

A Patient Centered Approach to Delivering High Acuity Care

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INTRODUCTION

The Department of Defense and Veteran's Administration (VA) joint venture Heart, Lung and Vascular Center (HLVC) at David Grant USAF Medical Center (DGMC) at Travis AFB, CA is employing innovative processes to deliver high quality patient centered care. This multispecialty care center provides the full spectrum of specialty care to patients with disorders of the heart, lungs, and vascular systems. The objective of this initiative is to build and sustain a viable Cardiothoracic and Vascular Surgery platform with a high quality patient centered approach.

The design of the HLVC included four key factors. First, the physicians, nurses and technical staff of the departments of Cardiology, Pulmonology, Cardiothoracic Surgery, and Vascular Surgery were combined into a service-line approach. Second, the Intensive Care Unit (ICU) was organized as a purpose-built, single-stay unit for treatment of conditions relating to heart, lungs, and vascular systems; renamed as the Cardiovascular Care Unit (CVCU). Third, cutting edge technology solutions were incorporated into the operating room, cardiac catheterization lab, and mirrored in the CVCU. Lastly, the service is complete joint operation with VA Northern California Health Care System.

In only the first year of operation, the HLVC is exceeding patient volume targets and on track to long term success. Patient satisfaction assessments indicate that the center is delivering on the high quality, patient centered approach.

Relatively few Cardiac and Vascular Surgery programs exist within the MHS, however the concept for "service line approach" and "single-stay units" can be replicated in every military hospital. DGMC is already implementing a second service line model with the Musculo Skeletal Center. This innovative approach to healthcare delivery will ensure prominence in military medicine with superior patient satisfaction and high quality outcomes.

DESIGN/METHODS

The DoD and VA joint venture Heart, Lung and Vascular Center (HLVC) at DGMC, Travis AFB CA is employing innovative processes to deliver high quality patient centered care. This multispecialty care center provides the full spectrum of specialty care to patients with disorders of the heart, lungs, and vascular systems. The initiative began in 2008 with the Air Force Surgeon General decision to start up Cardiovascular and Vascular Surgery at DGMC. One of the keys to success for this program was to generate necessary case volumes to ensure clinical currency and optimal patient outcomes. TRICARE Prime beneficiaries alone would not fill this need and therefore the program had to stand on its own merit by attracting TRICARE Standard and Medicare eligible DoD beneficiaries. The center opened in October, 2010 and four key factors are contributing to the success of the program. First, the physicians, nurses and technical staff from Cardiology, Pulmonology, Cardiothoracic Surgery, and Vascular Surgery were combined into a service-line approach. Second, the ICU was organized as a purpose-built, single-stay unit for treatment of conditions relating to heart, lungs, and vascular systems; renamed the CVCU. Third, cutting edge technology solutions were incorporated into the operating room, cardiac catheterization lab, and mirrored in the CVCU. Lastly, the service is complete joint operation with VA Northern California Health Care System.

Service Line Approach

By co-locating Cardiothoracic Surgery, Vascular Surgery, Cardiology, and Pulmonology in one central clinic location, we bridged across historic boundaries between medical and surgical divisions. As a benefit of this transformation, patients are able to see providers and have tests done in an expedited fashion with seamless transitions. The comprehensive multidisciplinary clinic offers streamlined services that improve patient access, provide convenience, and improve satisfaction. The previous inefficiencies of waiting for a referral to be approved, appointed, and scheduled are significantly minimized. Oftentimes patients have “same day” testing and evaluation. Cardiopulmonary and vascular testing and evaluation is conducted within the setting of one “mega-appointment.”

For example, a patient may be referred to HLVC for a pulmonary nodule. The patient checks in to see a pulmonary provider. Check in to the clinic involves obtaining vital signs, and for a new patient, an EKG and Ankle Brachial Index measurement. If this patient is determined to need surgical evaluation, a thoracic surgical opinion is obtained immediately from an available

surgeon or midlevel provider. The patient will likely also need a cardiac clearance prior to operation, so a cardiology consult is obtained during the same visit. If required, ancillary testing such as Pulmonary Function Tests, Echocardiography, and Cardiac stress testing will also be performed. At the conclusion of this visit, the patient will have accomplished what could have taken a month to complete.

Many similar scenarios are realized for patients with vascular disease such as aneurysms, carotid disease, and peripheral atherosclerosis. In addition to the primary cardiac evaluation, patients with coronary or valvular heart disease require cardiothoracic surgical and pulmonary evaluation. High intensity, high acuity patients require a broad spectrum of care across the medical center.

Cardiology and Pulmonology clinics were relocated with the new surgical practices to create the HLVC clinic. With minimal renovations, the facility space accommodates 4 surgeons, 5 cardiologists, 4 pulmonologists, 6 midlevel providers, and 30 other support staff. Unique to the organizational design is the proximity of the provider staff which facilitates collegial dialogue for optimal patient treatment modalities. Following the patient-centered approach, pre-operative processes are conducted within the clinic setting as opposed to a separate “Pre-Op” clinic in a separate area of the medical center.

Key performance measures for the effectiveness of the HLVC organizational design include surgical case quality metrics, patient satisfaction measures, and patient volume. Benchmarking with national quality metrics is essential to identifying the delivery of the highest quality patient care. Patient satisfaction measures should identify the effectiveness of patient and family centered care delivery, as well as compassionate and convenient care. Patient volume is a key measure to ensure the program generates enough caseload to maintain surgical currency.

