

CASE STUDY

# How Cone Health added ATTR-CM screening to an existing care pathway: A TAVR example

Cone Health added screening for transthyretin amyloid cardiomyopathy (ATTR-CM), a rare cardiac disease, to the care pathway for select patients who had undergone transcatheter aortic valve replacement (TAVR). Previously, some TAVR patients at risk for ATTR-CM would not have been flagged for screening. As a result of Cone Health's strategy, those patients can now receive ATTR-CM screening and an opportunity for earlier disease management if diagnosed.

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**Audience**

- Hospitals and health systems



# Overview

## The challenge

The symptoms of transthyretin amyloid cardiomyopathy (ATTR-CM), a rare cardiac disease, often overlap with more common causes of heart failure. As a result, providers may miss ATTR-CM in patients already undergoing treatment for different cardiac conditions, such as aortic stenosis. When providers at Cone Health noticed a much lower incidence of ATTR-CM diagnoses among their transcatheter aortic valve replacement (TAVR) patients than rates documented in current research,<sup>1</sup> they knew they needed to better identify TAVR patients with ATTR-CM and route them toward appropriate diagnosis and care.<sup>2</sup>

## The organization

Cone Health is a five-hospital health system based in Greensboro, North Carolina. Cone Health has two Advanced Heart Failure Clinics staffed by cardiologists, nurse care coordinators, pharmacists, dietitians, and clinical social workers.

## The approach

Because TAVR patients may have concurrent cardiac amyloidosis, a team of Cone Health providers embedded an amyloid screening process—which can lead to an ATTR-CM diagnosis—into the TAVR care pathway. While the TAVR patient is still in the hospital, structural heart physicians and advanced practice providers (APPs) evaluate the patient to determine the patient's risk of cardiac amyloidosis and order labs to rule out light-chain (AL) amyloidosis. Then, a pyrophosphate (PYP) scan is ordered at the patient's seven-day post-TAVR follow-up. If the scan indicates ATTR-CM, the patient is referred to the Advanced Heart Failure Clinic.

## The result

Cone Health was able to develop and implement the amyloid screening process in only three months. As a result, Cone Health has begun to close the gap between the number of aortic stenosis patients with ATTR-CM documented in the current research<sup>1</sup> and the number of TAVR patients in their practice with an ATTR-CM diagnosis.



# Approach

## How Cone Health embedded amyloid screening into their TAVR pathway

Cone Health assembled a multidisciplinary team to incorporate screening for ATTR-CM into post-operative follow-up for select patients who had undergone TAVR procedures. To implement this process effectively, Cone Health applied four key elements for success.

### The four elements

**01** Identify an existing pathway with an opportunity to screen for amyloid

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**02** Select the best patient touchpoints for amyloidosis workup

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**03** Engage the right provider at each stage of amyloidosis screening and diagnosis

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**04** Create protocols and order sets in the EHR

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# 01 Identify an existing pathway with an opportunity to screen for amyloidosis

Embedding amyloid screening into the right care pathway is crucial to identifying patients with ATTR-CM without system strain. To maximize program impact, the ideal care pathway both serves patients with an increased risk of ATTR-CM and has patient touchpoints that align with touchpoints in the amyloid screening process.

Adding amyloidosis screening to the TAVR pathway met both criteria for Cone Health. First, some patients with severe aortic stenosis—the primary recipients of TAVR—have concomitant cardiac amyloidosis.<sup>1</sup> Second, Cone’s TAVR care pathway includes patient touchpoints, such as inpatient labs and a seven-day follow-up appointment, that align well to amyloidosis screening. By not creating an ATTR-CM screening pathway from scratch, Cone Health increased efficiency and preserved vital resources.<sup>2</sup>

Cone Health developed the screening process while looking for ways to improve cardiac amyloidosis screening. When looking at quality improvement data, they found that TAVR post-operative patients were an opportunity to find more cases of cardiac amyloidosis. Cone Health then involved a multidisciplinary team, including heart failure physicians, a clinical pharmacist, structural heart physicians, and the structural heart APPs, who manage follow-up care and patient education for patients after the TAVR procedure. The team devised a solution: All patients with severe aortic stenosis are scored using the RAISE scale, a 7-parameter scale that can help differentiate between isolated aortic stenosis and cardiac amyloid aortic stenosis.<sup>1</sup> Patients with a RAISE score of 2 or higher receive a myeloma panel and PYP scan to rule out AL and screen for ATTR-CM.

**When considering where to add amyloid screening to a care pathway, ask yourself:**

1. Is the patient population at increased risk for ATTR-CM according to the literature?
2. Is the population engaged in an existing care pathway where it is easy and makes sense to add amyloidosis screening?
3. Would the team involved with the existing care pathway be open to collaborating to improve detection of cardiac amyloidosis?
4. Are there simplified criteria that may help identify a manageable subset of the patient population for amyloid screening?
5. Which roles in which disciplines need to be involved in adding screening to the existing pathway’s workflow?

# 02 Select the best patient touchpoints for amyloidosis workup

Screening for amyloidosis at touchpoints already built into the existing care pathway enables providers to screen more patients with less strain on health systems.

Cone Health embedded amyloidosis screening at two points of contact with TAVR patients: the post-procedural inpatient stay and the seven-day follow-up appointment. After the TAVR procedure and during the inpatient stay, if a patient’s RAISE score is at or above 2, a TAVR APP orders labs to rule out light-chain (AL) amyloidosis, a different kind of cardiac amyloidosis that would prompt a referral to hematology. Screening patients while they are in the hospital makes the prior authorization process easier and care team workflow more efficient. It also saves patients from having to schedule another appointment to do lab work.

