

**SE1EO: Clinical Nurses are involved in interprofessional decision-making groups at the organizational level.**

(Examples include, but are not limited to, organizational quality councils, budget-review committees, equipment-selection committees, mortality and morbidity committees, pharmacy and therapeutics committees, blood utilization committees, safety committees and bioethics committees.)

Provide two examples, with supporting evidence, of improvements resulting from the contributions of clinical nurses in interprofessional decision-making groups at the organizational level. Supporting evidence must be submitted in the form of a graph with a data table that clearly displays the data.

Example 1: Q17 Glycemic Management Group**Background/Problem:**

Stress hyperglycemia is a very common problem in cardiac surgery patients with or without diabetes mellitus. The etiology is multifactorial and includes poorly controlled diabetes preoperatively, impaired underlying insulin resistance, and increased inflammatory response due to the use of cardiopulmonary bypass and the requirement for catecholamine-based vasopressors (epinephrine). For cardiac surgery patients, both hyperglycemia and hypoglycemia lead to negative outcomes. Strong data exist to support use of insulin to control blood glucose perioperatively in cardiac surgery patients. Additionally, glycemic control for this patient population should include the rate of change or variability of glucose levels over time.

The relationship between hyperglycemia and poor outcomes in postoperative cardiac surgery patients is well documented. The Surgical Care Improvement Project (SCIP) developed by the Joint Commission focuses on glucose control for cardiac surgery patients. The SCIP-INF4 measure at the time addressed the cardiac surgery patients post-op 0600 serum blood glucose level with a goal of <200 mg/dl on POD 1 and POD 2. It has since been updated requiring no more than one glucose >180 at 18-24 hours after anesthesia end time.

Prior to 2013, UVA performance with the SCIP-INF4 outcomes had been inconsistent and below target.

Goal Statement:

Improve 0600 post-op serum glucose in cardiac surgery patients.



Description of the Intervention/Initiative/Activity(ies):

The Glycemic Management group is the interprofessional decision-making body formed to lead this improvement effort and began meeting in July 2012. The group includes representatives from Nursing, Endocrinology, Anesthesia, Cardiac Surgery, Pharmacy, Diabetes Education and IT.

Between July and October 2012, the group invested in thorough flow diagramming to evaluate the current state. This detailed view of the systems and processes revealed a lack of interprofessional coordination. The following were among the issues identified through this process:

- Inconsistent preoperative planning
 - Cardiac surgery patients with prediagnosed diabetes mellitus received an endocrine consult postoperatively, but management and consult timing varied, creating inconsistency in approach.
- Inconsistent intraoperative management
 - Intermittent insulin management by the anesthesiologists varied.
 - When infusions were initiated in the OR, they were often discontinued due to insulin being infused with epinephrine, necessitating tubing changes to continue the insulin infusion, or due to a new insulin bag being unavailable at time of transfer.
- Inconsistent postoperative management
 - Variation in the timing of the start of insulin infusions
 - Delays in postoperative insulin infusion ordering
 - Preoperative hemoglobin A1c or most recent glucose levels were not consistently communicated during handoff of care from Anesthesia to Thoracic Cardiovascular Post-Operative ICU (TCVPO) staff.
 - Patients were managed on an insulin infusion 24 hours post-op but then typically transitioned to regular sliding-scale insulin as a monotherapy, versus controlling blood glucose with insulin infusion for 48 hours.

They determined that successful change involved coordinating the activities of food services, patient-care assistants, nurses, nurse practitioners, residents and attending physicians across the perioperative, intraoperative, TCVPO and 4 West / Thoracic InterMediate Care Unit (TIMU) settings.

Preoperatively, all patients had HgbA1c levels evaluated. If the result was greater than 6.0mg/dl, the patient was eligible for an Endocrine consult. The practice had been for the consult to be ordered on post-op day one or two. A decision was made to begin consulting Endocrine preoperatively for more proactive management.



Anesthesiologists manage infusions intraoperatively and were engaged to establish standardized practices. To better support the patient intraoperatively, insulin infusions are now routinely used instead of intermittent insulin administration and are used for all patients with glucose levels greater than 150mg/dl. Handoff of care now includes the preoperative hemoglobin A1C and a glucose level.

