

# Fatty Liver for the Fearless

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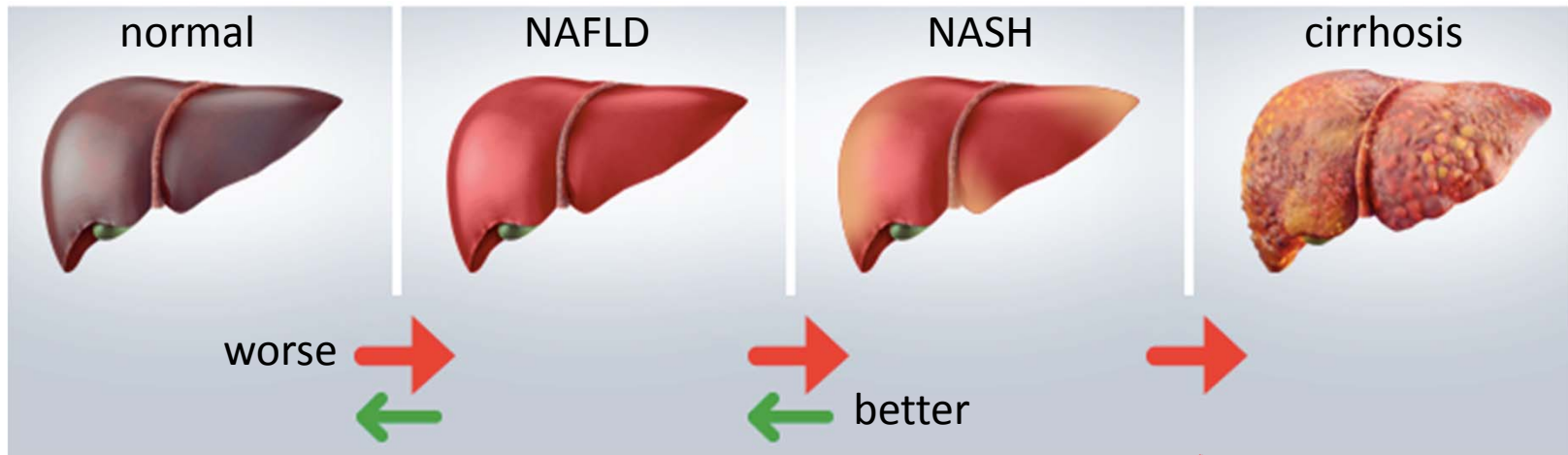
NO DISCLOSURES

# Objectives

1. Introduce “Fib4” as a guide for further testing and hepatology referral
2. Review non-invasive tests for cirrhosis
3. Review the drug pipeline for the treatment of fatty liver disease

1. “Fib4” as a guide for further testing and hepatology referral

# Progression of Fatty Liver Disease



Stage (*)	stage	stage	stage
1	1	1	4 (cirrhosis)

