



# the fib-4. Parad gm A Calgary Sone webinar S 1111







#### NON-ALCOHOLIC FATTY LIVER DISEASE PATHWAY Possible NAFLD Diagnosis: 1) Risk factors for NAFLD: obesity, type 2 diabetes hyperlipidemia, metabolio syndrome and/or. Rule out other causes of chronically elevated 2) Incidental U/S finding of ALT by doing the following stepwise testing: fatty liver within past 3 years 1) Medication review (inc. herbals, supplements Incidental finding of abnormal ALT (and/or AST) < 2 x ULN</li> 2) HBsAg and anti-HCV antibody ANA and ASmAb blood tests and serum immunoglobulins (IgG, IgA, IgM) 3) Ferritin and serum iron/TIBC NAFLD caus 4) Celiac screen of † ALT/AST AND TRIAGE (CAT) REFERRAL | Fax: 403.476.8760 5) Serum ceruloplasmin (if age < 30 years) NAFLD Diagnosis Suspected (and alternative causes of abnormal ALT ruled out) Lifestyle (alcohol intake) and medication review: Stop or modify offending agent if possible. ons that may cause fatty liver include corticosteroids, tamoxifen, methotrexate, amiodarone Baseline investigations: 1) Liver tests: ALT and/or AST, ALP, GGT 2) Liver function tests if cirrhosis suspected: INR, bilirubin, albumin 3) CBC with platelets 4) HgbA1C, lipid profile, fasting blood sugar NAFLD Diagnosed: · Cornerstone of management is lifestyle modification (weight reduction, exercise) · Further follow up dependent on risk stratification by SWE testing through EFW Radiology. Note: If patient is not able to attend SWE test please refer to FIB-4 test (provincial pathway CENTRAL ACCESS Non-invasive assessment of liver fibrosis using shear wave elastograpy (SWE) SWE is the gold standard for assessing liver fibrosis (stiffness) without a liver biops LOW RISK for significant liver fibrosis based on SWE result SWE (ie. liver fibrosis) score < 8.0 KPa HEPATOLOGY Patient care within the medical home Lifestyle modification, exercise, wt loss (target 10% of BW), consider vitamin E (400-800 IU/d), consider omega 3 FA, REFER TO HEPATOLOGY CENTRAL ACCESS AND TRIAGE (CAT) consider vaccination for hepatitis A and B Monitor ALT yearly

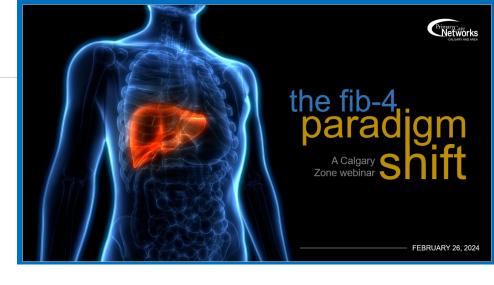
Screen for Type 2 DM (increased risk for developing NIDDM based on NAFLD diagnosis)

Repeat U/S with Shear Wave Elastography (SWE) through EFW Radiology q3 years

by a primary care provider.

 If SWE results continue to be < 8 KPa then ongaing care within medical home.
 EFW Radiology will send a one time reminder letter to the primary care physician (on record from prior SWE test) 24 - 30 months after the previous LOW RISK SWE test result report. EFW Radiology will not contact patients directly unless requested. The original Calgary
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Circa 2018

Within the NAFLD pathway SWE was used to stratify patients with NAFLD into being 'low' risk or 'high' risk for having significant liver fibrosis

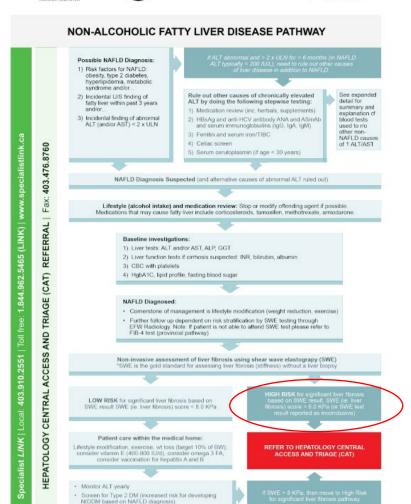








July 2018 - 5



Repeat U/S with Shear Wave Elastography (SWE) through EFW Radiology q3 years

by a primary care provider.