The postoperative phase of care is when close monitoring and intervention is required and is the most nursing-care-intensive. The Q17 Glycemic Management group reviewed the success rates of the 17 cardiac surgery programs in the Commonwealth of Virginia. In September and October 2012, members contacted the programs with the best outcomes and found that they were using web-based glucose monitoring systems, one of which was “Glucommander,” which monitors glucose levels during insulin infusion. The system includes a dedicated “view only” screen at the central nurses’ station that alarms when an enrolled patient is due for a blood glucose level. This allows any member of the team to respond to the patient’s need to promote tight glucose control. The group made the decision to implement this software tool.

Clinical nurses were involved in each phase of the implementation. Strong partnerships were formed to drive the practice changes needed to improve the management of hyperglycemia. The following describes the process and the involvement of clinical nurses in this interprofessional decision-making group through each phase.

Glucommander Implementation Planning Phase:

Clinical nurses Linda Edenfield, MSN, RN, CNL, Clinician III on 4 West; Judy Smith, BSN, RN, Clinician III in the TCVPO; Cindi Sanborn, MN, RN, CDE, APN2-Clinical Nurse Specialist, Adult Diabetes; and Chris Morrison, MSN, RN, worked closely with the physician champions, Dr. David Jones and Dr. Jay Isbell from TCV Services and Dr. Jen Kirby from Endocrinology, to identify process and practice details related to the use of Glucommander that were critical to the success of the implementation. This work spanned the months of August 2013 to the go-live in March 2014.

Contract Negotiation and System Interface Phase:

Nurse leader Andrea Caulfield, MSN, RN, FNP, NEA-BC, Director of Nursing Adult Critical Care and Inpatient Heart Services, served as the administrative sponsor for the project. During the month of November 2012, as the technical aspects of interfacing systems unfolded, she worked with nurse managers Ben Beitzel, MSN, RN, from 4 West/TIMU and Marcy White, MSN, RN, CCRN, from TCVPO to facilitate the evaluation of system options by clinical nurses. Clinical nurse feedback on the mechanics and workflows related to using the system were integrated into the decision-making process.



Staff Education Phase:

Clinical nurses from TCVPO and 4 West/TIMU were designated as super trainers and received training from the vendor on the Glucomander product. Training began as early as September 2013 and continued until the go-live. This three-hour training provided them with the knowledge necessary to educate the nurses in their areas and serve as point-of-care resources to any discipline. In addition, clinical nurses on those units also completed a computer-based learning module as part of the pre-implementation education.

March 2014 Go-live:

Glucomander was fully implemented in the designated areas. The clinical nurse super trainers and the endocrine physician champions provided support to the front-line staff. Real-time problem-solving optimized processes during the roll-out, and clinical nurse feedback was incorporated as it was received.

The Glucomander system is fully integrated into the care of postoperative cardiac surgery patients. The coordinating process for transitioning the patient off of the insulin infusion using Glucomander is managed autonomously by nurses in collaboration with the endocrine physicians. Clinical nurses caring for the patient make sure each step in the process is met by reviewing orders and communicating with Pharmacy and Endocrine to ensure the patient receives the appropriate subcutaneous formulation and dose as they transition off the insulin drip.

Participants:

SE1EO Table 1. Participants, Q17 Glycemic Management Group

Name	Discipline	Title	Department
Anthony McCall	Physician	Professor of Medicine	Endocrinology
Andrea Caulfield	Nursing	Director	Adult Critical Care and Acute Care Heart
Jen Kirby	Physician	Assistant Professor of Medicine	Endocrinology
Chris Morrison	Nursing	Quality Coordinator	TCV Surgery
Julie Huffmyer	Physician	Assistant Professor of Anesthesiology	Anesthesiology
Judy Smith	Nursing	Clinician 3	TCV-PO
Ben Beitzel	Nursing	Nurse Manager	4 West
Marcia White	Nursing	Nurse Manager	TCV-PO
Linda Edenfield	Nursing	Clinician 3	4 West



