

**NAACOS Fall 2017 Conference  
October 4-6  
Capital Hilton, Washington, D.C.**



## **ACO Call for Innovation Abstracts**

For the Fall 2017 Conference, NAACOS solicited submissions from ACOs to showcase a solution to problems that they have faced that can help the ACO community at large. The three most innovative submissions were chosen to receive the NAACOS ACO Innovation Award and they will present in a breakout session on Thursday, October 5 at 10:30 am. There will also be a table in the exhibit hall where you can meet with the winners of this award during breaks to hear more about the innovations. The abstracts submitted describing the problem faced, their solution and results achieved are below.

**Sharp Healthcare San Diego  
Presenter: Daniel Hoefer  
ACO Start Date: 9/1/2011**

**Operational Problem:** In the management of each patient with a chronic illness there is a predictable point in the series of events in that natural progression for which the patient will start to use the hospital to manage their disease. These decompensations are the inevitable consequence of disease even under the best standards of aggressive treatment. Physicians, primary and specialists alike, know when this event will occur. It is the point in the continuum of care when the patient is in the physician's office; they know they have done everything they are supposed to for the patient; they know their colleagues have done everything but that when they send the patient home from their office they are more likely to end up in the hospital than to make it back for their next outpatient visit. It is the point for which wasteful and unnecessary utilization of the hospital begins.

The complexities of patient self-management become too difficult as the patient's personal physical and cognitive abilities weaken. Their support systems are frequently overwhelmed and unable to effectively address caregiving without assistance. Unfortunately, in fee for service we must wait for the patient to decompensate before we intervene and provide in-home services and these can only remain for the limited time the patient still has a Medicare Part A skilled need.

This historic style of management is called the acute care model of disease "once you break we will fix you." This style of care is outdated. The past 60 years has brought tremendous advances in medical technology. These innovations have benefitted our patient population; and the professionalism for which we practice care has also improved. However, the construct for which we practice our care is still 60 years old. We have not evolved to address the fact that we can anticipate the inevitable consequences of the natural progression of disease and in so doing prevent or ameliorate adverse events. The worst inevitable event is the unnecessary or unplanned hospitalization.

Inevitable decompensations are the natural expression of the disease process. They are as predictable as the events of anticipatory guidance for children. Yet in adult care we had not yet created anticipatory guidance. This medical culture change would mandate a move from the thought that hospitalizations in the pre-terminal and terminal periods of the life cycle are inevitable. And it would mandate that we move from the difficult concept of time prognostication to the easier process of event prognostication "What is the next event in the expected series of events for this patient and their disease?" This is an operations problem set in the context of culture change. Culture change is difficult.

The benefits would be tremendous: decreased physical suffering for the patient and the trauma of a loved-one hospitalized for the family; dramatically decreased expense by avoiding unnecessary hospital use and providers having their patient visit under the best of circumstances and not always in crisis. This moves us from reactive to proactive medical and psychosocial advanced illness management.

**Innovative Solution:** The solution to this problem meant creating a program where physicians could refer patients before the patient had a Medicare part A skilled need but not so early as to become a custodial service. Physician training as to when the patient would start to use the hospital to manage decompensations from their disease was needed. We would intervene just upstream from this point. Equally important was to proactively address the psychosocial needs of the patient and family so the discussions about end-of-life care issues did not occur in the chaotic environment of the ER, ICU or hospital when the patient was least able to express their wishes and for which the default position of “well, let’s just watch your loved one in the hospital overnight and sort it out there” frequently occurs.

Thus, the pillars of the Sharp Transitions program were created:

1. Evidence based in home management and education to the patient and family about their disease process. Understanding early warning signs to provide intervention or call for help before the disease process had progressed to an ER visit.
2. Evidence-based medical prognostication to prepare for and prevent or ameliorate the inevitable consequences of the natural progression of illness. This was for both the medical and psychosocial events.
3. Professional care for the caregiver – supporting the caregiver was essential to the program as the caregiver inevitably becomes the decision maker. As well, the caregiver can become the patient as supported by the medical evidence that caregivers can suffer higher rates of myocardial infarctions, cancer, permanent psychologic trauma and premature death than age matched controls. (Almost universally ignored in healthcare models)
4. Advance Care Planning to avoid the family chaos as each member works through the emotionalisms of their dying loved one; e.g. the daughter from out-of-town who flies in to supersede the directive of the patient.