(\*) Fibrosis progression rates: 7-14 years/stage

# “Fib4” Reflects Clinical Observations

Fibrosis progression is  
Age-dependent

Platelet Count decreases  
With Fibrosis Progression

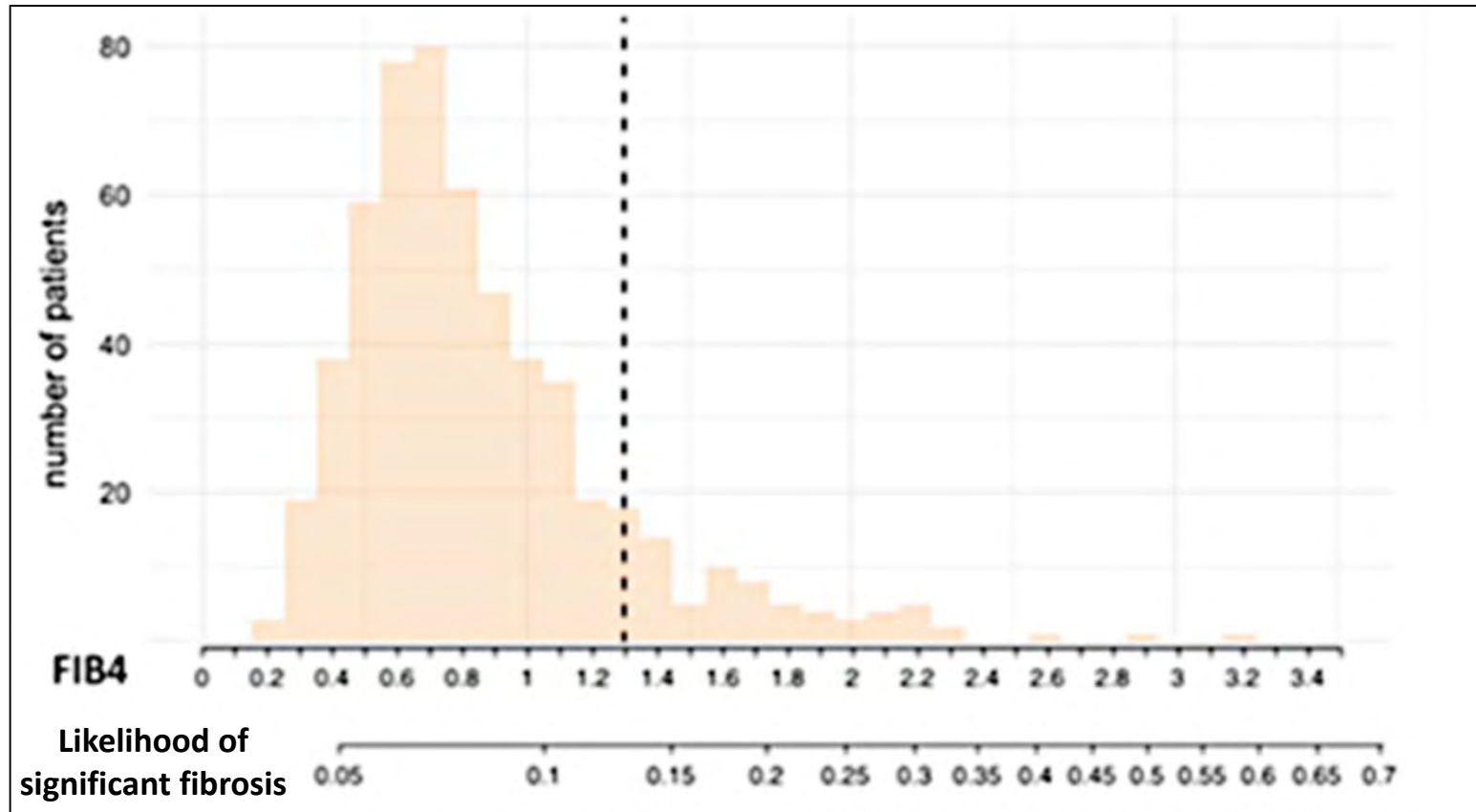
$$(\text{age} * \text{AST}) / \text{platelets} * \sqrt{\text{ALT}}$$

