

2.4 Treatment methods

Surgical treatment

Out of the 2,130 breast cancer patients, the vast majority (98.7%) were treated with surgical operations, of which 48.7% were treated with breast conserving surgery and 50.0% were treated with mastectomy.

Lumpectomy (61.3%) and wide local excision (31.9%) were the two most common types of breast conserving surgery. Total mastectomy (93.9%) was the most common type of mastectomy, followed by skin sparing surgery (4.9%) as the second most common type of mastectomy (Table 2.4.1).

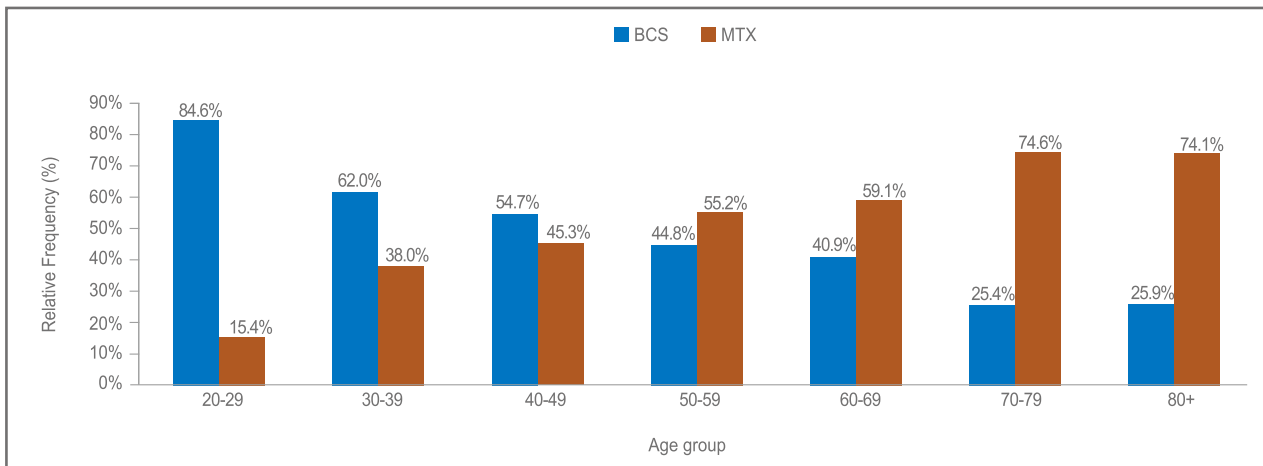
Breast reconstruction following mastectomy is performed to restore the shape of the breast and to reduce the disfigurement after mastectomy. Of 1,065 mastectomy patients, 17.3% were treated with breast reconstruction, of which Transverse Rectus Abdominis Myocutaneous flap (TRAM flap) (58.2%) and implants (24.5%) were the two most common techniques employed (Table 2.4.1).

Table 2.4.1. Types of surgical operations in the patient cohort

	Number (%)
No surgery	28 (1.3%)
Breast conserving surgery	1,037 (48.7%)
Mastectomy	1,065 (50.0%)
Type of breast conserving surgery (N=1,037)	
Lumpectomy	636 (61.3%)
Wide local excision	331 (31.9%)
Segmentectomy	35 (3.4%)
Reexcision of margin	11 (1.1%)
Partial mastectomy	7 (0.7%)
Unknown	17 (1.6%)
Type of mastectomy(N=1,065)	
Total mastectomy	1,000 (93.9%)
Skin sparing	52 (4.9%)
Areolar sparing	3 (0.3%)
Nipple sparing	2 (0.2%)
Unknown	7 (0.7%)
Type of reconstruction (N=185)	
TRAM flap	108 (58.2%)
Implant	45 (24.5%)
LD flap	9 (4.9%)
LD flap & implant	14 (7.6%)
Unknown	9 (4.8%)
Type of nodal surgery (N=1,841)	
Sentinel node biopsy	786 (42.7%)
Sentinel node biopsy & axillary dissection	293 (15.9%)
Axillary dissection	762 (41.4%)

The breast conserving surgery rate was highest in the youngest patient group. Its rate decreased over age, ranging from 84.6% in the age group of 20-29 to 25.9% in age group of 80 and above. The mastectomy rate was lowest in the age group of 20-29 and had an upward trend over age. The highest mastectomy rate was found in the age group of 80 and above (Figure 2.4.1).