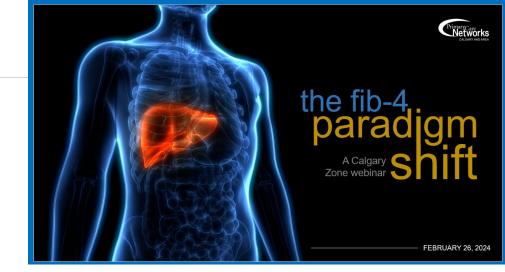
If SWE results continue to be < 8 KPa then ongoing care within medical home.
 EFW Radiology will send a one time reminder letter to the primary care physician.

(on record from prior SWE test) 24 - 30 months after the previous LOW RISK SWE test result report. EFW Radiology will not contact patients directly unless requested

The original Calgary
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#### Recommendation:

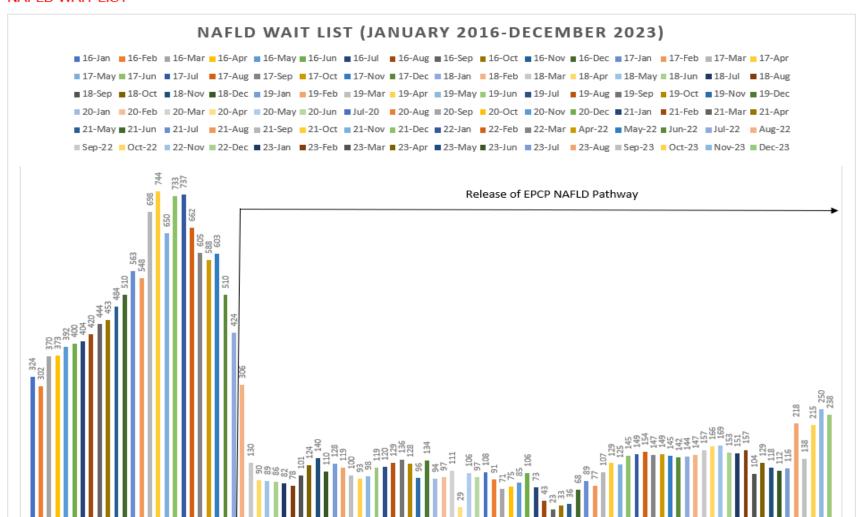
Patients with a SWE  $\geq$  8 kPa (or inconclusive result; mainly due to high BMI) be referred to hepatology for further evaluation.



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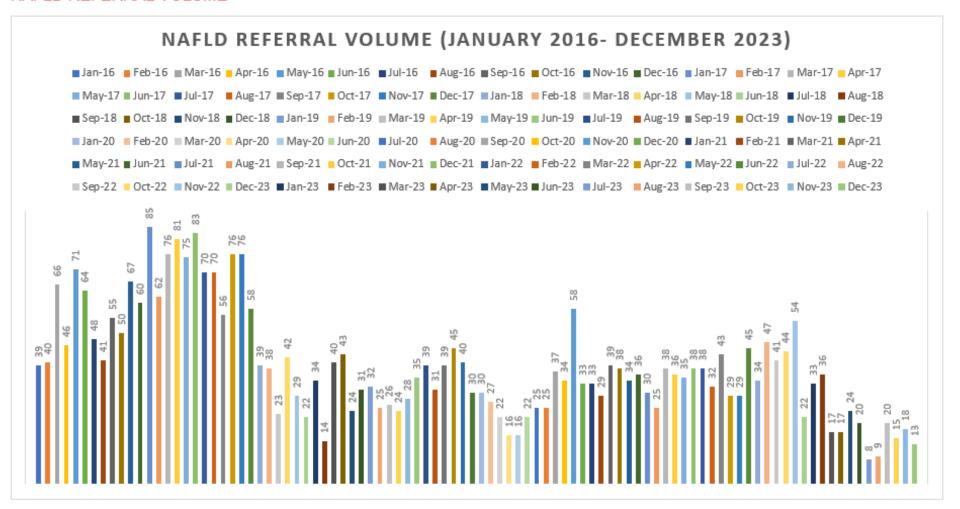
# Number of NAFLD patients on the hepatology waitlist since the launch of the NAFLD pathway