AST:ALT Ratio Increases  
With Fibrosis Progression

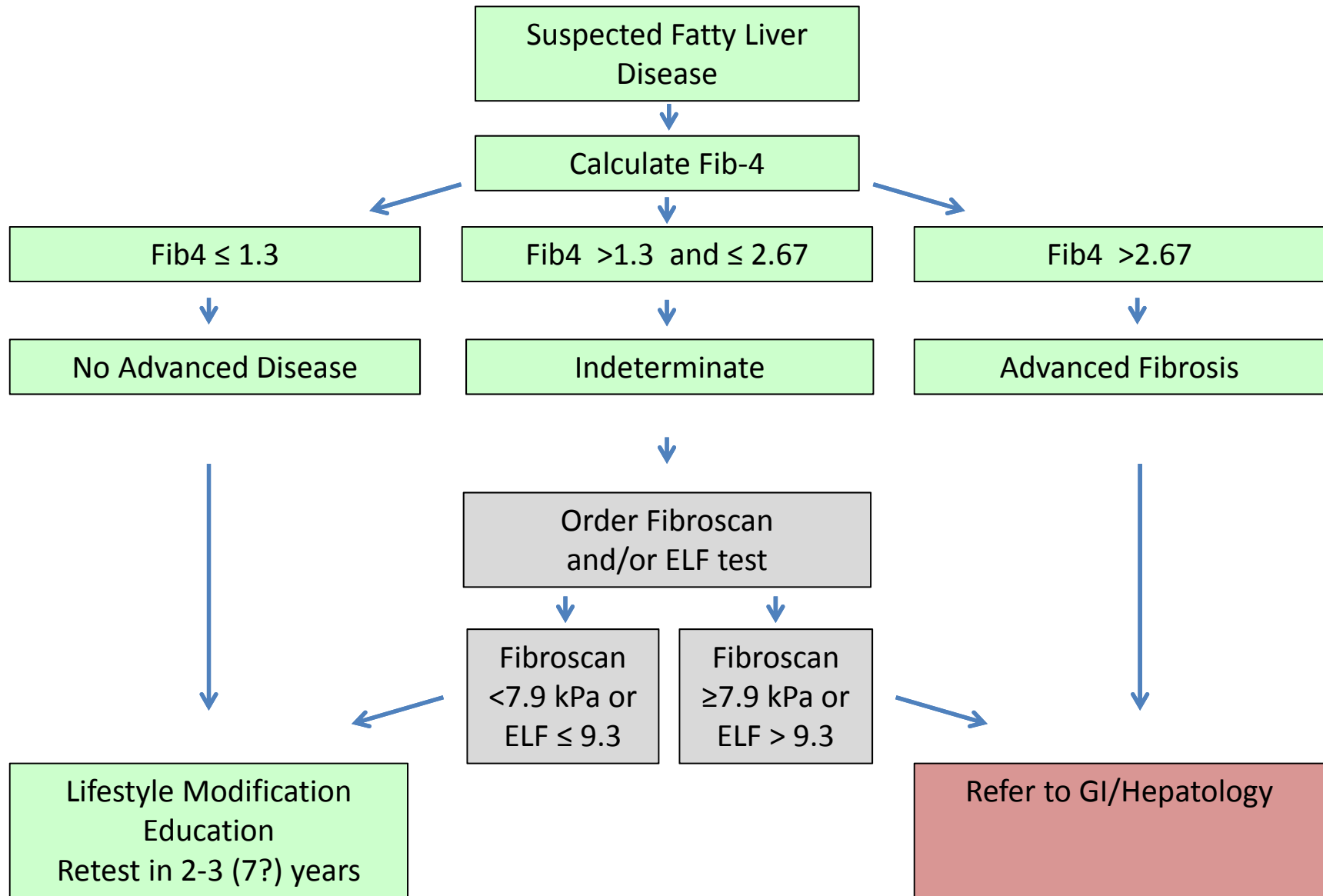
Free download:  
MDCalc

Shah A et al. Clin. Gastroenterol. Hepatol. 2009; 7: 1104-1112

# Fib4 <1.3 Rules out Significant Fibrosis



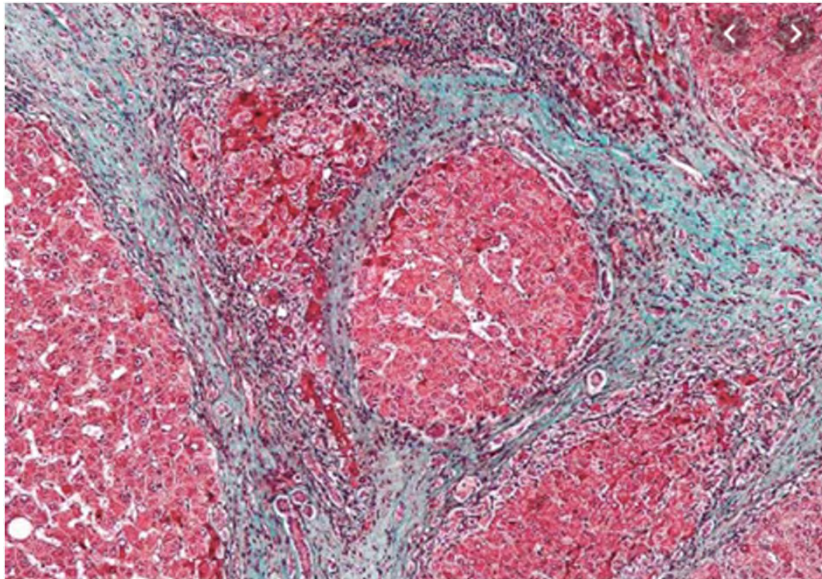
# Use of Fib4 in the Workup of Fatty Liver Disease