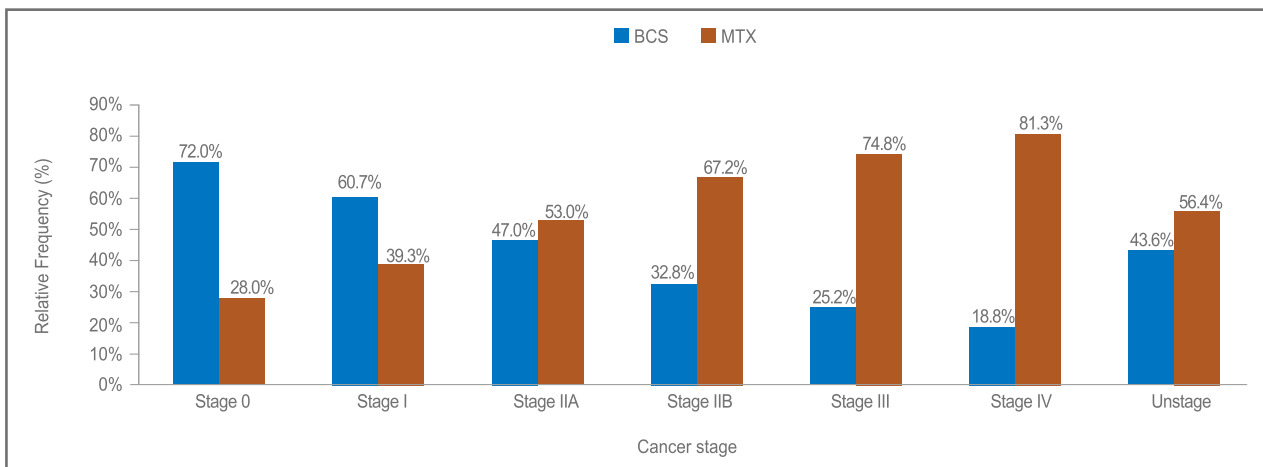
Figure 2.4.1 Type of surgery by age group



BCS: breast conserving surgery; MTX: mastectomy

The breast conserving surgery rate was highest in cancer stage 0 patients with a decreasing trend towards advanced stages, whereas the mastectomy rate was lowest in stage 0, with an increasing trend over cancer stage (Figure 2.4.2).

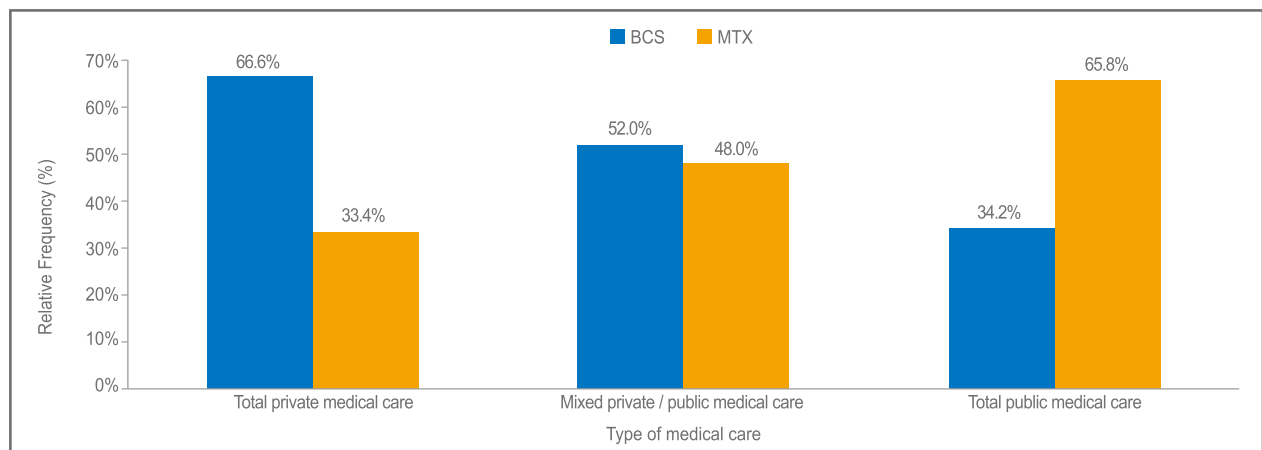
Figure 2.4.2 Type of surgery by cancer stage



