Problem Statement: The literature has reported that surgical site infections account for 17-22 percent of health-care associated infections, while surgical dehiscence rates range from 0.25 to 3.0 percent. These types of incisional complications can become a significant cost burden to the health care system because of lengthy hospital stays and readmissions, additional nursing care, and added surgical procedures. Therefore, the type of therapy used for surgical incisions plays a critical role in the healing process. The success of negative pressure wound therapy for open wounds has been well documented and has led to its use over clean, closed surgical incisions. A small but growing number of clinical studies have been published to-date regarding incisional negative pressure wound therapy which highlights positive outcomes for surgical patients that are at high risk for post-operative site infections. In order to more accurately identify high risk surgical patients, an algorithm was constructed concerning when to safely implement negative pressure wound therapy on post-operative patients at Marion General Hospital.

Project Description: The Ohio Health System has silver foam bordered dressing and negative pressure incisional dressings at their disposal. However, despite growing evidence highlighting the benefits of negative pressure dressing therapy on closed surgical incisions, many surgical staff members at Marion General Hospital fail to utilize negative pressure dressings on patients who are at high risk for post-operative surgical infections. In order to educate staff members an algorithm was constructed to help explicate and expedite clinical decisions about when to safely and effectively utilize incisional negative pressure wound therapy. In order to construct the algorithm research was conducted concerning: negative pressure wound therapy; the role of comorbidities in post-operative infection rates; previous case studies conducted; the relationship between body mass index and post-surgical complications; as well as previously documented algorithms for cesarean section patients. Once the algorithm was completed, representatives from PICO provided in-service training to all surgical employees on proper dressing application, troubleshooting as well as basic information concerning the PICO product. Staff members were also educated on how to utilize the algorithm as well as where to find the information when needed.

Results: The negative pressure wound therapy algorithm for closed surgical incisions has provided the staff at Marion General Hospital with an invaluable resource to help clarify and expedite clinical decisions concerning negative pressure wound therapy. All members of the surgical team are knowledgeable concerning the PICO negative pressure therapy system and are able to access the algorithm as the need arises. Over the next six months audits will be conducted in order to track patient as well as medical personal satisfaction with incisional negative pressure wound therapy throughout the patient’s stay in the acute care setting.

Conclusion: The next step includes: developing a method in which to track patients post-operatively after leaving the acute care setting in order to document the effectiveness of negative pressure wound therapy on closed incisions for high risk patients. This method will require acquiring post-operative information from both the surgeon as well as the patient’s primary care physician.