## Best Practices in Specialized Amyloidosis Centers in the United States: A Survey of Cardiologists, Nurses, Patients, and Patient Advocates

Supplemental Table S1. Amyloidosis center survey methodology and reporting based on COREQ 32-item checklist.<sup>1</sup>

ITEM No.	CHECKLIST QUESTION/DESCRIPTION	SURVEY INFORMATION
DOMAIN 1: RESEARCH TEAM AN	D REFLEXIVITY	
Personal characteristics		
1. Interviewer	Which author(s) conducted the interview?	Lori Klein
2. Credentials	What were the researcher's credentials? eg, PhD, MD	PharmD
3. Occupation	What was their occupation at the time of the study?	Founder and CEO of Bench Wing, a life sciences consulting firm
4. Gender	Was the researcher male or female?	Female
5. Experience and training	What experience or training did the researcher have?	Experience in life sciences consulting with more than 2 decades
		of research experience
		<ul> <li>Post-doctoral fellowship in critical care and infectious diseases</li> </ul>
		research
		Collaborated in questionnaire development, received feedback
		from research team, and conducted all interviews
Relationship with participants		
6. Relationship established	Was a relationship established prior to study commencement?	Lori Klein did not have a relationship with any of the participants
		before conducting the interviews
7. Participant knowledge of the	What did the participant know about the researcher? eg, personal	Participants were informed at the outset of the interviews that the
interviewer	goals, reasons for doing the research	research was being conducted by Bench Wing, a life sciences
		consulting company, in partnership with Pfizer. In addition, they
		were told that the goal of the interviews was "to better understand
		the best practices of amyloidosis centers"

8. Interviewer characteristics	What characteristics were reported about the interviewer?	None
DOMAIN 2: STUDY DESIGN		
Theoretical framework		
Methodological orientation	What methodological orientation was stated to underpin the study?	Content analysis was the methodological orientation underpinning
and theory	eg, grounded theory, discourse analysis, ethnography,	the study
	phenomenology, content analysis	
Participant selection		
10. Sampling	How were participants selected? eg, purposive, convenience,	Purposive sampling was used
	consecutive, snowball	Center selection was based on information derived from online
		research, ie:
		<ul> <li>Years of experience</li> </ul>
		<ul> <li>Number of new amyloidosis patients per year</li> </ul>
		Center capabilities
		<ul> <li>Presence of HF program(s)</li> </ul>
		<ul> <li>Number of experts in amyloidosis, ATTR-PN/-CM, and HF</li> </ul>
		<ul> <li>Number of publications on amyloidosis and ATTR-CM</li> </ul>
		<ul> <li>Involvement in amyloidosis and ATTR-CM clinical trials and</li> </ul>
		registries
		<ul> <li>US News &amp; World Report (2018–2019) ranking as a</li> </ul>
		hospital for cardiology, heart surgery, and HF
		<ul> <li>Designated amyloid treatment center according to the</li> </ul>
		Amyloidosis Foundation, Amyloidosis Support Groups, My
		Amyloidosis Pathfinder, National Organization for Rare
		Disorders, and/or Hypertrophic Cardiomyopathy
		Association

		Of 17 ar	myloid centers identified, 2 were excluded because
		healthca	are providers at the centers failed to accept email invitation
		to partic	ipate
11. Method of approach	How were participants approached? eg, face-to-face, telephone,	Interviev	ws were conducted via telephone (exception: 1 participant
	mail, email	provided	d responses via email)
12. Sample size	How many participants were in the study?	15 cardi	ologists, 5 nurse practitioners, 4 registered nurses,
		16 patie	nts, and 4 patient advocates participated
13. Non-participation	How many people refused to participate or dropped out? Reasons?	Five peo	ople refused to participate or dropped out: 1 physician
		referred	his colleague to take his place; 2 nurses were not
		permitte	ed by their institution to participate; 1 nurse declined
		participa	ation because of her limited experience at the amyloidosis
		center; a	and 1 nurse did not respond to the interviewer after initially
		agreeing	g to participate
Setting			
14. Setting of data collection	Where was the data collected? eg, home, clinic, workplace		Workplace
15. Presence of non-participants	Was anyone else present besides the participants and researchers?		No
16. Description of sample	What are the important characteristics of the sample? eg, demograph	ic data,	Data was collected from October 2019 to February 2020
	date		
Data collection			
17. Interview guide	Were questions, prompts, guides provided by the authors? Was it pilo	ot-tested?	Interview guides for healthcare providers, patients, and
			patient advocates were developed by Lori Klein in
			consultation with all of her co-authors
18. Repeat interviews	Were repeat interviews carried out? If yes, how many?		No
19. Audio/visual recording	Did the research use audio or visual recording to collect the data?		All interviews were audio recorded
20. Field notes	Were field notes made during and/or after the interview?		Yes