BCS: breast conserving surgery; MTX: mastectomy

It is worth noting that the mastectomy rate (including mastectomy alone and breast reconstruction following mastectomy) in the patients receiving total public medical care was twice as much as that of the patients receiving total private medical care and 1.5-fold that of the patients receiving private and public medical care (Total private medical care vs. Mixed private / public medical care vs Total public medical care: 33.4% vs. 48.0% vs 65.8%) (Figure 2.4.3)

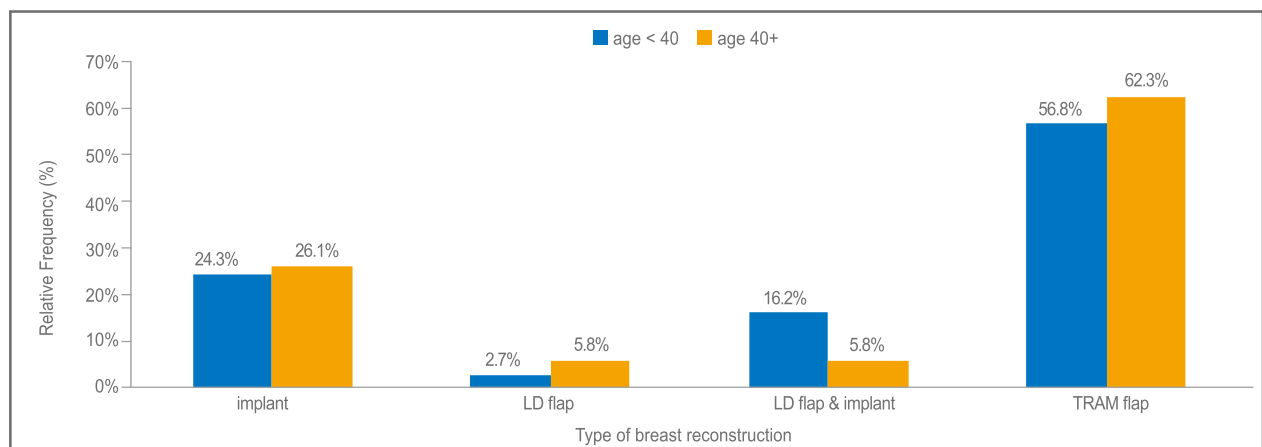
Figure 2.4.3 Type of surgery by type of medical care



BCS: breast conserving surgery; MTX: mastectomy

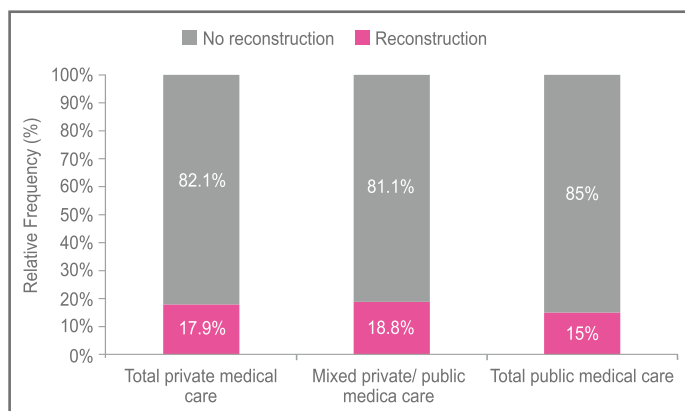
The proportions of types of breast reconstruction employed after mastectomy were similar between the patients aged under 40 and the patients aged over 40 except for Latissimus Dorsi flap (LD flap) with implant (Figure 2.4.4).

