An Innovative Screening and Treatment Pathway for Metabolic Dysfunction-Associated Steatotic Liver Disease: The UK-CURES Approach

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BACKGROUND

Metabolic-associated steatotic liver disease (MASLD) and its subtype metabolic-associated steatohepatitis (MASH) are the most common liver diseases in the United States, affecting an estimated 75-100 million people.[1] There are few routinized screening and treatment pathway models for MASLD/MASH, leading to underdiagnosis and undertreatment. The Steatosis-Associated Fibrosis Estimator (SAFE) score could be used to identify high risk individuals in need of intervention.[2] This project will characterize SAFE scores of a University of Kentucky HealthCare (UKHC) primary care patient population and how they are used to inform development of a screening and treatment pathway.

RESEARCH QUESTION

In a primary care population, how do demographic and clinical characteristics differ between patients with SAFE ≥100 and SAFE <100?

METHODS

Study Design
- Observational, single center, cross-sectional study
- UKHC electronic health record data

Inclusion Criteria
- Patients with an encounter at an eligible UKHC clinic between 1/1/2024 and 5/16/2025.

Exclusion Criteria
- Hepatitis B/C
- Alcohol use disorder
- Conditions which may falsely elevate a SAFE score
  - Chronic idiopathic thrombocytopenia
  - Leukemia
  - Other hepatic diseases
- Insufficient data to calculate SAFE score

Data Collection
- Demographics
  - Age, sex, gender, race, ethnicity, payor
- Medical history
  - Cardiovascular disease, type 2 diabetes mellitus
- Labs/vitals
  - ALT, AST, Albumin, BMI, Platelets, Total Protein

Statistical Analysis
- Categorical variables
  - Chi-square test or Fisher's exact test as appropriate
- Numeric variables
  - Mann-Whitney U test

Figure 1. Application of inclusion/exclusion criteria

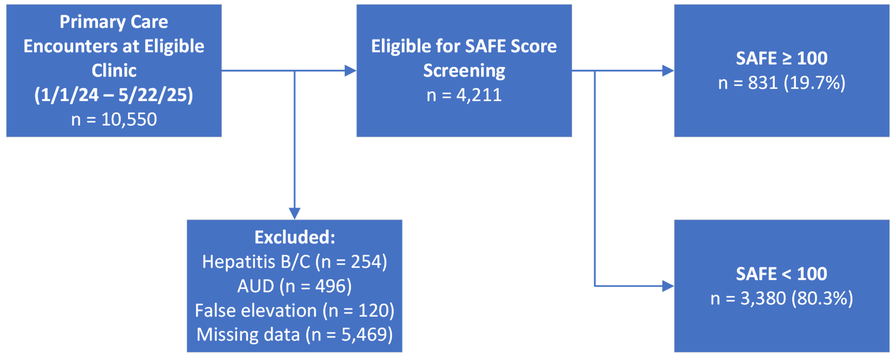
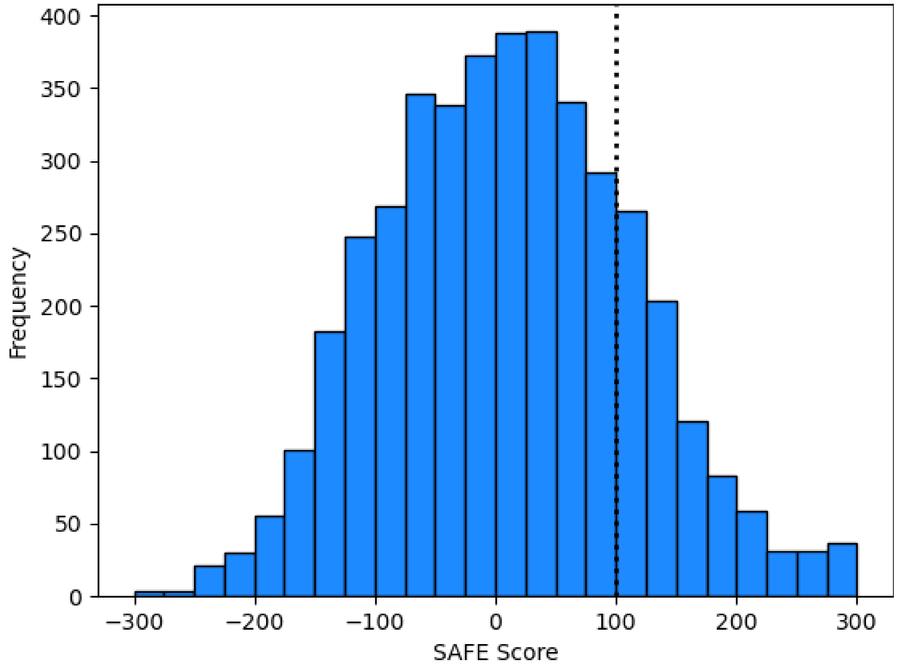