Single-Stay Unit

In addition to the combined clinical space, the ICU was revamped to enable a purpose built 8-bed single-stay unit for post operative cases relating to the heart, lung, and vascular systems. After surgery, patients are cared for in private rooms in the CVCU and remain in their rooms their entire hospital stay with the care changing around them – from critical care nursing right after surgery to various therapies to help patients get ready to go home.

The CVCU eliminates the need for transferring surgical patients from the critical care unit to telemetry to other areas of the hospital. This provides better coordination of care for the

patient, improved communication between the caregivers and family members, and a higher level of patient satisfaction and comfort. It even allows for patients to recover more quickly and return home.

With a dedicated, trained staff in the CVCU, care is further enhanced through the use of standardized processes and protocols. Such protocols and standard orders increase efficiency and improve patient care by decreasing the variation in provider routines and by encouraging the practice of evidenced based medicine.

Cutting Edge Technology

In conjunction with this initiative, the new state-of-the-art Hybrid Cardiovascular Operating Room integrates advanced robotic imaging technology for complex cardiac and vascular surgical procedures. To maximize throughput, a second new Cardiovascular and Angiography Suite was opened, further expanding the capabilities and capacity of the existing lab. Similarly, the completion of the consolidated CVCU also incorporates advanced and integrated monitoring technologies for cardiopulmonary care in the environment of a single-stay unit from admission to discharge.

These advanced imaging technologies, new patient care environments and the consolidated clinic allow patients to be evaluated and treated in an integrated, multidisciplinary approach for the management of heart, lung and vascular diseases.

VA Partnership

Unique to this arrangement is the joint relationship with the VA Northern California Health Care System. Working side-by-side, under a unified command structure, Air Force and VA personnel deliver care to both Veterans and DoD beneficiaries. This structure not only generates the patient volumes necessary to maintain a viable program, but more importantly it promotes both a compassionate and equitable experience of care for patients. For staff, the difference between patient categories is indistinguishable and likewise, aside from the uniform, patients do not see a difference between VA or Air Force staff.

RESULTS

In the first year of operation, the HLVC provided care to 3,400 patients across four unique medical/surgical specialties. One out of six patients had encounters with at least two specialties in the center. Cardiovascular disease is the leading cause of death in the United States, accounting for 39.4 percent of all deaths in 2000. Decentralized and fragmented healthcare delivery is among the causes attributed to unsafe conditions for patients. Multiple providers in a variety of settings increase the possibility for errors. The HLVC service-line approach resolves these issues. With 628 patients admitted to DGMC in FY11 relating to issues of the heart, lung, and vascular systems, the multispecialty service is safely delivering patient and family centered care.

The center is exceeding all of its volume goals for both surgical cases and cardiac procedures, which is a testament to the recognized program excellence in the community from both referring providers and the beneficiary population. Cardiac diagnostic procedure volume doubled from 300 cases in FY09 and FY10 to 614 cases in FY11. Cardiac surgery case volume exceeded their first year target of 50 cases by performing 52 cases and is well on the way to achieving the FY11 target of 100 cases. Vascular surgery performed 222 cases which exceeded a fully mature target for the program. These figures demonstrate a robust center that is poised for continued success.

Due to the startup of Cardiothoracic and Vascular Surgery programs, patient satisfaction benchmarking data does not exist. Anecdotal evidence from written patient and family feedback suggests that patients appreciate the team approach to healthcare delivery. Prior to the implementation of the HLVC, patients would thank individual staff members, however in the new structure patients constantly refer to the “team of providers and support staff.”

There were several challenges to the service-line approach in the military setting, but they were met with creative solutions. The first challenge was the formation of a leadership structure that steps outside traditional Air Force organizational structure. A “Flight Path” waiver was submitted and expected to be approved which will allow Cardiology and Pulmonology to move to the Surgical Operations Squadron. This formality will further enable the center’s success with a unified chain of command. An on-going challenge is ensuring the full workload capture with a nontraditional visit model (i.e. multiple provider visits and tests on the same day). Due to the ease and proximity of co-located specialties, not all provider consults are being captured in

AHLTA/CHCS. The patient clearly benefits in this arrangement, however we continue to pursue efficient solutions to capture all workload credit.

CONCLUSION

While only in its first year of operation, the HLVC has cemented a place in DGMC providing a cornerstone for staff clinical currency and delivering on the promise to care for our nation's military families and veterans. As evidenced by the year-over-year increase in throughput, the organizational model is fully operational and thriving in a military environment that is often accused of being resistant to change.

The concept of service line management in health care is not new. Its application to certain high-cost, high-utilization, technology-oriented specialties have produced beneficial results in the civilian setting. The necessity for Cardiothoracic and Vascular specialties in military medicine due to war related injuries requires this high cost specialty to exist in our military treatment facilities. However the associated high cost and high risk nature of these procedures requires an optimal service delivery approach to organizational design. This approach should be reproduced at every major installation. Due to the success of the HLVC, DGMC is committed to replicate the design model throughout other areas of the hospital. For example, in 2013, Orthopedic Surgery, Podiatry, Physical Therapy, Occupational Therapy, Neurosurgery, and Chiropractic Medicine will combine to form the Muscular Skeletal Center.

We are confident the HLVC clinic can be a model for future DoD medical/surgical care and exemplifies the Surgeon General's medical home model of care.