH: Cirrhosis Care Clinic

Goal: Help Most Vulnerable & Resource Intensive Population

Chronic Liver Disease

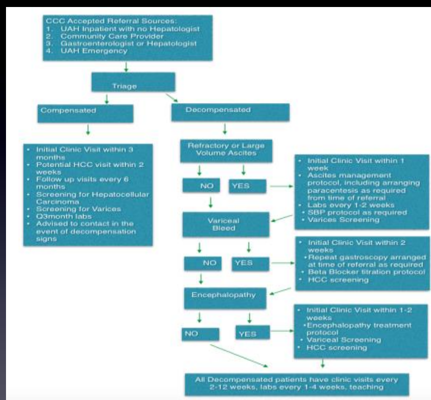
Cirrhosis-Compensated

Cirrhosis-Decompensated

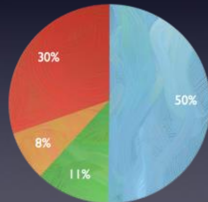
DEVELOPMENT OF:
- ASCITES
- VARICEAL BLEEDING
- ENCEPHALOPATHY

Transplant or Death

- Current team 2 Hepatologists, 2 Nurse Practitioner, .5 Dietitian
- Evidence based screening & treatments
- Patient/family education
- Easy phone access for patients
- Frequent patient and test/lab follow ups
- Interventional procedure bookings



Cirrhosis Care Clinic 2009-2012



Recognized need for System Change Internationally

Research Article

How to improve care in outpatients with cirrhosis and ascites: A new model of care coordination by consultant hepatologists

Filippo Morando[1], Giulio Maresio[1], Salvatore Piano[1], Silvano Fasolato[1], Marta Cavallin[1], Antonietta Romano[1], Silvia Rosi[1], Elisabetta Gola[1], Anna Chiara Frigo[3], Marialuisa Stanco[1], Carla Destro[4], Giampietro Rupolo[4], Domenico Mantoan[5], Angelo Gatta[1], Paolo Angeli[1,2,*]

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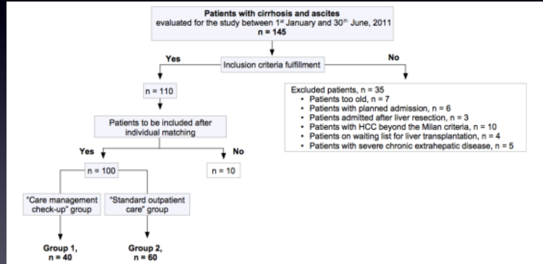
Care Management through Team (Hepatologists and Nurses at 'day hospital' unit) vs Standard of Care



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Findings-Patient

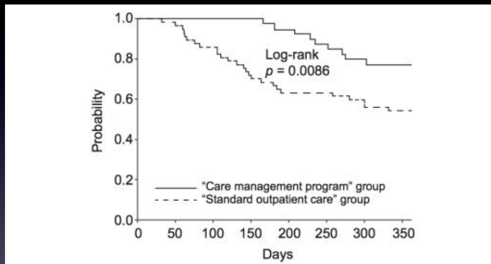

Fig. 2. Probability of 1-year survival in patients admitted to the "Care management program" group or to the "Standard outpatient care" group.

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Findings-Cost

Table 4. Costs (€) per patient month of life of management in patients followed in the "Care management check-up" group (group 1) or in the "Standard outpatient care" group (group 2) during the 12-month follow-up.

Costs of management	Group 1 No. = 39	Group 2 No. = 59	*p* value*
Costs of specialist caregiver model	78.39 ± 30.43	26.82 ± 35.65	<0.001
Costs of a "day hospital"	54.01 ± 77.59	20.99 ± 41.35	<0.025
Costs of emergent hospitalization	1346.80 ± 2165.28	2768.31 ± 3856.94	<0.05
Global costs	**1479.19 ± 2184.43**	**2816.13 ± 3893.03**	**<0.05**

*Comparison between the two groups.

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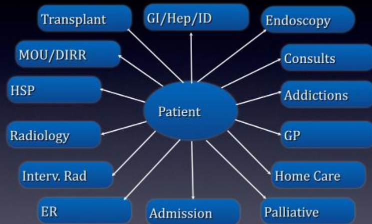
Access to Specialty Care

- US review of 38,000 patients showed improved survival in those who had seen a specialist, 5 year mortality 22% vs 35%

Care Barriers

Cirrhotic Patient Experience- Health System Navigation



Complex Patients, Complex System

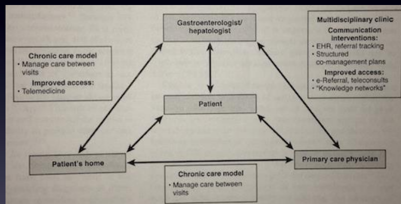
System Barriers

- Lack of comfort from Primary Care in taking care of patients with Cirrhosis
- Limited use of guideline based care (studys have shown 30%)
- Hepatologists concentrated at large centers
- Limitations in outpatient resources are forcing patients into ER, wards, & ICUs.
- Less patients being transplanted=cared for longer in sicker state
- Lack of palliative referral

Patient Barriers

- Addictions and Mental health
- Lack of Support & 2 fold need for informal care giving
- Poor financial resources
- Living far from specialty care
- Significant comorbidities requiring heath care
- Perceived stigma is common and associated with decreased healthcare seeking behavior
- Knowledge gaps- study of 150 patients, baseline survey 53% questions answered correctly

Chronic Care Model



Barrier Based Cirrhosis Care Needs

In addition to the CCC team of Hepatologists, Nurse Practitioners, and Dietitian, recommend:

- Adequate outpatient treatment and urgent assessment beds
- Links with other specialists (eg. nephrology, pulmonary, cardiology, endocrinology, psychiatry, paliiative)
- RNs to act as first call point of contact for pt symptoms, and reinforce guideline based care
- Social Work to manage unique needs, collaborate with community resources, ie: addictions, financial aide
- Psychologist to help patients with addiction and coping counseling
- Secretary for appointment bookings, directing calls, administrative duties

Summary

- Cirrhotic population represents a significant source of acute care utilization locally & internationally, and is predicted to increase in the coming years
- Funding models locally should take into consideration utilization by region, not specific site, due to patients in remote locations and concentration of specialty care in larger centers
- Multidisciplinary, chronic disease models have been shown to improve quality of care, survival, and efficient utilization of health care system. RCTs comparing standard of care to appropriate multidisciplinary, outpatient care are needed

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