Kuwait National Mammography Screening Program
A Dream Come True

Dr. Hanaa Al Khawari
FRCR, FFR RCSI
Consultant Radiologist
Head of Kuwait National Mammography Screening Program
Breast Cancer in Kuwait

- In Kuwait, breast cancer is the most common female malignancy.
- In 2012, 420 breast cancer cases were recorded by Kuwait cancer registry accounted for about 21.0% of all cancers and 38.0% of cancers among females.
- One in seven Kuwaiti women will develop cancer by the age 75, which attributed to the need for mammography screening program in Kuwait.
Kuwait National Mammography Screening Program

• It is a nation-wide, organized breast screening program that provides high quality breast screening services for women aged 40 and older.

• Launched in 2014 and provided in the 5 governorates of Kuwait

• The intent was to foster the delivery of cancer screening services closer to the point of care, improve efficiencies, and ensure greater accountability.
Kuwait National Mammography Screening Program

- The program has focused on strategic planning, building the infrastructure, information management and evaluation, with support from Memorial Sloan Kettering Cancer Center (MSKCC) as part of a 2-year agreement with Ministry of Health, Kuwait.

- The program aim was to provide high quality services to meet high international standards for early detection of small invasive breast cancer in asymptomatic women.
Kuwait National Mammography Screening Program

• The program targets women aged 40-69 yrs
• Issues recall notices for screening by SMS’s
• Notifies women of their screening results
• Facilitates those women with abnormal screens to move through the diagnostic stage
• Arrange any additional imaging or tissue sampling required.
Kuwait National Mammography Screening Program

• Screening services are delivered at 5 polyclinics, one in each of the 5 Kuwait medical health regions

• These breast units, staff and equipment are monitored on ongoing basis by the main center which is situated in Al-Sabah medical health region
2 Mammography units

Call Center
RIS-PACS server
Reading workstations
Ultrasound
US guided biopsy
Stereotactic biopsy
FNAC
MRI

2 Mammography units

2 Mammography units

2 Mammography units

2 Mammography units
Double Blind Reading
Call Center

- Designated phone number
- Strict role of age 40 years and above
- Asymptomatic
- No history of personal breast cancer
- Did not have a mammogram in the last 12 months
Screening Volume

• 164,000 eligible Kuwaiti females (40-69 yrs)

• 6933 women were screened from April 2014 to March 2016.

• 83 detected breast cancer.
Kuwait Female Population distribution per governorate vs. age groups (40 yes and older) in 2015
Kuwaiti women whom had screening mammography per governorate vs. age groups in 2015
Kuwaiti women whom had screening mammography per clinic vs. age groups in 2015
Number of cases diagnosed as breast cancer vs. age group

- 40-44: 6 cases
- 45-49: 15 cases
- 50-54: 19 cases
- 55-59: 14 cases
- 60-64: 12 cases
- 65-69: 9 cases
Screening Outcome

Total Screens
6933

Abnormal 1017
14.7 % of total screened

Benign/normal on non-invasive work up 806
11.6 % of total screened
78.2 % of abnormal detected

Normal 5916
85.3 % of total screened

Invasive work up
224
3.2 % of total screened
21.7 % of abnormal detected

Diagnosed on core biopsy/FNA/US VAC / stereotactic VAC
221
3.1 % of total screened
21.4 % of abnormal detected

malignant (invasive & DCIS)
80
1.1 % of total screened
7.7 % of abnormal detected

High Risk lesions
27
0.38 % of total screened
2.6 % of abnormal detected

Malignant
3
0.04 % of total screened
0.29 % of abnormal detected

Benign
114
1.6 % of total screened
11.0 % of abnormal detected
Program Indicators

Coverage: participation rate:
6933 accounted for 4.2% of the screen eligible Kuwaiti population.

Retention Rate:
0.2% (n=341) was the percentage of screen-eligible women in Kuwait who were rescreened within 30 months of their previous program screen.

Follow up: abnormal call rate:
1014 (14.7%) of screened women had recall due to abnormal result for which extra imaging was done in terms of additional mammographic images and/or breast ultrasound.
Quality of Screening

Positive Predictive Value:
3.0% of screened women with invasive workup were diagnosed with screen detected breast cancer after completion of diagnostic work up.