Figure 2.4.4 Type of breast reconstruction employed in the patients aged under 40 and the patients aged 40 or above



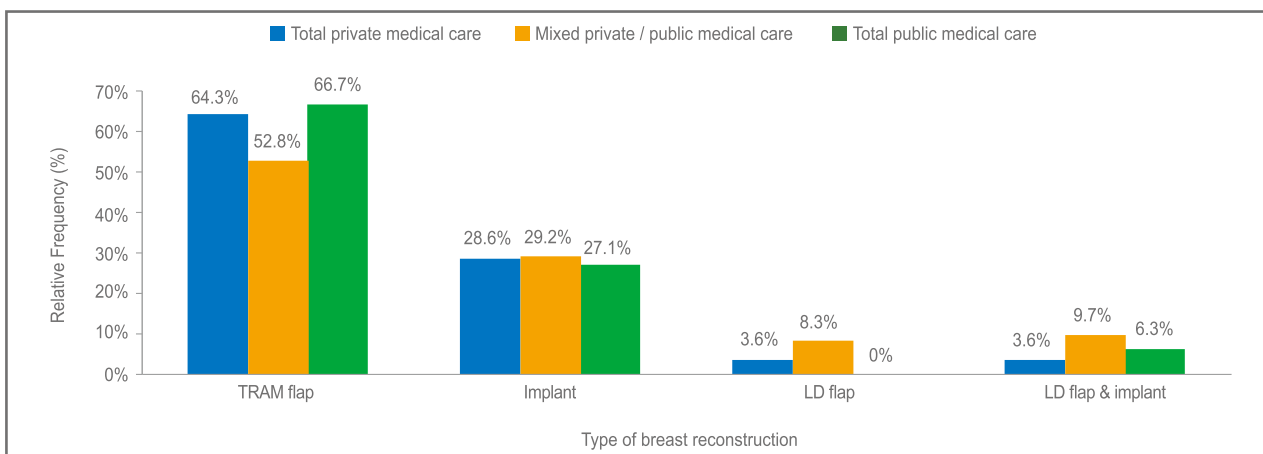
Among all three medical care groups, the reconstruction rate was highest in the patients receiving private/public medical care and lowest in the patients receiving total public medical care (Figure 2.4.5).

Figure 2.4.5 Breast reconstruction rate by type of medical care



The proportions of different types of breast reconstruction were comparable between the three types of medical care (Figure 2.4.6).