21. Duration	What was the duration of the interviews?	1 hour
22. Data saturation	Was data saturation discussed?	Yes. After 16 patient interviews, the researchers decided
		no further patient recruitment was required
23. Transcripts returned	Were transcripts returned to participants for comment and/or correction?	No
DOMAIN 3: ANALYSIS AND FINDIN	NGS	
Data analysis		
24. Number of data coders	How many data coders coded the data?	1
25. Description of the coding tree	Did authors provide a description of the coding tree?	N/A
26. Derivation of themes	Were themes identified in advance or derived from the data?	The different questions and their respective answers led
		to theme identification
27. Software	What software, if applicable, was used to manage the data?	All interviewee responses were recorded and transcribed
		into Excel spreadsheets, pooling de-identified responses
		from each type of participant
28. Participant checking	Did participants provide feedback on the findings?	No
Reporting		
29. Quotations presented	Were participant quotations presented to illustrate the themes/findings?	Feedback was summarized; no direct quotes were
	Was each quotation identified? eg, participant number	attributed to participants
30. Data and findings consistent	Was there consistency between the data presented and the findings?	Yes
31. Clarity of major themes	Were major themes clearly presented in the findings?	Yes
32. Clarity of minor themes	Is there a description of diverse cases or discussion of minor themes?	Minor themes are captured in charts and tables

ATTR-CM, transthyretin amyloid cardiomyopathy; ATTR-PN, transthyretin amyloid polyneuropathy; COREQ, consolidated criteria for reporting qualitative research; HF, heart failure; N/A, not applicable.

Supplemental Table S2. Interview guides for amyloidosis center survey of cardiologists, nurses, patients, and patient advocates.

CATEGORY OF	SURVEY QUESTIONS				
SURVEY	CARDIOLOGISTS	NURSES/NURSE PRACTITIONERS	PATIENTS		
QUESTIONS					
Characteristics of the amyloidosis centers, patients, and patients' journey	<ol> <li>How many years has your amyloidosis center been in existence?</li> <li>Over the past 12 months, approximately how many amyloidosis patients has your amyloidosis center treated?         <ul> <li>Newly diagnosed?</li> <li>What is the % of:</li></ul></li></ol>	<ol> <li>Please describe your role on the amyloidosis center team.</li> <li>Please describe the number and type of staff dedicated to your amyloidosis center including nurses, other non-physician clinical personnel, and non-clinical personnel.</li> <li>What specialties are the non-physician clinical personnel?         <ul> <li>Do you have a dedicated physician assistant/NP to support your amyloidosis center?</li> <li>Do you have a dedicated RN to support your amyloidosis center?</li> </ul> </li> <li>What are the roles of the non-clinical personnel?</li> <li>What are your vision and/or aspirations for your amyloidosis center?</li> <li>Organizationally, how do you handle the operational issues of managing your.</li> </ol>	<ol> <li>For how many years have you been receiving care at your amyloidosis center?</li> <li>Why did you decide to get treated at an amyloidosis center?</li> <li>How did you find your amyloidosis center?</li> <li>Did your physician refer you? If so, what is his/her specialty?</li> <li>If you found it on your own, how did you become aware of your amyloidosis center?</li> <li>Did you do any research on your amyloidosis center before you made your decision to get treated there?         <ul> <li>If so, where did you look?</li> </ul> </li> <li>What aspect influenced you most in application your amyloidosis center.</li> </ol>		
	cardiology or HF clinic or other specialty clinic?  4. Does your amyloidosis center have multidisciplinary specialists (eg, cardiology,	operational issues of managing your amyloidosis center?	selecting your amyloidosis center (or would if you were selecting it now)?		

