About HICOR

The Hutchinson Institute for Cancer Outcomes Research (HICOR) is built on the vision of reducing the human and economic burden of cancer for patients, families and society. We develop and apply innovative scientific methods in health economics, clinical and public health research and data science to enhance value in cancer care and improve outcomes for patients.

Our mission is to improve the effectiveness of cancer prevention, early detection and treatment services in ways that reduce the economic and human burden of cancer.

The HICOR Model

Our approach is built on the concepts of stakeholder engagement, shared priority setting, data integration and transparency. By integrating disparate data sources we work to accurately characterize cancer care and generate value-based performance metrics in oncology. Our regional network of payers, clinicians, delivery systems, policy makers and patients identifies common priorities for improving value and patient outcomes. In addition, we launch and evaluate the impact of high-quality, research-based interventions to improve care.

1. Characterize oncology care
   - Treatment patterns
   - Guideline adherence
   - Utilization
   - Benchmarking relative to region
   - Survival
   - Cost

2. Prioritize areas for improvement
   - High variation in well-defined treatment settings
   - Low-value care
   - Poor patient outcomes

3. Design programs
   - Provider & patient behavior change
   - Delivery system process change
   - Financing models
   - Incentives

4. Evaluate outcomes
   - Evaluate expected change in practice patterns, patient outcomes, costs and value

Align care with best practices
Reduce economic burden
Improve outcomes for patients and families
The Hutchinson Institute for Cancer Outcomes Research was launched in 2013 with the mission of improving the effectiveness of cancer prevention, early detection and treatment services in ways that reduce the economic and human burden of cancer. Our key initial strategies were to develop a world-class research program in health economics and cancer care delivery research, build a network of health care partners committed to improving value in cancer care and develop an oncology informatics platform to support research and evaluation. We are delighted to report great strides in the past year toward each of these goals.

Everything we do at HICOR starts with data. We are committed to the challenging goal of integrating data from diverse health information systems — ranging from electronic medical records, cancer registries, health insurance claims and cost data, to patient-reported preferences and outcomes — in order to gain true understanding of the needs for, and impact of, efforts to improve cancer care. Our team has taken the first steps toward this goal by building an oncology informatics platform and user interface – known as HICOR IQ – which allows our partners to understand their own performance against key benchmarks. We view performance measurement as a first step in a broader process of designing, launching and rigorously evaluating research-based interventions.

HICOR is uniquely positioned to act as a trusted resource and facilitator of collaboration. We have engaged a broad range of partners in our efforts, including clinical and public health researchers, academic and community oncologists, health insurers, employers and patient partners. These stakeholders convene annually at our Value in Cancer Care Summit (VCC), a highly interactive, growing forum focused on reviewing regional oncology trends and prioritizing opportunities to increase evidence-based cancer care. The 2015 Summit was an important milestone — HICOR’s first public release of oncology performance measures generated from our informatics platform.

We are fortunate to welcome health economists Lotte Steuten, PhD, and Joshua Roth, PhD, to the faculty team this year. Both are outstanding investigators who strengthen our research capacity and scope. We look forward to engaging the growing team in our continued efforts to improve value in cancer care.

Scott Ramsey

Scott Ramsey MD, PhD
Director

Scott Ramsey is a practicing internist, an internationally recognized health economist and a leader in comparative and cost-effectiveness research.

Gary Lyman

Gary Lyman MD, MPH
Co-Director

Gary Lyman is a practicing medical oncologist, an internationally recognized clinical oncology researcher and a leader in clinical practice guidelines and cancer policy.

From the Directors
In February 2015, HICOR was one of five organizations selected for funding through the Patient Centered Outcomes Research Institute (PCORI) Pragmatic Clinical Studies Initiative. This initiative was created in an effort to produce research results that are broadly applicable to a greater variety of patients and care settings and that can be more quickly taken up in routine clinical practice.

**A Pragmatic Trial to Improve Colony Stimulating Factor Use in Cancer**

This pragmatic trial, developed in partnership with the national clinical trials group SWOG, the SWOG Statistical Center within Fred Hutch as well as Cancer Research and Biostatistics (CRAB), Columbia University and the University of Washington School of Pharmacy, will investigate whether a health systems based intervention can improve adherence to evidence-based guidelines for the use of primary prophylaxis (PP) supportive care drugs known as colony stimulating factors (CSFs). The objective is to ensure that patients at risk for a severe fever known as febrile neutropenia receive the supportive care drugs, while those not at risk avoid the potential side effects and increased costs that may accompany PP-CSF use.

