

NASH in Central America, South America, Mexico and Caribbean

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Disclosures

- **Research Funding:** 89Bio, Akeru, Axcella, BMS, Celgene, Corcept, Gilead, Galmed, Galectin, Genfit, Enanta, Enyo, Hepagene, Inventiva, Madrigal, Merck, NGM Bio, Novartis, Novo Nordisk, Pfizer, Poxel, Viking, and Zydus
- **Consultant:** 89Bio, Allergan, Fibronostics, Gilead, Intercept, NorthSea, Perspectum, Pfizer, Terns, and Zydus
- **Speaker Bureau:** AbbVie, Alexion, Echosens, Gilead, Intercept, Perspectum, and Chronic Liver Disease Foundation

Objectives

- Describe the prevalence of NAFLD/ NASH in Latin America
- Discuss the unique genetic contributors to NAFLD/ NASH
- Discuss disparity in diagnosis and management

- @AlkhouraNaim

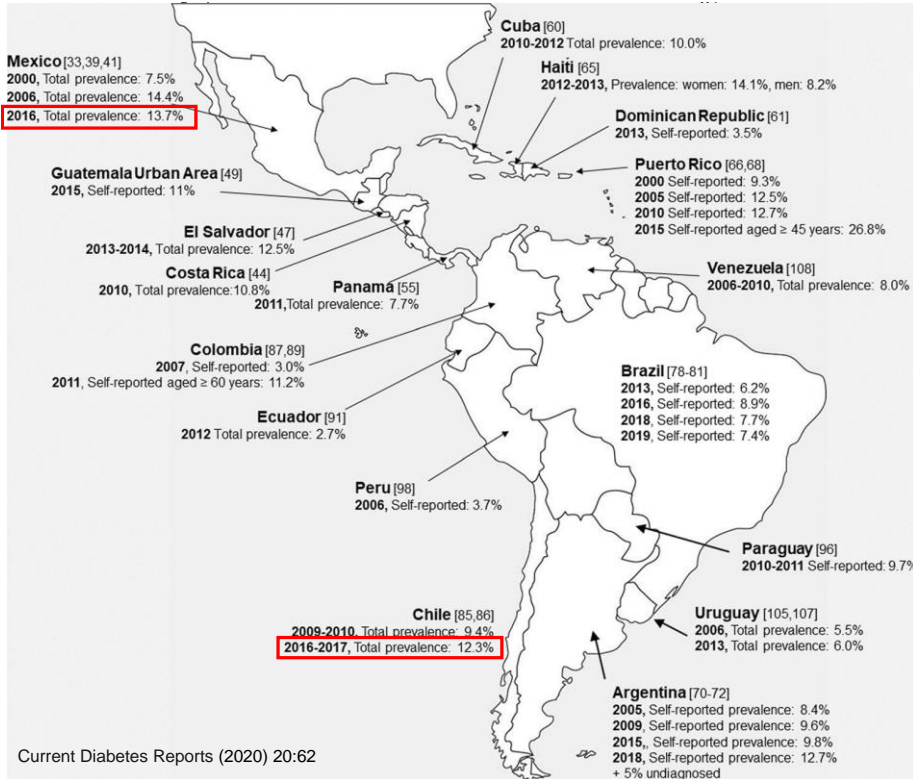


- @azliver