The program was constructed similar as a Hospice team to create a seamless-transitions to Hospice when appropriate but with significant differences. First off, it is mandated that the patient continue to see their PCP and specialists as they otherwise would. As well, we never tell the patient that they cannot use the hospital but that they must be willing to let us help prior to going to the hospital. The team consists of a RN, social worker supervising physician, and chaplain if requested. The social worker and RN have strict protocols which they must complete. Once completed the patient/family will move from the active phase of the program to the maintenance phase where they are never released from the program, receive occasional routine in-home visits, and are eventually transferred to a hospice program. Almost 90% of patients are transferred to hospice. The physician supervises the program, reviews all admissions and makes medical recommendations for the attending MD. A 24/7 telephone service is available to call with care questions. This includes late night calls where emergency interventions can occur before the patient requires hospitalization. Emergency home visits are available but rarely necessary.

**Results Achieved:** Sharp's Transitions Program. Please refer to research articles:

Hoefer, Daniel, MD, Johnson Suzi, et al, Development and Preliminary Evaluation of an Innovative Advanced Chronic Disease Care Model, 2013 Sep, JCOM, 20(9); 408-18

Cassel, B, PhD, Hoefer, D, Johnson, S, et al, Effect of a Home-Based Palliative Care Program on Healthcare Use and Costs, 2016 JAGS, 64(11); 2288-95.

4 of the major admission groups were evaluated in a new versus usual care models. Per patient cost saving, including the cost of the program and all ancillary costs were:

Cancer = \$20,438/pt

COPD = \$28,922.4/pt

HF = \$24,818.4/pt

Dementia = \$19,368/pt (Original research)

Percent hospitalizations in the evaluation period: (New model versus usual care)

Cancer: 35% versus 85%

COPD: 40% versus 84%

HF: 44% versus 85%

Dementia: 34% versus 76%

Percentage of patients dying in the hospital:

Cancer: 5% versus 57%

COPD: 8% versus 63%

HF: 11% versus 59%

Dementia: 5% versus 51%

Of seven service/experience categories regarding end-of-life issues families rated service an average of 83.7% for a Likert score of 5 only. When we accepted a score of 4 or 5 the lowest percentage satisfaction was 94%. Other metrics showed that the average LOS for hospitalization was shorter; that the readmission rates for the admission populations was less than one third for new model versus usual care, and that the physicians report their patients being easier to manage than similar patients in their practice who did not have the in-home palliative model of care.

### **American Health Network of Ohio Care Organization, LLC**

**ACO Start Date: 7/1/2012**

**Submitter: Jill Sharp**

**Operational Problem:** At American Health Network (AHN), patients with diabetes, both Type 1 and Type 2, were not compliant with an essential annual diabetic retinal exam (DRE). This care gap meant these high-risk patients had undiagnosed diabetic eye pathologies, and were at increased risk of blindness. Diabetic Retinopathy is the leading cause of blindness in working age adults. Without examination and diagnoses, AHN couldn't deliver preventative and interventional care to this specific patient population. As diabetic retinopathy progresses, therapies become aggressively more expensive, and blindness in adults puts financial, socioeconomic, and other costly burdens on the healthcare system, the community, and most importantly the patient. For example, the cost of retinal drug therapy is now the second most expensive pharmaceutical drug group behind cancer treatments. Early detection results in early treatment with less expensive therapies.

Understanding that diagnosed diabetic retinopathy provides primary care providers with a new level of information to help manage and control patients with diabetes, and knowing that this diagnostic exam is best for patient care, AHN realized they had to remove barriers for the patients in need of this test. Most commonly, because Diabetic Retinopathy is asymptomatic until in its most advanced stages, patients were non-compliant in a traditional referral process. AHN needed to bring the exam to the patient rather than continue to try to send the patient to the exam.

While improved outcomes were the primary motivator to seek a solution; financially, AHN would be penalized by not attaining Healthcare Effectiveness Data and Information Set (HEDIS) quality scores. In addition, would struggle with lower performance in managing the diabetic population ACO

metrics and have less favorable positions with payer contracts due to lower STAR performance. For AHN, a STAR performance of 4 meant that improving the Eye Exam compliance would likely help move them to 5 Star performance – meaning the organization would fully realize revenue associated with top-tier performance levels.

When AHN originally researched programs, the understanding was that placing a screening in Primary Care would not be reimbursable. However, if a true diagnostic result could be delivered rather than a screening, AHN learned that the program would deliver a favorable ROI program. Because the program is diagnostic, payments to primary care for telemedicine and prevention are allowable and reimbursable in the form of a fee-for-service reimbursement and payments for accurately capturing the disease for at-risk populations. However, optimum ROI can only be reached if quality metrics are achieved. For AHN, this care gap created a barrier to raising HEDIS metrics and capturing the severity of a patient's disease burden.

To improve patient outcomes and help raise quality performance, AHN required an end-to-end solution to identify the non-compliant patients, provide an exam with diagnostic capabilities, and activate referral, billing and reimbursement processes. Standardized workflows, supported by technology innovations, would create a programmatic approach to operationalizing this new process. Additionally, the process needed to be fully supported by a bidirectional NextGen EHR interface to ensure results.

