HICOR’s mission is to **reduce the human and economic burden of cancer** by conducting innovative research in the following areas:

- Financial impact of cancer
- Cancer outcomes
- Cost-effectiveness research
- Pragmatic clinical trials
- Economic assessment of technologies and treatments
- Cancer policy
- Value of information
- Cancer care delivery research
HICOR Research Methods

Novel data linkages
• Bankruptcy records linked to SEER
• Credit report linkage
• SEER / health claims

Survey-based methods

Pragmatic clinical trials

Economic modeling / value of information analyses
Financial Toxicity is Real – But What is It?

Direct Costs
High out-of-pocket spending
  • Medical
  • Non-medical

Indirect Costs
Inability to work
Loss of income

• Difficulty meeting household expenses
• Anxiety / Financial worry
• Debt
• Bankruptcy
• Loss of career / unemployment
Why is it Time to Intervene?

Financial Toxicity

- Treatment non-adherence
- Lower HRQOL
- Poorer survival
Objectives

• Review the key studies describing financial toxicity and its consequences in cancer patients

• Discuss some key contributors to financial toxicity

• Discuss potential strategies to mitigate financial toxicity, focusing on HICOR research
Timeline

2009 – ASCO Cost of Cancer Care Take Force guidance statement

2013 – Term ‘Financial Toxicity’ was coined

2016 – NCI Financial toxicity PDQ®


U.S. Healthcare Costs are Rising

U.S. Healthcare Spending

International Comparison of Spending on Health, 1980-2008

Total expenditures on health as percent of GDP

Source: OECD Health Data 2010 (Oct. 2010)

OECD Health Data, 2010
### Comparison of Systemic Therapy Use, Cost, and Survival in Patients with Metastatic Colorectal Cancer in Western Washington US vs. British Columbia CA.

**2018 ASCO Annual Meeting Abstract**

**Between 2010 and 2015:** Western Washington = 575 patients; BC = 1622 patients

<table>
<thead>
<tr>
<th></th>
<th>Western Washington</th>
<th>British Columbia</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Mean Duration of 1st Line Therapy, months (SD)</strong></td>
<td>5.7 (4.9)</td>
<td>5.8 (6.3)</td>
<td>0.59</td>
</tr>
<tr>
<td><strong>Mean Lifetime Systemic Therapy Costs, per month (SD)</strong></td>
<td>$7,883 ($13,268)</td>
<td>$4,830 ($11,529)</td>
<td>&lt;0.01</td>
</tr>
<tr>
<td><strong>Median Overall Survival with Systemic Tx, months (95% CI)</strong></td>
<td>21.4 (18.1-26.2)</td>
<td>22.1 (20.5-23.7)</td>
<td></td>
</tr>
<tr>
<td><strong>Median Overall Survival with No Systemic Tx, months (95% CI)</strong></td>
<td>5.4 (2.4-7.7)</td>
<td>6.3 (5.2-7.3)</td>
<td></td>
</tr>
<tr>
<td><strong>Median Overall Survival for All Patients, months (95% CI)</strong></td>
<td>17.4 (13.2-20.4)</td>
<td>16.9 (15.7-18.2)</td>
<td></td>
</tr>
</tbody>
</table>
Western WA vs. British Columbia

Cost of 1st line systemic therapy, per patient per month (USD)

Annual Insurance Costs are Rising


- **2008**: $2,943
- **2009**: $3,111
- **2010**: $3,389
- **2011**: $3,807
- **2012**: $4,027
- **2013**: $4,360
- **2014**: $4,782
- **2015**: $5,138

- Premiums
- Out-of-Pocket Costs (Copays, Deductibles, Coinurance)
Multi-tiered Drug Formularies – 4 or more Tiers

## Approved Oral Cancer Drugs 2010-2016

<table>
<thead>
<tr>
<th>Agent</th>
<th>Indication</th>
<th>Approval</th>
<th>Average Wholesale Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cabozantinib</td>
<td>RCC; thyroid</td>
<td>2016</td>
<td>$16,982*</td>
</tr>
<tr>
<td>Lenvatinib</td>
<td>RCC; thyroid</td>
<td>2016</td>
<td>$16,740</td>
</tr>
<tr>
<td>Alectinib</td>
<td>ALK+ NSCLC</td>
<td>2015</td>
<td>$12,500</td>
</tr>
<tr>
<td>Cobimetinib</td>
<td>Melanoma</td>
<td>2015</td>
<td>$7,300</td>
</tr>
<tr>
<td>Olaparib</td>
<td>Ovarian CA</td>
<td>2015</td>
<td>$14,400</td>
</tr>
<tr>
<td>Ceritinib</td>
<td>ALK+ NSCLC</td>
<td>2014</td>
<td>$15,118</td>
</tr>
<tr>
<td>Ibrutinib</td>
<td>CLL</td>
<td>2013</td>
<td>$9,840</td>
</tr>
<tr>
<td>Afatinib</td>
<td>NSCLC</td>
<td>2013</td>
<td>$7,193</td>
</tr>
<tr>
<td>Regorafenib</td>
<td>Colon</td>
<td>2013</td>
<td>$9,350</td>
</tr>
<tr>
<td>Crizotinib</td>
<td>ALK+ NSCLC</td>
<td>2011</td>
<td>$13,697</td>
</tr>
</tbody>
</table>

*AWP for 6 week course at RCC dosing
Annual Out-of-Pocket Cost Limits

2018 Marketplace plans

- $7,350 for an individual
- $14,700 for a family
- Does not include premiums
How Americans pay for unexpected expenses

How would you deal with a major unexpected expense, such as $1,000 for an emergency room visit or car repair?

