Oncology Landscape: Current State and Future Trends

Tim Remus, PhD
Senior Consulting Director, Oncology
Managing the Rising Cost of Care

Oncology Trends and Growth Opportunities

Building an Oncology System of CARE
Section Overview: Managing Costs

Key Questions:

- Are payment reform initiatives having an impact on cancer services?
- Where are the best opportunities to reduce cancer costs?
Alternative Payment Methodologies in Cancer Attempt to Control Costs in Different Ways

**Cancer Spend Anatomy**

**Oncology ACOs:**
Lower cost and improve quality through aligned incentives
- Moffitt
- Florida Blue

**Radiation Oncology**
Standardize radiation delivery/payment
- 21st Century and Humana
- Pinnacle Health and Highmark
- Valley Radiotherapy Associates and Anthem (CA)

**Chemotherapy**
Remove incentives to use high-cost therapies
- United Healthcare chemo bundle

**Episode Payment**
Lower total costs by better management
- Oncology Care Model
- MDAnderson/United
- Moffitt/United

**Oncology Medical Home**
Lower IP and ER Admissions (IP Other) by coordinating care
- Aetna
- Come Home
The Emergency Department Is the Primary Access Point for Medical Admissions

~20% of hospitalizations for GI cancer patients were avoidable.

The Emergency Department Is the Primary Access Point for Medical Admissions

**Total IP Admissions**

- Surgical
- Medical

**IP Admissions Through the ED**

- Surgical
- Medical

**53%**
Patients who visited the ED within 30 days of treatment

**13%**
ED patients that were admitted to the hospital

Many Options Exist to Provide More Convenient, Less Costly Care

URGENT CANCER CARE

LITTLE EFFORT

Patient Navigators
Nurse Triage Line

A LOT OF EFFORT

Oncology Medical Home
Extended Hours Oncology Clinic

24/7 Infusion
Direct Referral Center

Cancer-Specific ED
Align Internal Capabilities With Demand When Deciding What Model Is Right for You

LITTLE EFFORT

Nurse Triage

Building Block of the Oncology Medical Home

Results
- Increase clinic visits within 24 hours and lower ED utilization
- Reduce hospital admissions
- Lower costs

Institution
- Applicable for most institutions
- Requires variable investment

A LOT OF EFFORT

Extended Clinic Hours

Barnes-Jewish Hospital and Washington University

Results
- Only 10% of patients treated in the clinic were admitted

Institution
- Suitable for larger institutions with program champion
- Requires capital, staff and patient volumes to sustain operations

Cancer Emergency Department

The Ohio State University

Results
- Labor and resource intensive
- Utilize the EHR to alert staff the cancer patient is coming

Institution
- Treat large cancer population
- Have overcrowding in the ED
- Streamline approach for managing cancer patients

Sources: Sg2 Interviews, 2016; Sprandio JD. J Oncol Pract. 2012;8(suppl):s47–49s; James Cancer Hospital and Solove Research Institute at Ohio State University website. Accessed May 2016.
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To Be Successful Under Payment Reform, Focus on High-Impact Areas for Cost Control

- **UTILIZE LOWER COST SETTINGS**: Chemotherapy cost for colorectal cancer was >50% higher in the hospital vs physician’s office.

- **IMPLEMENT PATHWAYS**: Pathway adherence reduced OP costs by 35% without affecting survival.

- **REDUCE HOSPITAL ADMISSIONS**: ~20% of hospitalizations for GI cancer patients were avoidable.

- **AVOID UNNECESSARY SERVICES**: 34% reduction achieved in total cost of cancer care via fewer hospitalizations, diagnostic radiology and imaging services.

Agenda

Managing the Rising Cost of Care

Oncology Trends and Growth Opportunities

The Oncology System of CARE
Section Overview: Oncology Trends

Key Questions:

- Where are the **inpatient** and **outpatient growth** opportunities?
- How are organizations applying **genetics** and **precision medicine** to cancer treatment?
Sg2 Impact of Change: Understanding Impact Factors

**Impact Factors**
- Population
- Epidemiology
- Economics
- Policy
- Innovation & Technology
- Systems of CARE
- Potentially Avoidable Admissions
- 30-Day Readmissions

**Forecast**

**Inpatient Growth**
- Forecast to decrease by -3%

**Outpatient Growth**
- Forecast to increase by +16%

**Note:** Forecast excludes the 0–17 age group. CARE = Clinical Alignment and Resource Effectiveness.

**Sources:** Impact of Change® v16.0; HCUP National Inpatient Sample (NIS), Healthcare Cost and Utilization Project (HCUP), 2013. Agency for Healthcare Research and Quality, Rockville, MD; OptumInsight, 2014; The following 2014 CMS Limited Data Sets (LDS): Carrier, Denominator, Home Health Agency, Hospice, Outpatient, Skilled Nursing Facility; The Nielsen Company, LLC, 2016; Sg2 Analysis, 2017.