“Our goal is to improve adherence to clinical practice guidelines in the low- and high-risk chemotherapy settings, where the evidence for PP-CSF use is well-established,” said Dr. Scott Ramsey, Principal Investigator. “At the same time, we will generate new evidence on the benefits and risks of PP-CSF for commonly prescribed, intermediate-risk chemotherapy regimens where more evidence is needed for patients and providers to make informed decisions.”

**Community-Based Research**

Enrollment will occur through a national network of SWOG sites that are members of the NCI Community Oncology Research Program (NCORP). The NCORP (ncorp.cancer.gov) brings researchers and community-based physicians together to conduct efficient and high-quality clinical research studies for cancer patients and those at risk for cancer in local settings.

**Stakeholder-Driven Design**

The PCORI study was designed in consultation with an External Advisory Board (EAB) including patients, patient advocates, an ethicist, oncologists, insurance plan leaders, policy makers and leaders of the community clinics where the study will be implemented. This board will continue to provide guidance throughout all phases of the trial.

**Patient Partners Make It Possible**

This study offers a unique opportunity to engage patients as full partners throughout the entire life cycle of the project. Through regularly scheduled webinars, meetings and a designated SharePoint site, patient partners will directly contribute to study design, patient recruitment and retention strategies and interpretation and sharing of study results, ensuring that study outcomes are meaningful and meet the information needs of cancer patients in their communities.

“In the end, this is about the patient and improving the delivery of optimal and more personalized supportive care in order to reduce the risk of serious complications while improving the quality, efficiency and overall value of cancer treatment,” said Dr. Gary Lyman, Co-Investigator.
“Choosing Wisely”

Five Things Physicians and Patients Should Question

Choosing Wisely® is an initiative of the American Board of Internal Medicine (ABIM) Foundation to support patients in their efforts to make smart and effective care choices and encourage providers and patients to engage in conversations to reduce overuse of unproven or ineffective tests and procedures. As part of this initiative, in 2012 and 2013, the American Society of Clinical Oncology (ASCO) highlighted five categories of tests, procedures and/or treatments whose common use and clinical value are not supported by available evidence.

Measuring Choosing Wisely® Adherence in Oncology Practices

At the ASCO Quality Care Symposium in November 2014, HICOR was the first in the nation to report clinic-level adherence to ASCO’s first five Choosing Wisely measures. The results showed that there is wide variation between and within measures, and that no one clinic was consistently adherent or non-adherent on all measures. These results provide an opportunity to target specific areas for intervention, and for clinics to learn from one another.

Translating Policy to Clinical Practice

HICOR is collaborating with regional cancer care providers to design and evaluate tools and interventions to increase adherence levels to Choosing Wisely recommendations. “We believe as part of the Fred Hutchinson Cancer Research Center that interventions in cancer care delivery deserve the same degree of scientific rigor as other interventions in cancer care, like drugs and devices,” said HICOR Director Scott Ramsey. As part of this initial effort, HICOR is working with area providers to design and launch programs to increase the use of evidence-based care.

Opportunity to learn from each other

Analysis of HICOR IQ data shows that no one clinic is consistently above average or below average in all areas.

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HICOR gratefully acknowledges our data partners Premera, Regence and the Cancer Surveillance System.
Value in Cancer Care

Value Metrics Overview
At HICOR, we believe that reporting performance metrics is a foundational step in an overall process to improve cancer care. The HICOR team provides the informatics expertise and analytic engine to characterize the current state of cancer care in our region relative to community and nationally prioritized measures. Our guiding principles are that value metrics must be meaningful, feasible to collect and actionable.

The goal of metric reporting is to provide patients, payers, providers and health systems with transparent information to support decision-making in cancer care.

