National Hospital Outpatient Benchmark Study (NHOBS)

January 22 and 23, 2014
Webinars

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Elaine Kloos, RN, NE-BC, MBA
Teri U. Guidi, MBA, FAAMA

Teri U. Guidi is the President and CEO of Oncology Management Consulting Group based in Bucks County, PA. With decades of experience in oncology management, OMC Group is expert in the areas of strategic planning, reimbursement, program development, and market assessment. OMC experts have assisted countless health networks, hospitals, private practices, and many pharmaceutical/biotech firms. Recent projects include strategic and business planning, joint venture development, hospital/physician alignment, educational programs, comprehensive revenue cycle reviews and program assessments.

Prior to establishing OMC Group in 2001, Ms. Guidi held positions at institutions ranging from NCI-designated comprehensive cancer centers to large teaching hospitals in integrated health systems to small community hospitals. She has served as Executive Director and System Vice President of cancer service lines, and as Vice President of health system-owned medical oncology, gynecologic oncology and surgical oncology practices.
Elaine Kloos, RN, NE-BC, MBA

Elaine Kloos is Senior Consultant with Oncology Management Consulting Group and brings over 25 years of experience in the healthcare field and her oncology experience includes radiation oncology, chemotherapy infusion, medical and GYN oncology physician practices, comprehensive breast centers, high-risk breast cancer and high-risk colon cancer programs, clinical research, community outreach, and cancer registry. As a Registered Nurse, Ms. Kloos adds significant clinical expertise to the OMC Group and is very well versed in clinical operations, reimbursement, radiation oncology equipment selection, new program development and numerous accreditation processes including ACR and ACRO. She has served as a Cancer Service Line Director and Vice President for numerous healthcare systems and community based hospitals.

Ms. Kloos is board certified as a Nurse Executive by the American Nurses’ Association. She is active in multiple national organizations including the Association of Cancer Executives, the Oncology Nursing Society and the Association of Community Cancer Centers. Ms. Kloos received her Nursing Degree from the University of Tennessee, a Bachelor of Science degree in Healthcare Administration from Auburn University and a Master’s Degree in Business Administration from Louisiana State University.
Agenda

- Introduction
- Methodology
- Infusion Benchmarks
- Radiation Benchmarks
- Question and Answer
Introduction

• In response to the recurring requests on list serves, from colleagues and from clients, OMC Group solicited volunteers to contribute data for a pilot analysis of productivity in hospital-based infusion and radiation centers.
The Data

- 32 infusion centers
- 19 radiation departments
- All billed services for any patient that had activity in the infusion/radiation department
- Unique patient id
- Date of service and diagnosis
- CPT/HCPCS code and billed units
- Tumor registry report
- Program data
Program Data

• Hours of operation
• Budgeted FTE’s
• Equipment (chairs, linacs, etc.)
• Physicians
Caveats

• All centers are coding and billing services correctly
• All centers code chief complaint in one of the first 3 ICD-9 positions
• All centers interpreted survey questions consistently
• Some patients may be counted more than once in disease-specific data (different diagnosis at different encounters)
• No adjustments for outliers have been made this year.
Infusion Benchmarks
Encounter and Patient Definitions

- Patient: one unique identifier
- Encounter: one patient/one date of service
## Infusion Profiles: Encounters and Patients

### Small = <3500 encounters

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<th>INFUSION PATIENTS</th>
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### Medium = 3500-5500 encounters

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<td>15,544</td>
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### Large = >5500 encounters

In the same format as above, listing the HID, SIZE, ACAD/COMM, INFUSION ENCOUNTERS, and INFUSION PATIENTS for patients with more than 5500 encounters.
Total Infusion Encounters

Infusion Encounters - Small Centers

Infusion Encounters - Medium Centers

Infusion Encounters - Large Centers

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Assignment of Diagnosis

• First of 3 diagnosis codes
  – 140-249.99, 285.22, 288.1, 787.01-03, 790.6, C71.9, V58.0, V58.1, V58.11-12
  – All else “Non Oncology”
Percent Non Oncology Patients