The Scope of the Problem of NAFLD in LATAM

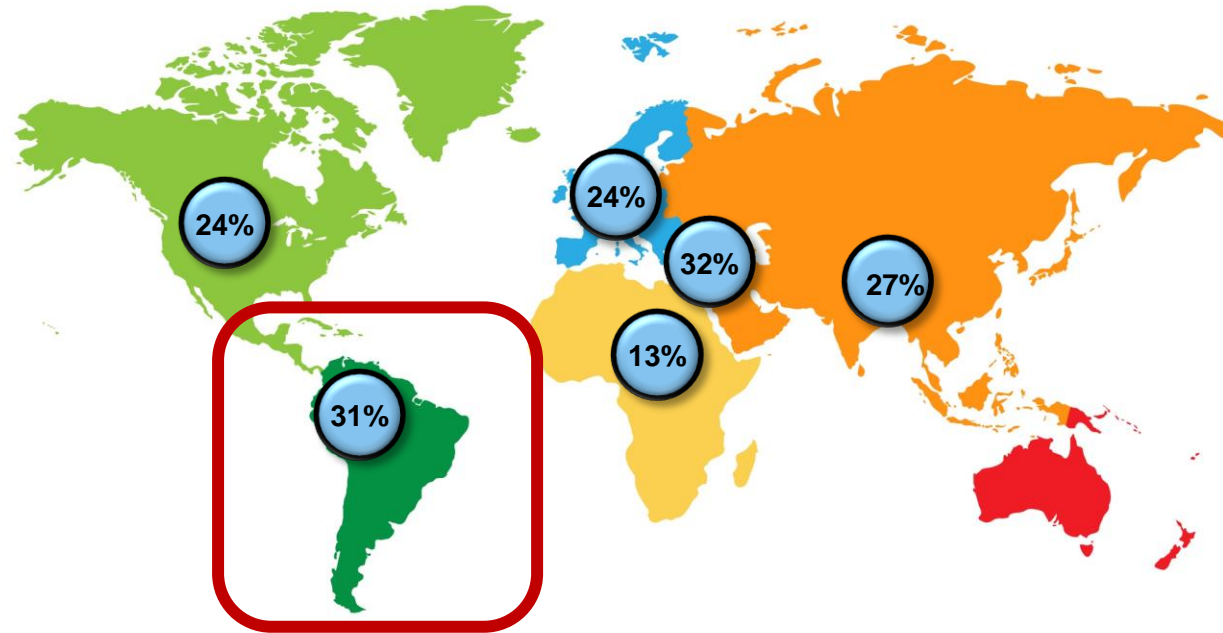
- Non-alcoholic fatty liver disease (NAFLD) is currently a global epidemic
- Epidemiological data from Latin America is limited and likely inaccurate
- The region is characterized by important social, cultural, ethnic, and economic differences



- Prevalence of obesity in LATAM is very significant
- Epidemiological trends for T2DM are also worrisome

WHO GHO, 2018; OECD Health Statistics 2019 for Mexico, Chile, Colombia, Brazil and Costa Rica. *Current Diabetes Reports*. 2020; 20: 62.

Estimated Global Prevalence of NAFLD and NASH



Meta-analysis: NAFLD diagnosed by imaging
(US, CT, MRI/SPECT; n=45 studies)
Younossi ZM et al. *Hepatology*. 2016;64:73-84.

Updated Prospective Data on the Prevalence of NAFLD/NASH in a Middle-Aged U.S. Cohort

