Quality Indicators in Breast Cancer: The EUSOMA Database Experience

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EUSOMA Certification process for quality in comprehensive and multidisciplinary breast care

One aim of the EUSOMA Network is building a common database
EUSOMA Certification process
for quality in comprehensive and multidisciplinary breast care

Breast Units use a variety of DBs
EUSOMA Certification process
for quality in comprehensive and multidisciplinary breast care

Solution: Definition of a common “EUSOMA model dataset” consisting on a agreed upon list of variables and codings.
EUSOMA Certification process for quality in comprehensive and multidisciplinary breast care

Each database should be able to **export data** in the EUSOMA model dataset format.
EUSOMA Certification process
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Data are uploaded in the common DB
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The Units are asked to provide data transfer (anonymous individual data) to the Eusoma Network Database on an annual basis.
EUSOMA Certification process
for quality in comprehensive and multidisciplinary breast care

EUSOMA provides:
Periodical reports on data quality
Feedback and benchmarking
Feedback example

Completeness Report of Selected Variables

To some extent, missing values are expected on the database. However, EUSOMA has determined the following variables should be verified:

<table>
<thead>
<tr>
<th>Content</th>
<th>Variable</th>
<th># cases</th>
<th>% Missing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Result of mammogram</td>
<td>D02</td>
<td>801</td>
<td>38.1</td>
</tr>
<tr>
<td>Ultrasound scan</td>
<td>D06</td>
<td>801</td>
<td>29.7</td>
</tr>
<tr>
<td>Cytological result (FNA)</td>
<td>D08</td>
<td>801</td>
<td>99.8</td>
</tr>
<tr>
<td>Core biopsy result</td>
<td>D09</td>
<td>801</td>
<td>71.5</td>
</tr>
<tr>
<td>Clinical examination</td>
<td>D13A</td>
<td>801</td>
<td>56.4</td>
</tr>
<tr>
<td>Date of 1st breast operation</td>
<td>E05</td>
<td>801</td>
<td>12.7</td>
</tr>
<tr>
<td>Radiotherapy (RT) performed</td>
<td>L01</td>
<td>687</td>
<td>32.2</td>
</tr>
<tr>
<td>Hormone therapy prescribed</td>
<td>M04</td>
<td>687</td>
<td>59.4</td>
</tr>
<tr>
<td>Chemotherapy performed</td>
<td>M13</td>
<td>687</td>
<td>32</td>
</tr>
</tbody>
</table>

Action: We invite you to verify these values in your own database, attempt to correct them accordingly and perform a new data transfer.
Data Check

Your data check shows a total of 176 inconsistencies.

EUSOMA has determined that correction is mandatory for the following fields (see complete list of variables online):

- 3 problems with dates.
- 62 problems with diagnosis, pT and dimension of the lesion.
- 49 problems with lymphnodal status (I27) and pN (I28).
- 11 problems with LN("s.
- 21 problems with number of LN("s examined at axillary dissection, which may have been recorded incorrectly.
- 30 chronological problems with some dates.

Action: We invite the Unit to verify these inconsistencies in their own database, attempt to correct them accordingly and perform a new data transfer.
EUSOMA Certification process for quality in comprehensive and multidisciplinary breast care

Specific analysis can also be performed directly by each unit: the web DB works as a datawarehouse.
EUSOMA Network web data system
51 breast unit with a validated database (or in progress)
EUSOMA Network web data system

Databases used to collect data by the units

51 Units use 17 different databases
EUSOMA Network web data system
Histological diagnosis of 72491 lesions 2000-2013

- Benign: 5434
- In situ: 7516
- MI (507): 2043
- Invasive: 55942
- Non ep.: ?
- Oth (992): ?
- ?
Specific functions enable the user to check completeness and coherence of data entered.
All figures are clickable to get lists
All figures are clickable to get lists.
person_ID enables to locate patients
Comparison of the result with benchmark
Position Paper