% NonOncology - Small Centers

% NonOncology - Medium Centers

% NonOncology - Large Centers
Infusion Patients vs. Registry Patients

% Infusion vs. Registry -- Breast

% Infusion vs. Registry -- Colorectal

Small Centers
Medium Centers
Large Centers
Infusion Patients vs. Registry Patients

% Infusion vs. Registry -- Prostate

% Infusion vs. Registry -- Lung

Small Centers

Medium Centers

Large Centers

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Infusion Hours Defined

- Each procedure code assigned time based on the code definition
- Bone marrow aspiration/biopsy, Other infusion (incl. therapeutic phlebotomy), all blood products at 1 hour
- Vaccines at 10 minutes
- Injections/Push at 15 minutes
- Start prolonged infusion at 30 minutes
Average Infusion Hours/Encounter

Infusion Hrs: All Sites - All Centers
Average Infusion Hours/Encounter

Infusion Hrs: All Sites - Small Centers

Infusion Hrs: All Sites - Medium Centers

Infusion Hrs: All Sites - Large Centers
Average Infusion Hours/Breast Patient

Infusion Hrs: Breast - All Centers
Average Infusion Hours/Breast Patient

Infusion Hrs: Breast - Small Centers

Infusion Hrs: Breast - Medium Centers

Infusion Hrs: Breast - Large Centers
Average Infusion Hours/Colorectal Patient

Infusion Hrs: Colorectal - All Centers

- 0.5
- 1.0
- 1.5
- 2.0
- 2.5
- 3.0

H13 H11 H8 H6 H9 H23 H29 25th %ile H36 H17 H4 H27 Mean H31 H26 H1 50th %ile H25 ALL CENTERS H9 H37 H4 H33 H3 75th %ile H18 H7 H10 H22 H30 H15 H21 H35
Average Infusion Hours/Colorectal Patient

- Infusion Hrs: Colorectal - Small Centers
- Infusion Hrs: Colorectal - Medium Centers
- Infusion Hrs: Colorectal - Large Centers

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Average Infusion Hours/Prostate Patient

Infusion Hrs: Prostate - All Centers

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Average Infusion Hours/Prostate Patient

Infusion Hrs: Prostate - Small Centers

Infusion Hrs: Prostate - Medium Centers

Infusion Hrs: Prostate - Large Centers
Average Infusion Hours/Lung Patient

Infusion Hrs: Lung - All Centers

- 0.5
- 1.0
- 1.5
- 2.0
- 2.5
- 3.0

Average Infusion Hours/Lung Patient

Infusion Hrs: Lung - Small Centers

Infusion Hrs: Lung - Medium Centers

Infusion Hrs: Lung - Large Centers
Average Infusion Hours/NonOnc Patient

Infusion Hrs: NonOnc - All Centers
Average Infusion Hours/NonOnc Patient

Infusion Hrs: NonOnc - Small Centers

Infusion Hrs: NonOnc - Medium Centers

Infusion Hrs: NonOnc - Large Centers
Summary: Infusion Hours per Encounter

- All diseases, all centers approximately 1.5 hours per encounter
- Breast 1.5 hours/encounter
- Colorectal 2.1 hours/encounter for all centers, slightly shorter for small centers
- Prostate 1.1 hours/encounter
- Lung 1.8 hours/encounter
- Non Oncology 1.2 hours/encounter
Chairs per Infusion Nurse Defined