- hematology, neurology, gastroenterology) in 1 location to evaluate patients or do patients need to visit different buildings or campuses to see each specialist?
- Please describe the number and type of staff dedicated to your amyloidosis center, including physicians (by type of specialist), non-physician clinical personnel, and non-clinical personnel.
- 6. Are any of the physicians fully dedicated to your amyloidosis center practice?
  - Which physicians play a consultative role vs being fully dedicated?
  - Are there specific days for seeing patients with amyloidosis or are these appointments interspersed with the other patients you see?
- 7. Do you have a dedicated physician assistant or nurse practitioner to support your amyloidosis center?
- 8. Do you have a dedicated RN to support your amyloidosis center?
- 9. What are your vision and/or aspirations for your amyloidosis center?
- 10. Organizationally, how do you handle the operational issues of managing your amyloidosis center?

- Do you have a clinical operating committee tasked with overseeing the center, handling clinical affairs, ensuring continuous quality improvement, and analyzing the provider base?
- Who is responsible for the administrative issues of your amyloidosis center?
- Does your amyloidosis center function as an independent unit or do some of these responsibilities fall within a broader organization, eg, the HF or cancer center?
- 5. On a scale of 1 to 10, where 10 is really important and 1 is not important at all, how would you rank these other aspects in your decision to select your amyloidosis center:
  - Physician referral
  - Reputation of the amyloidosis center
  - Reputation of the hospital/university
  - Reputation of the ATTR-CM physician
  - Clinical trials available at the amyloidosis center
  - Location of the amyloidosis center
  - Designation as a CoE by another organization, eg, MAP, ASG, AF, or NORD
- 6. Are there any ways you look for updates from your amyloidosis center?

- Do you have any care pathways to guide outside providers on the coordination of care?
- 12. Can you describe your perception of the typical referral patterns for patients with ATTR-CM?
  - Where do your patients come from?
  - Which specialties most commonly refer patients?
  - What % come from within your organization vs external?
  - What % are local, regional, national, or international? (The answer for the 4 options should total 100%.)
  - What % of patients referred with suspected cardiac amyloidosis do you confirm have cardiac amyloidosis?
- 13. Do you receive patients as a result of your designation as an amyloidosis center from other organizations, eg, MAP, ASG, AF, or NORD?
  - What do these types of endorsements mean to your organization?
  - Are they something your amyloidosis center strives to achieve?
- 14. What does your institution do to increase awareness of the expertise of your amyloidosis center among physicians and patients?

- Do you provide any education to the referring physician team about managing ATTR-CM?
- Do you typically know the details of the patient's journey to a diagnosis before they were referred to your amyloidosis center?
  - If so, do you know this information from the patient or the referring physician?

- Who writes your prescriptions for ATTR-CM? Where do you have those prescriptions filled?
- Who orders lab tests or imaging tests for ATTR-CM? Where do you have those tests completed?
- If your care is coordinated between your amyloidosis center and your local physician, do you find any difficulties or challenges with this arrangement?
- 8. Do you ever use videoconferencing to have follow-up conversations with your amyloidosis center physicians?
- 9. Do any of your amyloidosis center physicians ever make visits to a local clinic or hospital to see you?
- 10. Does your amyloidosis center have a healthcare support portal to communicate with you?