#### NAFLD WAIT LIST



# NAFLD patient referral volume to hepatology CAT since the launch of the NAFLD pathway

#### NAFLD REFERRAL VOLUME

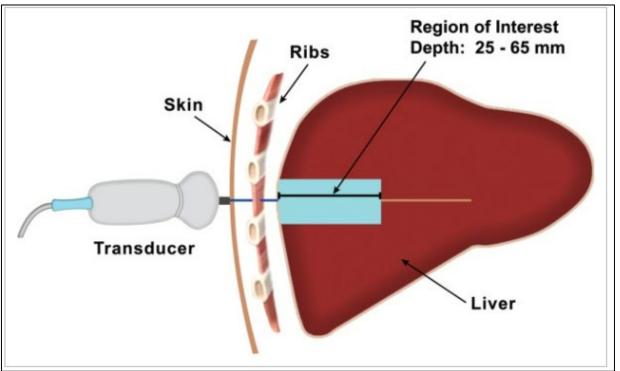


# Amazing!!!!!



## **But** ...





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Can we use a '2 step' approach to risk stratify NAFLD patients in primary care, with <u>SWE as the second step</u>?

# Step one?



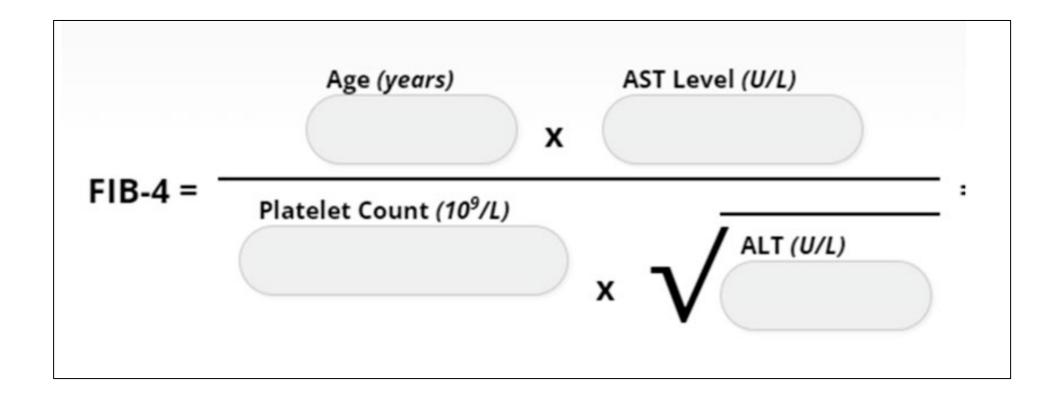
# What is FIB-4? Why should I use FIB-4?

- The Fibrosis-4 Index (FIB-4) is a non-invasive method to <u>estimate the</u> <u>amount of liver scarring</u> and determine which patients require further investigation.
- The FIB-4 index has been tested against other non-invasive serum markers for liver fibrosis and was found to be superior.
- FIB-4 ≥ 2.67 has an 80% positive predictive value of significant liver scarring.
- FIB4 index < 1.30 has a 90% negative predictive value (i.e., people with this FIB-4 score are <u>unlikely</u> to have significant liver scarring).
- A FIB-4 check box is <u>now available</u> on community lab requisitions (If not readily available, can order a CBC, ALT, AST and calculate the FIB-4).