Figure 2.4.6 Type of breast reconstruction by type of medical care

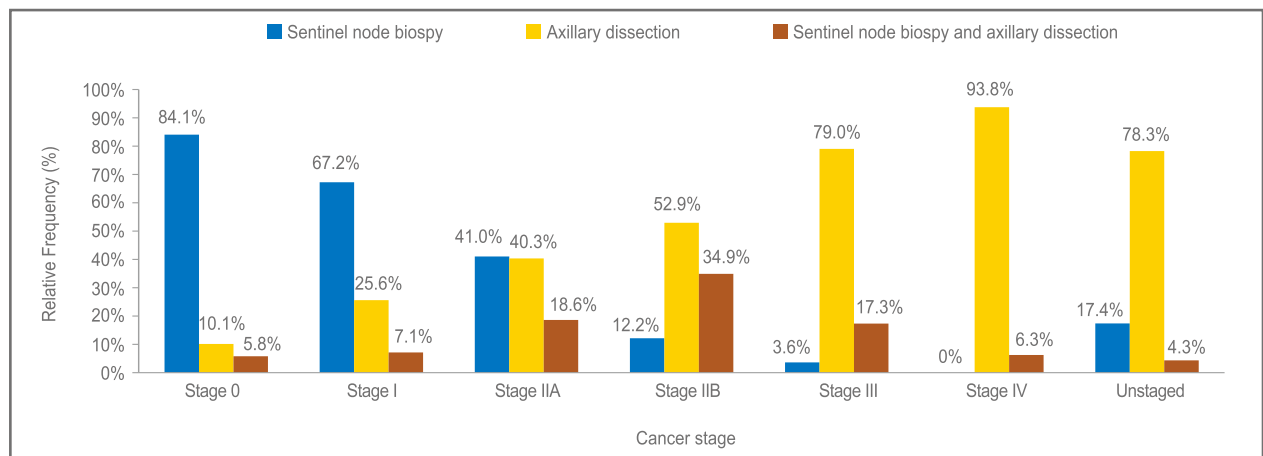


TRAM flap: Transverse Rectus Abdominis Myocutaneous flap
 LD flap: latissimus dorsi flap
 LD flap & implant: latissimus dorsi flap & implant

Nodal surgery was performed in 86.4% of the patients. Among these, 42.7% had sentinel node biopsy (SNB) only, 41.4% had axillary dissection only and 15.9% had both SNB and axillary dissection (Table 2.4.1).

Different patterns of SNB rates and axillary dissection were observed in different cancer stages, with higher SNB rates in early stage cancers and higher axillary dissection rates in advanced stage cancers (Figure 2.4.7).

Figure 2.4.7 Type of nodal surgery by cancer stage



Chemotherapy

Nearly 70% of the patients with invasive breast cancer were treated with chemotherapy, of which 63.4% received adjuvant chemotherapy, 3.9% neoadjuvant chemotherapy and 0.6% palliative chemotherapy. The rates of receiving chemotherapy among patients at different cancer stages ranged from 42.0% in stage I to 94.1% in stage IV (Figure 2.4.8).

The five most frequently used chemotherapy regimens among the patient cohort with invasive breast cancer were AC only (26.0%), AC+T (24.5%), FAC/ FEC (17.7%), TC/ DC (9.7%) and FEC+T (6.3%) (Figure 2.4.9).

At different cancer stages, different chemotherapy regimens were used. The most common regimen for stage I was AC only (51.8%), stage IIA was AC only (34.6%), stage IIB was AC+T (37.6%), stage III was AC+T (40.4%) and stage IV was FAC/ FEC (43.8%) (Figure 2.4.10).

Figure 2.4.8 Chemotherapy rate in the patients with invasive breast cancers at different cancer stages

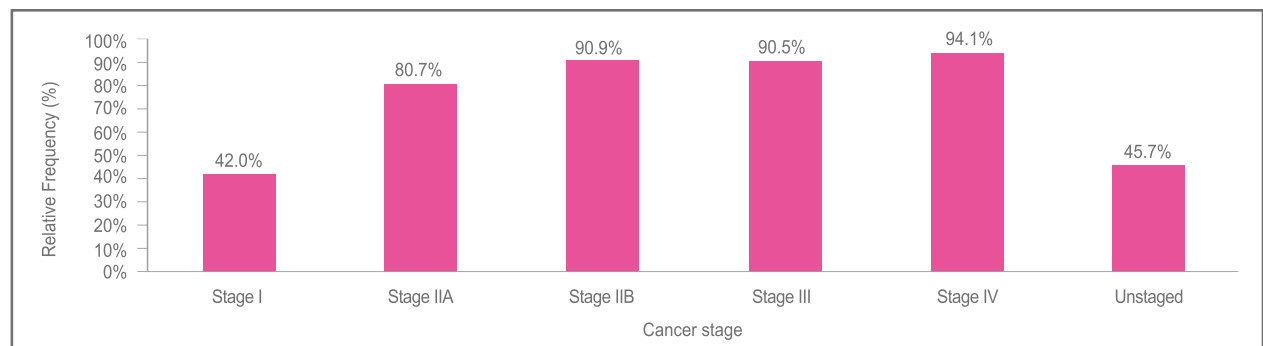


Figure 2.4.9 Type of chemotherapy regimens used in the patients with invasive breast cancers