Sensitivity :
100%, which is the proportion of women diagnosed with a screen detected DCIS and/or invasive breast cancer following completion of diagnostic assessment who had a positive screening test for breast cancer.

Specificity :
98.0% which is the proportion of screened women without a diagnosis of DCIS and/or invasive breast cancer who had a negative screening test for breast cancer.
Detection rate

In situ breast cancer detection rate:
There were 9 women with DCIS. The in situ breast cancer detection rate was 1.3 per 1,000 women screened.

Invasive breast cancer detection rate:
There were 74 women with Invasive breast cancer. The detection rate was 10.6 per 1,000 women screened.
Early stage Invasive breast cancer detection rate: (TNM stage 1) The early stage invasive breast cancer detection rate was 40.9%. (n=34)

Invasive breast cancer detection rate: (TNM stages II to IV) 40.9% of the women with invasive breast cancer had TNM stage 2 (n=34), 13.2% had TNM stage 3 (n=11) and 6.0% had TNM stage 4 (n=5).
Disease extend at diagnosis

- Stage I: 41%
- Stage II: 40%
- Stage III: 13%
- Stage IV: 6%
## Histologic features of screen detected invasive breast cancer

<table>
<thead>
<tr>
<th>Type of Carcinoma</th>
<th>Count</th>
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<tbody>
<tr>
<td>Mucinous Carcinoma</td>
<td>4</td>
</tr>
<tr>
<td>Invasive Mammary Carcinoma NOS</td>
<td>8</td>
</tr>
<tr>
<td>Invasive Lobular Carcinoma</td>
<td>9</td>
</tr>
<tr>
<td>Invasive Ductal Carcinoma</td>
<td>50</td>
</tr>
<tr>
<td>Invasive Cribriform</td>
<td>1</td>
</tr>
<tr>
<td>Ductal carcinoma in situ</td>
<td>9</td>
</tr>
<tr>
<td>invasive tubular carcinoma</td>
<td>0</td>
</tr>
<tr>
<td>medullary carcinoma</td>
<td>0</td>
</tr>
<tr>
<td>mixed invasive ductal and lobular carcinoma</td>
<td>2</td>
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</tbody>
</table>

Total: 83
Histologic features of screen detected High risk lesions

<table>
<thead>
<tr>
<th>Total</th>
<th>27</th>
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<tbody>
<tr>
<td>Phyllodes tumour</td>
<td>3</td>
</tr>
<tr>
<td>Papillary lesion</td>
<td>8</td>
</tr>
<tr>
<td>Lobular carcinoma in Situ</td>
<td>2</td>
</tr>
<tr>
<td>Atypical Ductal Hyperplasia</td>
<td>4</td>
</tr>
<tr>
<td>Fibroepithelial lesion</td>
<td>10</td>
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</tbody>
</table>
**Histologic features of screen detected benign lesions**

<table>
<thead>
<tr>
<th>Total</th>
<th>114</th>
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<tbody>
<tr>
<td>Usual Ductal Hyperplasia</td>
<td>4</td>
</tr>
<tr>
<td>Pseudo Angiomatous stromal hyperplasia (PASH)</td>
<td>1</td>
</tr>
<tr>
<td>Mastitis</td>
<td>2</td>
</tr>
<tr>
<td>Lobular Hyperplasia</td>
<td>2</td>
</tr>
<tr>
<td>Hamartoma</td>
<td>1</td>
</tr>
<tr>
<td>Fibrosis</td>
<td>6</td>
</tr>
<tr>
<td>Fibroadenoma</td>
<td>34</td>
</tr>
<tr>
<td>Benign Breast Tissue +/- calcifications</td>
<td>54</td>
</tr>
<tr>
<td>Adenosis</td>
<td>10</td>
</tr>
</tbody>
</table>
Characteristics of Screened Women with Breast Cancer

- Family history of breast Cancer in first degree relatives
  - Yes 30.8%  No 69.2%

- Mammographic breast density
  - ACR 1 7.7%  ACR 2 42.3%  ACR 3 42.3%  ACR 4 7.7%

- Age at first birth (including stillborn)
  - <20yrs 76.9%  ≥20yrs 15.4%  2 women no children

- Number of children
  - None 7.7%  <3 7.7%  ≥3 84.6%

- Current oestrogen use
  - Yes 3.8%  No 96.2%
Thank You