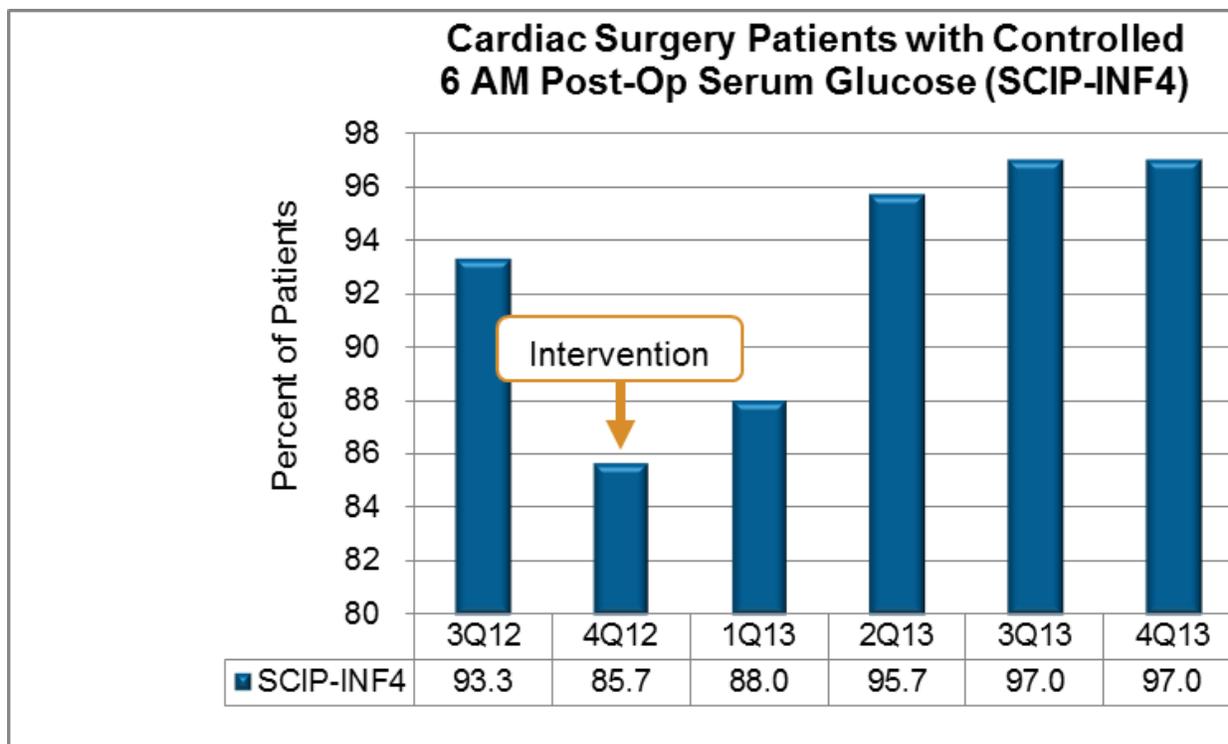
Sarah Craig	Nursing	Advanced Practice Nurse 2, Clinical Nurse Specialist	4 West
Cindy Sanborn	Nursing	Advanced Practice Nurse, 2 Diabetes Educator	Patient Care Services
Shameeka Hagar	Quality and Performance Improvement	Data Specialist	Quality and Performance Improvement
Li Jin	Quality and Performance Improvement	Report/Data Analyst	Quality and Performance Improvement
James Isbell	Physician	Assistant Professor of Surgery	Thoracic Cardiovascular
Samantha Loya	Nursing	Clinician 3	TCV-PO
Steve Dunn	Pharmacy	Pharm D	Pharmacy
Cory Skeens	IT	Director, Finance Information Services	Health Systems Technology Services
Jamie Hughes	Nursing/ IT	Administrator	Epic

Outcome(s):

The management of glycemic control and the many impacting factors is complex and dynamic. The key intervention for this outcome was the implementation of an interprofessional group in July 2012. As a result of a coordinated interprofessional evaluation of systems and processes related to glycemic control, performance on this important metric has greatly improved. Creating consistency in practice across care areas and providers was crucial to this success. Leveraging technology to support practice in the clinical environment provided another layer of vigilance to protect these patients from fluctuations in glucose.