• Total hours of operation multiplied by the reported number of chairs

  divided by

• Total hours of reported FTE Infusion Nurses
Chairs per Infusion Nurse

Chairs/RN - Small Centers

Chairs/RN - Medium Centers

Chairs/RN - Large Centers
Encounters per Infusion Nurse

Encounters/RN - Small Centers

Encounters/RN - Medium Centers

Encounters/RN - Large Centers
Infusion Hours per Infusion Nurse

Infusion Hours/RN - Small Centers

Infusion Hours/RN - Medium Centers

Infusion Hours/RN - Large Centers
Summary: Infusion Nurses

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<tr>
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<th>Small Centers</th>
<th>Medium Centers</th>
<th>Large Centers</th>
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</thead>
<tbody>
<tr>
<td>Chairs/RN</td>
<td>3.2</td>
<td>4.3</td>
<td>3.4</td>
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<tr>
<td>Encounters/RN/year</td>
<td>438.9</td>
<td>652.7</td>
<td>628.4</td>
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<tr>
<td>Infusion hours/RN/year</td>
<td>1181.6</td>
<td>1654.3</td>
<td>1446.1</td>
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- Wide range of chairs/RN (2-5+ excluding one outlier)
- Wide variance between your center and the means may indicate the need for a review of productivity and task assignments
FTE Medical Oncologist Defined

- Total hours of reported FTE Infusion Nurses divided by

- Total hours of reported FTE Medical Oncologists (“employed” and private)
Infusion Nurses per FTE Med Onc

RN/FTE Med Onc - Small Centers

RN/FTE Med Onc - Medium Centers

RN/Med Onc - Large Centers
Encounters per FTE Med Onc

Encounters/FTE "Employed" Med Onc

Encounters/FTE "Private" Med Onc

Encounters/FTE Combined Med Oncs

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Summary: per FTE Med Onc

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<tr>
<td>RN/FTE Med Onc</td>
<td>1.4</td>
<td>1.7</td>
<td>1.8</td>
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<tr>
<td>Encounters/FTE Med Onc</td>
<td>1176.5</td>
<td>787.5</td>
<td>331.1</td>
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- Means for all sized centers
- “Private” physicians order 72% fewer infusions than “Employed” physicians
Radiation Benchmarks
Treatment Definition

• Treatment: all codes for treatment delivery
• Daily treatments
  – Count of treatment delivery codes on each date divided by count of treatment service dates
• Patient: one unique identifier
# Radiation Profiles:
**Daily Treatments and Patients**

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<td>C</td>
<td>9</td>
<td>90</td>
</tr>
<tr>
<td>H5</td>
<td>S</td>
<td>C</td>
<td>11</td>
<td>405</td>
</tr>
<tr>
<td>H23</td>
<td>S</td>
<td>C</td>
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<td>216</td>
</tr>
<tr>
<td>H37</td>
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<td>C</td>
<td>20</td>
<td>284</td>
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<tr>
<td>H33</td>
<td>S</td>
<td>C</td>
<td>22</td>
<td>326</td>
</tr>
<tr>
<td>H7</td>
<td>M</td>
<td>A</td>
<td>26</td>
<td>290</td>
</tr>
<tr>
<td>H10</td>
<td>M</td>
<td>C</td>
<td>28</td>
<td>331</td>
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Small = <25 daily treatments

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Medium = 25-50 daily treatments

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<td>35</td>
<td>625</td>
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Large = >50 daily treatments
Average Daily Treatments

Daily Treatments - Small Centers

Daily Treatments - Medium Centers

Daily Treatments - Large Centers
Radiation Patients vs. Registry Patients

% RT vs. Registry -- Breast

% RT vs. Registry -- Colorectal

Small Centers
Medium Centers
Large Centers

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Radiation Patients vs. Registry Patients

% RT vs. Registry -- Prostate

% RT vs. Registry -- Lung

Small Centers

Medium Centers

Large Centers

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IMRT/IGRT and Diagnosis Assignment

• IMRT: CPT code 77418 divided by total treatments
• IGRT: CPT code 77421 divided by total treatments
• First of 3 diagnosis codes
  – 140-249.99, 285.22, 288.1, 787.01-03, 790.6, C71.9, V58.0, V58.1, V58.11-12
## IMRT by Diagnosis