Middle-Aged U.S. Cohort



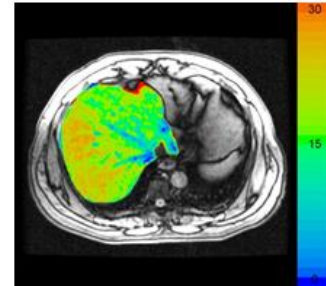
NAFLD Affects 38% of the Total Cohort



NASH Affects 14% of the Total Cohort

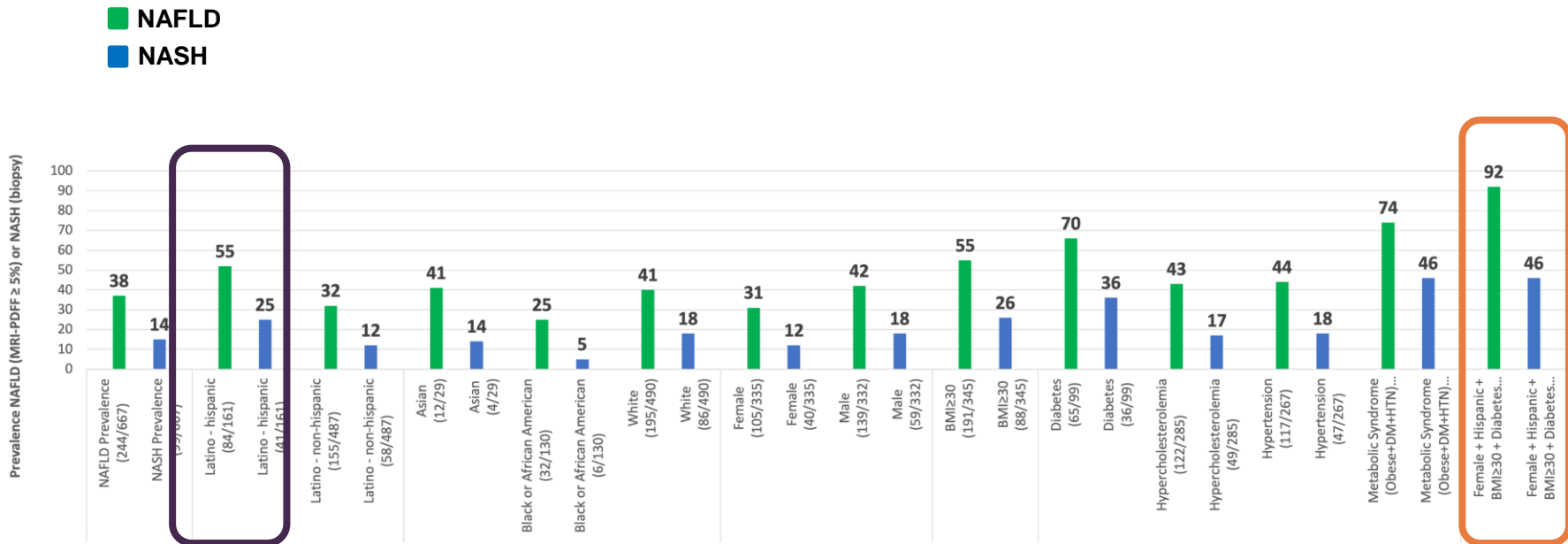


Baseline
fat fraction
18.8%

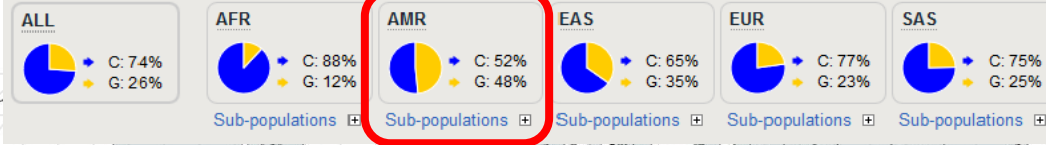


CLDF
Chronic Liver Disease Foundation

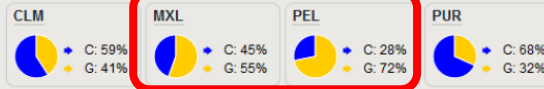
Prevalence of NAFLD and NASH: Subgroup Analysis



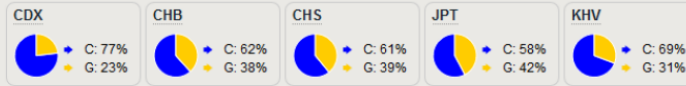
1000 Genomes Project Phase 3 allele frequencies



