

A Community Success Story

A four year study of cardiac catheterizations in Genesee County, Michigan

An Executive Summary

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A problem is discovered. Like many older industrial communities, Genesee County, Michigan, has had its share of boom and bust cycles. Yet, even when the economy is robust and employment is high, residents of the county are less healthy than their counterparts in other communities.

When compared with benchmark populations, Genesee County residents are less healthy, engage in high-risk behaviors such as smoking and lead sedentary lifestyles; and die at a higher rate from certain cancers, pulmonary disease, heart disease, and diabetes.

Health data for the area also reveal another significant health problem: A high incidence of invasive cardiac procedures—specifically heart catheterization. A diagnostic tool for confirming heart disease, arterial blockage, or other cardiac abnormalities, a catheterization requires a physician to carefully insert a thread-thin tube through an artery or vein in the leg along a route to the chest, and eventually into the heart chambers where a dye is injected.

Two studies document the higher-than-average use of catheterization. In 1995, local managed care organizations, Blue Care Network and HealthPlus of Michigan, agreed to share Healthplan Employer Data and Information (HEDIS®) statistics. Genesee County's catheterization rates were found to be 21.5 per 1000, as compared to the HEDIS® rate of 13.9 per 1000 (1994 data). The "*Lewin Report*", a community assessment factbook for Genesee County commissioned by General Motors, Inc. (the county's largest employer) and the UAW in 1995, also confirmed the high rate of cardiac catheterization, as well as high inpatient admissions related to cardiovascular conditions.

A task force forms to address the issue. In 1996, a Cardiac Task Force, operating under the auspices of the Greater Flint Health Coalition, was formed to examine the appropriateness, quality, and cost effectiveness of heart care in the community. Composed of representatives of the area's three health systems, local medical societies, cardiologists, cardiovascular surgeons and primary care physicians, local medical insurance companies and health department, and Genesee County's major employers, the Task Force focused its immediate attention on left heart catheterization.

A study is conducted. A retrospective study was commissioned to determine whether Genesee County's left heart catheterization (1995) procedures met at least one of the established clinical indicators and algorithm guidelines. To develop the indicators and the algorithm, the Task Force used catheterization guidelines adapted from the American College of Cardiology. In brief, the task force developed the algorithm and the indicators using the ACC guidelines as a template.

The study looked for certain indicators that constituted an appropriate catheterization—suspected cardiac disease, acute cardiac event, structural heart defects, or findings from other noninvasive tests such as ECG stress, radionuclide studies, and echocardiographies, for example. The study also looked at the results of the catheterization (positive or negative).

A random sample of all left heart cath performed at three Flint-area hospitals were included in the study. That population included all payors, all employer groups, Medicare and non-Medicare, inpatient and outpatient, and all ages—a total of 5,429 cases.

Funding for the study came primarily from the Greater Flint Health Coalition, with a small grant from Merck and Company. A nonprofit corporation, the Michigan Peer Review Organization (MPRO), was selected to implement data collection, data entry, and reporting components of the study. Data abstraction began February 1, 1997 and concluded in early March, 1997. In April, 1997, a preliminary report was presented to the Cardiac Task force.

What the study found. Of the total 5,429 left heart catheterizations, a statistically valid sample of 900 records was selected, 835 of which were used. A summary of the findings:

- *Appropriateness*

Sixty-five percent of the total sample (both inpatient and outpatient) contained documentation that met one of the guideline criteria for appropriateness as established by the Task Force. Eighty-seven percent of the inpatient caths met the criteria; 52% of the catheterizations performed on an outpatient basis contained documentation that met the criteria.

- *Positivity*

Seventy-two percent of the total sample, both inpatient and outpatient, had a “positive” result (positivity as defined by the Task Force). Eighty-seven percent of the inpatient catheterizations were found to be positive; 63% of those performed in an outpatient setting were positive.

- *Risk Factors*

The study revealed a high prevalence for several risk factors—diabetes, hypertension, smoking, and hyperlipidemia, for example.

Gaps in Data

A need for further study of African Americans and women was found, as these populations were under-represented in the study. In addition, the positivity rates for both African Americans and women was lower than for Caucasians and males.

- *Documentation*

There was significant room for improvement in documenting findings of noninvasive tests (such as ECG stress tests or radionuclide studies) administered subsequent to catheterization.

An action plan is developed. Based on the study’s findings, the Task Force next developed a work plan, setting two measurable outcome goals, and identifying two initiatives which could help reach those goals.