- Pay the costs from your savings: 39%
- Finance with credit card, pay off over time: 19%
- Reduce your spending on other things: 13%
- Borrow from family or friends: 12%
- Take out a personal loan: 5%
<table>
<thead>
<tr>
<th>Top 5 Expenditure Drugs</th>
<th>Total Medicare Spend</th>
<th>Total Annual Spending Per User</th>
<th>Average Annual Beneficiary Cost Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cancer *</td>
<td>$3,179,922,015</td>
<td>$80,466</td>
<td>$7,226</td>
</tr>
<tr>
<td>Noncancer **</td>
<td>$13,114,862,964</td>
<td>$21,048</td>
<td>$1,286</td>
</tr>
<tr>
<td>Noncancer, excluding sofosbuvir</td>
<td>$10,007,901,983</td>
<td>$2,796</td>
<td>$344</td>
</tr>
</tbody>
</table>

*lenalidomide, imatinib, ipilimumab, sipuleucel-T, bexarotene

**Sofosbuvir, esomeprazole, rosuvastatin, apiprazole, fluticasone/salmeterol
Specialty Drug Cost Sharing – Standard Medicare Drug Benefit

$4,950 = True Out-of-Pocket Spending

- Patient pays 100% Initial deductible $400
- Patient pays 25-33% Initial coverage period
- Manufacturer Discount 50%
- Patient pays 40%
- Plan pays 10%
- Coverage Gap or ‘Donut Hole’ $3700 total drug costs
- Plan pays 10%
- Patient pays 5%*

*Until January 1st of the following year

- Catastrophic coverage phase $8071 total drug costs
- Plan pays 10%

$4,950 = True Out-of-Pocket Spending

- Catastrophic coverage phase $8071 total drug costs
Annual Drug Spending - Medicare

**Figure 2. Annual Out-of-Pocket Prescription Drug Spending for Medicare Beneficiaries Utilizing Disease-Specific Specialty Drugs for RA, MS, or CML, 2012**

- RA (n = 1063): $3485
- MS (n = 2256): $4749
- CML (n = 1135): $6322

**Figure 3. Out-of-Pocket Prescription Drug Spending During the Part D Catastrophic Coverage Phase, 2012**

- RA (n = 1063): $1229, 31% OOP drug spending in catastrophic phase
- MS (n = 2256): $2456, 47% OOP drug spending in catastrophic phase
- CML (n = 1135): $3546, 56% OOP drug spending in catastrophic phase

Doshi, J et al. AJMC. 2017 Mar. 23(3S); S39-S45
Medicare OOP Spending – Not Just Drugs

N=1,409 traditional Medicare beneficiaries with cancer (2012 Health and Retirement Study)
Financial Burden of Cancer vs. Other Diseases

## Financial Hardship in Cancer

<table>
<thead>
<tr>
<th>Financial Hardship</th>
<th>Weighted % (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Had to borrow money or go into debt</td>
<td>7.1 (5.7 – 8.9)</td>
</tr>
<tr>
<td>Filed for bankruptcy</td>
<td>1.7 (1.0 – 2.8)</td>
</tr>
<tr>
<td>Unable to cover share of costs for medical care</td>
<td>11.9 (9.8 – 14.3)</td>
</tr>
<tr>
<td>Other financial sacrifices</td>
<td>9.4 (7.6 – 11.5)</td>
</tr>
<tr>
<td><strong>Any material financial hardship</strong></td>
<td><strong>20.4 (17.7 – 23.4)</strong></td>
</tr>
<tr>
<td><strong>Any psychological financial hardship</strong></td>
<td><strong>22.5 (19.6 – 25.7)</strong></td>
</tr>
</tbody>
</table>

2011 Medical Expenditures Panel Survey (MEPS) Experiences with Cancer Supplement (N=1,202)

## Cancer and Employment

**2008-2012 Medical Expenditures Panel Survey**

<table>
<thead>
<tr>
<th>Productivity Loss</th>
<th>Colorectal cancer – Noncancer</th>
<th>Breast cancer - Noncancer</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employment disability</td>
<td>13.6% (6.1% - 25.9%)</td>
<td>4.8% (1.7% - 9.2%)</td>
</tr>
<tr>
<td># Missed work days</td>
<td>7.2 days (2.1 – 17.1 days)</td>
<td>3.0 days (1.0 – 6.6 days)</td>
</tr>
<tr>
<td># Days stayed in bed</td>
<td>4.5 days (1.4 – 9.5 days)</td>
<td>3.3 days (0.9 – 6.8 days)</td>
</tr>
</tbody>
</table>

38% of patients experienced major financial hardship
• 21.8% in debt (mean $26,860)
• 42% had a decline in income (24% ≥ 20% decline)
• 6% non-adherence (skipping doses or refusing treatment to save $$)
• 31% reported high subjective financial burden

Shankaran, V et al. J Clin Oncol. 2012 May; 30(14)
## Factors Associated with Financial Hardship

<table>
<thead>
<tr>
<th>Independent variable</th>
<th>OR</th>
<th>95% CI</th>
<th>p value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age category</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>≥ 75 years</td>
<td>Ref</td>
<td>Ref</td>
<td>Ref</td>
</tr>
<tr>
<td>65 – 74 years</td>
<td>5.2</td>
<td>1.1 – 25.4</td>
<td>0.042</td>
</tr>
<tr>
<td>50 – 64 years</td>
<td>18.9</td>
<td>4.1 – 88.2</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>&lt; 50 years</td>
<td>52.5</td>
<td>10.3 – 267.4</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Annual income</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&gt; $70,000</td>
<td>Ref</td>
<td>Ref</td>
<td>Ref</td>
</tr>
<tr>
<td>$50,001 - $70,000</td>
<td>2.2</td>
<td>0.9 – 5.2</td>
<td>0.082</td>
</tr>
<tr>
<td>$30,001 - $50,000</td>
<td>7.2</td>
<td>3.2 – 16.1</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>&lt; $30,000</td>
<td>8.3</td>
<td>3.6 – 18.9</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Employment status</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employed</td>
<td>Ref</td>
<td>Ref</td>
<td>Ref</td>
</tr>
<tr>
<td>Retired</td>
<td>3.9</td>
<td>0.8 – 18.4</td>
<td>0.086</td>
</tr>
<tr>
<td>Unemployed / Disability / LOA</td>
<td>3.5</td>
<td>0.99 – 12.2</td>
<td>0.051</td>
</tr>
</tbody>
</table>
Health Care Debt

Health care debt is the largest category of consumer debt

Note: The debt displayed above reflects all collected consumer debt in 2013

Designed by: Catherine A. Richards (@DotDataViz)
Cancer patients were 2.65 times more likely to file for bankruptcy compared with matched controls.