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Inpatient Cancer Discharges Decline; Growth Opportunities Lie In Surgical Procedures

Cancer Inpatient Forecast
US Market, 2017–2027

5-year Inpatient Cancer Discharges by Tumor Type, 2017–2022

Note: Analysis excludes 0–17 age group.
Sources: Impact of Change® 2017; HCUP National Inpatient Sample (NIS); Healthcare Cost and Utilization Project (HCUP) 2014. Agency for Healthcare Research and Quality, Rockville, MD; OptumInsight, 2015; The following 2015 CMS Limited Data Sets (LDS): Carrier, Denominator, Home Health Agency, Hospice, Outpatient, Skilled Nursing Facility; Claritas Pop-Facts® 2017; Sg2 Analysis, 2017.
Changing Chemo and Radiation Therapy Delivery Methods Soften Overall Outpatient Demand

**Cancer Outpatient Forecast**
US Market, 2017–2027

**5-year Outpatient Growth by Procedure**
2017–2022

<table>
<thead>
<tr>
<th>Procedure</th>
<th>5-Year</th>
<th>10-Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Visits</td>
<td>-10%</td>
<td>-10%</td>
</tr>
<tr>
<td>Radiation Therapy</td>
<td>7%</td>
<td>12%</td>
</tr>
<tr>
<td>Chemotherapy</td>
<td>11%</td>
<td>11%</td>
</tr>
<tr>
<td>Major Procedures</td>
<td>12%</td>
<td>10%</td>
</tr>
<tr>
<td>Advanced Imaging</td>
<td>13%</td>
<td>11%</td>
</tr>
</tbody>
</table>

**Note:** Analysis excludes 0–17 age group. Advanced imaging includes positron emission tomography, CT and MRI. Visits includes E&M visits. **Sources:** Impact of Change® 2017; HCUP National Inpatient Sample (NIS). Healthcare Cost and Utilization Project (HCUP) 2014. Agency for Healthcare Research and Quality, Rockville, MD; Sg2 Analysis, 2017.
Overall Chemotherapy Forecast Softens; Targeted Therapies and Innovation Drive Early Growth

**Oral Chemotherapy**
- Robust drug pipeline.
- Barriers to adoption include potential revenue loss, higher costs to patients, and patient adherence.

**Immunotherapy**
- Estimated to treat more than 50% of cancers by 2026.
- Growth in melanoma, lung, bladder, and rectal cancers.

**Future Demand**
- Balance infused versus oral therapies, impact of targeted and immunotherapies, and changing practice patterns at EOL.

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**Outpatient Infused Chemotherapy Forecast**

**US Market, 2017–2027**

<table>
<thead>
<tr>
<th>Volumes</th>
<th>5-Year</th>
<th>10-Year</th>
</tr>
</thead>
<tbody>
<tr>
<td>Millions</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>11</td>
<td></td>
</tr>
<tr>
<td>2022</td>
<td></td>
<td>+11%</td>
</tr>
<tr>
<td>2027</td>
<td></td>
<td>+19%</td>
</tr>
</tbody>
</table>

- +11%
- +15%
- +19%

New Radiation Treatments Favor Fewer Treatments per Patient

<table>
<thead>
<tr>
<th>Treatment Sessions per Patient</th>
<th>Dose per Treatment Session</th>
</tr>
</thead>
<tbody>
<tr>
<td>Conventional Therapy</td>
<td>Hypofractionated Therapy</td>
</tr>
<tr>
<td>25 to 40 fractions</td>
<td>10 to 16 fractions</td>
</tr>
<tr>
<td>6 weeks</td>
<td>3 weeks</td>
</tr>
<tr>
<td>SRS/ SBRT or Intraoperative</td>
<td></td>
</tr>
<tr>
<td>1 to 5 fractions</td>
<td></td>
</tr>
<tr>
<td>1 week</td>
<td></td>
</tr>
</tbody>
</table>

Notes: SRS = stereotactic radiosurgery; SBRT = stereotactic body radiation therapy. Source: Sg2 Analysis, 2012.
Demand for Radiation Oncology Varies Dramatically by Modality and Tumor Type

Growth in External Beam Radiation Therapy Treatment Fractions by Tumor Type*
Sg2 Forecast, US Market, 2017–2027

Growth Rate 3D Conformal IMRT SRS/SBRT

Key Trends in the Oncology Landscape

- **Overall growth of IP services will be relatively flat**
  Tumor-specific growth opportunities in complex surgeries (eg, lung) will be offset by reduced hospitalizations, improved care coordination, and increasing OP treatment options.