SE1EO Figure 1. Cardiac Surgery Patients with Controlled 0600 Post-Op Serum Glucose (3Q12-4Q13)



Example 2: NEW – Central Line-Associated Blood Stream Infection (CLABSI) Workgroup

Background/Problem:

At UVA, all nurse-sensitive indicators (NSI) are monitored by designated advanced-practice nurses who lead or co-lead the workgroups that review the data, related practices and factors that influence outcomes. A unit-based champion model has been successful in promoting local ownership, best-practice modeling and practice-audit support. The nursing NSI leads coordinate their champion group members and activities through a blend of live meetings, personal interactions and electronic communications.

Eliminating CLABSI is an organizational priority. The organization uses the National Healthcare Safety Network (NHSN) to track progress. The Standardized Infection Ratio (SIR) reported by NHSN allows the organization to monitor comparative CLABSI performance among other academic medical centers. This important metric is influenced by the practice of different disciplines and departments and is well-suited to an interprofessional team approach. Kristi Kimpel Wilkins, MSN, RN, CCRN, CCNS, is



an APN 2-Clinical Nurse Specialist (CNS) in the Surgical/Trauma/Burn ICU. Since 2010, she has been the designated nursing lead for CLABSI.

In August 2012, a renewed organizational focus on CLABSI resulted in the establishment of a reorganized interprofessional workgroup, where Kristi partners with Dr. Kyle Enfield, Assistant Director of Hospital Epidemiology; Eve Giannetta, BSN, RN, CIC, Manager of Infection Prevention and Control; and EB Enfield, MSN, RN, CCNS, APN1-Clinical Nurse Specialist in CCU, to oversee outcomes and advise the organization on best practices.



Kristi Kimpel Wilkins MSN, RN, CCRN, CCNS; Kyle Enfield, MD; Eve Giannetta, BSN, RN, CIC and Elizabeth Enfield, RN, CNS are leaders working to eliminate CLABSI from UVA.

The workgroup is comprised of clinical nurse, physician and nurse-practitioner champions representing acute care, critical care and procedural areas. In addition, membership is inclusive of Quality department and supply-chain value-analysis representatives. Workgroup members attend monthly meetings, and unit-based champions perform monthly best-practice audits and assist in quarterly isopropyl cap-adherence audits.

Goal Statement:

Reduce CLABSI infections through interprofessional implementation of evidence based practices. The SIR for healthcare-associated CLABSI, as defined by the NHSN, will be statistically significantly less than 1.0.

**Description of the Intervention/Initiative/Activity(ies):**

The complex task of eliminating CLABSIs touches many systems and settings within the organization. Below is a summary of the 2013 activities described in a workgroup update provided to the Nursing Sensitive Indicator Committee that reports to the PNSO Nursing Quality Committee. Efforts in 2013 focused on standardizing clinician resources, implementing adjunct best practices and optimizing tools that allow the workgroup to target interventions.

Team Member Communication and Data Awareness:

In May 2013, the workgroup coordinated targeted education to perioperative colleagues to adhere to best practices for accessing central lines and electronic completion of the central-line-insertion checklist within Epic. This required significant effort due to the fact that the Operating Room is not yet integrated into Epic and uses a different charting system, creating logistic challenges for the OR team members. Through continued collaboration, this practice has improved.

Raw and unit/population-benchmarked infection data are shared monthly and quarterly with unit leadership, champions and shared-governance committees. Benchmarked data is posted in each unit and discussed for improvement opportunity in unit meetings. "Days since last infection" boards posted in each unit instill enthusiasm within interprofessional teams around increasing days without infection. Keeping the data public on the units helps team members maintain focus on improvement every day.