Younger Age = Higher Risk of Bankruptcy

Financial Toxicity in Cancer Care
Why is it Time to Intervene?

- Financial Toxicity
  - Treatment non-adherence
  - Lower HRQOL
  - Poorer survival
1,541 CML patients who initiated imatinib (2002 – 2011).

Average monthly copay for imatinib = $108 (range $0 to $4,792).

Patients in the highest copayment quartile vs. lowest copayment quartile had:

- Greater likelihood of **discontinuation** (RR 1.70, 95% CI 1.30-2.22)
- Greater likelihood of **nonadherence** (RR 1.42, 95% CI 1.19-1.69)
Income and Clinical Trial Enrollment

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>OR (95% CI)</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age ≥ 65</td>
<td>0.79 (0.58-1.08)</td>
<td>0.14</td>
</tr>
<tr>
<td>Female gender</td>
<td>0.93 (0.58-1.49)</td>
<td>0.75</td>
</tr>
<tr>
<td>African American race</td>
<td>1.31 (0.74-2.33)</td>
<td>0.35</td>
</tr>
<tr>
<td>Income &lt; $50,000</td>
<td><strong>0.73 (0.57-0.94)</strong></td>
<td><strong>0.01</strong></td>
</tr>
<tr>
<td>Education &lt; college</td>
<td>0.92 (0.73-1.16)</td>
<td>0.49</td>
</tr>
<tr>
<td>Comorbidity score ≥ 2</td>
<td>0.81 (0.65-1.02)</td>
<td>0.07</td>
</tr>
<tr>
<td>Distance to clinic ≥ 13 mi</td>
<td><strong>0.66 (0.54-0.81)</strong></td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Nearly 5,500 patients surveyed and about attitudes towards clinical trials and clinical trial enrollment
Adjusted differences control for age, sex, race, household income, education, health insurance, cancer stage, comorbidity.
## Bankruptcy and Mortality

<table>
<thead>
<tr>
<th>Variable</th>
<th>HR</th>
<th>95% CI</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bankruptcy</td>
<td>1.79</td>
<td>1.64-1.96</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>BAPCPA*</td>
<td>1.07</td>
<td>0.91-1.24</td>
<td>0.428</td>
</tr>
<tr>
<td>Age at Dx &lt; 65</td>
<td>1.14</td>
<td>1.11-1.17</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Male</td>
<td>1.32</td>
<td>1.19-1.47</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>White race</td>
<td>0.86</td>
<td>0.75-0.98</td>
<td>0.026</td>
</tr>
<tr>
<td>Not married</td>
<td>1.06</td>
<td>0.96-1.16</td>
<td>0.28</td>
</tr>
<tr>
<td>Median income / 10000</td>
<td>0.93</td>
<td>0.89-0.97</td>
<td>0.001</td>
</tr>
<tr>
<td>Localized Stage</td>
<td>0.25</td>
<td>0.21-0.28</td>
<td>&lt;0.001</td>
</tr>
<tr>
<td>Regional Stage</td>
<td>0.46</td>
<td>0.40-0.54</td>
<td>&lt;0.001</td>
</tr>
</tbody>
</table>

Household Finances, Treatment, and Outcomes

Pre-Diagnosis Household Financial Status
- Assets
- Income
- Available credit
- Home equity
- Debt

Cancer Diagnosis

Initiation and completion of primary cancer treatment

Financial Hardship
- Exhausting lines of credit
- Delinquencies or liens
- Bankruptcy

Survival
- Cancer-specific
- Overall

• Surveillance
• Adherence
• Clinical trials
Household Finances, Treatment, and Outcomes

Credit Data (TransUnion, Equifax)
- Marital status
- Current credit score
- Current balance and payment status for revolving debt (e.g., credit cards) and installment debt (e.g., auto loans)
- Mortgage date and amount at origination
- Current balance, interest rate, and payment status for mortgages
- Current available limits on credit cards
- Bankruptcies
- Liens, Collections and Repossessions

Property Data (DataQuick)
- Mortgage date and amount
- Home purchase price
- Foreclosure date
- Date of any delinquencies
- Neighborhood-level home price index
- Ownership changes
- Payment for rent, utilities, renters insurance

Cancer Records (SEER)
- Demographics
- Stage and Outcome

Health Claims
- All medical services
- Outpatient pharmacy
Financial Toxicity Conceptual Model

Cancer Diagnosis
- High price of cancer drugs
- Lost work / income

High Out-of-Pocket Spending
- High cost sharing

Lack of financial literacy resources

Financial Hardship
- Debt
- Defaults / Liens
- Foreclosures
- Depletion of Savings
- Bankruptcy

Worse Clinical outcomes

Insurance plan design
(Patients pay more for expensive drugs, regardless of benefit)

Lack of consistent access to patient assistance programs

1. Create Tools to Assess Patients’ Financial Health
2. Provide Financial Navigation as a Part of Cancer Care
3. Eliminate Low Value Prescribing Practices
4. Improve Cost Transparency
5. Value-based formulary / performance-based risk sharing
#1 Create Tools to Assess Patients’ Financial Health in Real Time
How Do We Measure OOP Spending and Financial Status?