If the patient’s RAISE score is 2 or higher, the TAVR APP managing the patient’s care also orders a PYP scan at the seven-day follow-up. While Cone Health originally planned to do the PYP scan during the patient’s hospital stay, that would mean the addition of a three-hour study, which could increase length of stay. Additionally, at the time, a nationwide shortage of radioactive tracers necessary for PYP scans intensified these timing issues. By ordering the scan at the seven-day follow-up, the study is completed within one month of the hospital stay without increasing length of stay, an important quality metric for TAVR programs.

If the PYP scan indicates ATTR-CM, the TAVR APP refers the patient to Cone Health’s Advanced Heart Failure Clinic.

**When considering which touchpoints are best for amyloid screening, ask yourself:**

1. What screening can be done before a patient leaves the hospital without extending length of stay?
2. What screening can be done concurrently vs. what must be stepwise?
3. What patient education tools, such as educational pamphlets, can allow providers to educate patients about amyloidosis within an existing appointment without causing time strain?

# 03 Engage the right provider at each stage of amyloidosis screening and diagnosis

The right provider to address each stage of amyloidosis screening and diagnosis will usually be the person already in charge of managing patient care at that point in the pathway. Because they already track patient progress and enter orders, physician assistants (PAs), nurse practitioners (NPs), registered nurses (RNs), care coordinators, nurse navigators, and clinical pharmacists are well positioned to ensure that patients get amyloidosis screening at the right time.

Cone Health’s TAVR APPs are in an ideal position to coordinate amyloidosis screening because they manage patient follow-up care after the TAVR procedure. At the structural heart team’s weekly meeting, the APPs discuss patients’ RAISE scores and recommend patients for amyloidosis screening. During the inpatient stay, the APPs order tests to rule out AL amyloidosis, interpret results, and route patients to the appropriate specialists. They also document the RAISE score and the need for a PYP scan in the EHR. At the seven-day follow-up, the TAVR APPs order the PYP scan and talk to patients about what ATTR-CM screening and diagnosis may mean. The APPs collaborate with imaging cardiologists and heart failure specialists to determine next steps, which may include referral to a heart failure cardiologist.

In addition, a clinical pharmacist becomes involved as soon as patients are referred for a PYP scan. The clinical pharmacist helps patients access medications by starting administrative processes like pre-authorization and grant applications early, which ensures that patients have timely access to medications. If the patient is diagnosed with ATTR-CM, the clinical pharmacist provides patient education and works with a supervising physician to determine the appropriate disease management approach, which may include prescribing medication.

**When considering how to engage providers across disciplines in amyloidosis screening and diagnosis, ask yourself:**

1. Who on the care team is already involved in helping to navigate patients or manage patient care through the care pathway?
2. Who on the care team has the capacity to embed screening or patient education into their existing workflow?
3. Which roles in the patient care pathway already have patient touchpoints at the moments in the patient journey where we have decided to embed screening?

# 04 Create protocols and order sets in the EHR

Done correctly, creating order sets in the electronic health record (EHR) can help providers take the next step in identifying ATTR-CM, but the specifics depend on the health system, the associated care pathway, and the EHR workflow. Involving providers in updating the EHR early in the process can help identify the specific needs associated with the chosen care pathway and get ahead of common challenges like alert fatigue, a perceived loss of provider autonomy, or an impeded workflow.

Regardless of the specific protocols and order sets programmed into the EHR, the resulting process must be intuitive for providers. Providers should be able to answer yes-or-no questions about signs and symptoms that automatically lead to the next order, rather than having to remember a specific trigger word or phrase to type into the EHR. For example, Cone Health is programming protocols and order sets that identify TAVR patients with ATTR-CM into the EHR—including taking providers through the questions on the RAISE evaluation, calculating the RAISE score, and prompting an order for the myeloma panel to rule out AL amyloidosis. Pfizer is providing resources and support to Cone Health in this process. Because Cone Health providers have been involved in decision-making alongside IT about the EHR from the beginning, the programming process has been smooth.

Creating order sets in the EHR adds consistency to the process and ensures patients receive the right screening at the right touchpoints.

## When considering whether and how to embed new protocols and order sets into the EHR, ask yourself:

1. At what points in the patient care pathway will new protocols be added?
2. Can new order sets be programmed into the EHR to be intuitive, so that it takes low or no effort for providers to take the next step?
3. How can we most effectively work with IT to streamline this process?
4. If embedding order sets into the EHR isn't feasible, which methods — such as one-pagers with simplified criteria — might make this process easy for clinicians to think about at the point of care?

# Results

## How we know it's working

Since the amyloidosis screening process is new, Cone Health doesn't yet know how much the rate of ATTR-CM diagnosis among TAVR patients will increase once the program is running at scale. But in just three months of using the process, Cone Health has diagnosed two TAVR patients with cardiac amyloidosis, one of which had ATTR-CM. Several more patients—who wouldn't have been screened for ATTR-CM prior to the screening strategy—have gone through the screening as part of TAVR follow-up care.

The screening process has also improved provider workflow at Cone Health's Advanced Heart Failure Clinics, because patients are now referred with diagnostic screening already completed. That means patients can begin managing their disease earlier.

Meanwhile, amyloidosis screening and EHR tools are being scaled outside of the TAVR program, prompting additional diagnoses. Using the amyloidosis detection strategy, two patients from a general cardiology clinic were diagnosed with cardiac amyloidosis and can now receive treatment.





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### *Endnotes*

1. Nitsche C, Scully PR, Patel KP, et al. Prevalence and outcomes of concomitant aortic stenosis and cardiac amyloidosis. *J Am Coll Cardiol*. January 2021.
2. Note: Unless otherwise specified, all information in this case study came from Advisory Board interviews with officials from Cone Health.

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