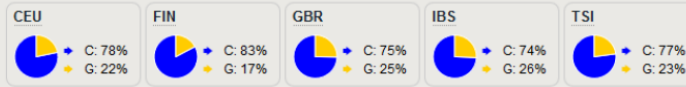
AMR sub-populations



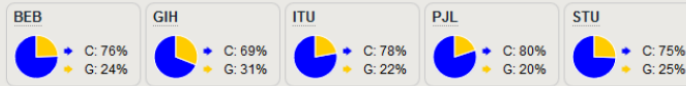
EAS sub-populations



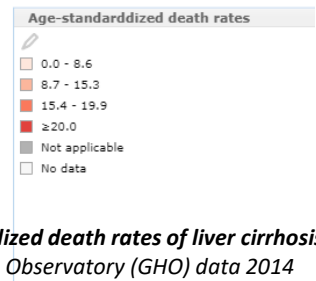
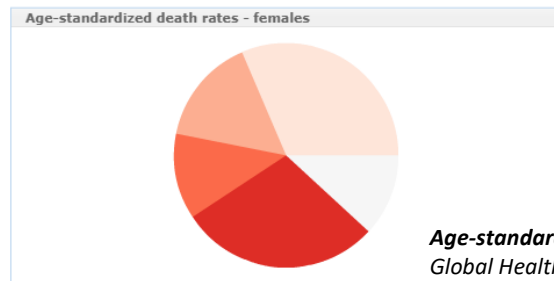
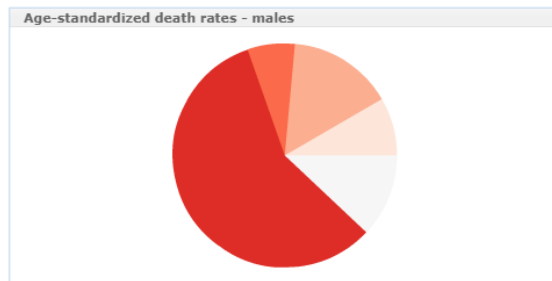
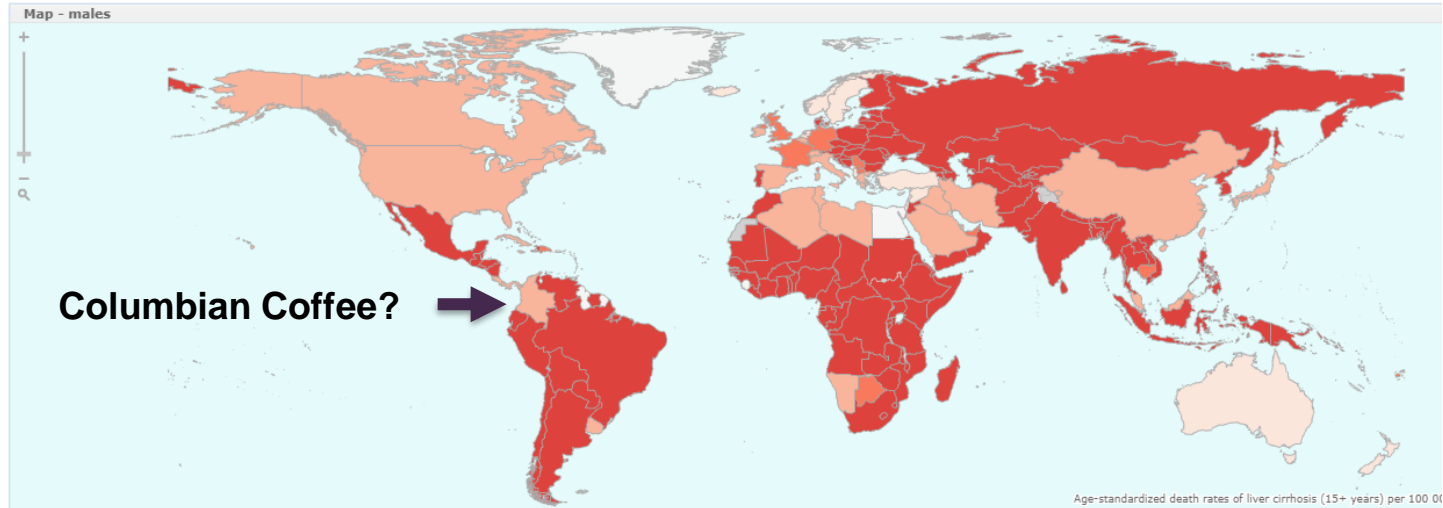
EUR sub-populations