Best practices and	15. What are a couple of the best practices within	6. What are a couple of the best practices within	11. What do you think your amyloidosis
ideal features of the	your amyloidosis center?	your amyloidosis center?	center does really well?
amyloidosis centers	16. Are there efficiencies and/or cost savings afforded	Is there a nurse-specific example?	12. Does your amyloidosis center conduct
	by your amyloidosis center?	7. Are there efficiencies and/or cost savings	patient satisfaction surveys?
	17. What are some of the challenges for your	afforded by your amyloidosis center?	13. In your opinion, what would make an
	amyloidosis center?	8. What are some of the challenges for your	ideal amyloidosis center?
	18. If you were giving advice to someone setting up a	amyloidosis center?	
	new amyloidosis center, are there things to avoid	9. What metrics do you use to measure the	
	or mistakes you have learned from in running your	success of your amyloidosis center?	
	amyloidosis center?	10. How does your amyloidosis center team	
	19. What metrics do you use to measure the success	continue to advance its knowledge and training	
	of your amyloidosis center?	in cardiac amyloidosis?	
Diagnostic	20. What % of new patients you receive with	11. How do you ensure the patient understands	14. Did you receive your diagnosis of
approaches followed	ATTR-CM already have a diagnosis?	ATTR-CM after they have been diagnosed?	ATTR-CM at your amyloidosis
at amyloidosis centers	<ul> <li>How far along the diagnostic work-up have</li> </ul>	12. Who spends the time to educate the patient?	center?
	most referred patients gotten?	13. Do you include the family and/or caregiver in	<ul> <li>How many years ago were you</li> </ul>
	Are there aspects of the diagnostic work-up	the patient's education?	diagnosed?
	that may have been done by the referring	14. What information gets covered in a patient's	15. Did you have a cardiac biopsy and/or
	physician that you repeat to confirm the	education for ATTR-CM?	PYP scan?
	diagnosis?	15. Approximately how much time does your	16. Did you receive genetic testing for
	Do you routinely use strain imaging as part of	amyloidosis center spend educating patients	your amyloidosis?
	your echo evaluation of amyloid patients?	on ATTR-CM?	<ul> <li>Did you talk to a genetic</li> </ul>
	21. What % of your patients with ATTR-CM are	Do you feel it is enough?	counselor?
	diagnosed by your institution's HF program?	16. Do you ever have follow-up calls with the	Was your family included in this
		patient when they are at home to discuss	discussion?

22. In your amyloidosis center, who is involved in the	questions they may have or provide additional	What were the key concerns you
typical diagnostic work-up for a patient with	training?	wanted addressed?
ATTR-CM?	17. Do you meet more than once to educate a	
23. What % of the time do you use the following in	patient on ATTR-CM?	
diagnosing patients with ATTR-CM:	18. Do you provide any printed materials or online	
PYP scintigraphy	resources?	
Endomyocardial biopsy	What does the material cover?	
Genetic testing	Where do you get educational materials?	
24. Do you ever use PYP scintigraphy in patients wi	How do you ensure they stay updated?	
suspected AL amyloidosis?	Are there any items you wish you had for	
25. What % of PYP-positive patients have an	educating patients about ATTR-CM?	
abnormal monoclonal protein on serum/urine	19. When you are educating patients about ATTR-	
testing?	CM, what works well?	
26. If a patient with ATTRv presents with significant	What doesn't work?	
neuropathy and no HF, do you routinely evaluate	20. Do you offer patient education seminars,	
for the presence of cardiac involvement and/or of	advocacy meetings, support groups, or similar	
your neurologists routinely refer to you for a	programs within your amyloidosis center?	
cardiac assessment?	21. Do you have any systems in place to screen	
27. Do you ascribe to a particular diagnostic	"hot spots" for patients who may have	
algorithm?	ATTR-CM?	
28. What is the duration of the initial visit with you fo		
a new patient with amyloidosis?		
29. Do you incorporate genetic counselors in the		
management of your patients?		

	How do you discuss genetic testing		
	implications with the family?		
	If a family member is found to have a TTR		
	mutation but is asymptomatic, do you have		
	any type of surveillance program to monitor		
	them?		
	30. Do you have any systems in place to screen "hot		
	spots" for patients who may have ATTR-CM?		
Amyloidosis center	31. Do the different specialties see patients together?	22. How many physicians or other members of the	17. How many physicians and other
approaches to	Do you have any multidisciplinary review	team does a patient see in a follow-up visit to	personnel do you usually see when
multidisciplinary care	meetings to discuss an individual patient?	your amyloidosis center?	you visit your amyloidosis center?
	Do you have a dedicated amyloidosis clinic	<ul><li>Who would they typically be?</li></ul>	Could you share what expertise
	day? How frequently do you meet?	Who coordinates appointments with all the	they have, eg, what type of
	32. How do you work with your specialty pharmacy?	specialists the patient needs to see on a	specialists, nurses, patient
	Do you have one within your health system?	visit?	navigators?
	Which ATTR amyloidosis drugs do they help	23. Do the different specialties ever see patients	What is your perspective on
	you with?	together?	seeing multiple specialists at your
	What are some of the positive aspects of	Do you have any multidisciplinary review	amyloidosis center?
	working with your specialty pharmacy?	meetings to discuss an individual patient?	18. Does your amyloidosis center have
	Are there any challenges working with your	<ul><li>If yes, who is included?</li></ul>	multidisciplinary specialists (eg,
	specialty pharmacy?	If your specialists do meet together, is this	cardiology, hematology, neurology,
		primarily done for diagnosis and/or	gastroenterology) in 1 location to
		treatment or do you have meetings to	evaluate patients or do patients need
		discuss follow-up patient appointments?	to visit different buildings or
			campuses to see each specialist?