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<th>PROSTATE</th>
<th>LUNG</th>
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<td>28.5%</td>
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<td></td>
<td>46.6%</td>
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<td>5.1%</td>
<td>49.5%</td>
<td>2.3%</td>
<td>22.9%</td>
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<td>1.9%</td>
<td>48.4%</td>
<td>4.6%</td>
<td>34.2%</td>
</tr>
<tr>
<td>H27</td>
<td>0.7%</td>
<td>6.9%</td>
<td>44.2%</td>
<td>0.8%</td>
<td>28.9%</td>
</tr>
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<td>H33</td>
<td>7.2%</td>
<td>0.0%</td>
<td>10.8%</td>
<td>12.6%</td>
<td>6.7%</td>
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<tr>
<td>H36</td>
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<td>0.0%</td>
<td>71.2%</td>
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<td>28.0%</td>
</tr>
<tr>
<td>H37</td>
<td>0.0%</td>
<td>0.0%</td>
<td>24.6%</td>
<td>1.1%</td>
<td>14.7%</td>
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<td>2.5%</td>
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<td>0.0%</td>
<td>17.1%</td>
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<td></td>
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<td>H7</td>
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<td>3.1%</td>
<td>37.6%</td>
<td>9.2%</td>
<td>71.6%</td>
</tr>
<tr>
<td>H9</td>
<td>2.0%</td>
<td>0.8%</td>
<td>11.2%</td>
<td>5.4%</td>
<td>51.2%</td>
</tr>
</tbody>
</table>

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IMRT by Diagnosis

% IMRT BY DIAGNOSIS

- RESPIRATORY - LUNG, 4.3%
- GI - CR, 2.1%
- BREAST, 2.8%
- GU - PROSTATE, 27.3%

33.7% IMRT for all diagnoses
IMRT as % of Total Treatments

% IMRT - Small Centers

% IMRT - Medium Centers

% IMRT - Large Centers
IGRT as % of Total Treatments

% IGRT - Small Centers

% IGRT - Medium Centers

% IGRT - Large Centers

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Average Treatments per Patient

Treatments/Pt: All Sites - All Centers

H36, H25, H21, ALL CENTERS, H27, 25th %ile, H9, H4, Mean, H23, H33, 50th %ile, H26, H22, H37, H10, 75th %ile, H20, H1, H7, H13
Average Treatments/Breast Patient

Treatments/Pt: Breast - All Centers

[Bar chart showing treatments per patient for breast cancer across different centers, with data points labeled H36, H25, H27, H4, H3, Mean, 25th %ile, H2, 50th %ile, H22, H9, 75th %ile, H7, H0, H10, H21, H20, H1, H13.]
Average Treatments/Colorectal Patient

Treatments/Pt: Colorectal - All Centers

<table>
<thead>
<tr>
<th>Code</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>H36</td>
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<tr>
<td>H25</td>
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<td>H21</td>
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<td>H23</td>
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<td>H1</td>
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<td>H17</td>
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<td>Mean</td>
<td>5.0</td>
</tr>
<tr>
<td>H9</td>
<td>10.0</td>
</tr>
<tr>
<td>H33</td>
<td>15.0</td>
</tr>
<tr>
<td>50th%ile</td>
<td>20.0</td>
</tr>
<tr>
<td>H22</td>
<td>25.0</td>
</tr>
<tr>
<td>H10</td>
<td>30.0</td>
</tr>
<tr>
<td>75th%ile</td>
<td>30.0</td>
</tr>
<tr>
<td>H20</td>
<td></td>
</tr>
<tr>
<td>H7</td>
<td></td>
</tr>
<tr>
<td>H37</td>
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</tr>
<tr>
<td>H26</td>
<td></td>
</tr>
<tr>
<td>H13</td>
<td></td>
</tr>
</tbody>
</table>

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Average Treatments/Prostate Patient

Treatments/Pt: Prostate - All Centers
Average Treatments/Lung Patient

Treatments/Pt: Lung - All Centers

- H36
- H25
- H21
- H9
- 25th %ile
- H4
- H26
- ALL CENTERS
- H3
- H27
- 50th %ile
- H1
- Mean
- H7
- H37
- H23
- 75th %ile
- H22
- H20
- H13
- H10
FTE Staff Defined