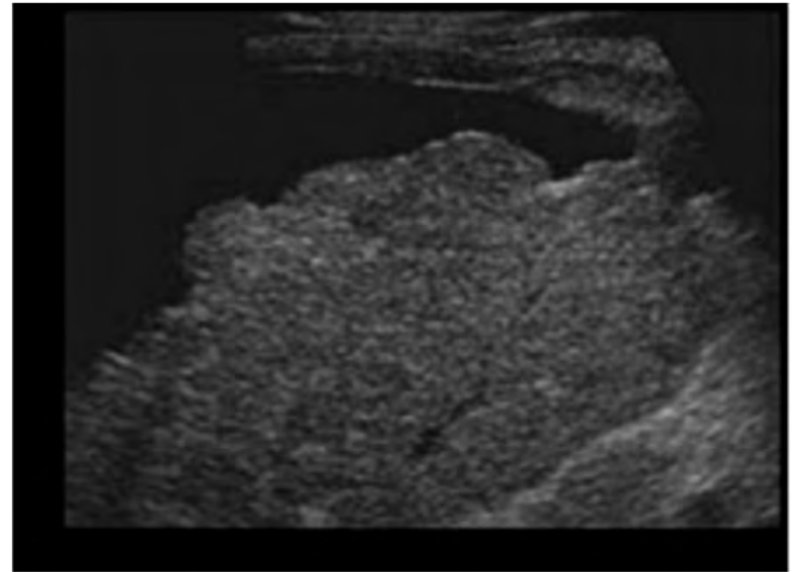


## 2. Review non-invasive tests for cirrhosis

# Traditional Methods to Diagnose Cirrhosis



Liver Biopsy



Imaging

# Elastography: Physical Measure of Fibrosis

Movie will be inserted here (sent in  
separate file)

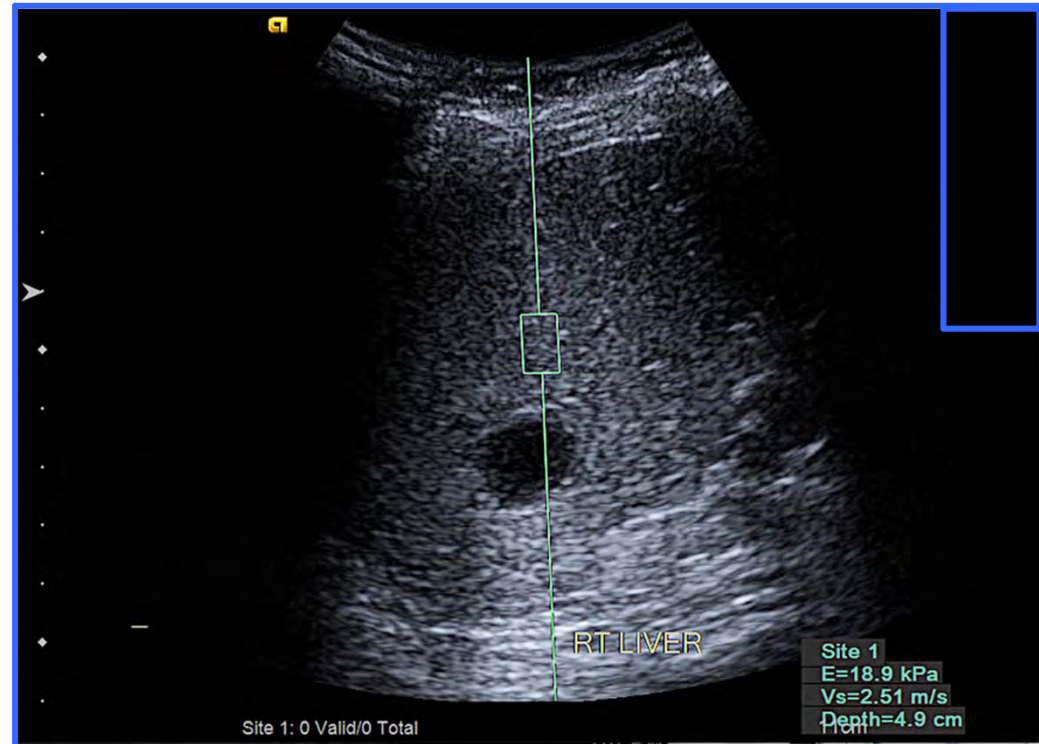
video: Kenneth J. Chang, UC Irvine

# Transient Elastography (“Fibroscan”)



Main indications: Abnormal Fib4, hepatology evaluation (“5<sup>th</sup> vital sign”)