- *Goals*

- 1.** To improve the appropriateness of Genesee County heart catheterizations, the Task Force established a goal to increase the rate of compliance with appropriate guidelines for outpatient left heart catheterization from 52% to 68%, or a combined inpatient and outpatient rate of 75%.
- 2.** The Task Force set a goal of increasing the positivity rate for outpatient left heart catheterizations from 63% to 76%, or a combined inpatient and outpatient rate of more than 80%.

- *Initiatives*

- 3.** To facilitate data collection, monitoring, and improvements within area health care institutions, the three area hospitals agreed to share information from the cardiac catheterization study with their own physicians.

4. To improve documentation and encourage ongoing efforts, the Task Force developed a pre-catheterization checklist, which area cardiologists agreed to use, that would collect information about patient lifestyle, risk factors, and pre-cath lab workup, indication for the cath and the cath result.

The pre-catheterization checklist is implemented. In November, 1997, the Task Force presented its design for the pre-cath checklist to area cardiologists and their office staffs for review and input. Suggestions from heart specialists were incorporated and, in January 1998, a one-month pilot was conducted to field test the checklist.

The test run was deemed successful, and soon after, the checklist was introduced to all the community's cardiologists at their section meetings within the three hospitals. Although participation in the initiative was voluntary, the support and encouragement of cardiologists who served on the Task Force helped gain acceptance. Virtually all Genesee County cardiologists agreed to participate in the pre-catheterization checklist project.

In May, 1998, full implementation was underway. After a slow start, Task Force members were assigned as project liaisons, making personal visits to all cardiologists' offices every two weeks to gather completed checklists and encourage compliance. Participation eventually picked up to more than 70% during some subsequent months.

Exactly one year from its start date, the checklist initiative concluded and results of the data abstraction was presented to the Task Force for a full review.

What the checklist project achieved. Michigan Public Health Institute designed a method of obtaining a statistically valid random sample of completed catheterization checklists, stratified by hospital. In September 1999, a final report on the findings was presented to community cardiologists in hospital cardiology section meetings. The report was extremely positive, and the cardiac pre-catheterization checklist initiative was deemed a success. A summary of the findings:

- The appropriateness rate for outpatient left heart catheterizations increased from a baseline of 52% in 1995 to 82% in 1999.
- The outpatient positivity rate for left heart catheterization increased from a baseline of 63% in 1995 to 73% in 1999.
- Documentation justifying the appropriateness of left catheterizations improved dramatically.
- The checklist initiative also yielded abundant information on risk factors, gender differences, and of non-invasive test results.

The key to success. Genesee County's catheterization initiative was unique. In fact, no other community has ever taken on a study of this magnitude, nor accomplished such dramatically positive results in so short a time.

The initiative's success is due, in large part, to the collaborative process and spirit of cooperation which characterized the effort from its first days.

Early on, Task force members recognized that it was critical to establish an environment of trust. To facilitate that trust:

- The Task Force was carefully structured to represent a wide cross-section of Genesee County's medical, insurance, employer, and consumer community
- Data were reviewed in the aggregate to eliminate finger-pointing and assignment of blame

- Hospitals were encouraged to examine their own institutional data as part of their internal quality review. The task force and Coalition only received aggregate data, hospitals alone received physician specific data for their own medical staff members.
- Physician input was sought on an ongoing basis—both through Task Force membership, and through hospital section meetings
- Task Force decisions were made by consensus, with plenty of time for open discussion and thoughtful deliberation
- Information about the Task Force work was disseminated regularly and openly shared with the medical community via task force member organization and the coalition itself.
- Proposed guidelines were taken to cardiologists for their review and input—and their suggestions were incorporated resulting in a community wide acceptance of the guidelines.

Universal participation in this comprehensive initiative by Genesee County physicians confirms their commitment to good health and their dedication to medicine's high ideals. The project's positive dynamics affirm the power of the collaborative process. And the initiative's success demonstrates that it is possible for a community group, representing competing organizations, to set aside their personal agendas and professional differences and work together for the benefit of all.

Genesee County's heart catheterization initiative is indeed unique. After an extensive literature search, it appears no community has ever taken on a catheterization study of this magnitude. More importantly, the process is truly a national *first*. In no other community have cardiologists and competing hospital systems come together in a collaborative effort to ensure appropriate, quality, and cost-effective heart care.