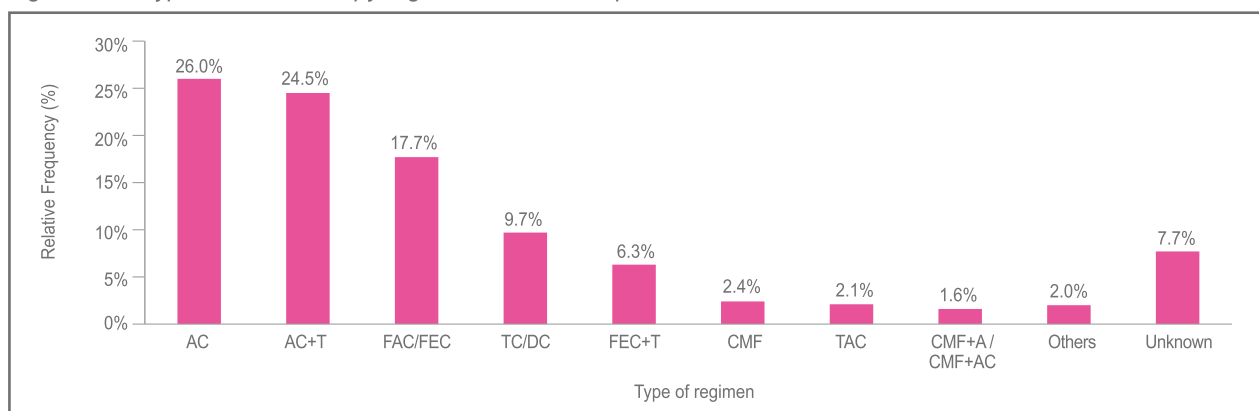
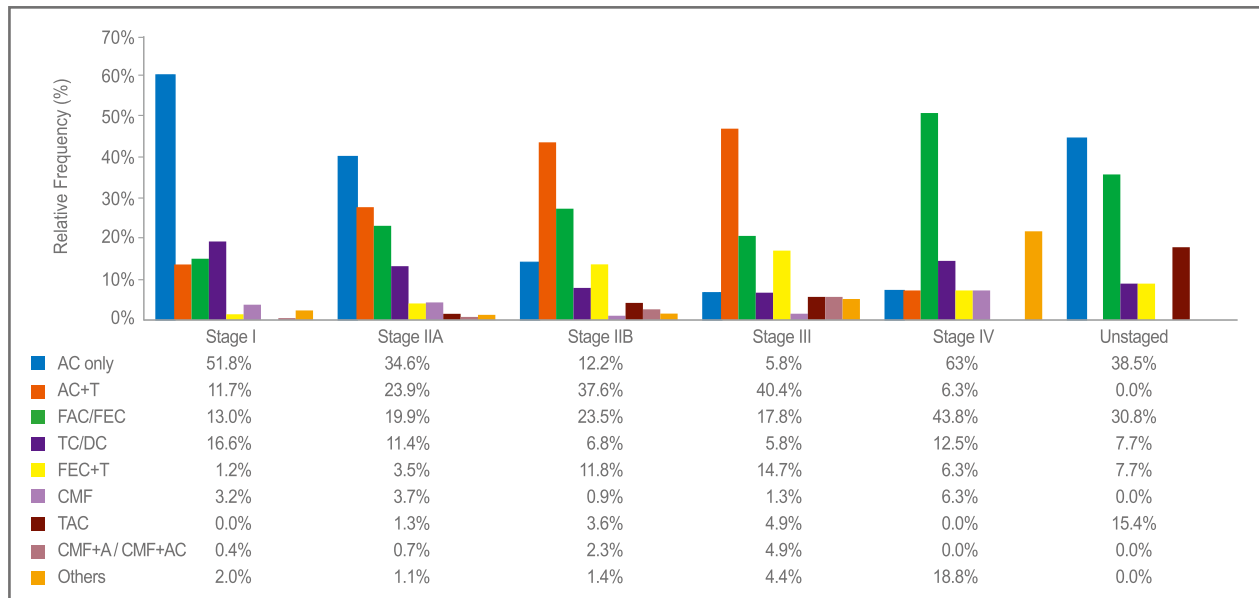


Figure 2.4.10 Type of chemotherapy regimens in the patients with invasive breast cancer by cancer stage



There were no differences in the patterns of usage of anthracyclines, taxanes and other drugs between different types of medical care (Table 2.4.2).