# Acoustic Radiation Force Imaging (ARFI)

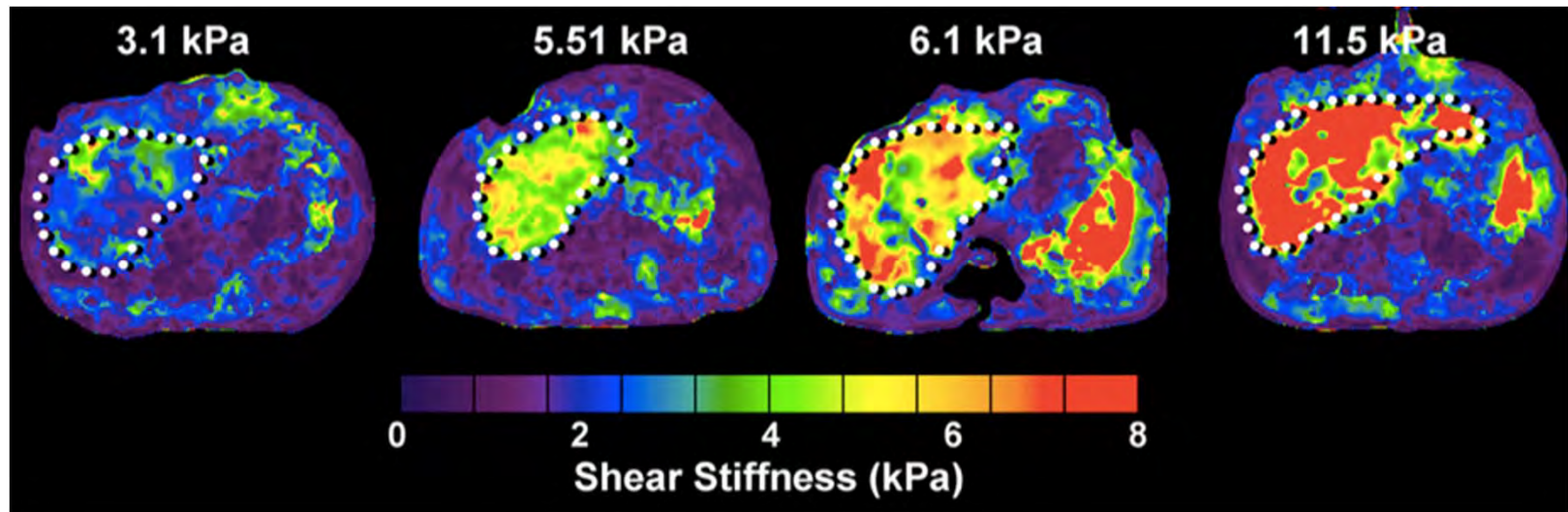


Courtesy of C. Donaldson, M.D.

Main indications: fibroscan failure, inconclusive results, need for imaging



# Magnetic Resonance Elastography (MRE)



Main indications: fibroscan failure, inconclusive results, need for high-resolution imaging