### The FIB-4 calculation

Now a check box on community lab order sheet



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# Use of a '2 step' approach to risk stratify NAFLD patients in primary care





#### Research

Risk stratification of patients with nonalcoholic fatty liver disease using a case identification pathway in primary care: a cross-sectional study

Abdel Aziz Shaheen MBBCh MPH, Kiarash Riazi MBBCh, Alexandra Medellin MD, Deepak Bhayana MD, Gilaad G. Kaplan MD MPH, Jason Jiang MSc, Roy Park MD, Wendy Schaufert RN, Kelly W. Burak MD MSc, Monica Sargious MD, Mark G. Swain MD MSc

FIB-4 index score; no. (%) of patients	
≥ 1.30	< 1.30
n = 396	n = 855
34 (8.6)	21 (2.5)
362 (91.4)	834 (97.5)
	≥ 1.30 n = 396 34 (8.6)

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#### How do the various fibrosis detection tools compare?

	FIB-4	Ultrasound with SWE
How it's done	Calculated based on ALT, AST, platelets	Accessible in community, provider-dependent
Advantages	Low cost, easy to access	May give clues about advanced disease (portal hypertension, nodularity, splenomegaly)
Limitations	Overestimates (40-50% deemed high risk)	Needs more validation A few months to access Less accurate if body mass index (BMI) > 35 10% indeterminate or high risk



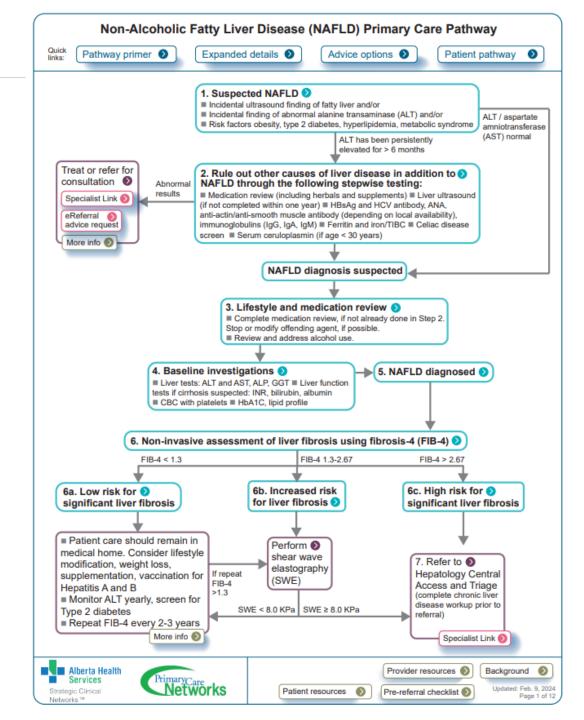


# The 'new and improved' Calgary NAFLD pathway

Circa February 2024

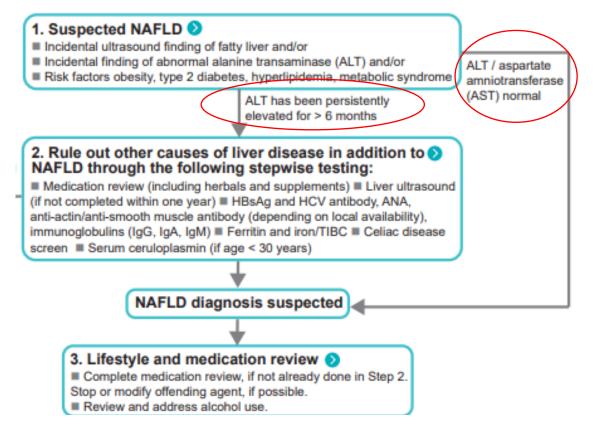


https://tvtropes.org/pmwiki/pmwiki.php/Main/NewAndImproved



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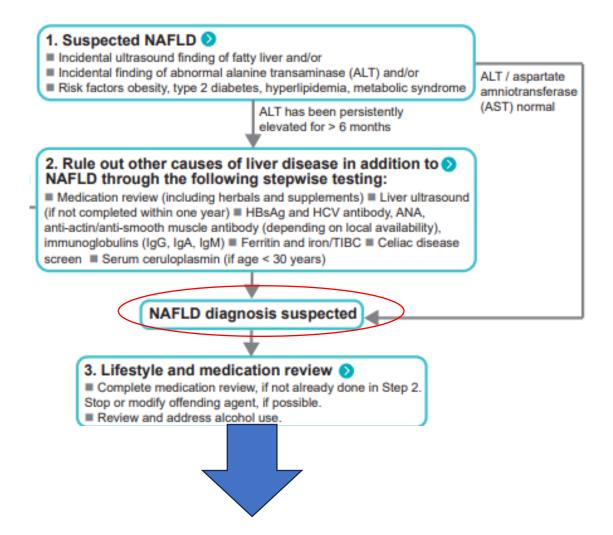
# **NAFLD** primary care pathway



