Integration of 3D digital mammography with tomosynthesis for population breast-cancer screening (STORM): a prospective comparison study

Ciatto S (posthumous), Houssami N, Bernardi D, Caumo F, Macaskill P. et al
Lancet Oncology.2013 Apr; doi:10.1016/S0140-6736(08)61345-8

Objective
To evaluate the effect of the addition of tomosynthesis to conventional 2D mammography in population breast-cancer screening.

Materials and Methods
Participants had a digital mammogram using the Selenia® Dimensions® system from Hologic with integrated 2D and 3D mammography performed in the combo mode.

Results
Based on 7294 screenings:

<table>
<thead>
<tr>
<th></th>
<th>Number of Cancers</th>
<th>Cancer Detection Rate</th>
<th>False Positive</th>
<th>False Positive Rate, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>2D mammography</td>
<td>39</td>
<td>5.3 / 1000 screens</td>
<td>322</td>
<td>4.4%</td>
</tr>
<tr>
<td>2D plus 3D mammography</td>
<td>59</td>
<td>8.1 / 1000 screens</td>
<td>254</td>
<td>3.5%</td>
</tr>
</tbody>
</table>

Cancer detection increased 51% across all ages and breast densities for integrated 2D and 3D mammography compared to 2D mammography. The authors estimated that false positive recalls could have been reduced by 17% without decreasing the cancer detection rates.

Conclusion
Integrated 2D and 3D mammography improves breast-cancer detection and has the potential to reduce false positive recalls.