Using PCORnet to Understand Use of Molecular Tests and Treatments for Cancerous Tumors

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PCORI funded the development of PCORnet®, the National Patient-Centered Clinical Research Network, to make research faster, easier, and less costly to conduct. PCORnet is made up of Partner Networks of healthcare systems, patients and communities, and health plans that harness the power of large amounts of health data.

PCORI supports brief, descriptive projects to assess the feasibility of conducting research using data gathered and shared securely through PCORnet. This project is one of several designed to test the network while addressing priorities identified by PCORI and its stakeholders.

What was the project about?
Doctors use molecular tests to get a better understanding of a patient’s cancer. These test results help doctors figure out if the cancer is one that is likely to respond to a treatment called targeted molecular therapy. Molecular tests that are related to targeted therapy are sometimes called companion diagnostic tests.

PCORnet created a shared database system that includes information about test results and treatments from patients’ electronic health records. This shared data system includes information from 11 clinical data research networks that are part of PCORnet. In this project, the team looked at what information was available about these molecular tests and treatments in the database. They wanted to learn whether the database had enough information to be useful for answering patient-centered questions about molecular tests and treatments.

What were the results?

- **How many patients got molecular tests?**
  Whether patients got testing varied. The amount ranged from 26 percent for patients with endocrine cancers to 76 percent for those with breast cancer.

- **How many patients got molecular targeted therapy?**
  Information from the shared database showed that about 5 percent of all patients in the 11 networks received molecular targeted therapy after their tests. Patients age 60 years and older had the lowest use of this therapy. Patients with breast, lung, or head and neck cancer had the highest use of this therapy.

- **Did patients get the right kind of therapy?**
  The project team looked at data from two health systems to answer this question. In these systems, fewer than 20 percent of patients with colorectal cancer received molecular targeted therapy. But all patients who had molecular targeted therapy had test results that supported that treatment decision.

- **Was the database complete?**
  The project team compared two sets of data. The first set only included data from the database. The second set included data from the database plus Medicare research respects patient preferences, needs, and values. When research is patient-centered, the patient’s values guide all healthcare decisions.
insurance data. Using database data alone found that just 49 percent of patients had molecular tests, Medicare plus database data showed that 60 percent of these patients had the tests. Using database data only showed that about 4 percent of the patients had molecular therapy compared with about 7 percent of patients found using Medicare plus database data.

- **Can researchers use the database for future research?** The project team did find information on molecular tests and therapy in the database.

**Who was in the project?**
The project team included electronic medical record data linked to the database for 86,154 patients from 11 research sites in 10 states. Data were from 2013 to 2016. Patients had many types of cancers.

**What did the project team do?**
The project team used different methods to answer each question. They looked at

- How often doctors used molecular testing for different types of cancer
- How often patients got molecular targeted therapy after getting tested
- Whether patients got the right kind of therapy based on their test results
- Whether the database had enough information by itself, or whether it was more accurate when combined with Medicare data
- Whether the database had enough information to be useful when planning studies on using molecular tests and treatments for different types of cancer

**What were the limits of the project?**
Some of the information in the database wasn’t specific enough to know exactly which molecular test or therapy patients received. The project team used patient medical records to find the information they needed.

Future research could make data from the database more specific to help research teams find information about molecular tests and treatments.

**How can people use the results?**
Research teams can use these results when planning studies that use the PCORnet CDM dataset to understand molecular tumor testing and therapy.

*To learn more about this project, visit [www.pcori.org/RI-Waitman001](http://www.pcori.org/RI-Waitman001).*