**Claims data** – Medicare Part D, Marketscan

**Panel Surveys** – Medical Expenditures Panel Survey, Experiences with Cancer Supplement

**Financial Records** – Bankruptcy Filings, Credit Reports, Home property records
<table>
<thead>
<tr>
<th></th>
<th>Not at all</th>
<th>A little bit</th>
<th>Somewhat</th>
<th>Quite a bit</th>
<th>Very much</th>
</tr>
</thead>
<tbody>
<tr>
<td>I know that I have enough money in savings, retirement, or assets to cover the costs of my treatment.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>My out-of-pocket medical expenses are more than I thought they would be.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I worry about the financial problems I will have in the future as a result of my illness or treatment</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I feel I have no choice about the amount of money I spend on care.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I am frustrated that I cannot work or contribute as much as I usually do.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I am satisfied with my current financial situation.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I am able to meet my monthly expenses.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I feel financially stressed.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I am concerned about keeping my job and income, including work at home.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>My cancer or treatment has reduced my satisfaction with my present financial situation</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>I feel in control of my financial situation.</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
</tbody>
</table>
S1417CD: Implementation of a Proactive Financial Impact Assessment Tool in Patients with Metastatic Colorectal Cancer

Study Team: Veena Shankaran, Amy Darke, Dawn Hershman, Joe Unger, Scott Ramsey,
Design: Prospective observational cohort study

Population: Newly diagnosed metastatic colorectal cancer patients

Setting: All NCORP components and subcomponents
S1417CD: Overall Goal

To paint a picture of household financial status from diagnosis:

**Questionnaires** (baseline, 3, 6, 9, 12 mo)
Items on employment, insurance, assets, OOP expenses
MEPS, HRS, EORTC QLQ-C30, Caregiver strain index

**Credit reports** (registration, 6 mo, and off-study)
Non-mortgage card balances, past due $
Liens, bankruptcies, reposessions
Primary objective

To estimate the incidence of treatment-related financial hardship over 12 months

Financial hardship: Debt, Bankruptcy, Income decline ≥ 20%, Loans, Non-adherence due to cost
Secondary objectives

To determine risk factors (e.g. age, race, marital status, income) for major financial hardships

To explore whether major financial hardship is associated with poorer health-related quality of life

To determine feasibility of recruiting primary caregivers to measure their perceptions about cancer treatment costs

Presented by: Veena Shankaran MD, MS
Metastatic Colorectal Cancer Diagnosis

Patient consent, caregiver consent (optional)

Patient completes baseline questionnaire
Consented caregiver completes baseline questionnaire

Registration and Credit Report Pull

Patient completes months 3, 6, 9, 12 questionnaires
Consented caregiver completes months 6 and 12 questionnaires

Off Protocol and Credit Report Pull

1st dose of chemotherapy and/or biologic therapy within a window of 60 days prior to and 30 days following (anticipated) registration

120 days

6 mo Credit Report Pull
Sample Size

Sample size = 320
Accrual goal = 374
Cumulative incidence to account for competing risks (death)
1-year survival 60%
Financial hardship at 1 year estimated at 40%
Dropout for other reasons 10%

Presented by: Veena Shankaran MD, MS
Timeline

2012 Coltman Fellowship
Feb 2014 – Triage approved capsule
June 2015 – Revise/Resubmit from DCP
Oct 2015 – Protocol Approved by DCP
April 2016 – S1417CD Activated

Developing a process to obtain consumer credit reports (TransUnion)
• Consumer credit reports have never been linked prospectively with patient data
• Legal review and contract
• Collection of SSNs and addressing patient privacy concerns
• Assurances that obtaining credit reports for research will not affect credit scores
Initial Registrations By 1 Month Intervals
Divisions by ARM

Time of Registration

Observation
S1417CD Enrollment

Activated April 2016 – **Total accrual 280**

- 150 patients in the last 6 months
- 4-6 enrolled per week

**Accrual Goal = 374**

At 5 per week, anticipate completing enrollment in 6-7 months

Highly generalizable, multi-faceted, prospective assessment of financial status in cancer patients (and caregivers) at diverse community practices throughout the country
#2 Provide Financial Navigation as a Routine Part of Cancer Care
Financial Counseling and Navigation

• Education about employment benefits, insurance policy rules should happen at diagnosis

• Many helpful strategies fall outside the domain of the healthcare profession (asset management, debt consolidation)

• Early proactive financial counseling and debt management can help prevent bankruptcy in at-risk individuals

• Access to assistance programs
Impact of Trained Oncology Financial Navigators on Patient Out-of-Pocket Spending

Todd Yezefski, MD; Jordan Steelquist, BA; Kate Watabayashi, BA; Dan Sherman, MA; and Veena Shankaran, MD
American Journal of Managed Care March 2018

11,186 patients at 4 hospitals between 2012 and 2016

<table>
<thead>
<tr>
<th>Cost Category</th>
<th>Total Patient Savings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free Medication</td>
<td>$9,879,779</td>
</tr>
<tr>
<td>Premium Assistance</td>
<td>$14,117,157</td>
</tr>
<tr>
<td>Copay Assistance</td>
<td>$2,541,105</td>
</tr>
<tr>
<td>Insurance enrollment</td>
<td>$11,214,225</td>
</tr>
<tr>
<td>Plan optimization</td>
<td>$259,357</td>
</tr>
<tr>
<td>Community Assistance</td>
<td>$926,657</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$39,000,000</strong></td>
</tr>
</tbody>
</table>
### Financial Counseling and Navigation - PAPs

<table>
<thead>
<tr>
<th>Insurance status</th>
<th>Count (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Insured with Prescription Coverage</td>
<td>134 (61%)</td>
</tr>
<tr>
<td>Commercial</td>
<td>44 (33%)</td>
</tr>
<tr>
<td>Medicare</td>
<td>88 (66%)</td>
</tr>
<tr>
<td>Medicaid</td>
<td>2 (1%)</td>
</tr>
<tr>
<td>Insured without prescription coverage</td>
<td>42 (19%)</td>
</tr>
<tr>
<td>Medicare (without part D)</td>
<td>35 (83%)</td>
</tr>
<tr>
<td>Commercial (without Rx)</td>
<td>7 (17%)</td>
</tr>
<tr>
<td>Uninsured</td>
<td>45 (20%)</td>
</tr>
<tr>
<td>Pending coverage</td>
<td>15 (33%)</td>
</tr>
<tr>
<td>Charity care</td>
<td>24 (53%)</td>
</tr>
<tr>
<td>No coverage</td>
<td>6 (13%)</td>
</tr>
</tbody>
</table>

