

IMPACT of **Chronic** **Liver Disease**

on **Healthcare Systems**

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Chronic Liver Disease and the Burden in Community Practice

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The Problem in the US

- The prevalence of cirrhosis has doubled since 1996
- Approximately 50,000 Americans die of CLD-related or cirrhosis-related complications each year
- Complex medical care + resource-intensive management + progressive disease
- Annual indirect costs greater than \$10 billion from reduced quality of life and poor work productivity
- Greater than 325,000 ER visits and 650,000 hospitalizations/year
- Patients survive longer, there are (costly) therapeutic advances

Factors Affecting Trends in Healthcare Expenditures for Patients With CLD

- CLD epidemiology shifts¹
 - Less HCV
 - More ALD and NAFLD/NASH
- Innovations in liver transplantation
- Improved care and outcomes for cirrhosis and its complications
- Multidisciplinary care for patients with advanced CLD
- Changes in healthcare coverage and the infrastructure of health systems

	2016 (\$, millions)	Annual % change from 1996
Ambulator y care	5,600	3.95%
Inpatient care	<u>20,100</u>	4.1%
Emergenc y departmen t	1,400	<u>11.2%</u>
Nursing facility	730	0.5%

What Did We Learn From HCV?

- Initially we only treated the sickest
 - We were allowing patients to get sicker ????
 - Literature supported this approach !!!!!
- Now we treat everyone
 - Literature supports this approach ...
- Overall spending in the US for CLD and cirrhosis has increased \$32 billion annually; mortality has not improved, it has worsened
- History is written by the victors

Doctor, I Feel Fine You Want Me to Do What???

- A significant segment of the population is not interested in practicing preventative medicine
 - Cultural barriers
 - Social barriers
 - Economic barriers
- AND
- **Provider barriers**

We Are Victims of Our Own Success

- Development of better therapies for liver disease
 - Antivirals
 - Treatments for HE
 - Treatments for variceal bleeding and refractory ascites
- Patients with CLD have improved survival, meaning:
 - More time for chronic care
 - A shift of patient care to specialized liver units
 - Increased costs of care
- Demand has outpaced properly trained workforce
- Community care falls into the purview of GI clinics, more geared towards ambulatory endoscopy than clinic services*

Resource Utilization Among Medicare Beneficiaries With NAFLD

Medicare beneficiaries (1/1/2010 to 12/31/2010) with NAFLD

	TOTAL NAFLD	NO CIRRHOSIS	CIRRHOSIS	P VALUES
INPATIENT TOTAL # OF VISITS	1-2	1-2	<u>1-4</u>	<0.0001
INPATIENT AVERAGE CHARGES	\$23,836	\$23,449	\$25,656	0.05
INPATIENT AVERAGE PAYMENT	\$6,854	\$6,670	\$8,864	<0.001
OUTPATIENT TOTAL # OF VISITS	3-11	3-11	<u>5-16</u>	<0.001
OUTPATIENT AVERAGE CHARGES	\$1,376	\$1,377	\$1,353	0.725
OUTPATIENT AVERAGE PAYMENT	\$267	\$266	\$274	0.18

Resource Utilization Among Medicare Beneficiaries With NAFLD

Medicare beneficiaries (1/1/2010 to 12/31/2010) with NAFLD

	Compensated cirrhosis	Decompensated cirrhosis	P value
INPATIENT TOTAL # OF VISITS	1-3	2-4	0.07
INPATIENT AVERAGE CHARGES	\$17,011	\$28,274	0.05
INPATIENT AVERAGE PAYMENT	\$7,226	\$9,233	0.08
OUTPATIENT TOTAL # OF VISITS	5-15	5-16	0.61
OUTPATIENT AVERAGE CHARGES	\$1,258	<u>\$1,474</u>	0.03
OUTPATIENT AVERAGE PAYMENT	\$261	\$300	0.21

Resource Utilization Among Medicare Beneficiaries With NAFLD

- Prevalence of NAFLD increases with age
- NAFLD posed substantial inpt and outpt health care utilization
- A high per patient cost, that increases with age x 25% of the US population has NAFLD x 10-12% of these have NASH = HUGE costs
- Many will silently progress to advanced disease
- Strong association with CVD, metabolic syndrome and obesity and when present, these drive up resource utilization >50%