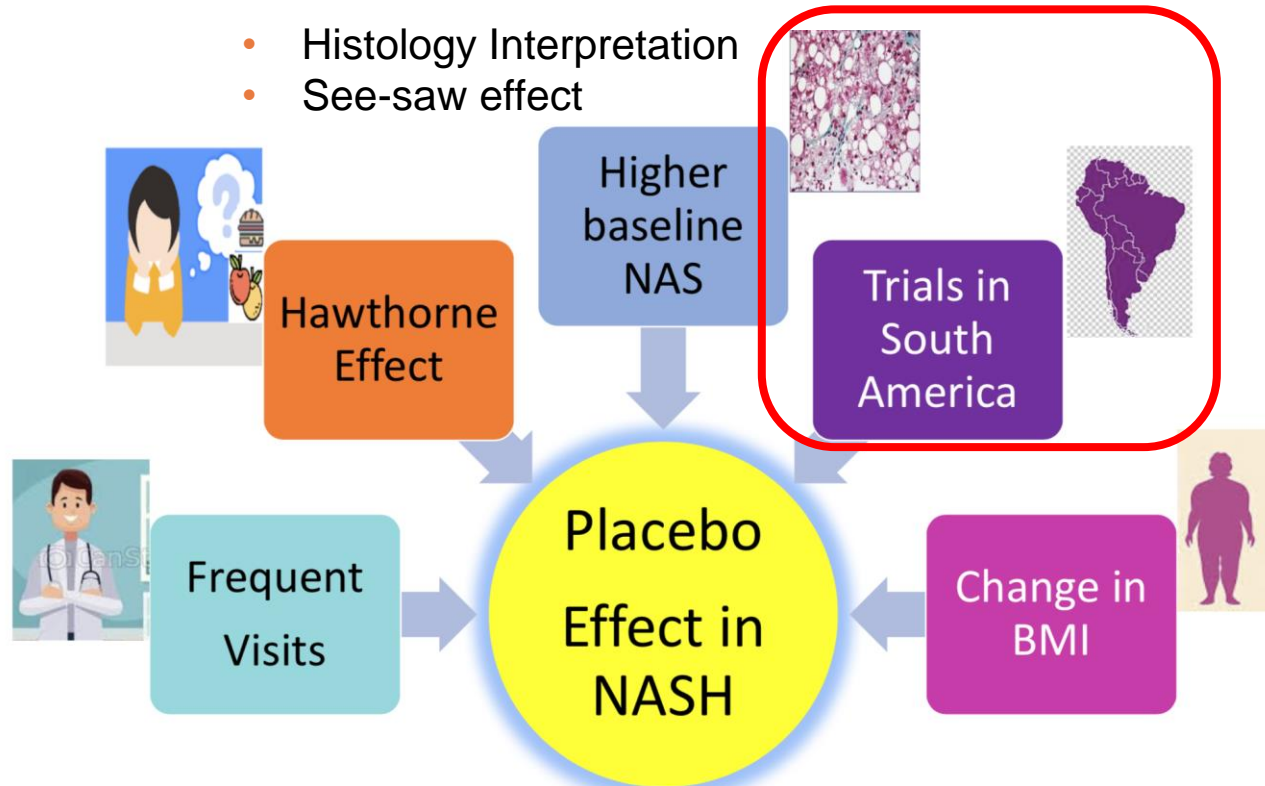
SAS sub-populations



NAFLD Severity and Progression: Is the Disease More Serious in Latin Americans?