- **OP growth will continue to rise above current utilization**
  Population growth, a growing survivor population, and an increasing reliance on technology spread growth across many OP services.

- **Chemotherapy infusion volume will gradually soften over the decade**
  Oral therapies move treatment out of the clinic and the expansion of precision medicine and targeted therapies reduce the use of chemotherapy.

- **Hypofractionation will continue to soften demand for radiation therapy**
  Providers will increasingly treating patients with shorter radiation therapy courses and shift patients to stereotactic modalities (eg, SRS/SBRT).

PSA = prostate-specific antigen.
Question

What is the state of your health system’s precision medicine program?

A. We don’t have one
B. Nothing currently, but planning
C. We have one, focused only on cancer
D. We have one, focused on several service lines
E. Don’t know

Only 13% of health care organizations currently have a strategic plan for precision medicine.
Determine What Precision Medicine Means for Your Cancer Program

Cancer Pathway

<table>
<thead>
<tr>
<th>Risk Assessment</th>
<th>Screening/Diagnosis</th>
<th>Treatment Selection</th>
<th>Treatment Monitoring</th>
<th>Maintenance</th>
</tr>
</thead>
</table>

PRECISION MEDICINE

MOLECULAR TUMOR BOARD

Basic

Intermediate

Comprehensive

CANCER PROGRAM COMPONENTS

- Whole genome sequencing
- Environmental assessments
- Predictive analytics
- Risk stratification
- Genetic mutation tests
- Biomarker identification
- Multigene mutation panel
- Big data and analytics
- Companion diagnostic tests
- Targeted therapies
- Molecular tumor board
- Pharmacogenomics
- Biobanks
- Liquid biopsy tests
- Molecular tumor board
- Advanced imaging
- Big data and analytics

In-house/Outsource

Outsource/Partnership
Molecular Tumor Boards Borrow From the Established Process of Multidisciplinary Review
Agenda

Managing the Rising Cost of Care

Oncology Trends and Growth Opportunities

The Oncology System of CARE
## Treatments Are Evolving In All Dimensions And Impacting Care Delivery

<table>
<thead>
<tr>
<th>RADIATION THERAPY</th>
<th>SURGICAL OPTIONS</th>
<th>CHEMOTHERAPY/ IMMUNOTHERAPY</th>
<th>MULTIDISCIPLINARY CARE</th>
<th>SURVIVORSHIP</th>
</tr>
</thead>
<tbody>
<tr>
<td>LINAC-based, IGRT, and proton; hypofractionation softens volume</td>
<td>OP shift continues, Do IP opportunities remain?</td>
<td>Infusion, oral, and subcutaneous therapies shift site of care</td>
<td>Virtual or in-person; organ-based and molecular tumor boards</td>
<td>Growing population and emphasis, but a gap in staffing and coordination</td>
</tr>
</tbody>
</table>
Patient Journey Becomes Far More Complex After Treatment

- MDC Conference
  - Consultation
  - Treatment plan

- Screening Centers
  - Screening mammography

- Infusion Suite
  - Neoadjuvant chemo
  - Adjuvant chemo

- Inpatient Management
  - Surgery
  - Complication management

- Rad/Onc Center
  - External beam radiation therapy
  - Brachytherapy

- Imaging and Diagnostic Center
  - Diagnostic imaging
  - Biopsy/pathology
  - Surveillance imaging
  - Genetic testing

- Survivorship (Virtual)
  - Care plan
  - PCP follow-up
  - Support services (e.g., sexual health, nutrition)

- Home
  - Pain management
  - Hospice

- Rad/Onc Center
  - External beam radiation therapy
  - Brachytherapy
Nurse Navigation Is Playing an Increasing Role in Cancer Care Delivery

Navigation can enhance patient experience and improve clinical and financial performance.

- **Educates** patients about their care and treatment options
- Connects patients to **support services** and internal and external **resources**
- Streamlines communication between **providers** and among **providers and caregivers**
- **Lowers utilization of high-cost services** and **delays in care**
- Better equips programs to meet **payment reform models** that have built-in **care coordination** components (eg, Oncology Care Model)

- Over 90% of NCI designated comprehensive cancer centers have nurse navigators with the remaining centers offering patient navigators
- In its 2016 survey, the Association of Community Cancer Centers found that 64% of programs have added nurse navigators to their staff over the last year.