Direct and Indirect Economic Burden of CLD in the US

	CLD	No CLD
EMPLOYED	44.7%	69.6%
NOT WORKING DUE TO ILLNESS/DISABILITY	30.5%	6.6%
GREATER HEALTH CARE EXPENSE/YEAR	\$19,390	\$5,567

- Patients with CLD also reported:
 - More comorbidities
 - Worse self-reported general and mental health status
 - More health-related limitations in daily activities
 - Had lower quality of life and health utility scores

Expanding Community Care for CLDs

- Project ECHO increased care for chronic hepatitis C*
 - Telemedicine
 - APPs with and without specialty training
- There was an increase in treatment rates
 - Corresponding increases in survival, quality-adjusted life years and costs
- A similar approach can be used for NAFLD/NASH and CLD

Identifying CLD at the ASC

- Newcastle, UK study
- Cross-sectional study recruiting patients attending for colonoscopy
- 1429 patients
 - Mean age 59 +/- 14 years; 48.8% men
 - 73% overweight/obese
 - 12.7% DM
 - 17.9% metabolic syndrome
 - 19% excess alcohol consumption
- 5.3% had a Fib-4 score > 2.67
 - Those with known liver disease were excluded
- 818 had a predicted 10-year CV event risk of $\geq 10\%$
 - 46.1% of these were on statin therapy

CONCLUSIONS

- There is a paucity of data looking into the care of CLD in the community vs academic centers
- Once ESLD is established there is no reversibility of disease. Focusing on prevention of disease progression should be more cost effective
- Develop models for high quality, multidisciplinary ambulatory care services
 - Patients and providers will need to want to participate
 - ECHO model. New Telehealth ventures.
- Improve ambulatory care to prevent inpatient readmissions

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GI Alliance

1. Large single specialty group
2. Approximately 700 gastroenterologist and 300 advanced level providers
3. Serving 13 states from Florida to Washington state with continued plans for expansion
4. More than 200 clinics all seeing fatty liver disease every day
5. All on a common EMR platform

The Problem / Opportunity

1. New group that has been evolving since 2018
2. Each site functions independently at this time
3. No common protocols for high volume or high risk patients
4. Therefore no consistency in care

The Solution – It's All About Date

1. Most data in EMR is not searchable in a meaningful way
2. Currently constructing an EDW (Enterprise data warehouse)
3. Will generate dashboards for common disease states to track by provider
 - a. Patient metrics and status
 - b. Evaluation of treatments and outcomes
 - c. Education gaps among providers
4. Define value – what is best care for lowest cost
5. Formalize care paths and educate providers
6. Measure outcomes – repeat

Needs

1. Time – building the data repository is taking longer than expected
2. Money and support for efforts – need to collaborate with other like minded stakeholders
3. Quality data analytics – hiring the necessary talent

One Model – Building the NASH Home

1. All patients with suspected NASH (abnormal LFTs, Abnormal imaging, metabolic syndrome get a fibroscan and fib4
2. Patients with low risk characteristics are referred to dietician for weight loss and fibroscan repeated yearly
3. PTs suspected of high risk of advanced fibrosis get further evaluation with
 - a. Liver biopsy – patients don't like this and there is a small but definite risk of complication
 - b. MR elastography and often liver multiscan – rarely happens because payers wont cover it
4. Any patient with advanced fibrosis based on above evaluation is offered entry into our NASH home
 - a. Billed under chronic care management codes
 - b. Weight Loss – dietician for a structured supervised weight loss program, referral to bariatric surgeon when appropriate, currently exploring other options
 - c. Enrolled in HCC screening program when appropriate
 - d. Social worker for CBT to address barriers to success
 - e. Frequent nurse follow up to assess progress
 - f. Refer for appropriate health maintenance- cardiologist, endocrinologist etc as needed
 - g. Varices screening and prophylaxis as indicated
 - h. REFER PATIENTS FOR CLINICAL TRIALS when appropriate
5. Collecting the data to see if we impact outcomes over time