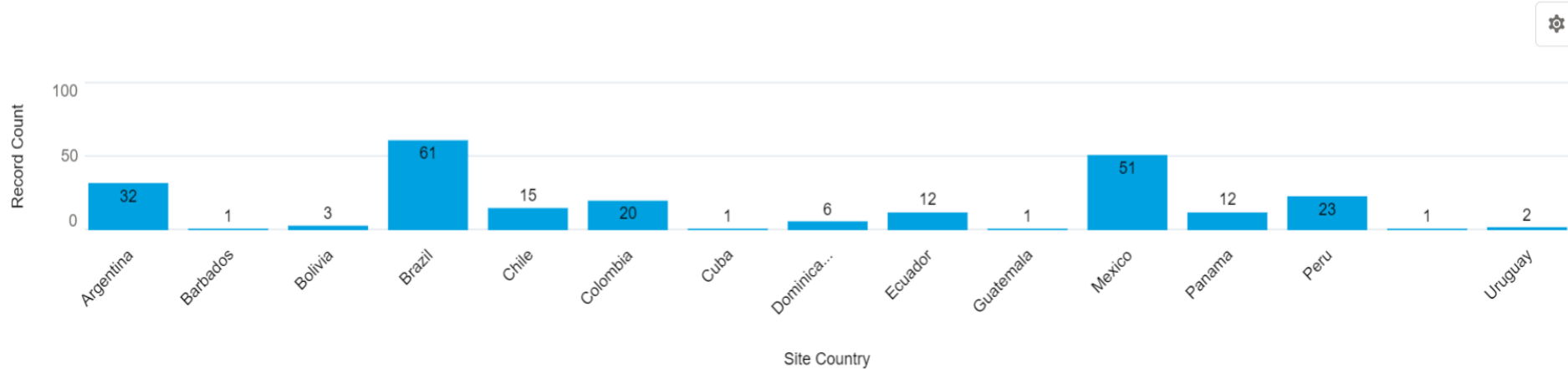
Factors Associated With Placebo Response in NASH Trials



High Placebo Response in South America: ?PNPLA3

	PIVENS (N = 221)		P
	Improved Fibrosis (n = 85)	Not Improved Fibrosis (n = 136)	
Demographics and clinical characteristics			
Female gender	55 (65%)	76 (56%)	0.21
Age at enrollment (years)	46.6 ± 11.1	47.1 ± 12.4	0.74
Hispanic ethnicity	9 (11%)	19 (14%)	0.54
Race: white versus other	71 (87%)	116 (89%)	0.66
Type 2 diabetes [†]	0 (0%)	0 (0%)	—
Metabolic syndrome	49 (58%)	90 (66%)	0.25
Liver enzymes			
ALT (U/L)	77.0 ± 40.0	84.6 ± 51.0	0.25
AST (U/L)	55.0 ± 29.6	56.1 ± 29.2	0.80
Biopsy length (mm)	19.6 ± 9.3	20.1 ± 9.4	0.67
Liver histology			
Portal inflammation			0.52
None	18 (21%)	22 (16%)	
Mild	49 (58%)	88 (65%)	
More than mild	18 (21%)	26 (19%)	
NAS	5.1 ± 1.6	4.8 ± 1.3	0.08
Fibrosis stage (scale 0-4)	1.8 ± 0.8	1.3 ± 1.1	<0.001
Steatohepatitis			
Not	6 (7%)	18 (13%)	0.34
Borderline	14 (16%)	23 (17%)	
Definite	65 (76%)	95 (70%)	
PNPLA3 Rs738409 [‡]			0.03
CC or GC	63 (84%)	79 (69%)	
GG	12 (16%)	35 (31%)	