Quality indicators in breast cancer care

M. Rosselli Del Turco a,*, A. Ponti b, U. Bick c, L. Biganzoli d, G. Cserni e, B. Cutuli f, T. Decker g, M. Dietel c, O. Gentilini h, T. Kuehn k, M.P. Mano j, P. Mantellini i, L. Marotti a, P. Poortmans l, F. Rank m, H. Roe n, E. Scaffidi h, J.A. van der Hage o, G. Viale p, C. Wells q, M. Welnicka-Jaskiewicz r, Y. Wengstöm s, L. Cataliotti t
<table>
<thead>
<tr>
<th></th>
<th>Description</th>
<th>Complete (%)</th>
<th>Misses (%)</th>
<th>Misses (#)</th>
<th>Count Complete</th>
<th>Count Misses</th>
<th>Count Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cancers with a pre-operative diagnosis (B5 or C5)</td>
<td>83.2%</td>
<td>3.8%</td>
<td>1523</td>
<td>32438</td>
<td>1523</td>
<td>6551</td>
</tr>
<tr>
<td>2</td>
<td>Invasive ca with hist.type, grading, ER/PR, stage &amp; size recorded</td>
<td>92.4%</td>
<td></td>
<td>0</td>
<td>33085</td>
<td></td>
<td>2709</td>
</tr>
<tr>
<td>3</td>
<td>Non-invasive ca with size, hist.pattern &amp; grading recorded</td>
<td>78.8%</td>
<td></td>
<td>0</td>
<td>3778</td>
<td></td>
<td>1016</td>
</tr>
<tr>
<td>4</td>
<td>Invasive ca with axillary clearance with &gt;= 10 LNs examined</td>
<td>87.9%</td>
<td>3.9%</td>
<td>613</td>
<td>13119</td>
<td>613</td>
<td>1803</td>
</tr>
<tr>
<td>5</td>
<td>M0 invasive ca receiving postoperative RT after BCT</td>
<td>94.6%</td>
<td>11.2%</td>
<td>2612</td>
<td>19609</td>
<td>2612</td>
<td>1112</td>
</tr>
<tr>
<td>6</td>
<td>Invasive ca &lt;= 3 cm (incl. DCIS component) treated with BCT</td>
<td>80%</td>
<td></td>
<td>743</td>
<td>19612</td>
<td></td>
<td>4890</td>
</tr>
<tr>
<td>7</td>
<td>Non-invasive ca &lt;= 2 cm treated with BCT</td>
<td>84.1%</td>
<td>5.4%</td>
<td>151</td>
<td>2245</td>
<td>151</td>
<td>423</td>
</tr>
<tr>
<td>8</td>
<td>DCIS with no axillary clearance</td>
<td>93.5%</td>
<td>0.6%</td>
<td>27</td>
<td>4030</td>
<td>27</td>
<td>278</td>
</tr>
<tr>
<td>9</td>
<td>Endocrine sensitive invasive ca receiving HT</td>
<td>94.5%</td>
<td></td>
<td>6481</td>
<td>22994</td>
<td></td>
<td>1330</td>
</tr>
<tr>
<td>10</td>
<td>ER- (T &gt; 1 cm or N+) invasive ca receiving adjuvant CT</td>
<td>91%</td>
<td></td>
<td>500</td>
<td>3670</td>
<td></td>
<td>365</td>
</tr>
<tr>
<td>11</td>
<td>Invasive ca receiving just 1 operation (excl. reconstruction)</td>
<td>80.3%</td>
<td>0.2%</td>
<td>55</td>
<td>28518</td>
<td>55</td>
<td>7003</td>
</tr>
<tr>
<td>12</td>
<td>DCIS receiving just 1 operation (excl. reconstruction)</td>
<td>62.3%</td>
<td>0.1%</td>
<td>3</td>
<td>2775</td>
<td>3</td>
<td>1680</td>
</tr>
<tr>
<td>13</td>
<td>Invasive ca pN0 not receiving axillary clearance (SLN only)</td>
<td>76.3%</td>
<td>0%</td>
<td>7</td>
<td>16439</td>
<td>7</td>
<td>5110</td>
</tr>
</tbody>
</table>
# EUSOMA Network web data system

