Supplementary Materials

Detailed results from the NASH Needs Assessment Survey are available at: https://nash.gastro.org/survey

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Nonalcoholic Fatty Liver Disease and Nonalcoholic Steatohepatitis Survey

Thank you for taking the time to participate in this study. The purpose of the study is to determine the current level of physician awareness, familiarity, and practices in the diagnosis and management of nonalcoholic fatty liver disease (NAFLD) and nonalcoholic steatohepatitis (NASH).

NOTE: Text in red indicates correct answer for reference only—no programming implications.

A. Awareness

Q1. To the best of your knowledge, which of the following statements accurately defines nonalcoholic fatty liver disease (NAFLD)? (Please check one)

- Evidence of hepatic steatosis
- Evidence of hepatic steatosis and lack of secondary causes of hepatic fat accumulation
- Evidence of hepatic steatosis with secondary causes of hepatic fat accumulation
- Not sure, would like to receive more information

Q2. To the best of your knowledge, which of the following statements accurately defines nonalcoholic fatty liver (NAFL)? (Please check one)

- Presence of $\geq$5% hepatic steatosis
- Presence of $\geq$5% hepatic steatosis with hepatocellular injury
- Presence of $\geq$5% hepatic steatosis without hepatocellular injury
- Not sure, would like to receive more information

Q3. To the best of your knowledge, which of the following statements accurately defines nonalcoholic steatohepatitis (NASH)? (Please check one)

- Presence of $\geq$5% hepatic steatosis
- Presence of $\geq$5% hepatic steatosis with hepatocellular injury
- Presence of $\geq$5% hepatic steatosis without hepatocellular injury
- Not sure, would like to receive more information

Q4. Roughly what proportion of the following patient groups are likely to have NAFLD? If you are not comfortable answering a question based on your current role or the information you have received to date, please select not sure/need more information.

	Almost all	About half	Up to one-quarter	Not sure, would like to receive more information
Patients with severe obesity	X			
Patients with type 2 diabetes mellitus		X		
Patients with dyslipidemia		X		
General population			X	

Q5. Which one of the following statements is true?

- Men are twice as likely as women to have NAFLD
- Men and women are almost equally likely to have NAFLD
- Women are twice as likely as men to have NAFLD
- Not sure, need more information

Q6. Which of the following is the best estimate of the prevalence rate of NAFLD in patients with type 2 diabetes based on liver ultrasound?

- Less than 25%
- Approximately 55%
- Approximately 75%
- Not sure, need more information

Q7. Statements below describe some potential adverse outcomes that patients with NAFLD or histological NASH may experience. Please indicate whether you believe each statement is true or false based on current evidence. If you are not comfortable answering a question based on your current role or the information you have received to date, please select not sure/need more information.

	True	False	Not sure, need more information
Patients with NAFLD have increased overall mortality compared to matched control populations without NAFLD.	X		
The most common cause of death in patients with NAFLD is cardiovascular disease, independent of other metabolic comorbidities.	X		
Although liver-related mortality is the 12th leading cause of death in the general population, it is the second or third cause of death among patients with NAFLD.	X		
Cancer-related mortality is among the top 3 causes of death in subjects with NAFLD.	X		
The most important histological feature of NAFLD associated with long-term mortality is advanced fibrosis or cirrhosis.	X		

B. Screening and Patient Management

Q8a. Do you screen for NAFLD and/or NASH?

- Yes
- No [GO TO 8b]

Q8b. What are some reasons why you don't screen for NASH and/or NAFLD? (Please check all that apply)

- I am not familiar with screening procedures for NAFLD/NASH
- NAFLD/NASH are not a priority in my practice
- I do not have time to screen for NAFLD/NASH
- Treatment therapies for NAFLD/NASH are limited
- Prevalence of NAFLD/NASH is low
- NAFLD/NASH is not my specialty
- Other (please specify) _____

Q9. Do you diagnose NAFLD and/or NASH?

- Yes
- No [GO TO 9a]

Q9a. What are some reasons why you don't diagnose NASH and/or NAFLD? (Please check all that apply)

- I am not familiar with diagnostic procedures for NAFLD/NASH
- NAFLD/NASH is not my specialty
- Diagnostic procedures are invasive and risky
- Treatment therapies for NAFLD/NASH are limited
- Other (please specify) _____

Q10. Number of patients with NAFLD seen monthly?