3. Review the drug pipeline for the treatment of fatty liver disease

# NASH: Drug Pipeline (September, 2019)

## PHASE I

14 medications



## PHASE II

30 medications



## PHASE III

4 medications

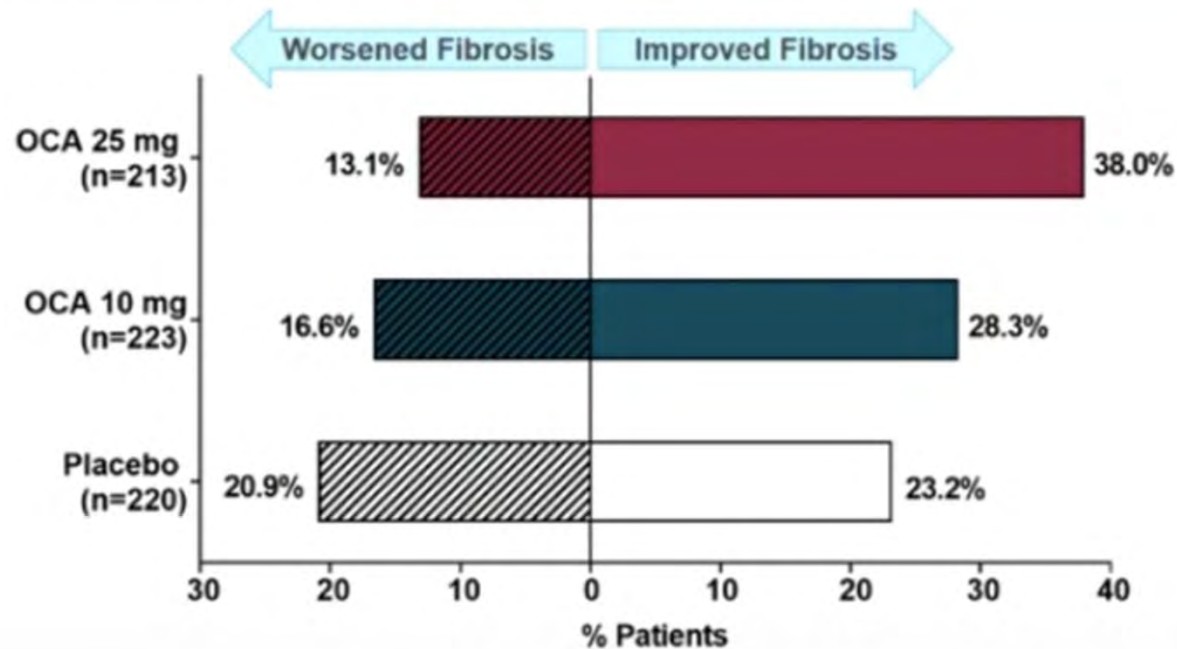


Cenicrivirox  
Elafibranor  
Obeticholic acid  
Selonsertib



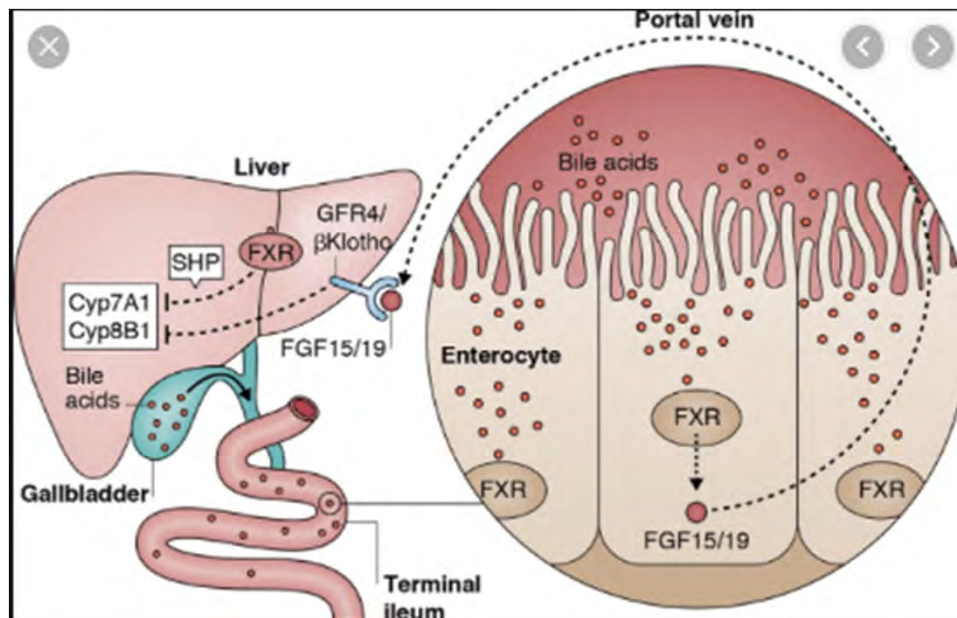
# Improvement of NASH fibrosis with Obeticholic Acid

Regression or Progression of Fibrosis by  $\geq 1$  Stage  
*Per Protocol Population\**



Younossi Z et al. Journal of Hepatology  
2019; 70: e5 (September, 2019)

# Obeticholic Acid: Mechanisms



OCA: FXR Agonist  
100x more potent than  
chenodeoxycholic acid  
(natural agonist)

Regulates:

- Cholesterol and lipoprotein synthesis
- Bile acid synthesis
- Immune and inflammatory responses
- Fibrogenic responses

# Summary

1. Fib4 testing is a useful test to triage your fatty liver disease patients
2. Several non-invasive tests are available at NorthShore to diagnose liver cirrhosis
3. The first generation of anti-NASH drugs is approaching FDA approval