**Sources:** Association of Community Cancer Centers. 2016 Trends in Cancer Program Survey; Sg2 Analysis, 2017.
Deliberate Selection and Use of Metrics Provides Foundation for Evaluating Program Value

<table>
<thead>
<tr>
<th>Category</th>
<th>Example Metrics</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Patient Experience</strong></td>
<td>• Outcomes/interventions related to barriers to care</td>
</tr>
<tr>
<td></td>
<td>• <strong>Patient experience survey</strong></td>
</tr>
<tr>
<td></td>
<td>• Distribution of patient education materials</td>
</tr>
<tr>
<td></td>
<td>• Quality of life surveys post treatment</td>
</tr>
<tr>
<td><strong>Clinical Outcomes</strong></td>
<td>• <strong>Time of diagnosis to initiation of first treatment</strong></td>
</tr>
<tr>
<td></td>
<td>• <strong>Patient adherence to treatment regimen</strong></td>
</tr>
<tr>
<td></td>
<td>• % of patients discussed in a multidisciplinary conference</td>
</tr>
<tr>
<td></td>
<td>• % of patients receiving survivorship care plans</td>
</tr>
<tr>
<td><strong>Business Performance</strong></td>
<td>• Reduction in ED visits, inpatient or ICU admissions</td>
</tr>
<tr>
<td></td>
<td>• % of patient retention or outmigration</td>
</tr>
<tr>
<td></td>
<td>• % of no-shows for appointments</td>
</tr>
<tr>
<td></td>
<td>• # of referrals for revenue generating services</td>
</tr>
<tr>
<td></td>
<td>• Downstream revenue for imaging, testing and procedures</td>
</tr>
</tbody>
</table>

Patient Care Connect Program, UAB Health System Cancer Community Network, Southeastern US

STUDY DESIGN
• Compared records of ~12,400 Medicare beneficiaries, half of whom received navigation services

PROGRAM STRUCTURE
• Services offered in 12 community centers in 5 states
• Lay navigators support patients across the continuum of care
• Target high-risk, high-cost patients with average caseload of 152 patients per quarter
• Provide insight on treatment options, emotional support and access to services

RESULTS
• $781 reduction in costs per quarter per navigated patient
• Estimated $19 million in savings across network
• Lowered ED use by 6%, hospitalizations by 8% and ICU admissions by 11% per quarter
• Estimated return on investment of 1:10

### Build a Differentiated Cancer Program That Is Indispensable to Patients and Payers

<table>
<thead>
<tr>
<th>Differentiator</th>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Access</strong></td>
<td>• Same-day and next-day appointments</td>
</tr>
<tr>
<td></td>
<td>• Online scheduling</td>
</tr>
<tr>
<td><strong>Service</strong></td>
<td>• Immediate imaging reads</td>
</tr>
<tr>
<td></td>
<td>• Culture dedicated to patient satisfaction</td>
</tr>
<tr>
<td><strong>Technology</strong></td>
<td>• Imaging and pathology that get to the right diagnosis</td>
</tr>
<tr>
<td></td>
<td>• Access to full range of treatment options</td>
</tr>
<tr>
<td><strong>Coordination/Navigation</strong></td>
<td>• Multidisciplinary collaboration in treatment plan development</td>
</tr>
<tr>
<td></td>
<td>• Seamless connections between specialists</td>
</tr>
<tr>
<td></td>
<td>• Integration with primary care</td>
</tr>
<tr>
<td><strong>Quality</strong></td>
<td>• Documented adherence to evidence-based pathways</td>
</tr>
<tr>
<td></td>
<td>• Achieving specific quality goals</td>
</tr>
<tr>
<td><strong>Cost</strong></td>
<td>• Reductions in unnecessary utilization</td>
</tr>
<tr>
<td></td>
<td>• Alignment of treatment course with end-of-life goals</td>
</tr>
</tbody>
</table>

**Source:** Sg2 Analysis, 2013.

IT = information technology; EHR = electronic health record; HCAHPS = Hospital Consumer Assessment of Healthcare Providers and Systems; mgmt = management.
# Rising Costs and Diminishing Access

### Incentivize Value-Based Cancer Care

- Value-based care reduces practice variation and costs
- Payment models are shifting to episode-based care
- Cost reduction begins with high-impact areas

# Growth Opportunities and Challenges

- Inpatient growth is flat, opportunities in complex surgery
- Outpatient demand is driven by population and survivorship
- Radiation and chemotherapy demand is softening

# Differentiation Requires Treating Cancer Across the System of CARE

- Evaluate the opportunity for each tumor programs
- Focus on care coordination and personalized services
- Enhanced patient experience sets a program apart
Questions