Melanoma Quality Reporting
September 1, 2013 – December 31, 2016

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DEMOGRAPHICS & TREATMENT

DEMOGRAPHICS

<table>
<thead>
<tr>
<th>AGE</th>
<th>PATIENTS (N=182)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean Age (years)</td>
<td>61.4</td>
</tr>
<tr>
<td>Range (years)</td>
<td>18-91</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GENDER</th>
<th>PATIENTS (N=182)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>92 (50.5 %)</td>
</tr>
<tr>
<td>Female</td>
<td>90 (49.5 %)</td>
</tr>
</tbody>
</table>

DIAGNOSIS TYPE

<table>
<thead>
<tr>
<th>DIAGNOSIS</th>
<th>PATIENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Diagnosis</td>
<td>162 (89 %)</td>
</tr>
<tr>
<td>Recurrent Diagnosis</td>
<td>20 (11 %)</td>
</tr>
</tbody>
</table>

ANATOMIC LOCATION OF PRIMARY MELANOMA

<table>
<thead>
<tr>
<th>Location</th>
<th>Percentage of Cases</th>
<th>Number of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial Metastases</td>
<td>1.9 % (3 cases)</td>
<td></td>
</tr>
<tr>
<td>unknown Primary</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Head &amp; Neck</td>
<td>22.2 % (36 cases)</td>
<td></td>
</tr>
<tr>
<td>Extremities</td>
<td>32.7 % (53 cases)</td>
<td></td>
</tr>
<tr>
<td>Trunk</td>
<td>43.2 % (70 cases)</td>
<td></td>
</tr>
</tbody>
</table>

162 Total Cases
TREATMENT PROVIDED
182 Total Patients

<table>
<thead>
<tr>
<th>Treatment Provided</th>
<th>Percentage of Cases</th>
<th>Number of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Initial resection of primary lesion (+/- sentinel lymph node biopsy)</td>
<td>73.1%</td>
<td>133 cases</td>
</tr>
<tr>
<td>Lymphadenectomy only</td>
<td>5.5%</td>
<td>10 cases</td>
</tr>
<tr>
<td>Lymphadenectomy only</td>
<td>1.6%</td>
<td>3 cases</td>
</tr>
<tr>
<td>Metastectomy</td>
<td>6%</td>
<td>11 cases</td>
</tr>
<tr>
<td>Sentinel Lymph Node biopsy only</td>
<td>0.5%</td>
<td>1 case</td>
</tr>
<tr>
<td>Biopsy only, definitive surgery not indicated</td>
<td>2.7%</td>
<td>5 cases</td>
</tr>
<tr>
<td>Biopsy only, follow-up elsewhere</td>
<td>10.4%</td>
<td>19 cases</td>
</tr>
</tbody>
</table>

TOTAL PATIENTS BY YEAR
182 Total Patients

<table>
<thead>
<tr>
<th>Year</th>
<th>Percentage</th>
<th>Number of Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>5.5%</td>
<td>10 cases</td>
</tr>
<tr>
<td>2014</td>
<td>29.7%</td>
<td>54 cases</td>
</tr>
<tr>
<td>2015</td>
<td>31.3%</td>
<td>57 cases</td>
</tr>
<tr>
<td>2016</td>
<td>33.5%</td>
<td>61 cases</td>
</tr>
</tbody>
</table>
PHYSICIAN CERTIFICATION

SURGEON CERTIFICATION
Surgical Structure

<table>
<thead>
<tr>
<th>TABLE 6</th>
<th>Surgeon performing sentinel lymph node biopsy (SLNB) OR lymph node dissection (LND) for melanoma is certified by the American Board of Surgery or equivalent association (Quality Measure #1)</th>
<th>Cases N=101</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surgeon meets certification criteria</td>
<td>101</td>
<td>100 %</td>
<td></td>
</tr>
</tbody>
</table>

STAGING DOCUMENTATION

CLINICAL STAGING
Surgical Process

<table>
<thead>
<tr>
<th>TABLE 7</th>
<th>Prior to surgical resection, clinical stage (TNM staging) should be documented by surgeon (Quality Measure #26)</th>
<th>Cases N=143</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinical stage documented</td>
<td>143</td>
<td>100 %</td>
<td></td>
</tr>
</tbody>
</table>