Table 2.4.2. Usages of anthracyclines, taxanes and other drugs by type of medical care

	Total private medical care (N=295)	Mixed private/ public medical care (N=514)	Total public medical care (N=316)
Anthracyclines	145 (49.2%)	251 (48.8%)	156 (49.4%)
Taxanes	138 (46.8%)	252 (49.0%)	147 (46.5%)
Others	12 (4.1%)	11 (2.1%)	13 (4.1%)

Others include CMF, navelbine, vinorelbine, gemcitabine and capecitabine

Radiation therapy

About 65% of the patient cohort were treated with radiation therapy. The distribution of radiated regions was summarised in Table 2.4.3. Chest wall, whole breast and local boost were the three most commonly radiated regions.

Table 2.4.3 Types of radiated regions in the patients with radiation therapy (N=1,381)

Type of radiated region	Number (%)
Chest wall	396 (28.7%)
Whole breast	308 (22.3%)
Local boost	301 (21.8%)
SCF	250 (18.1%)
Axilla	142 (10.3%)
Partial breast	41 (3.0%)
IMC	22 (1.6%)
Pelvic	1 (0.1%)
Unknown	628 (45.5%)

SCF: supraclavicular fossa, IMC: internal mammary chain

Note: The percentages might exceed 100% as multiple options might be applied.

Endocrine therapy

Overall, about 64% of the patients were treated with endocrine therapy. About 70-80% of patients at stages I-IV were taking endocrine therapy whereas only about 20% were on endocrine therapy at stage 0 (Figure 2.4.11). Tamoxifen (82.1%) was the most commonly used drug for endocrine therapy, followed by aromatase inhibitor (14.0%) (Figure 2.4.12).

Figure 2.4.11 Endocrine therapy rates in the patients with invasive or in situ breast cancers by cancer stage

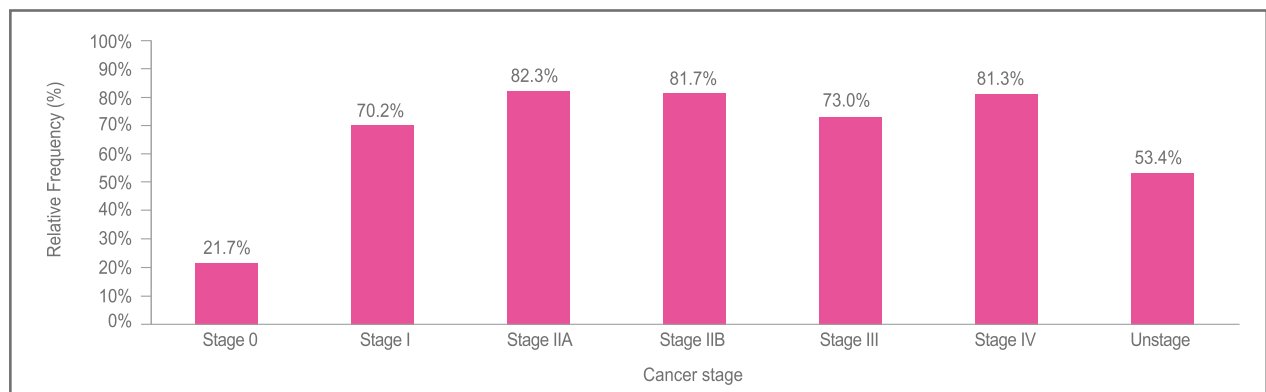
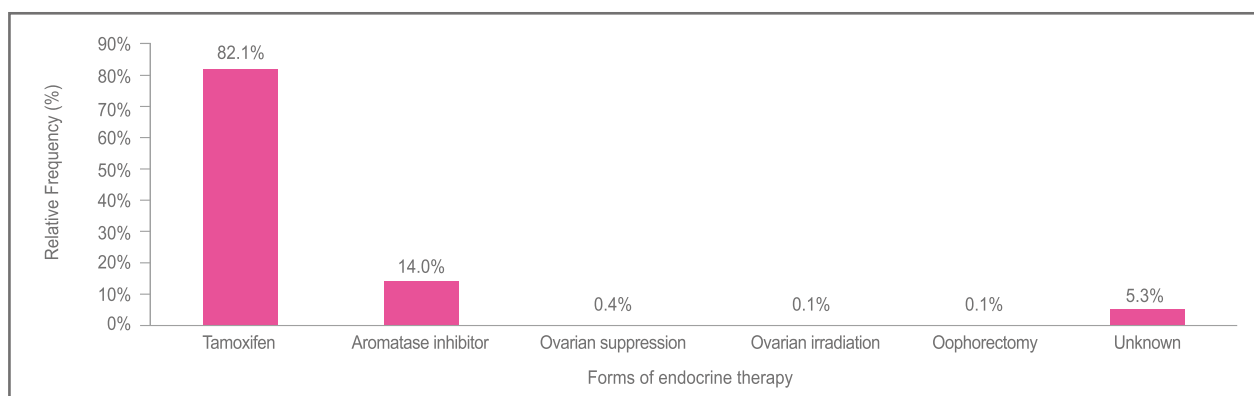