 24. If a patient calls with questions or concerns	19. Do you have a dedicated point person
between their appointments at the amyloidosis	or a patient navigator at the
center, who do they usually speak with?	amyloidosis center who helps you
Do they have a specific person to call?	with all your appointments and tests?
Do you have a healthcare support portal	
for your patients to facilitate	
communication around test results,	
prescription refills, or appointment	
reminders?	
25. Do you have a patient concierge service and/or	
patient navigators?	
What role do they play?	
26. How do you work with your specialty	
pharmacy?	
Do you have one within your health	
system?	
Which ATTR amyloidosis drugs do they	
help you with?	
What are some of the positive aspects of	
working with your specialty pharmacy?	
Are there any challenges working with your	
specialty pharmacy?	
27. Do you have any palliative care specialists who	
partner with you in caring for patients with	
ATTR-CM?	

Barriers to patient		28. What are the common issues that negatively	20. Are there any challenges you face in
access to amyloidosis centers		<ul> <li>impact the QoL of patients with ATTR-CM (can be health-related or not health-related)?</li> <li>Do you have any examples of how your amyloidosis center addresses these issues?</li> <li>29. What type of patient support does your amyloidosis center provide to address barriers to accessing care?</li> <li>30. Are there any other staff or services you have in place to improve the experience of your patients?</li> </ul>	getting treatment at your amyloidosis center?  21. How far away is your amyloidosis center from your home (travel time in minutes)?  22. When you go to the amyloidosis center, how long are you usually there?  23. How do you travel to the amyloidosis center?  • Does anyone go with you?  • Do you ever have to stay overnight?  24. What is the most difficult thing about having ATTR-CM?  • Is there anything your amyloidosis center has done to make that situation easier?
Role of clinical research and registries	<ul> <li>33. Approximately what % of your patients are enrolled in a clinical trial?</li> <li>Approximately what % of your patients are enrolled in a registry?</li> <li>34. Do you keep an institutional registry of patients with cardiac amyloidosis?</li> </ul>	<ul> <li>31. How and when are patients enrolled in a clinical trial and/or registry?</li> <li>Who is involved in discussing a potential clinical trial and/or registry with the patient?</li> <li>If the patient decides to participate, who is involved in getting them enrolled?</li> </ul>	<ul> <li>25. Does your amyloidosis center make you aware of clinical trials or registries that are available to you?</li> <li>26. Have you participated in any clinical trials or registries for ATTR-CM?</li> <li>Why/why not?</li> </ul>

	35. To what extent does the availability of a clinical	If they don't initially want to participate in a	27. Does your amyloidosis center send
	trial and/or registry play a role in patients seeking	clinical trial and/or registry, do you ever	you information on new research
	your amyloidosis center?	follow up to let them know about new	findings?
	36. What % of your amyloidosis center is dedicated to	opportunities?	28. Does your amyloidosis center keep
	research vs clinical care?	32. To what extent does the availability of a clinical	you informed of new clinical trial
		trial and/or registry play a role in patients	opportunities?
		seeking your amyloidosis center?	
Collaboration between	37. In what ways do you partner with patient	33. Do you introduce your patients with ATTR-CM	29. Did your amyloidosis center tell you
amyloidosis centers	organizations such as ASG, AF, or ARC?	to any patient organizations?	about any amyloidosis patient
and patient support		Which ones?	organizations, eg, AF, ASG, or ARC?
organizations		How do you make the introduction?	30. Does your amyloidosis center host
		34. In what ways do you partner with patient	any amyloidosis patient support
		organizations like ASG, AF, or ARC?	meetings or events in collaboration
		Can you give an example of how you work	with AF, ASG, or ARC?
		with each organization?	31. Does your amyloidosis center provide
		35. Do any of the patient organizations visit your	educational materials to you that were
		center?	developed by AF, ASG, or ARC?
		What is the purpose of their visit?	32. Does your amyloidosis center make
		36. Do you provide patients with educational	you aware of upcoming seminars,
		materials that were developed by ASG, AF, or	conferences, or meetings sponsored
		ARC?	by AF, ASG, or ARC?
		37. Do you make patients aware of upcoming	
		seminars, conferences, or meetings sponsored	
		by ASG, AF, or ARC?	