MARGINS

SURGICAL EXCISION MARGINS DOCUMENTED
Surgical Process

<table>
<thead>
<tr>
<th>TABLE 8</th>
<th>Documentation of measured surgical margins in operative report (Quality Measure #3)</th>
<th>Cases N=143</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Margins documented in operative report</td>
<td>143</td>
<td>100 %</td>
<td></td>
</tr>
</tbody>
</table>
SURGICAL EXCISION MARGINS ADEQUATE
Surgical Technique

TABLE 9
Number of patients who underwent surgical excision and received requisite surgical margins (Quality Measure #2, 5, 6, 7)

<table>
<thead>
<tr>
<th>Description</th>
<th>Cases</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melanoma in situ: surgical margins ≥ 5 mm (N=14)</td>
<td>14</td>
<td>100 %</td>
</tr>
<tr>
<td>Melanoma ≤ 1 mm thick: surgical margins ≥ 1 cm (N=69)</td>
<td>69</td>
<td>100 %</td>
</tr>
<tr>
<td>Melanoma 1-2 mm thick: surgical margins 1-2 cm (N=40)</td>
<td>40</td>
<td>100 %</td>
</tr>
<tr>
<td>Melanoma ≥ 2 mm thick: surgical margins 2-3 cm (N=16)</td>
<td>15</td>
<td>94 %</td>
</tr>
<tr>
<td>Digit Melanoma: Proximal joint (N=4)</td>
<td>4</td>
<td>100 %</td>
</tr>
<tr>
<td>All Cases (N=143)</td>
<td>142</td>
<td>99.3 %</td>
</tr>
</tbody>
</table>

PATHOLOGY SURGICAL EXCISION MARGINS
Pathology Process

TABLE 10
Documentation of histologic margins following final excision (Quality Measure #4)

<table>
<thead>
<tr>
<th>Description</th>
<th>Cases N=154</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clear histologic margin documented following final excision</td>
<td>145</td>
<td>94.2 %</td>
</tr>
</tbody>
</table>

SENTINEL LYMPH NODE BIOPSY PERFORMANCE

SENTINEL LYMPH NODE BIOPSY DISCUSSION
Surgical Process

TABLE 11
Sentinel Lymph Node Biopsy (SLNB) pre-operative discussion documented for Clinical Stage IB or II (Quality Measure #11)

<table>
<thead>
<tr>
<th>Description</th>
<th>Cases N=85</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>SLNB discussed</td>
<td>85</td>
<td>100 %</td>
</tr>
</tbody>
</table>
TABLE 12

<table>
<thead>
<tr>
<th>Clinical Stage</th>
<th>Total Cases</th>
<th>SLNB Clinically Recommended</th>
<th>SLNB Performed</th>
<th>SLN Identified</th>
<th>SLN +</th>
</tr>
</thead>
<tbody>
<tr>
<td>IA</td>
<td>40</td>
<td>14 (100 %)</td>
<td>14 (100 %)</td>
<td>13 (92.9 %)</td>
<td>0 (0 %)</td>
</tr>
<tr>
<td>IB</td>
<td>68</td>
<td>64 (100 %)</td>
<td>64 (100 %)</td>
<td>62 (96.9 %)</td>
<td>6 (9.7 %)</td>
</tr>
<tr>
<td>II</td>
<td>17</td>
<td>17 (100 %)</td>
<td>17 (100 %)</td>
<td>15 (88.2 %)</td>
<td>2 (13.3 %)</td>
</tr>
<tr>
<td>Other*</td>
<td>20</td>
<td>2 (100 %)</td>
<td>2 (100 %)</td>
<td>1 (50 %)</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>145</td>
<td>97 (100 %)</td>
<td>97 (100 %)</td>
<td>92 (94.8 %)</td>
<td>9 (9.8 %)</td>
</tr>
</tbody>
</table>

*Other: Clinical Stage 0, III, not documented or recurrent melanoma.