**Innovative Solution:** AHN, having previously attempted to build an in-house program leveraging AHN Ophthalmology and incorporating manual processes, knew that AHN primary care providers would embrace diabetic retinal exam (DRE) program that would examine, diagnose, triage referrals to improve their patient care. Technology needed to support automated processes, and clearly defined workflows would allow the practices to easily institutionalize the exam.

Program imperatives included:

- Diagnostic solution rather than screening program
- EHR interface that could deliver discrete, structured data to the medical record to improve quality
- Leverage AHN Ophthalmology expertise to interpret patient exams
- Decision support analytics to help steer the program performance
- An approach designed to increase access to the exam while reducing overall costs of care
- Collaborative model with an emphasis on managing diabetic population health

Partnering with IRIS, AHN deployed a retinal telemedicine platform developed to help end preventable, permanent blindness caused by diabetic retinopathy. The IRIS platform simultaneously improves quality, increases access and reduces cost of care. Working with a dedicated AHN IRIS team, the practices created and implemented workflows, documented processes, and instilled best practices across Indiana and Ohio.

Using a hybrid equipment model and a combination of table top and handheld cameras specific to the needs of each practice, AHN primary care groups placed the exam in 4 pilot sites, and is scaling the program to include a total of 24 clinics and reaching greater than 80% of their total diabetic population.

IRIS provisions it and provides end-to-end service: beginning with patient identification processes, exam workflows, and sending high quality images in an FDA II diagnostic telemedicine platform directly to AHN Ophthalmology for expert interpretation, diagnostic reports and referral recommendations. Any staff member can administer the automated exam process, and the findings and referral recommendations are delivered directly back to the originating primary care physician, and directly into

the EHR within hours. From there, data is generated for the referral and billing. Innovation highlights of the telemedicine platform include:

- Patient triage using custom developed algorithm allows graders to see the patients that need examination first based on results from the IRIS auto-read technology.
- Image enhancement process allows poor quality images to be used to properly interpret a patient's conditions. Therefore, patients don't have to return for follow up at a later date if the images are of poor quality.
- This service is hosted in the IRIS Azure Service Fabric Cluster and can scale as infinitely as Service Fabric will allow. EHR integrations allow the IRIS platform to be presented to clinicians in their EHR. By accepting outbound orders and inbound result, providers can have a patient tested and receive their results.
- Additionally, based on recommendations from Compliance, AHN and IRIS made enhancements to the grading platform so that grading ophthalmologists could efficiently provide detailed notes to the primary care provider to deliver a more comprehensive diagnosis than a screening program would allow.

**Results Achieved:** AHN and IRIS have been working together since December of 2016. The IRIS DRE platform was implemented in 11 sites through May 2017, and will be across the network by July 2017. In the first six months, almost one-third of patients examined had eye disease. If detected early, 95% of patients with diabetes can preserve vision. Placing the platform in PCP offices removed barriers since patients could easily get the exam during a regular visit.

To date, 1260 patients examined.

- 387 patients identified with pathology
- 130 patients diagnosed with diabetic retinopathy
- Other suspected diseases include AMD, glaucoma, cataract, epiretinal membrane, and other ocular pathologies
- 57 patients with advanced stages of site threatening disease

Since implementation, HEDIS scores are steadily increasing across payer contracts. In the first pilot site, the provider's NCQA measures increased from 32% to over 60% within only the first 2 ½ months. With 11 of the planned 24 sites live at the 6-month mark, full provider and staff engagement, and solid scalable workflows, many sites are trending to achieve greater than 90% compliance for 2017. The HCC/RAF scores in risk-based contracts are improving, resulting in payers compensating AHN to care for the most at-risk population.

However, the true measure of success is ensuring patients with diabetes are properly diagnosed receiving appropriate vision-saving treatment. AHN's implementation of the Diabetic Retinopathy program enabled by IRIS, and including integration into their EHR, empowers physicians to do what they do best – provide outstanding care to their patient population with diabetes.

**Triad HealthCare Network**  
**ACO Start Date: 7/18/2017**  
**Submitter: Kelly Peck**

**Operational Problem:** It is estimated that Heart Failure (HF) costs the nation \$30.7 billion each year. This includes the cost of treatment and services as well as medications and missed days of work. Approximately 5.7 million adults in the United States have HF. Triad HealthCare Network (THN) is a Next Generation Accountable Care Organization responsible for approximately 30,000 lives in 2016. THN