- None
- <5
- 5–10
- 11–20
- >20

Q11. Do you currently manage patients with NAFLD and/or NASH?

- Yes
- No [GO TO Q12]

Q12. IF Q11 = NO: Will you manage new NAFLD and/or NASH Patients?

- Yes
- No, will refer all new patients [GO TO Q12a]

Q12a. What are some reasons why you won't manage NAFLD/NASH patients? (Please check all that apply)

- I'm not familiar with treatment therapies for NAFLD/NASH
- NAFLD/NASH is not my specialty
- I do not have time to manage patients with NAFLD/NASH
- Other (please specify) _____

C. Diagnosis

This section of the survey asks about NAFLD and NASH diagnosis. We would like to understand your opinions about appropriate clinical practice, even if you are not always the one to actually screen and diagnose patients due to patient referral practices. If you are not comfortable answering a question based on your current role or the information you have received to date, please select not sure/need more information.

Q13. The statements below describe some possible patient groups that should be screened for NAFLD. Please indicate whether you believe each statement is true or false**.** If you are not comfortable answering a question based on your current role or the information you have received to date, please select not sure/need more information.

	True	False	Not sure, need more information
Patients with abnormal liver chemistries	X		
Patients older than 50 years who have hypertension and hyperlipidemia	X		
Patients with type 2 diabetes	X		
Patients with NAFLD family members		X	

Q14. The statements below describe how to approach an initial evaluation (clinical history, laboratory testing, imaging for confirmation of diagnosis and risk stratification) of the patient with suspected NAFLD. Please indicate whether you believe each statement is true or false. If you are not comfortable answering a question based on your current role or the information you have received to date, please select not sure/need more information.

	True	False	Not sure, need more information
When evaluating a patient with suspected NAFLD, it is important to exclude competing etiologies for steatosis and coexisting common chronic liver disease.	X		
In patients with suspected NAFLD, persistently high serum ferritin, and increased iron saturation, especially in the context of homozygote and heterozygote C282Y HFE mutation, a liver biopsy should be considered.	X		
High serum titers of autoantibodies in association with >5 upper limit of normal aminotransferases, high globulins, or high total protein to albumin ratio should prompt a workup for autoimmune liver disease.	X		
Initial evaluation of patients with suspected NAFLD should include cross-sectional abdominal imaging (such as contrast-enhanced computed tomography scan) to screen for hepatocellular cancer.		X	
Initial evaluation of patients with suspected NAFLD should carefully consider the presence of commonly associated comorbidities such as obesity, dyslipidemia, insulin resistance or diabetes, hypothyroidism, polycystic ovary syndrome, and sleep apnea.	X		

Q15. The statements below describe how to approach a noninvasive diagnosis of steatohepatitis and advanced fibrosis in NAFLD. Please indicate whether you believe each statement is true or false. If you are not comfortable answering a question based on your current role or the information you have received to date, please select not sure/need more information.

	True	False	Not sure, need more information
NAFLD fibrosis score (NFS) or Fibrosis-4 Index are clinically useful tools for identifying NAFLD patients with higher likelihood of having advanced fibrosis (stage 2 or higher) or cirrhosis (stage 4).	X		
Abdominal ultrasound is a clinically useful tool for identifying NAFLD patients with steatohepatitis.		X	
Vibration-controlled transient elastography (FibroScan) or magnetic resonance elastography (imaging) are clinically useful tools for identifying advanced fibrosis in patients with NAFLD.	X		

Q16. Please indicate situations when you will consider obtaining a liver biopsy in patients with NAFLD. If you are not comfortable answering a question based on your current role or the information you have received to date, please select not sure/need more information.

	Yes	No	Not sure, need more information
Patients with suspected NAFLD, mildly elevated serum ferritin, and severe obesity		X	
The presence of metabolic syndrome, NAFLD fibrosis score or Fibrosis-4 Index, or liver stiffness measured by vibration-controlled transient elastography or magnetic resonance elastography (imaging) suggestive of moderate-to severe fibrosis	X		
Patients with suspected NAFLD in whom competing etiologies for hepatic steatosis and the presence and/or severity of coexisting chronic liver diseases cannot be excluded	X …		

Q17. Clinical pathology reporting should include which of the following? (Check all that apply)