Issues in Diagnosing NAFLD in LATAM

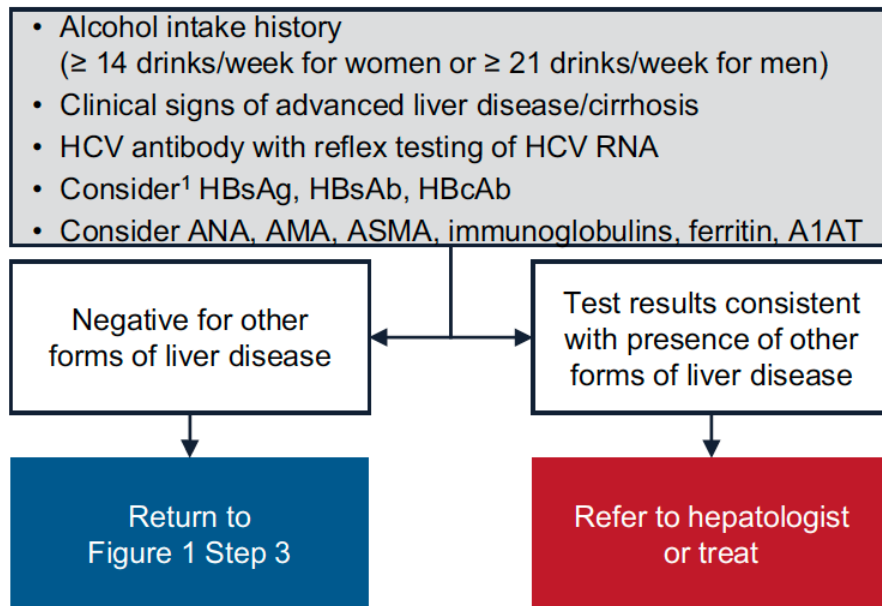
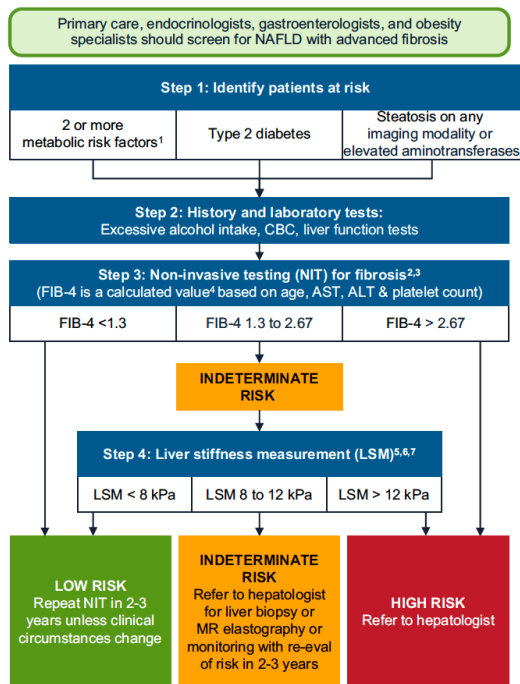


- Lack of **availability** of liver stiffness assessment:
 - Only 241 transient elastography machines in LATAM in 2021