At the 2015 VCC Summit, HICOR reported fifteen performance metrics that spanned all domains of cancer care:

- Diagnosis
  - Prostate Imaging
  - Breast Imaging
- Treatment
  - CSF Use
  - Hospital Use During Chemotherapy and Radiation Therapy
  - Hospital Use Following Surgery
- Continuing Care
  - Breast Surveillance
- End of Life
  - Chemotherapy and Radiation Therapy
  - Hospital Use
  - Hospice Use
  - Advanced Imaging
  - Place of Death

A full list of HICOR Value Measures is available at: fredhutch.org/vccmetrics

HICOR’s Value in Cancer Care Summit is a forum for individuals from across the healthcare spectrum to convene and collaborate on ways to improve the value and efficiency of cancer care delivery. This year HICOR released the first report on adherence to regional performance metrics, convened working groups to design research-based, targeted interventions to improve care and provided a demonstration of HICOR IQ — an informatics platform designed to share results with partners. Keynote speaker Dr. Arnold Milstein opened the day by challenging the group to use the performance measures to identify care delivery “re-engineering targets.”

“It’s important for patients to participate in these conversations just to remind people that there are humans behind the dollars. That alone makes it important to show up and speak out.”

— Leigh Pate

Leigh Pate, breast cancer survivor and summit attendee

TOP: Dr. Arnold Milstein, Director of the Clinical Excellence Research Center of Stanford University.
ABOVE: Participants at the second annual Value in Cancer Care Summit review metrics during a poster session.

Photos by Robert Hood / Fred Hutch
“We want representation from each of the stakeholders — patients, providers, health systems and payers. It’s important to get the input, ideas and engagement of each of you.”

— Scott Ramsey

What is HICOR IQ?

HICOR IQ is an oncology health care analytics platform combining clinical, cost and outcomes data to produce intuitive and actionable population-level metrics. The beta version of the platform contains enrollment and claims files from Premera Blue Cross and Regence that were securely provided to HICOR and linked with the Cancer Surveillance System (CSS) at Fred Hutch. CSS provides high quality data on the incidence, treatment and follow-up on all newly diagnosed cancers [except non-melanoma skin cancers] occurring in residents of 13 counties in northwest Washington State.

HICOR IQ Beta

The initial launch includes a limited set of regional performance reports based on ASCO/ABIM 2012 Choosing Wisely Recommendations. Users may select metrics of interest, configure plots based on regional or clinic views and generate reports categorized by clinical and demographic characteristics.

The Future of HICOR IQ

Future versions of HICOR IQ aim to include data from additional payers, electronic medical records and patient reported outcomes. Additional functionality will include partner-specific access that will allow for customized views and monitoring of payer or clinic-specific programs.

Through this dynamic tool, we hope to empower our partners with the actionable insights necessary to transform health care.

For more information on HICOR IQ, contact us at hicoriQ@fredhutch.org
Reducing the economic burden of cancer for patients and families

As the cost of cancer care rises, patients are bearing an ever-increasing share of the expense, causing a new side effect called financial toxicity. HICOR is committed to research and program development to address this growing problem.

Understanding Financial Toxicity

HICOR faculty member Dr. Veena Shankaran is conducting research to understand the complex interplay between financial health at the time of cancer diagnosis, treatment choices and subsequent health and financial outcomes. Dr. Shankaran’s research aims to set the stage for the development of programs to mitigate the impact of financial health on optimal cancer care.

“By clearly articulating the relationship between cancer diagnosis, financial hardship and even extreme events like bankruptcy, we will be able to target specific interventions to prevent and reduce those events. I would like to create tools to gauge patients’ risk for financial distress, provide patients and families transparent information about out-of-pocket costs and establish financial navigation programs as part of comprehensive cancer care.”

— Veena Shankaran

Helping Patients Navigate Costs

In collaboration with Consumer Education Training Services (CENTS; centsprogram.org) and Patient Advocate Foundation (PAF; patientadvocate.org), HICOR faculty member Dr. Veena Shankaran has developed a comprehensive financial navigation program.

1. An in-person financial literacy course delivered by CENTS includes general information about medical costs, health insurance benefits, employment benefits and copayment assistance.

2. Direct contact with patient navigators from PAF, who work directly with patients to resolve debt, access copayment or patient assistance, and link patients with other practical resources.