Figure 2. Distribution of SAFE score in Primary Care Population



CITATIONS

1. Paik JM, Hobbs K, Gupta A, Alkalbani RJ, Reyes MA, Younossi ZM. Prevalence of MASLD, Met-ALD, and ALD and Associated Fibrosis Among US Adults: Insights From NHANES 2017 to 2023. Journal of Clinical Gastroenterology. 2025 May 28:10-97.
2. Sripongpun P, Kim WR, Mannalithara A, Charu V, Vidovszky A, Asch S, Desai M, Kim SH, Kwong AJ. The steatosis-associated fibrosis estimator (SAFE) score: a tool to detect low-risk NAFLD in primary care. Hepatology. 2023 Jan 1;77(1):256-67.

Table 1. Baseline attributes by SAFE ≥ 100

Attribute		SAFE < 100 or missing (n = 3,380)	SAFE ≥ 100 (n = 831)	p-value
Age	Mean (SD)	48.4 (16.3)	64.6 (10.4)	<0.0001
	Median (IQR)	48 (28)	66 (15)	
	Range	18, 80	20, 80	
Sex	Male	1,319 (39%)	377 (45.4%)	0.0007
	Female	2061 (61%)	454 (54.6%)	
Gender	Female	1,889 (55.9%)	452 (54.4%)	<0.0001
	Male	1,238 (36.6%)	373 (44.9%)	
	Non-Binary	61 (1.8%)	1 (0.1%)	
	Queer/Other	9 (0.3%)	0 (0%)	
	Transgender Female	77 (2.3%)	1 (0.1%)	
	Transgender Male	106 (3.1%)	4 (0.5%)	
Race	American Indian or Alaskan Native	12 (0.4%)	3 (0.4%)	<0.0001
	Asian	209 (6.2%)	34 (4.1%)	
	Black or African American	539 (16%)	206 (24.8%)	
	Native Hawaiian or Other Pacific Islander	8 (0.2%)	2 (0.2%)	
	Other/Unknown	70 (2.1%)	17 (2.1%)	
	White	2,542 (75.2%)	569 (68.5%)	
Ethnicity	Hispanic, Latino/a, or Spanish origin	201 (6%)	38 (4.6%)	0.0005
	Not Hispanic, Latino/a, or Spanish origin	3080 (91.1%)	777 (93.5%)	
	Unknown	99 (2.9%)	16 (1.9%)	
Payor	Commercial	1,856 (54.9%)	247 (29.7%)	<0.0001
	Medicaid	619 (18.3%)	91 (11%)	
	Medicare	762 (22.5%)	465 (56%)	
	Self-Pay/Other	143 (4.2%)	28 (3.4%)	
BMI (kg/m^2)	< 18.5	47 (1.4%)	2 (0.2%)	<0.0001
	18.5 - 24.9	744 (22.9%)	79 (9.5%)	
	25 - 29.9	1,110 (32.5%)	189 (22.7%)	
	30 - 34.9	685 (20.3%)	225 (27.1%)	
	35 - 39.9	422 (12.5%)	161 (19.4%)	
	≥ 40	352 (10.4%)	175 (21.1%)	
Comorbid diagnoses	Type 2 diabetes mellitus	574 (17%)	561 (67.5%)	<0.0001
	Cardiovascular disease	536 (15.9%)	317 (38.2%)	<0.0001
Medication history	GLP-1RA Exposure	415 (12.3%)	242 (29.1%)	<0.0001

RESULTS AND CONCLUSION

Of 10,550 patients, 4,211 met inclusion criteria, with 831 (19.7%) having SAFE ≥100. These patients were more often male, Black or African American, Medicare-insured, and had higher rates of cardiovascular disease and GLP-1RA use (all p<0.0001). Findings highlight significant demographic and clinical differences and underscore the need for improved screening and linkage to MASLD/MASH treatment.