	38. Are there any ways you connect or collaborate	
	with other amyloidosis programs?	

## **SURVEY QUESTIONS**

## PATIENT ADVOCATES FROM PATIENT SUPPORT GROUPS

- 1. What are the typical ways you work with amyloidosis centers in the US?
- 2. Do patients reach out to you for recommendations on where to seek care for their amyloidosis? If so, what factors do you consider when recommending a center?
- 3. What factor influences you most in recommending an amyloidosis center?
- 4. On a scale of 1 to 10, where 10 is really important and 1 is not important at all, how would you rank these factors in the selection of an amyloidosis center in the US for a patient with known or suspected ATTR-CM:
  - · Reputation of the amyloidosis center, eg, established vs new centers
  - Reputation of the hospital/university
  - Reputation of the ATTR-CM physician, eg, publications, presentations at International Society of Amyloidosis meetings, grand rounds, amyloidosis patient seminars, sponsorship of their own amyloidosis conferences
  - Company-sponsored clinical trials available at the amyloidosis center
  - Participation in national registries
  - Physician conducting independent research on amyloidosis
  - Presence of a strong HF program
  - Availability of support groups or educational seminars at the amyloidosis center
  - Location of the amyloidosis center
  - Multidisciplinary care team

- 7. In your opinion, what makes an ideal amyloidosis center?
- 8. Are there any best practices that amyloidosis centers follow outside of the US that would be valuable to consider in the US?
- 9. Are there things you do to support newly created amyloidosis centers? Do you do anything to help existing amyloidosis centers improve?
- 10. What are some opportunities to increase the likelihood of patients finding an amyloidosis center earlier in their journey to receive a diagnosis?
- 11. What is your perspective on how to raise awareness of amyloidosis centers among referring physicians?
- 12. What are some effective things you see amyloidosis centers doing to raise awareness of their expertise?
- 13. What are the common challenges patients face in getting diagnosed at an amyloidosis center?
- 14. What are the common challenges patients face in accessing treatment at an amyloidosis center?
- 15. Aside from the information on your website, are there other ways that you support amyloidosis centers?
- 16. How do patients usually find your organization?
- 17. Based on our conversation, is there anything else you feel should be considered about best practices in amyloidosis centers?

- Physician multidisciplinary team treats patients in a distinct physical location
- Availability of patient (nurse) coordinators
- Well-coordinated center, eg, seamless appointment scheduling, multidisciplinary team sees patient same day
- · Years of experience treating amyloidosis
- Number of amyloidosis patients treated per year
- Length of time spent evaluating patients for initial diagnosis, education, and ongoing appointments
- Direct availability of physician and/or dedicated nurse for patient questions, eg, phone, email, text
- 5. Do you routinely recommend that patients get treated at an established amyloidosis center:
  - To confirm the diagnosis?
  - For all care?
- 6. How do you determine the amyloidosis centers that are listed on your website?
  - What criteria do you consider if you list as a CoE?
  - What should a newer amyloidosis center do to be considered?

AF, Amyloidosis Foundation; AL amyloidosis, light-chain amyloidosis; ARC, Amyloidosis Research Consortium; ASG, Amyloidosis Support Groups; ATTR amyloidosis, transthyretin amyloidosis; ATTR-CM, transthyretin amyloidosis; ATTRv, variant transthyretin amyloidosis; ATTRw, wild-type transthyretin amyloidosis; CoE, center of excellence; echo, echocardiogram; HF, heart failure; MAP, My Amyloidosis Pathfinder; NORD, National Organization for Rare Diseases; NP, nurse practitioner; PYP, <sup>99m</sup>technetium-pyrophosphate; QoL, quality of life; RN, registered nurse; TTR, transthyretin.

## REFERENCE

 Tong A, Sainsbury P, Craig J. Consolidated criteria for reporting qualitative research (COREQ): a 32-item checklist for interviews and focus groups. *Int J Qual Health Care*. 2007;19:349-357.