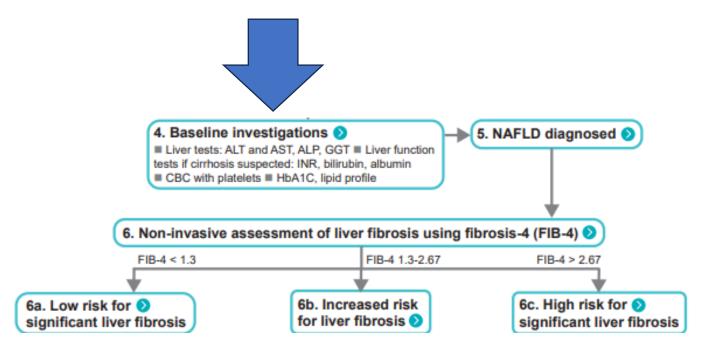
~40% of NAFLD patients have persistently normal ALT/AST

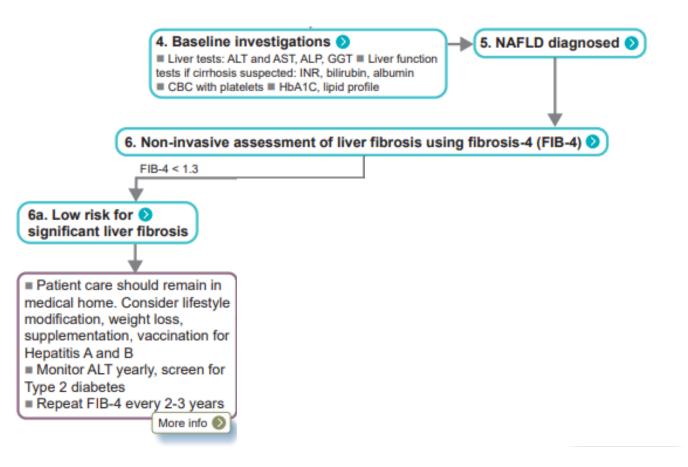
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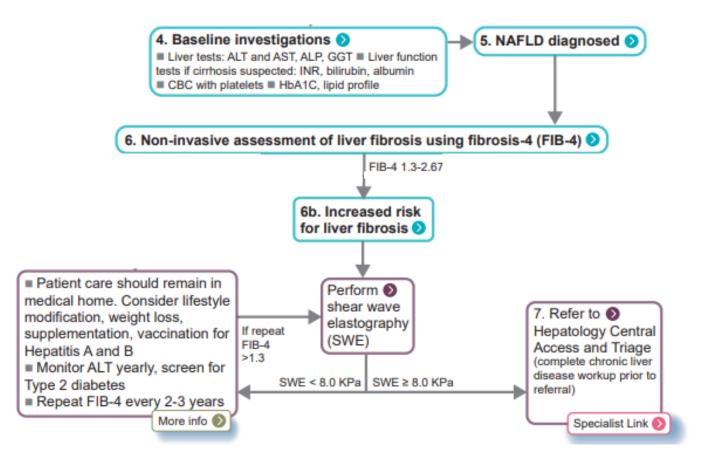
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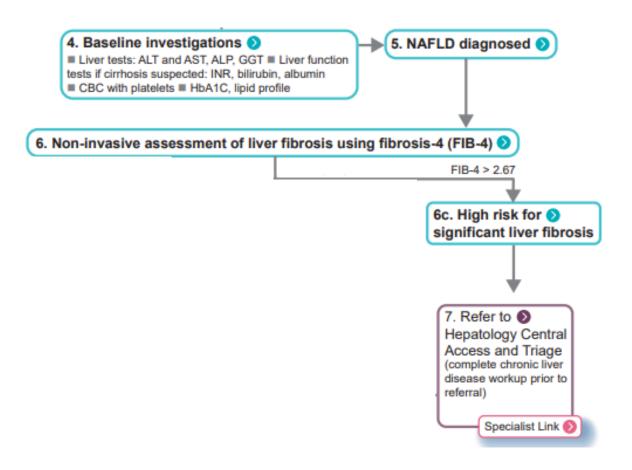
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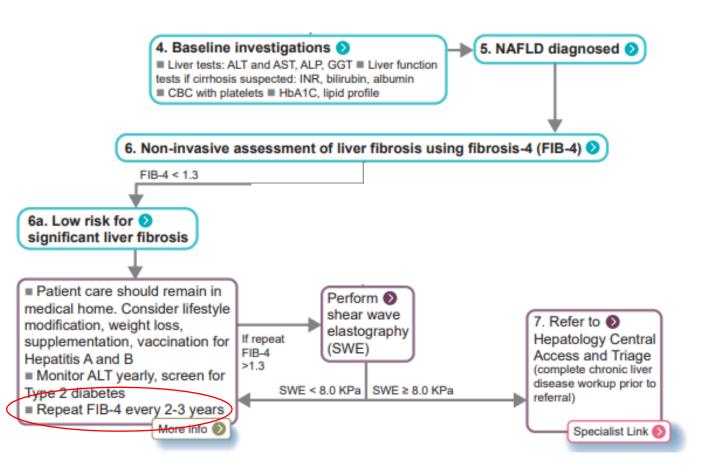
# **Shear Wave Elastography (SWE)**