- Distinction between NAFL (steatosis), NAFL with inflammation, and NASH (steatosis with lobular and portal inflammation and hepatocellular ballooning)
- Commentary on severity (mild, moderate, or severe)
- Use of specific scoring systems, such as NAFLD activity score and/or steatosis, activity, and fibrosis, if deemed appropriate
- Description of the presence of fibrosis, including location, amount, and parenchymal remodeling, if warranted
- All of the above
- Not sure, need more information

D. Patient Management Practices

This section of the survey asks about NAFLD and NASH management and treatment. We would like to understand your opinions about appropriate clinical practice, even if you are not always the one to manage patients and their treatment due to patient referral practices. If you are not comfortable answering a question based on your current role or the information you have received to date, please select not sure/need more information.

Q18. Clinicians have different options about what NASH treatments are appropriate, or if a treatment requires confirmation of NASH first via liver biopsy. Indicate your opinion for each treatment in the grid below. If you are not comfortable answering a question based on your current role or the information you have received to date, please select not sure/need more information. (X – marked per Guidance)

	Use without liver biopsy	Recommended but only after liver biopsy	Not recommended per current practice guidelines	Not sure, need more information
Foregut bariatric surgery for otherwise eligible individuals with obesity	X			
GLP-1 agonists			X	
Metformin			X	
Obeticholic acid)			X	
Omega-3 fatty acids			X	
Pioglitazone		X		
Ursodeoxycholic acid			X	
Weight loss of 7%–10%	X			
Vitamin E for nondiabetic adults		X		
Vitamin E for diabetic patients			X	

Q19. The statements below describe guidance for managing patients with NAFLD or NASH. Please indicate whether you believe each statement is true or false based on current evidence. If you are not comfortable answering a question based on your current role or the information you have received to date, please select not sure/need more information.

	True	False	Not sure, need more information
NAFLD and NASH patients should avoid heavy alcohol consumption	X		
Aggressive modification of CVD risk factors should be considered in all patients with NAFLD or NASH	X		
Statins can be used to treat dyslipidemia in patients with NAFLD or NASH	X		
Statins can only be used to treat dyslipidemia in patients with NASH		X	
Statins should be avoided in patients with decompensated cirrhosis	X		

Q20. The statements below describe guidance for managing patients with NASH. Please indicate whether you believe each statement is true or false based on current evidence. If you are not comfortable answering a question based on your current role or the information you have received to date, please select not sure/need more information.

	True	False	Not sure, need more information
Patients with NASH cirrhosis should be screened for gastroesophageal varices	X		
Patients with cirrhosis suspected because of NASH should be considered for hepatocellular carcinoma (HCC) screening	X		
Routine screening and surveillance should be conducted for hepatocellular carcinoma (HCC) in patients with noncirrhotic NASH		X	
Liver biopsy should be repeated in patients with NAFL or NASH		X	
Repeat liver biopsy in NAFL or NASH should be considered on a case-by-case basis	X		

Q21. Please indicate your level of agreement with the following statements.

	Strongly disagree	Disagree	Agree	Strongly agree
NASH should not be ignored because it will impact our health system dramatically in the next few years.				
NASH is a frustrating condition because there are no US Food and Drug Administration–approved treatments.				
Once effective therapeutic treatments are found, I will be more likely to screen for NASH.				

.Continued

	Strongly disagree	Disagree	Agree	Strongly agree
Once effective therapeutic treatments are found, I will be more likely to diagnose NASH.				
Once effective therapeutic treatments are found, I will be more likely to treat NASH.				
I would like more education on screening for NASH.				
I would like more education on diagnosing NASH.				
I would like more education on treating NASH.				

E. Information Preference and Demographics

Q21. What is your preferred source of information about practice guidance for the diagnosis and management of NAFLD/NASH?

- American Gastroenterological Association
- My own association
- Other (please specify) _____

Q22. What is your preferred method of receiving more information about NAFLD/NASH? (Please rank the following options in order of preference from 1 to 3, where 1 is most preferred option and 3 is least preferred option.)

- Peer-reviewed journal article
- Online medical education
- Live medical education

Q23. Location of practice (Please check one):

- Solo private practice
- Medical group practice
- Hospital-based practice
- Clinic

Q24. Size of practice (Please check one):

- Solo
- 2–5 physicians
- 6–30 physicians
- 31–100 physicians
- 101 or more physicians