• Total hours of operation multiplied by the reported number of linacs

  divided by

• Total hours of reported FTE staff
Therapist/Linac

Therapist/Linac - Small Centers

Therapist/Linac - Medium Centers

Therapist/Linac - Large Centers
Dosimetrist/Linac

Dosimetrist/Linac - Small Centers

Dosimetrist/Linac - Medium Centers

Dosimetrist/Linac - Large Centers
Physicist/Linac

Physicist/Linac - Small Centers

Physicist/Linac - Medium Centers

Physicist/Linac - Large Centers
Summary: Radiation Staffing/Linac

<table>
<thead>
<tr>
<th></th>
<th>Small Centers</th>
<th>Medium Centers</th>
<th>Large Centers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Therapists (tx and sim)</td>
<td>2.9</td>
<td>3.0</td>
<td>3.7</td>
</tr>
<tr>
<td>Dosimetrists</td>
<td>.78</td>
<td>.82</td>
<td>1.0</td>
</tr>
<tr>
<td>Physicists</td>
<td>.77</td>
<td>1.0</td>
<td>1.25</td>
</tr>
<tr>
<td>Rad Oncs</td>
<td>1.0</td>
<td>1.0</td>
<td>1.3</td>
</tr>
</tbody>
</table>

- Therapists include simulation staff
- Larger centers have higher ratios due to higher volumes and more extensive technologies/modalities
- Range of Rad Oncs (.5-2.0) may indicate supervision concerns
Equipment Defined

• Linac
• Gamma Knife
• Cyberknife
• “Other”

• *Data will be somewhat skewed as not all equipment runs full time during department operations*
Therapist/"Equipment"

Therapist/Equipment - Small Centers

Therapist/Equipment - Medium Centers

Therapist/Equipment - Large Centers
Dosimetrist/"Equipment"

Dosimetrist/Equipment - Small Centers

Dosimetrist/Equipment - Medium Centers

Dosimetrist/Equipment - Large Centers
Physicist/"Equipment"

Physicist/Equipment - Small Centers

Physicist/Equipment - Medium Centers

Physicist/Equipment - Large Centers
Rad Onc/”Equipment”

Rad Onc/Equipment - Small Centers

Rad Onc/Equipment - Medium Centers

Rad Onc/Equipment - Large Centers
Patients/Therapist

Patients/Therapist - Small Centers

Patients/Therapist - Medium Centers

Patients/Therapist - Large Centers
Patients/Dosimetrist

Patients/Dosimetrist - Small Centers

Patients/Dosimetrist - Medium Centers

Patients/Dosimetrist - Large Centers
Patients/Physicist

Patients/Physicist - Small Centers

Patients/Physicist - Medium Centers

Patients/Physicist - Large Centers
Patients/Rad Onc

Patients/Rad Onc - Small Centers

Patients/Rad Onc - Medium Centers

Patients/Rad Onc - Large Centers
### Summary: Annual Patients/Staffing Ratios

<table>
<thead>
<tr>
<th></th>
<th>Small Centers</th>
<th>Medium Centers</th>
<th>Large Centers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Therapists</td>
<td>77</td>
<td>86</td>
<td>122</td>
</tr>
<tr>
<td>Dosimetrists</td>
<td>355</td>
<td>328</td>
<td>454</td>
</tr>
<tr>
<td>Physicists</td>
<td>371</td>
<td>244</td>
<td>418</td>
</tr>
<tr>
<td>Rad Oncs</td>
<td>243</td>
<td>303</td>
<td>350</td>
</tr>
</tbody>
</table>
Next Year!

• Refine several of the data points for better specificity
• Adjust for outliers
• Add data for support staff:
  – Pharmacy
  – Navigators
  – Nutritionist
  – Other suggestions welcome!
• Increase to at least 100 centers
Questions

• Any questions not addressed here may be emailed to solutions@oncologymgmt.com
• OMC Group will compile questions and answers and distribute to webinar registrants
Thank You!

• Sincere thanks to all of you for joining us today. We hope that you will keep OMC Group in mind when consulting needs arise in the future.

• Financial and Market Analyses
• New Center Development
• Hospital/Physician Integration
• Strategic Planning

• Implementation and Interim Leadership
• Performance and Financial Benchmarking
• Operational Assessments
• Revenue Cycle Reviews