All patient assistance referrals for oral chemotherapy at SCCA in 2013

Yezefski T and Shankaran V. Seminars in Oncology. In press
Financial Counseling and Navigation - PAPs

<table>
<thead>
<tr>
<th>Type of Assistance (n=168 approvals)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Free Drug</td>
<td>128 (76%)</td>
</tr>
<tr>
<td>Dollar amount</td>
<td>33 (20%)</td>
</tr>
<tr>
<td>Copay card</td>
<td>7 (4%)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Cost Savings by PAP Assistance Type (n=145)*</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Free Drug (n=111)</td>
<td>$2,721,628</td>
</tr>
<tr>
<td>WAC for actual free drug dispensed (n=84)</td>
<td>$2,191,547 (range $164 - $113,865)</td>
</tr>
<tr>
<td>WAC x 3 months free drug (n=27)</td>
<td>$530,081 (range $7,200 - $28,765)</td>
</tr>
<tr>
<td>Dollar amount (n=33)</td>
<td>$230,024 (range $3,124 - $10,000)</td>
</tr>
<tr>
<td>Copay card (n=1)</td>
<td>$10,000</td>
</tr>
<tr>
<td>Total</td>
<td>$2,961,652</td>
</tr>
</tbody>
</table>

Average cost savings $20,425 per patient

Yezefski T and Shankaran V. Seminars in Oncology. In press
Financial Literacy and Navigation Program

3 phases

Phase 1: Stakeholder engagement

Phase 2: Program development and pilot testing

Phase 3: Intervention – randomized study
We conducted a series of qualitative interviews to understand:

- Financial experiences during treatment
- Perspectives on communicating about costs
- Interest level in a financial literacy course
# Phase 1: Patient Engagement

<table>
<thead>
<tr>
<th></th>
<th>Before Dx (n=21)</th>
<th>After Dx (n=21)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Employment</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Employed</td>
<td>18 (86%)</td>
<td>5 (24%)</td>
</tr>
<tr>
<td>Unemployed</td>
<td>1 (5%)</td>
<td>1 (5%)</td>
</tr>
<tr>
<td>Disability</td>
<td>0 (0%)</td>
<td>10 (47%)</td>
</tr>
<tr>
<td>Retired</td>
<td>2 (9%)</td>
<td>5 (24%)</td>
</tr>
<tr>
<td><strong>Income</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>&lt; $15,000</td>
<td>3 (14%)</td>
<td>5 (24%)</td>
</tr>
<tr>
<td>$15,000 - $25,000</td>
<td>0 (0%)</td>
<td>3 (14%)</td>
</tr>
<tr>
<td>$25,001 - $50,000</td>
<td>5 (24%)</td>
<td>3 (14%)</td>
</tr>
<tr>
<td>$50,001 - $75,000</td>
<td>2 (10%)</td>
<td>1 (5%)</td>
</tr>
<tr>
<td>$75,001 - $100,000</td>
<td>2 (10%)</td>
<td>4 (19%)</td>
</tr>
<tr>
<td>&gt; $100,000</td>
<td>9 (42%)</td>
<td>5 (24%)</td>
</tr>
</tbody>
</table>

Shankaran, V et al.  *AJMC*. March 2017
**Phase 1: Patient Engagement**

<table>
<thead>
<tr>
<th>Post – Diagnosis Financial Issue</th>
<th>N=21</th>
</tr>
</thead>
<tbody>
<tr>
<td>Refinanced or sold home</td>
<td>2 (10%)</td>
</tr>
<tr>
<td>Sold second home</td>
<td>3 (14%)</td>
</tr>
<tr>
<td>Used retirement/savings</td>
<td>8 (38%)</td>
</tr>
<tr>
<td>Loans from friends or family</td>
<td>11 (52%)</td>
</tr>
<tr>
<td>Debt</td>
<td>9 (43%) (mean $29,857)</td>
</tr>
<tr>
<td>Refusing/skipping medication due to cost</td>
<td>7 (33%)</td>
</tr>
<tr>
<td>At least one of the above</td>
<td>16 (76%)</td>
</tr>
</tbody>
</table>

Shankaran, V et al. AJMC. March 2017
## Phase 1: Patient Engagement

<table>
<thead>
<tr>
<th>Communication about Costs</th>
<th>Count (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussed costs with provider</td>
<td>12 (57%)</td>
</tr>
<tr>
<td>Sought outside advice about finances</td>
<td>8 (38%)</td>
</tr>
<tr>
<td>Had prior knowledge about treatment costs</td>
<td>2 (10%)</td>
</tr>
<tr>
<td>MDs should discuss costs of treatment when prescribing</td>
<td>11 (52%)</td>
</tr>
</tbody>
</table>

Shankaran, V et al. *AJMC*. March 2017
Phase 1: Patient Engagement

• ‘Since there is no money and no way to afford the chemotherapy, it is too overwhelming to discuss costs.’
• ‘My wellbeing takes precedence, so whatever sacrifices would have to be made would be made for health care.’
• ‘When your financial status is not good, it is paralyzing to know the costs in advance.’
• ‘I want to survive cancer, so I kind of don’t care how much it costs.’

• ‘I don’t want to be shirked on a full diagnosis or full treatment. I will pay the price.’
• ‘I do not think it is the doctor’s responsibility to talk about costs or provide cost information. In fact, it is better for the doctors to be unaware of costs entirely since this information may sway their recommendation’
Phase 1: Patient Engagement

• 76% of patients want a financial literacy / counseling program

• 81% thought class and counseling should be administered in person

• 76% thought the counseling should start at diagnosis and continue periodically throughout treatment

Topics of greatest interest:

• Money management

• Where to look for copayment assistance?