SLN only in pN0

<table>
<thead>
<tr>
<th>Year</th>
<th>Ca pN0 not receiving axillary clearance</th>
<th>N1</th>
<th>N2</th>
<th>N3</th>
</tr>
</thead>
<tbody>
<tr>
<td>2000</td>
<td>73 / 148</td>
<td>49</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2001</td>
<td>111 / 302</td>
<td>49</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2002</td>
<td>119 / 379</td>
<td>49</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2003</td>
<td>359 / 1366</td>
<td>49</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>2004</td>
<td>676 / 1940</td>
<td>49</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2005</td>
<td>963 / 2130</td>
<td>49</td>
<td>7</td>
<td>0</td>
</tr>
<tr>
<td>2006</td>
<td>1702 / 2766</td>
<td>49</td>
<td>5</td>
<td>0</td>
</tr>
<tr>
<td>2007</td>
<td>2094 / 3005</td>
<td>49</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>2008</td>
<td>3304 / 4215</td>
<td>49</td>
<td>9</td>
<td>0</td>
</tr>
<tr>
<td>2009</td>
<td>3832 / 4605</td>
<td>49</td>
<td>11</td>
<td>0</td>
</tr>
<tr>
<td>2010</td>
<td>4398 / 5093</td>
<td>49</td>
<td>12</td>
<td>0</td>
</tr>
<tr>
<td>2011</td>
<td>3676 / 4252</td>
<td>49</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2012</td>
<td>639 / 734</td>
<td>49</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>
EUSOMA Network web data system

13 - SLN only in pN0


Target 90%

8% 21% 41% 61% 71% 80% 84% 88% 89% 90%

EUSOMA European Society of Breast Cancer Specialists
EUSOMA database, 48 units, 43256 invasive cancers

% SLNB & ALND trend across years
EUSOMA DB

Research Projects

- Mastectomy Trend project
Mayo Clinic, Rochester¹
1997-2006  5405 patients

Moffit Cancer Center, Florida²
1994-2007  5865 patients

EUSOMA db 
2004-2008  11278 patients

Mastectomy trends 2004-2008 (first / final surgery)

Mastectomy trends for early-stage breast cancer: A report from the EUSOMA multi-institutional European database

Carlos A. Garcia-Etienne a,c,*, Mariano Tomatis b,c, Joerg Heil d, Kay Friedrichs e, Rolf Kreienberg f, Andreas Denk g, Marion Kiechle h, Fatemeh Lorenz-Salehi i, Rainer Kimmig j, Günter Emons k, Mahmoud Danaei l, Volker Heyl m, Uwe Heidrichs n, Christoph J. Rageth o, Wolfgang Janni p, Lorenza Marotti q, Marco Rosselli del Turco q, Antonio Ponti b,c, eusomaDB Working Group l
Fluctuating Mastectomy Rates Across Time and Geography

Carlos A. Garcia-Etienne, MD\textsuperscript{1,3}, Mariano Tomatis, MSc\textsuperscript{2,3}, Joerg Heil, MD\textsuperscript{4}, Mahmoud Danaei, MD\textsuperscript{5}, Christoph J. Rageth, MD\textsuperscript{6}, Lorenza Marotti, MSc\textsuperscript{7}, Marco Rosselli del Turco, MD\textsuperscript{7}, and Antonio Ponti, MD, MPH\textsuperscript{2,3}
EUSOMA DB

Research Projects

- Loco-regional therapy: variation by age and by Unit (with EURECCA)
- Micro-invasive ca. project
- Axillary dissection after SLNB+
- Process indicators and outcome