3. One-on-one financial counseling and budget planning sessions with a trained CENTS counselor.

Program Overview

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Dr. Steuten’s main research interest is developing and applying health economic and decision analytic research methods to accelerate patient access to high value screening, diagnostic and treatment options against cancer. Her research expertise is in the fields of health economics and health services research. She specializes in developing and applying quantitative methods for estimating and comparing the expected health and economic benefits of new approaches and interventions in cancer prevention and treatment and prioritizing data collection to efficiently build the evidence for promising new interventions.

Joshua Roth, PhD, MHA specializes in comparative effectiveness research (CER) methods, including: observational study design, decision-analytic modeling, systematic review, meta-analysis and generalized linear modeling. His research interests involve the application of CER methods to evaluate the benefit-risk trade-offs and value of pharmaceutical and diagnostic technologies in cancer, with specific focus on pharmacogenomic testing applications, cancer screening strategies, and alternative treatment options in lung, breast and prostate cancer.

Dr. Roth is a gastrointestinal medical oncologist whose primary research focuses on describing and devising strategies to mitigate the financial burden of cancer diagnosis and treatment. She uses survey-based methods, administrative claims data and other sources of individual financial data to describe patterns of cancer care in real-world clinical settings, costs of care at both the societal and patient level and treatment decision-making in the advanced cancer setting. She is actively developing ‘financial navigation’ programs to help patients manage the cost of cancer care more effectively.

Bernardo Goulart, MD, MS is a practicing medical oncologist whose scientific interests include health services and comparative effectiveness research of screening, precision medicine and therapeutics for thoracic and head and neck cancers. He has expertise in applying traditional statistical methods to conduct studies of adherence to treatment guidelines, access to modern oncologic treatments, cost evaluations and patient outcomes using large tumor registry and claims databases. Dr. Goulart is also an expert in the use of economic evaluation methods to develop cost-effective strategies for lung cancer screening and treatment.

Dr. Richards’ main research interest is in using technology to make outcomes research methods more efficient and valid. This involves activities such as the development of a mobile app for patients to collect out-of-pocket medical expenses, as well as designing user reports and interfaces for HICOR IQ. She was formally trained as an epidemiologist with expertise in hospital finance, multi-level modeling and the application of Geographic Information System (GIS) methods to health services research. She is also an expert in the design and use of scientific data visualizations to communicate public health research.

Catherine Richards, PhD, MPH

Dr. Bansal’s research interests include comparative effectiveness and health outcomes research, statistical methods for the development and evaluation of biomarkers for screening and diagnosis, risk prediction, disease prognosis and treatment selection and methods for the analysis of observational data. At HICOR, she has been involved in analyzing survival, costs and resource utilization in cancer, studying bankruptcy in cancer patients, using cure models for economic analysis and investigating disparities in cancer treatment and outcomes.

Aasthaa Bansal, PhD, MS

Dr. Shankaran is a gastrointestinal medical oncologist whose primary research focuses on describing and devising strategies to mitigate the financial burden of cancer diagnosis and treatment. She uses survey-based methods, administrative claims data and other sources of individual financial data to describe patterns of cancer care in real-world clinical settings, costs of care at both the societal and patient level and treatment decision-making in the advanced cancer setting. She is actively developing ‘financial navigation’ programs to help patients manage the cost of cancer care more effectively.

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Selected peer-reviewed publications


Goulart B. Lung cancer CT screening is cost-effective but implementation matters. Evid Based Med. 2015;20(2):78.

Henry NL, Hayes DF, Ramsey SD, Hortobagyi GN, Barlow WE, Gralow JR. Promoting Quality and Evidence-Based Care in Early-Stage Breast Cancer Follow-up. Journal of the National Cancer Institute. 2014;106(4).


The HICOR team

From top left to bottom right: Bernardo Goulart, Lotte Steuten, Joshua Roth, Richard Kim, Scott Ramsey, Gary Lyman, Kristine Stickney, Karma Kreizenbeck, Andy Karnopp, Debbie Delaney, Catherine Richards, Carrie Bennette, Lisel Koepl, Andrea Tate, Kathryn Egan, Veena Shankaran, Holly Lane, Kristy Drury, Aasthaa Bansal, Judy Nelson, Catherine Fedorenko, April Alfiler, Teah Hoopes