• How to choose and navigate an insurance plan
Phase 2: Program Development and Pilot

- Education Course
- Budget planning
- Ongoing financial counseling
- Copay Assistance
- Insurance Appeals
- Disability applications
Phase 2: Program Development and Pilot

Insurance information

• In-network vs. out-of-network care
• Annual deductible
• Annual out-of-pocket limit
• Copayments and coinsurance for:
  MD visits
  Surgery
  Hospitalization / Urgent care
  Diagnostic tests
Insurance provider: Premera Heritage Prima

Are the following in-network providers with your insurance plan?

Seattle Cancer Care Alliance (Y/N): Y
University of Washington (Y/N): Y

Annual deductible:

In-network care: $500
Out-of-network care: $500

Annual out-of-pocket limit:

In-network care: $2000
Out-of-network care: unavailable

<table>
<thead>
<tr>
<th></th>
<th>In-network</th>
<th>Out-of-network</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctor visits</td>
<td>$20</td>
<td>$20</td>
</tr>
<tr>
<td>Surgeries</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Hospital stays</td>
<td>N/A</td>
<td>N/A</td>
</tr>
<tr>
<td>Urgent care</td>
<td>$20</td>
<td>$20</td>
</tr>
<tr>
<td>Diagnostic tests</td>
<td>N/A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>In-network</th>
<th>Out-of-network</th>
</tr>
</thead>
<tbody>
<tr>
<td>Doctor visits</td>
<td>N/A</td>
<td>40%</td>
</tr>
<tr>
<td>Surgeries</td>
<td>20%</td>
<td>40%</td>
</tr>
<tr>
<td>Hospital stays</td>
<td>20%</td>
<td>40%</td>
</tr>
<tr>
<td>Urgent care</td>
<td>N/A</td>
<td>40%</td>
</tr>
<tr>
<td>Diagnostic tests</td>
<td>N/A</td>
<td>40%</td>
</tr>
</tbody>
</table>
Pilot Feasibility Study of an Oncology Financial Navigation Program

Veena Shankaran, Tony Leahy, Jordan Steelquist, Kate Watabayashi, Hannah Linden, Scott Ramsey, Naomi Schwartz, Karma Kreizenbeck, Judy Nelson, Alan Balch, Erin Singleton, Kathleen Gallagher, and Karen Overstreet

Journal of Oncology Practice Feb 2018

Diagram:
- Patients consented to FNP (N = 34)
  - Phase 1 (live class; n = 18)
    - Completed CENTS class (n = 9)
    - CENTS coach (n = 9)
    - PAF (n = 9)
    - Withdrew/lost (n = 9)
    - Transferred care (n = 1)
    - Withdrew (n = 7)
    - Lost to follow-up (n = 1)
  - Phase 2 (video class; n = 16)
    - Watched video (n = 9)
    - PAF only (n = 2)
    - CENTS and PAF (n = 7)
    - Did not watch video (n = 7)
      - Withdrew/lost (n = 5)
      - Withdrew (n = 3)
      - Lost to follow-up (n = 2)
      - PAF only (n = 2)
Phase 2: Program Development and Pilot

Patient characteristics

• Mean age 60.2
• 60% male
• 85% white
• 60% employed / 40% retired or unemployed
• 45% household income < $50,000
• All insured – 50% commercial; 25% Medicare; 25% Medicaid

No differences between participants and pts who withdrew/lost
### Phase 2: Program Development and Pilot

#### Accrual of Debt

<table>
<thead>
<tr>
<th></th>
<th>Participants (n=20)</th>
<th>Withdrew / Lost (n=14)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>9 (45%)</td>
<td>6 (43%)</td>
</tr>
<tr>
<td>Yes</td>
<td>11 (55%)</td>
<td>8 (57%)</td>
</tr>
<tr>
<td>&lt;$25K</td>
<td>8 (73%)</td>
<td>7 (88%)</td>
</tr>
<tr>
<td>$25K-$100K</td>
<td>0</td>
<td>1 (12%)</td>
</tr>
<tr>
<td>$100K+</td>
<td>2 (18%)</td>
<td>0</td>
</tr>
</tbody>
</table>

#### Income Decrease

<table>
<thead>
<tr>
<th></th>
<th>Participants (n=20)</th>
<th>Withdrew / Lost (n=14)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>9 (45%)</td>
<td>9 (64%)</td>
</tr>
<tr>
<td>Yes</td>
<td>11 (55%)</td>
<td>5 (36%)</td>
</tr>
<tr>
<td>&lt;20%</td>
<td>2 (18%)</td>
<td>0</td>
</tr>
<tr>
<td>20-50%</td>
<td>3 (27%)</td>
<td>2 (40%)</td>
</tr>
<tr>
<td>50%+</td>
<td>6 (55%)</td>
<td>3 (60%)</td>
</tr>
</tbody>
</table>

#### Loans from friends or family

<table>
<thead>
<tr>
<th></th>
<th>Participants (n=20)</th>
<th>Withdrew / Lost (n=14)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>14 (70%)</td>
<td>10 (71%)</td>
</tr>
<tr>
<td>Yes</td>
<td>6 (30%)</td>
<td>4 (29%)</td>
</tr>
</tbody>
</table>

#### Coverage denial

<table>
<thead>
<tr>
<th></th>
<th>Participants (n=20)</th>
<th>Withdrew / Lost (n=14)</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>13 (65%)</td>
<td>12 (86%)</td>
</tr>
<tr>
<td>Yes</td>
<td>7 (35%)</td>
<td>2 (14%)</td>
</tr>
</tbody>
</table>
Phase 2: Program Development and Pilot