SENTINEL LYMPH NODE IDENTIFICATION & BIOPSY
Radiology & Surgical Technique

TABLE 13

<table>
<thead>
<tr>
<th>Sentinel Lymph Node Biopsy: Number of nodes identified and examined (Quality Measure #30)</th>
<th>Cases (N=97)</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Node</td>
<td>33</td>
<td>35.9 %</td>
</tr>
<tr>
<td>2 Nodes</td>
<td>35</td>
<td>38 %</td>
</tr>
<tr>
<td>3 Nodes</td>
<td>14</td>
<td>15.2 %</td>
</tr>
<tr>
<td>4 Nodes</td>
<td>5</td>
<td>5.4 %</td>
</tr>
<tr>
<td>5 Nodes</td>
<td>4</td>
<td>4.3 %</td>
</tr>
<tr>
<td>&gt; 5 Nodes</td>
<td>1</td>
<td>1.1 %</td>
</tr>
<tr>
<td>Any Sentinel Lymph Node identified</td>
<td>92</td>
<td>94.8 %</td>
</tr>
</tbody>
</table>

Average number of sentinel lymph nodes examined: 2.09
SENTINEL LYMPH NODE BIOPSY PERFORMANCE continued

Surgical Process

TABLE 14
Currently recommended surgical methods for SLNB performance (Quality Measures #8, 9) | Cases | Percent
--- | --- | ---
Lymphoscintigraphy performed to identify draining nodal basin(s) (N=97) | 96 | 99 %
SLNs sent for permanent sectioning (no frozen sectioning) (N=92) | 91 | 99 %

Pathology Process

TABLE 15
Serial Sectioning on Pathologic Evaluation of SLNB (Quality Measure #10) | Cases N=92 | Percent
--- | --- | ---
Serial Sectioning completed | 90 | 97.8 %

COMPLETION LYMPH NODE DISSECTION ELIGIBILITY
Surgical Process

TABLE 16
Positive Sentinel Lymph Node Biopsy (SLNB) or clinical adenopathy, Non-Stage IV with Completion Lymph Node Dissection (CLND) performance (Quality Measures #22, 23, 24) | Cases
--- | ---
Positive Sentinel Lymph Node | 9
Clinical adenopathy (SLN biopsy not completed) | 6
Total Potential CLND | 15
Imaging documenting distant metastases | 1
CLND not indicated (age, comorbidities, declined) | 1
CLND eligible | 13
CLND performed at Metro Health | 13
CLND eligible, referred out-of-network | 0
HISTOLOGIC CONFIRMATION OF CLINICALLY PALPABLE NODAL DISEASE

Surgical Process

| TABLE 17 | |
| --- | --- | --- | --- |
| Histologic diagnosis obtained prior to Lymph Node Dissection (LND) for clinically apparent/palpable nodal disease (Quality Measure #12) | Cases | N=6 | Percent |
| Histologic diagnosis obtained prior to LND | 6 | 100 % |

LYMPH NODE DISSECTION (LND)

Surgical Technique and Pathology

| TABLE 18 | |
| --- | --- | --- | --- | --- |
| LND Completed: Number of lymph nodes examined in LND (Quality Measures #13, 14, 15) | Minimum recommended number of lymph nodes examined in LND | Cases meeting recommendation | Percentage of cases meeting recommendation |
| **Cervical** Lymph Node Dissection (N=3) | 15 | 3 | 100 % |
| **Axillary** Lymph Node Dissection (N=7) | 10 | 6 | 85.7 % |
| **Inguinal** Lymph Node Dissection (N=3) | 5 | 3 | 100 % |

SENTINEL LYMPH NODE BIOPSY AND NODAL DISSECTION PATHOLOGY

Pathology Reporting

| TABLE 19 | |
| --- | --- | --- |
| Sentinel Lymph Node Biopsy (SLNB) and Lymph Node Dissection (LND) pathology reporting of Lymph Nodes and metastases examined (Quality Measure #17) | Cases | Percent |
| SLNB Pathology: Report addresses number of SLNs examined (N=92) | 92 | 100 % |
| SLNB Pathology: Report addresses number of SLNs with/without metastases (N=92) | 92 | 100 % |
| Nodal Dissection Pathology: Number of non-SLNs examined reported (N=13) | 13 | 100 % |
| Nodal Dissection Pathology: Number of non-SLNs with metastases reported (N=13) | 13 | 100 % |
IMAGING