covers 5 counties in North Carolina with 7 hospitals, more than 1,400 affiliated physicians and 30 different EMRs. Patients with HF account for 10% of the THN population and greater than \$80M in claims. THN has two physicians and 2 advanced practitioners that are heart failure specialists. When a THN HF patient goes to the emergency room with symptoms, 90% of the time that patient is admitted. The average length of stay for THN patients is 5.1 days with at least a \$10,000.00 cost per admission. Accumulation of fluid in the lungs is the most common complication of heart failure and must be carefully monitored. The average readmission rate in the United States for HF is approximately 25% and the average readmission rate for THN patients is approximately 19%. Accurate assessment of volume status is a key factor in HF patients, but often difficult to determine even for a cardiologist. The common methods for assessing lung fluid volume are standard chest X-ray, implantable devices or clinical assessment, which can be invasive or inaccurate. There is no standard method of determining if a HF patient is fully diuresed during a hospital admission. Patients who continue to have significant fluid overload at the time of discharge will likely return to the hospital within 30 days without appropriate assessment and treatment. Once discharged, patients are encouraged to weigh themselves daily whether they are at home or in a skilled facility. Patient ability, adherence and other clinical factors make this an unreliable method of home monitoring.

**Innovative Solution:** Sensible Medical Innovations utilized military “see through the walls” technology (ReDS) to develop a wearable vest that measures lung fluid volume. ReDS provides an accurate, actionable and absolute measurement of lung fluid content located at the right mid-lobe of the lung. The result is presented as the percentage of fluid compared to lung volume, with 20-35% representing a normal measure of fluid content. This is an FDA approved device has proven to reduce hospital readmissions and has a 95% correlation with chest computed tomography. <http://sensible-medical.com/publications>. Recognizing the significant cost of HF, THN partnered with the Moses Cone Advanced Heart Failure Clinic and Sensible Medical Innovations to pursue innovative ways to reach and treat HF patients. HF patients touch every aspect of the health care system from the ED, hospital, SNF, outpatient clinics and home. A ReDS system was placed at each point of contact in order to improve assessment, treatment and outcomes of patients with HF. ReDS systems were implemented across the medical neighborhood in order to touch as many patients as possible and to determine the most effective use of this innovative technology.

1. When a HF patient is ready for discharge, a ReDS system reading was obtained and if the reading was greater than 39% the patient was evaluated for further treatment by the Advanced Heart Failure team.
2. In the outpatient Advanced Heart Failure Clinic the ReDS system is used to help the physicians, advanced practitioners and pharmacists assess patients and alter medication regimen if needed. We measured how often the HF specialist accurately assessed fluid status.
3. ReDS system is implemented in the home health setting. When a patient on their service feels any signs or symptoms of heart failure a nurse or paramedic would go out to the patient’s home to obtain a vest reading. A standard diuretic protocol is developed by pharmacy and Advanced Heart Failure Clinic MD. If the vest reading is greater than 35% the diuretic protocol was implemented and the ReDS system reading was repeated the next day until the reading is less than 35%.
4. A ReDS system is implemented at a skilled nursing facility (SNF) to measure HF patients every Monday, Wednesday and Friday or if/when a HF patient had signs/symptoms of HF and a standard diuretic protocol was implemented for any reading greater than 35%.
5. In the Emergency Department, if a BNP is ordered the patient also gets a ReDS system reading. If the reading is greater than 40% admission is recommended. If the reading is between 35%-40%

recommend diuresis and 2-3 day follow up in clinic and if less than 35% recommend looking for other reason for symptoms.

**Results Achieved:** Avg HF Readmissions April 2016- September 2016 = 18.6%

Avg HF Readmissions October 2016- March 2017 = 14.9%

Inpatient use when a HF pt is discharged

- BEST RCT 100 pts enrolled
- 35% pts being discharged w/ReDs > 39%. Further diuresis resulted in 5-7lb weight loss with no adverse effect on kidney function

Advanced Heart Failure Clinic initial experience

- >200 pts measured by RNs/NAs w/reliable results over a broad pt population
- 40% pts w/ReDS > 36%. 23% w/ReDS > 40%.
- HF provider made accurate assessment 77% of time

Home Health setting

- Allows non-HF providers to accurately assess pts and communicate remotely with HF specialist
- Partner with other hospitals extends the reach of HF specialist
- Care Transition RN 25 miles away from HF clinic dramatic reduction in 30-day HF readmission rate: 23% (2016) -> 14% (2017). ~ \$800k in savings

Skilled Nursing Facility partnership

- ReDS = the 4th vital sign? Used for M/W/F assessments
- 10 avoided ER visits. Improve SNF outcomes/ratings

Emergency Department

- 43.75% of patients had ReDs <35% low risk SOB not HF related
- 12.5% of patients had ReDs 36-39% moderate risk
- 43.75% of patients had ReDs 40% High risk IV diuresis required

The identification and accuracy of lung fluid volume is important in managing HF. "This is a critical piece of information to have managing a HF patient," says Dr. Dan Bensimhon, Director of the Cone Health Advanced Heart Failure Clinic. "It allows me to assess the patient remotely and treat accordingly."