High Financial Burden (4 or 5 on Likert Scale) = 37% of participants

High Anxiety about Treatment Costs (4 or 5 on Likert Scale) = 47% of participants (33% reported decrease in anxiety)

Patients reporting high satisfaction (4 or 5) with:
- Literacy course = 73%
- CENTS counselors = 80%
- PAF Navigators = 91%
Phase 2: Program Development and Pilot

Most common interventions on behalf of patients:

**CENTS:**
- Budget planning
- Retirement planning
- Medical bill questions

**PAF:**
- Copayment assistance
- Cost of living issues
- Employment rights and disability applications
Phase 3: Financial Navigation Randomized Study

Hypothesis:
Proactive financial counseling and access to financial assistance resources in patients and caregivers with newly diagnosed cancer will:

• Decrease risk of household financial hardship
• Improve clinical outcomes (QOL, subjective financial distress)
• Improve caregiver outcomes (QOL, subjective financial distress)
• Improve bereaved caregiver financial status
Phase 3: Financial Navigation Randomized Study

Key outcomes

1) Household financial hardship

2) Patient
   - Financial distress
   - QOL
   - Health utilization
   - Adherence

3) Caregiver
   - QOL
   - Financial distress
   - Bereavement
Questions

Is this a scalable solution?

Who will pay for financial navigation services?

Will this actually do anything to bend the cost curve?
#3 Eliminate Low Value Prescribing Practices

$765 Billion in 2009
1. Don’t use cancer-directed therapy for solid tumor patients with the following characteristics: low performance status (3 or 4), no benefit from prior evidence-based interventions, not eligible for a clinical trial, and no strong evidence supporting the clinical value of further anti-cancer treatment.

2. Don’t perform PET, CT, and radionuclide bone scans in the staging of early prostate cancer at low risk for metastasis.

3. Don’t perform surveillance testing (biomarkers) or imaging (PET, CT, and radionuclide bone scans) for asymptomatic individuals who have been treated for breast cancer with curative intent.

4. Don’t use white cell stimulating factors for primary prevention of febrile neutropenia for patients with less than 20 percent risk for this complication.
5. Don’t give patients starting on a chemotherapy regimen that has a low or moderate risk of causing nausea and vomiting antiemetic drugs intended for use with a regimen that has a high risk of causing nausea and vomiting.

6. Don’t use combination chemotherapy (multiple drugs) instead of chemotherapy with one drug when treating an individual for metastatic breast cancer unless the patient needs a rapid response to relieve tumor-related symptoms.

7. Avoid using PET or PET-CT scanning as part of routine follow-up care to monitor for a cancer recurrence in asymptomatic patients who have finished initial treatment to eliminate the cancer unless there is high-level evidence that such imaging will change the outcome.

8. Don’t perform PSA testing for prostate cancer screening in men with no symptoms of the disease when they are expected to live less than 10 years.

9. Don’t use a targeted therapy intended for use against a specific genetic aberration unless a patient’s tumor cells have a specific biomarker that predicts an effective response to the targeted therapy.
Identifying Low Value Care and Associated Costs

Available free download:
What’s in the report

Quality Measures

Recommended Treatment
• Breast, Colorectal, and Lung Cancer
• Breast Cancer

Hospitalization During Chemotherapy

Follow-up Testing after
• Breast, Colon, and Lung Cancer Treatment
• Breast Cancer Treatment

End of Life Care

Cost of Episodes of Care

Treatment period

6 months after first chemotherapy

13 months after last treatment

Last 30 days of life
1A: Recommended Treatment

1B: Recommended Treatment (Breast)

2: Chemo Hospitalization

3A: Follow-Up Imaging

3B: Follow-Up Testing (Breast)

4: End of Life
Low variation in quality
High variation in cost

1A: Recommended Treatment

1B: Recommended Treatment (Breast)

2: Chemo Hospitalization

3A: Follow-Up Imaging

3B: Follow-Up Testing (Breast)

4: End of Life

Low variation in quality
High variation in cost
1A: Recommended Treatment

1B: Recommended Treatment (Breast)

2: Chemo Hospitalization

3A: Follow-Up Imaging

3B: Follow-Up Testing (Breast)

4: End of Life

High variation quality and cost
## Cost of Low Value Care

<table>
<thead>
<tr>
<th>Category</th>
<th>Mean Per Patient Episode Cost (Regional Average)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitalization during chemotherapy</td>
<td>$51,561</td>
</tr>
<tr>
<td>Non-recommended advanced imaging after early stage breast, lung, colon cancer treatment</td>
<td>$17,661</td>
</tr>
<tr>
<td>FU marker testing after breast cancer treatment</td>
<td>$13,978</td>
</tr>
<tr>
<td>End of life care</td>
<td>$14,494</td>
</tr>
</tbody>
</table>
Summary

• HICOR goal – study financial toxicity in the community and develop strategies to address the individual patient and family (and societal) economic burden of cancer care

• Transparency and understanding variation in care and cost in the region is important

• Understanding financial burden and implementing strategies to counsel and improve access to care is critical
Acknowledgements

HICOR
• Scott Ramsey
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• Gabi Chiorean
• Andrew Coveler
• Bill Harris
• Stacey Cohen
• Kit Wong
• Marcus Neubauer

CENTS
• Judge Karen Overstreet
• Tony Leahy

SWOG
• Dawn Hershman
• Joe Unger
Acknowledgements

Conquer Cancer Foundation
- 2013 CDA
- 2009 YIA

SWOG Hope Foundation
- 2012 Charles Coltman Jr. Fellowship

Breast SPORE / Safeway Foundation
- 2014 Pilot Award

FHCRC Cancer Center Support Grant
THANK YOU
#4 Improve Cost Transparency
Communication – ‘Cost Transparency’

• Lack of previous knowledge about out-of-pocket costs for drugs

• Anticipating out-of-pocket costs important for:
  – Treatment decision
  – Financial planning

• Less costly alternatives may be available

• Requires educational and support tools for patients and physicians
Communication – ‘Cost Transparency’