**Shear Wave Elastography (SWE):** The gold standard for assessing liver stiffness (a measure of liver scarring) without a liver biopsy. EFW Radiology (EFW) and Mayfair Diagnostics radiology groups have fulfilled quality assessment for the Calgary Non-Alcoholic Fatty Liver Disease (NAFLD) pathway SWE measurement. Currently they are the recommended providers for SWE in the Calgary Zone.

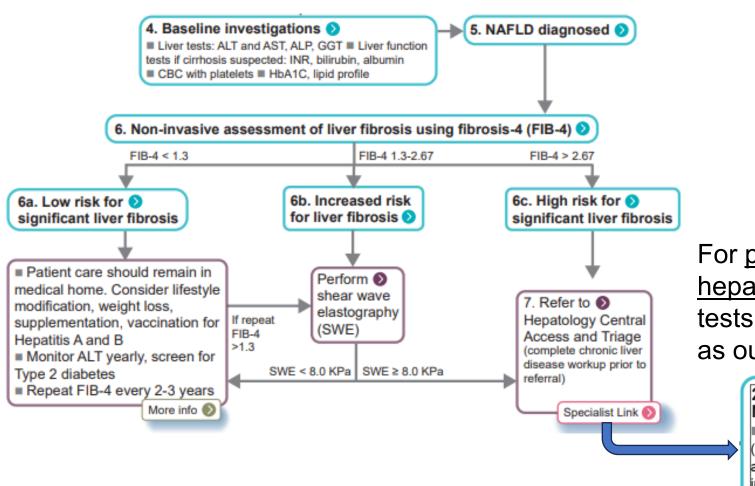
- EFW Liver Program Requisition form
- Mayfair Diagnostics General Requisition form







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For <u>patients</u> that are going to be <u>referred to</u>
<u>hepatology</u> please perform all screening blood
tests for chronic liver disease before referral →
as outlined in Box 2 at top of pathway

Rule out other causes of liver disease in addition to NAFLD through the following stepwise testing:

■ Medication review (including herbals and supplements) ■ Liver ultrasound (if not completed within one year) ■ HBsAg and HCV antibody, ANA, anti-actin/anti-smooth muscle antibody (depending on local availability), immunoglobulins (IgG, IgA, IgM) ■ Ferritin and iron/TIBC ■ Celiac disease screen ■ Serum ceruloplasmin (if age < 30 years)</p>