

# Data-Informed Improvements Decrease Post-PCI Bleeding Events



**42.3 percent relative increase** in the number of PCIs performed using a radial approach.



**\$1.8M cost savings**, the result of an **18 percent relative reduction** in length of stay over 24 months and a **58 percent relative reduction** in bleeding complication rate over three years.

## PRODUCTS

- Health Catalyst® Data Operating System (DOS™)

## EXECUTIVE SUMMARY

Bleeding complications occur in up to 16 percent of all patients undergoing percutaneous coronary intervention (PCI). Community Health Network (CHNw) identified one area where it didn't perform as well as expected for post-PCI bleeding and found ways to improve through risk-adjusted quality metrics, interdisciplinary teams, analytics, and clinical chart abstractors from Health Catalyst. CHNw's data-informed improvement efforts are delivering the desired results.

## IMPROVING POST-PCI BLEEDING SAVES LIVES

Bleeding is a common, costly complication of PCI. Bleeding complications occur in up to 16 percent of all patients undergoing PCI, and bleeding severity is related to adverse outcomes. Major bleeding events happen more frequently among patients undergoing a femoral approach.<sup>1</sup>

## EVALUATING THE RISKS

CHNw participates in the American College of Cardiology's National Cardiovascular Data Registry (NCDR®), enabling the organization to report and assess the characteristics and outcomes of patients undergoing PCI. CHNw evaluated the NCDR risk-adjusted quality metrics and identified one area where it didn't perform as well as expected—the risk of bleeding around the time of coronary intervention. Aware that bleeding events increased morbidity, mortality, length of stay (LOS), and cost, the organization prioritized bleeding events for improvement.

## ELIMINATING THE RISKS

To reduce bleeding events and improve performance, CHNw needed detailed performance data. The organization established an interdisciplinary team, leveraging high-value data and analytics from the Health Catalyst® Data Operating System (DOS™) platform, the ARMUS Clinical Registry platform, and the Health Catalyst Tech-Enabled Managed Services clinical chart abstractors to understand its data and associated improvement opportunities.

The interdisciplinary team reviewed a year's worth of bleeding event data, conducting deep dives into the data and identifying gaps. As a result of the detailed data review, CHNw:

- **Clarified the patient population** that should be included/abstracted by the abstractors and submitted to the NCDR.
- **Defined and standardized documentation and abstraction processes**, including the assessment and documentation of hematomas and bleeding events.
- **Engaged with the national registry** to clearly define the criteria for bleeding events.
- **Identified and resolved data differences and time capture issues** related to point-of-care testing hemoglobin (Hgb) results and lab-resulted Hgb.
- **Implemented standard order sets**, including an ST-elevation myocardial infarction order set and a post-PCI same-day discharge order set, to ensure key requirements, like a post-procedure hemoglobin, are evaluated and documented for all patients.

CHNw evaluated benchmark data for the percentage of radial versus femoral approach PCI and set a goal to increase the overall rate of radial PCI. Physician leaders provided peer-to-peer education on the benefits of radial versus femoral approach, sharing the most recent literature, best practices, and outcomes data, engaging providers in changing to a radial-first approach.

TEMS clinical chart abstractors perform their work to abstract data and help monitor performance, notifying the medical director each time a patient does not receive the expected care. The medical director follows up with the physicians responsible for the patient, informing them of the expected standard and improvement opportunities.



### ABOUT COMMUNITY HEALTH NETWORK

Community Health Network is consistently ranked among the nation's most integrated healthcare systems, leading the way in providing care across the full continuum through hundreds of physicians, specialty and acute care hospitals, surgery centers, home care services, behavioral health services, and employer health services.



Improving quality performance is complicated, and there are no quick fixes. By getting deep into the data, the metrics, the care system, and effectively engaging key stakeholders, we successfully improved performance.

**Michael Robertson, MD**  
Interventional Cardiologist,  
Community Health Network

## RESULTS

CHNw's data-informed improvement efforts are delivering the desired results. The organization has achieved:

- **42.3 percent relative increase** in the number of PCIs performed using a radial approach.
- **\$1.8M cost savings**, the result of an **18 percent relative reduction** in LOS over 24 months and a **58 percent relative reduction** in bleeding complication rate over three years.



## WHAT'S NEXT

CHNw will continue using its TEMS clinical chart abstractors to abstract data for participation in various cardiovascular registries and monitor performance. The organization plans to continue using its NCDR data to continually improve care quality. 🏆

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## REFERENCES

1. Mason, P. J. et al. (2018). An update on radial artery access and best practices for transradial coronary angiography and intervention in acute coronary syndrome: a scientific statement from the American Heart Association. *Circulation: Cardiovascular Interventions*. Retrieved from <https://www.ahajournals.org/doi/10.1161/HCV.0000000000000035>

## ABOUT HEALTH CATALYST

Health Catalyst is a leading provider of data and analytics technology and services to healthcare organizations, committed to being the catalyst for massive, measurable, data-informed healthcare improvement. Our customers leverage our cloud-based data platform—powered by data from more than 100 million patient records, and encompassing trillions of facts—as well as our analytics software and professional services expertise to make data-informed decisions and realize measurable clinical, financial, and operational improvements. We envision a future in which all healthcare decisions are data informed.

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