Leveraging Technology and Standardization:

Infection Prevention and Control colleagues provide weekly feedback on cultures/data that are pending final confirmation. To allow more timely information-gathering, Information Technology colleagues partnered with the CLABSI workgroup to develop a web-based clinical investigation tool to gather objective data for CLABSIs in July 2013. Utilizing the web-based investigation tool provides a mechanism for clinicians to gather the perishable information necessary to understand the factors influencing infections.

The workgroup is collaborating with our Epic personnel and Quality department to optimize the reporting mechanisms from Epic for items such as central-lines days (currently a manual process) and compliance to national patient-safety goal elements of performance such as the elements of the insertion checklist.

Information Technology services provided support to standardize Epic documentation and tools: procedure note for central-line insertion in January 2013, nursing central-line assessment documentation in May 2013, and streamlining central-line maintenance order sets in September 2013. During this process, the workgroup identified that the resources available to guide care were inconsistent and that some services maintained



their own guidance documents. Several steps were taken to update central resources such as the nursing procedure manual in May and again in November 2013, and the organizational protocol was updated in December 2013. This aligned practice across service areas.

Participants:

SE1EO Table 2. Participants, CLABSI Workgroup

Member Name	Discipline	Title	Department
Kristi Kimpel Wilkins	Nursing	Advanced Practice Nurse 2, Clinical Nurse Specialist	STBICU
Kelly Allen	Nursing	RN Clinician II	MICU
Fritz Angle	Physician	Professor of Radiology and Medical Imaging	Interventional Radiology
Auna Charters	Nursing	RN Clinician II	4 Central
Michelle Cole	Nursing	RN Clinician II	STBICU
Susan DiGuilio	Nursing	Value Analysis Coordinator	RN-Value Analysis ; Supply Chain Management
Mary Dudley	Nursing	RN Clinician II	8W/Stem Cell Transplant Unit
Elizabeth Enfield	Nursing	Advanced Practice Nurse 1, Clinical Nurse Specialist	CCU
Kyle Enfield	Physician	Assistant Professor of Medicine	Pulmonary Critical Care
Meagan Gatti	Nursing	RN Clinician II	Pediatric ICU
Leigh Gauriloff	Nursing	RN Clinician II	3 West
Eve Giannetta	Nursing	Manager, Infection Control	Hospital Epidemiology
Tenaya Hantke	Nursing	RN Clinician II	4 West
Selim Kahveci	Nursing	RN Clinician III	TCVPO
Lauren Knicely	Nursing	RN Clinician II	MICU
Paul Kunk	Physician	Resident Physician	Internal Medicine
Emmanuel (Manny) Kwarfo	Nursing	RN Clinician II	STBICU
Elizabeth (Illar) Labish	Nursing	RN Clinician II	5 West
Laura Lee	Physician	Assistant Professor of Pediatrics	Pediatric Critical Care
Edwin Lute	Nursing	RN Clinician II	Interventional Radiology
Lori Mays	Nursing	Assistant Nurse Manager	Staffing Resource Office
Rebecca McMullen	Quality	Project Management Coordinator	Quality and Performance Improvement



Jack (JC) Miller	Nursing	RN Clinician III	MICU
Mallory Morris	Nursing	RN Clinician II	3 West
Bridget Moss	Nursing	Advanced Practice Nurse 2, Nurse Practitioner	NNICU
Cathie O'Donoghue	Nursing	RN Clinician II	NICU
Elizabeth Pagels	Nursing	RN Clinician II	Cardiac Cath Lab
Laura Polliard	Nursing	RN Clinician II	NNICU
Regina Ragland	Nursing	RN Clinician II	4 West
Elva (Mechelle) Shiflett	Nursing	RN Clinician II	8 West/SCTU
Costi Sifri	Physician	Associate Professor of Medicine	Infectious Disease
Karen Singh	Physician	Assistant Professor of Anesthesiology	Anesthesiology
Carlos Tache Leon	Physician	Assistant Professor of Surgery	Acute Care Surgery
Tanya Thomas	Nursing	Assistant Nurse Manager	8 West/SCTU
Amber Valentyn	Nursing	RN Clinician II	3 Central

Practice Changes and Key Interventions:

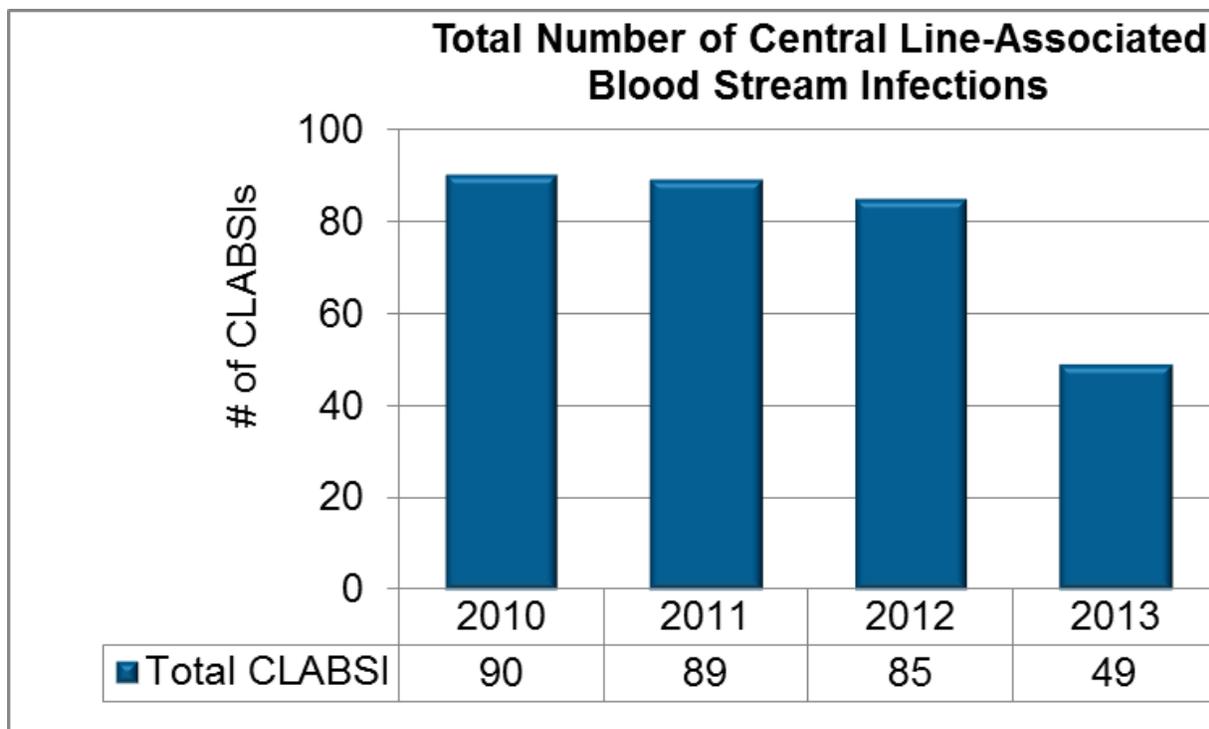
Improving infrastructure and standardizing practices was important work and critical to sustaining improved outcomes. Furthermore, the introduction of two practice changes also greatly impacted outcomes. In January 2013, antibiotic-impregnated central-line catheters were implemented as the standard product for all line insertions at the recommendation of the CLABSI workgroup. In May 2013, Chlorhexidine Gluconate bathing was implemented as a targeted intervention to improve CAUTI but also led to a dramatic improvement in CLABSI. Both of these implementations were successful due to a close partnership with our supply-chain partners and interprofessional colleagues.

Outcome(s):

In 2013, CLABSI infections decreased and since quarter 2 of 2013 the UVA SIR has been statistically significantly below the target SIR of 1. In quarter 4 of 2013 our SIR was 0.26. In comparison to 2012 we had 36 fewer infections, a 42% reduction in the total number of infections.



SE1EO Figure 2. Total Number of Central Line-Associated Blood Stream Infections (2010-2013)





SE1EO Figure 3. Central Line-Associated Blood Stream Infections, Comparing UVA with NHSN (1Q12-4Q13)