Table 2  Triple-Drug First-Line Systemic Chemotherapy Options for Metastatic Gastric Cancer in the NCCN Guidelines

<table>
<thead>
<tr>
<th>Initial Regimen and Study</th>
<th>Regimen and Dosing Schedule( ^a )</th>
<th>Median OS, (m)</th>
<th>Medicare Reimbursement 1 Cycle( ^b )</th>
<th>Medicare Reimbursement 6 mo( ^b )</th>
</tr>
</thead>
<tbody>
<tr>
<td>DCF( ^{22} )</td>
<td>Every 28 days:</td>
<td>9.2</td>
<td>$1534.43</td>
<td>$9206.56</td>
</tr>
<tr>
<td></td>
<td>Docetaxel, 75 mg/m(^2) IV, day 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cisplatin, 75 mg/m(^2) IV, day 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5-FU, 1000 mg/m(^2)/day CIV, days 1–5</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECF( ^{22} )</td>
<td>Every 21 days:</td>
<td>9.9</td>
<td>$104.98</td>
<td>$839.84</td>
</tr>
<tr>
<td></td>
<td>Epirubicin, 50 mg/m(^2) IV, day 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cisplatin, 60 mg/m(^2) IV, day 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5-FU, 200 mg/m(^2)/day CIV, days 1–21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>ECX( ^{22} )</td>
<td>Every 21 days:</td>
<td>9.9</td>
<td>$2269.06</td>
<td>$18,152.51</td>
</tr>
<tr>
<td></td>
<td>Epirubicin, 50 mg/m(^2) IV, day 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Cisplatin, 60 mg/m(^2) IV, day 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Capecitabine, 625 mg/m(^2) PO bid, days 1–21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EOF( ^{22} )</td>
<td>Every 21 days:</td>
<td>9.3</td>
<td>$4420.67</td>
<td>$35,365.32</td>
</tr>
<tr>
<td></td>
<td>Epirubicin, 50 mg/m(^2) IV, day 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oxaliplatin, 130 mg/m(^2) IV, day 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>5-FU, 200 mg/m(^2) CIV, days 1–21</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EOX( ^{22} )</td>
<td>Every 21 days:</td>
<td>11.2</td>
<td>$7184.75</td>
<td>$57,478.03</td>
</tr>
<tr>
<td></td>
<td>Epirubicin, 50 mg/m(^2) IV, day 1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Oxaliplatin, 130 mg/m(^2) IV, day 1</td>
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<td></td>
<td>Capecitabine, 625 mg/m(^2) PO bid, days 1–21</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Ramsey and Shankaran.  JNCCN.  10(8): 2012
Cost Transparency in Advanced Cancer

C

Percentage Willing to Pay High vs. Low Copayments

Median survival in months, compared to base case of 10 months

Lower WTP  Higher WTP

p < .005

Wong, YN.  The Oncologist.  15, 2010.
#5 Value Based Pricing and Formulary
Value-Based Formulary

Cost sharing for medical services and providers are the same for...

High value services:
- Strong evidence base
- Enhance clinical outcomes
- Increase efficiency

Low value services:
- Weak evidence base
- Minimal or no clinical benefit
- Increase inefficiency

...despite evidence-based differences in value.
### Value-Based Formulary – Premera Pilot

**Premera VBF pilot pre/post analysis (2006-2013)**

Cost savings to health plan member per month:
- $5 diabetes
- $4 hypertension
- $0 hyperlipidemia

No difference in adherence

<table>
<thead>
<tr>
<th>Condition</th>
<th>Factual Estimate</th>
<th>Counterfactual Estimate</th>
<th>Absolute Change</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Diabetes</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Member (95% CI)</td>
<td>3 [2-4]</td>
<td>8 (7-9)</td>
<td>-5 [-6 to -4]</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Health plan (95% CI)</td>
<td>26 [21-30]</td>
<td>30 (21-38)</td>
<td>-4 [-11 to 3]</td>
<td>.282</td>
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<tr>
<td>Total (95% CI)</td>
<td>29 [23-34]</td>
<td>38 (28-47)</td>
<td>-9 [-17 to -1]</td>
<td>.032</td>
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<tr>
<td><strong>Hypertension</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Member (95% CI)</td>
<td>4 [3-5]</td>
<td>8 (7-9)</td>
<td>-4 [-5 to -3]</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Health plan (95% CI)</td>
<td>12 [11-13]</td>
<td>10 (8-11)</td>
<td>3 [1 to 4]</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Total (95% CI)</td>
<td>16 [15-18]</td>
<td>17 (16-19)</td>
<td>-1 [-3 to 0]</td>
<td>.118</td>
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<tr>
<td><strong>Hyperlipidemia</strong></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Member (95% CI)</td>
<td>7 [6-9]</td>
<td>8 (7-9)</td>
<td>0 [-2 to 1]</td>
<td>.471</td>
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<tr>
<td>Health plan (95% CI)</td>
<td>32 [29-36]</td>
<td>35 (32-39)</td>
<td>-3 [-6 to 0]</td>
<td>.085</td>
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<tr>
<td>Total (95% CI)</td>
<td>40 [35-44]</td>
<td>43 (39-47)</td>
<td>-3 [-7 to 1]</td>
<td>.108</td>
</tr>
</tbody>
</table>
Performance-Based Risk Sharing Agreement

• **Performance-based risk sharing arrangements:** Arrangements between a payer and a pharmaceutical manufacturer where the price or level of reimbursement is related to the actual future performance of the product in clinical practice.

• **Performance-linked reimbursements:** Reimbursement level for covered products is tied, by formula, to the measure of clinical outcomes in clinical practice.

• **Financial/utilization arrangements:** Defined as arrangements where the reimbursement is tied to the measure of financial or utilization outcomes.

• **Manufacturer funded treatment initiation:** Initial period of treatment is funded in whole or in part by the manufacturer.