INITIAL APPROPRIATE RADIOLOGY UTILIZATION
Surgical and Medical Oncology Process

TABLE 20
Patients with Stage 0, I, or IIA Melanoma who did NOT have pre-operative abdominal CT/MRI, pelvic CT/MRI or PET scan without clinical indication (Quality Measure #20) Cases N=137 Percent

| NO Radiology testing performed | 137 | 100 % |

RADIOLOGY UTILIZATION
Surgical and Medical Oncology Process

TABLE 21
Patients with clinically palpable nodal disease who have had a CT or PET scan to rule out distant metastases prior to Lymph Node Dissection (Quality Measures #18, 29) Cases Percent

| PET scan performed for palpable nodal disease (N=6) | 6 | 100 % |
| Pelvic CT or PET performed for palpable disease of the inguinofemoral nodes (N=2) | 2 | 100 % |

ADVANCED DISEASE

ADJUVANT THERAPY DISCUSSION
Surgical and Medical Oncology Process

TABLE 22
Patients with resected primary melanoma metastatic to regional lymph nodes OR resected distant sites or resected recurrences with a documented discussion regarding adjuvant therapy (Quality Measure #19) Cases N=39 Percent

| Discussion documented | 38 | 97.4 % |
### ADVANCED DISEASE

#### CLINICAL TRIAL DISCUSSION
Medical Oncology Process

<table>
<thead>
<tr>
<th>Patients with Stage IV disease at diagnosis OR recurrent distant metastases with a documented discussion regarding availability or possibility of treatment under a clinical trial (Quality Measure #27)</th>
<th>Cases N=25</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussion documented</td>
<td>10</td>
<td>40 %</td>
</tr>
</tbody>
</table>

### BRAF TESTING
Medical Oncology Process

<table>
<thead>
<tr>
<th>Patients with nodal metastases or distant metastases who had BRAF testing performed to evaluate for BRAF mutation (Quality Measures #28)</th>
<th>Cases N=39</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>BRAF testing performed</td>
<td>32</td>
<td>82.1 %</td>
</tr>
</tbody>
</table>

### SERUM LDH TESTING
Medical Oncology Process

<table>
<thead>
<tr>
<th>Patients with newly diagnosed Stage IV or recurrent disease who had serum LDH level obtained (Quality Measure #21)</th>
<th>Cases N=26</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>LDH level obtained</td>
<td>18</td>
<td>69.2 %</td>
</tr>
</tbody>
</table>

### SKIN SURVEILLANCE DISCUSSION
Surgical & Medical Oncology Process

<table>
<thead>
<tr>
<th>Patients treated for melanoma with a documented discussion regarding stage-specific follow-up, including future skin exams (Quality Measures #25)</th>
<th>Cases N=178</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Discussion documented</td>
<td>176</td>
<td>98.9 %</td>
</tr>
</tbody>
</table>
### MELANOMA PATHOLOGY REPORTING

**TABLE 27**

<table>
<thead>
<tr>
<th>Pathology reporting of tumor characteristics for patients with invasive melanoma (non Tis) (Quality Measure #16)</th>
<th>Cases</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breslow thickness (N=136)</td>
<td>122</td>
<td>89.7 %</td>
</tr>
<tr>
<td>Clark level (N=135)</td>
<td>118</td>
<td>87.4 %</td>
</tr>
<tr>
<td>Histological ulceration (N=135)</td>
<td>121</td>
<td>89.6 %</td>
</tr>
<tr>
<td>Peripheral/ Radial margin status (N=137)</td>
<td>137</td>
<td>100 %</td>
</tr>
<tr>
<td>Deep margin status (N=136)</td>
<td>135</td>
<td>99.3 %</td>
</tr>
<tr>
<td>Satellitosis (N=134)</td>
<td>118</td>
<td>88.1 %</td>
</tr>
<tr>
<td>Anatomic location of lesion (N=157)*</td>
<td>157</td>
<td>100 %</td>
</tr>
<tr>
<td>Regression (N=135)</td>
<td>117</td>
<td>86.7 %</td>
</tr>
<tr>
<td>Mitotic Rate (N=134)</td>
<td>118</td>
<td>88.1 %</td>
</tr>
</tbody>
</table>

*All pathology reports should state anatomic location of lesion. The remainder of the categories refer to patients with invasive melanoma, non Tis/Stage 0. Re-excision showing no residual melanoma also excluded.

### REFERENCES