

**Title:**

Hemostasis Methods Used in Cardiac Patients Post Percutaneous Coronary Intervention

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**Session Title:**

Rising Stars of Research and Scholarship Invited Student Poster Session 1

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**Keywords:**

Arterial Closure Devices, Manual Compression and Vascular Complications

**References:**

Allen, D.S., Marso, S.P., Lindsey, J.B., Kennedy, K.F., & Safley, D.M. (2011). Comparison of bleeding complications using arterial closure device versus manual compression by propensity matching in patients undergoing percutaneous coronary intervention. *The American Journal of Cardiology*, 107 (11), 1619-1623. doi: <http://dx.doi.org/10.1016/j.amjcard.2011.01.049> Holm, N.R., Sindberg, B., Schou, M., Maeng, M., Kaltoft, A.,...Lassen, J.F. (2014). Randomized comparison of manual compression and femoseal vascular closure device for closure after femoral artery access coronary angiography: the closure devices used in everyday practice. *EuroIntervention*, 19, 183-190. Retrieved from <https://gumc.hosts.atlas-sys.com/iliad/iliad.dll?Action=10&Form=75&Value=69224> Schulz-Schupke, S., Helde, S., Gewalt, S., Ibrahim, T., Linhardt, M., Haas, K.,... Kastrati, A. (2014). Comparison of vascular closure device versus manual compression after femoral artery puncture. *Journal of the American Medical Association*, 312 (19), 1981-1987. Retrieved from <http://jama.jamanetwork.com/article.aspx?articleid=1935125> Smilowitz, N.R., Kirtane, A.J., Guiry, M., Gray, W.A., Dolcimascolo, P., Querijero, M.,... Weisz, G. (2012). Practices and complications of vascular closure devices and manual compression in patients undergoing elective transfemoral coronary procedures. *American Journal of Cardiology*, 110 (2), 177-182. doi: <http://dx.doi.org/10.1016/j.amjcard.2012.02.065>

**Abstract Summary:**

The outcome of this activity will result in awareness of the preferred hemostasis methods to use for a percutaneous coronary intervention (PCI) in order to reduce post procedure risks for vascular complications.

**Learning Activity:**

LEARNING OBJECTIVES	EXPANDED CONTENT OUTLINE
discuss the various arterial closure methods that are the least invasive and have reduced risks for vascular complications.	The different arterial closure devices will be discussed with statistics on their success showing the difference compared to manual compression.
discuss the complications associated with manual compression.	The various complications will be discussed including hematoma, retroperitoneal bleed, pseudoaneurysm, thrombosis, pain and discomfort, bleeding or oozing at the site.
understand that the time and physical effort for a RN to perform manual compression deters from other patient care responsibilities, affects	Provide statistics on increase length of stay and hospital cost related to post procedure complications associated with manual compression. Also provide information

comfort level, time to ambulation and recovery period.	regarding the standards and guidelines for manual compression in regards to monitoring during recovery, and if not appropriately staffed can affect other patient care responsibilities.
identify the practice implications associated with the proposed change.	The practice implications will be listed for the audience in order to present the outcomes of the proposed change

### **Abstract Text:**

Cardiovascular intervention is expanding as a treatment alternative for patients who have coronary artery disease. There are many options available regarding hemostasis methods used after diagnostic or elective coronary angiography. Patient's demographics, comorbidities, as well as risks for vascular complications are considered when deciding what method is appropriate for the patient. There have been discrepancies over the most preferred method of hemostasis in regards to safety profiles, vascular complications and time to ambulation. Past and recent standard of care was to apply manual pressure after pulling femoral sheaths post PCI, but with new devices and techniques, this method has been questioned for safety and efficacy. The problem is significant since complications such as retroperitoneal bleed, hematoma, infection, hypotension and pseudoaneurysm can lead to patient injury and result in increased length of hospital stay and cost. Due to the increasing demand for coronary angiography and PCI procedures among cardiac patients, if physicians and nurses increase their knowledge and experience about the new generation arterial closure devices and their associated low risk for complications, patient outcomes will be improved. The purpose of this evidenced based project was to search and appraise a body of evidence and answer the question, in cardiac patients post percutaneous coronary intervention, how does manual compression compared to an assisted closure device (ACD) affect the risk for vascular complications over a 24 hour period? CINAHL and PubMed were the two databases used to search articles. A total of ten articles were individually graded for quantity, quality, and consistency using the grading system by Melynck and Fineout-Overholt's Hierarchy of Evidence. Using the Grades of Recommendation, Assessment, Development, and Evaluation (GRADE) approach to grading a body of evidence, the overall quality was high and a strong recommendation for change can be made indicating ACDs are superior to manual compression in reducing vascular complications post PCI. Therefore, providers should utilize ACDs in every cardiac patient undergoing PCI without contraindications. Using Lewin's change model, there are three phases that will occur. All components of change, including stakeholders and facilitators will attend a luncheon to meet with vascular device representatives to be educated on the success rates with each device and the reduced risks for complications associated with them. Providers will decide on an ACD and implement a six-month pilot study to assess the change. The formative evaluation would be to track the patient's recovery over the course of the patients stay using a green checklist that will be completed by the unit nurses. The summative evaluation would be to use the checklist data and note the hemostasis method used and if there were any complications. If there were a decrease in length of stay and complications with ACDs, then the change was effective. The practice implications will lead to decreased complication rates, hospital length of stay and cost, faster time to recovery and discharge, and an overall positive experience for the patient.