Issues in Diagnosing NAFLD

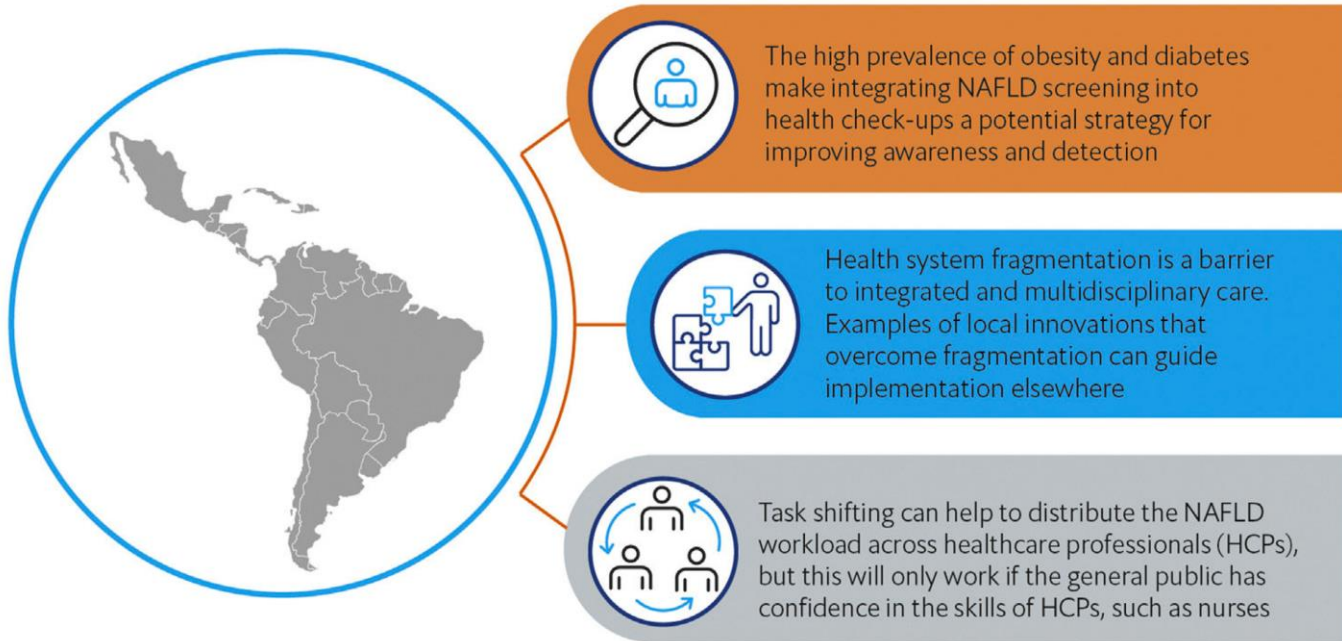
- Continuous **education** on topics such as case finding, and risk stratification is needed
- Screening for NAFLD in **at-risk individuals** has been endorsed in the recently published ALEH Guidance for NAFLD and by other experts' groups
- Simple **referral pathways** are key for proper care

Clinical Care Pathway for Patients With NAFLD



The NAFLD Challenge

Call to action—Latin America region



Diaz et al. *Annals of Hepatology* 24. 2021.

NAFLD: Sounding the alarm on a global public health challenge EASL International Liver Foundation/The Economist Intelligence Unit (2020).

Examples of Public Policies to Address NAFLD

- Food taxes
- Policies for the procurement and provision of healthy food
- Promote healthy diet and physical activity through mass media campaigns
- Holistic planning of NCD management (NAFLD-T2DM-MetS-Dyslipidemia...)

NAFLD Research in LATAM

Table 1

NAFLD related publications listing Latin-American authors 2010-2021.

Country	Number of PUBMED indexed items
Brazil	298
Mexico	150
Argentina	100
Chile	71
Cuba	15
Colombia	8
Peru	6
Guatemala	4
Panama	3
Paraguay	3
Venezuela	3
Uruguay	2
bolivia	1
ecuador	1
Costa Rica	0
El Salvador	0
Honduras	0
Nicaragua	0



- Research output remains low
- Information about important NAFLD-related issues in the region is scarce or limited
- Reasons include: income disparities, clinically-oriented medical training and insufficient availability of research funding
- More coordinated efforts are needed in order to address the peculiarities of NAFLD in the region

Conclusions

- Latin American countries face unique challenges and obstacles to addressing the growing burden of NAFLD.
- The main challenges to improve care of people living with NAFLD in Latin America include:
 - Lack of disease awareness
 - Health system fragmentation
 - Development of effective strategies for prevention and effective treatment of NAFLD and comorbidities (i.e., T2DM and obesity)
- Education efforts on NAFLD, and extensive collaboration between scientific societies, governments, non-governmental organizations, pharmaceutical industry, and other stakeholders are needed to advance the NAFLD public health policies agenda