Figure 2.4.12 Forms of endocrine therapy used in the patients with in situ or invasive breast cancers



The use of tamoxifen stratified by cancer stage and type of medical care was tabulated in Table 2.4.4. No obvious differences in the use of tamoxifen were found between the three types of medical care across different type of cancer stages.

The use of aromatase inhibitor by cancer stage and type of medical care was tabulated in Table 2.4.5. No obvious differences in the use of aromatase inhibitor were found between the three types of medical care across different type of cancer stages except stage IV. For stage IV, aromatase inhibitor was used in 20%, 25% and 0% of the patients with total private medical care, mixed private/ public medical care and total public medical care respectively.

Table 2.4.4 Percentage of the patients on tamoxifen by cancer stage in each type of medical care

	Stage 0	Stage I	Stage IIA	Stage IIB	Stage III	Stage IV
Total private medical care	16 (24.6%)	72 (52.6%)	90 (61.6%)	35 (53.0%)	33 (55.0%)	2 (40.0%)
Mixed private/ public medical care	14 (16.7%)	173 (57.3%)	147 (56.5%)	65 (59.6%)	54 (55.1%)	2 (50.0%)
Total public medical care	6 (20.7%)	79 (57.2%)	104 (63.4%)	46 (63.0%)	54 (62.1%)	3 (50.0%)

Table 2.4.5 Percentage of the patients on aromatase inhibitor by cancer stage in each type of medical care

	Stage 0	Stage I	Stage IIA	Stage IIB	Stage III	Stage IV
Total private medical care	0 (0%)	12 (8.8%)	14 (9.6%)	4 (6.1%)	8 (13.3%)	1 (20.0%)
Mixed private/ public medical care	1 (1.2%)	24 (7.9%)	28 (10.8%)	15 (13.8%)	10 (10.2%)	1 (25.0%)
Total public medical care	0 (0%)	20 (14.5%)	11 (6.7%)	5 (6.8%)	10 (11.5%)	0 (0%)

Targeted therapy

Only 7.6% of the patients with invasive breast cancer were treated with targeted therapy. Approximately 3-15% of the patients at each cancer stage used targeted therapy (Figure 2.4.13). Targeted therapy rate was 29.7% among those with HER2+ patients (stage I: 11.9%, stage IIA: 36.5%, stage IIB: 37.7%, stage III: 44%, stage IV:33%). Among them, 94.3% were on trastuzumab and 2.1% were on lapatinib (Figure 2.4.14).

Figure 2.4.13 Targeted therapy rate in the patients with invasive breast cancer by cancer stage

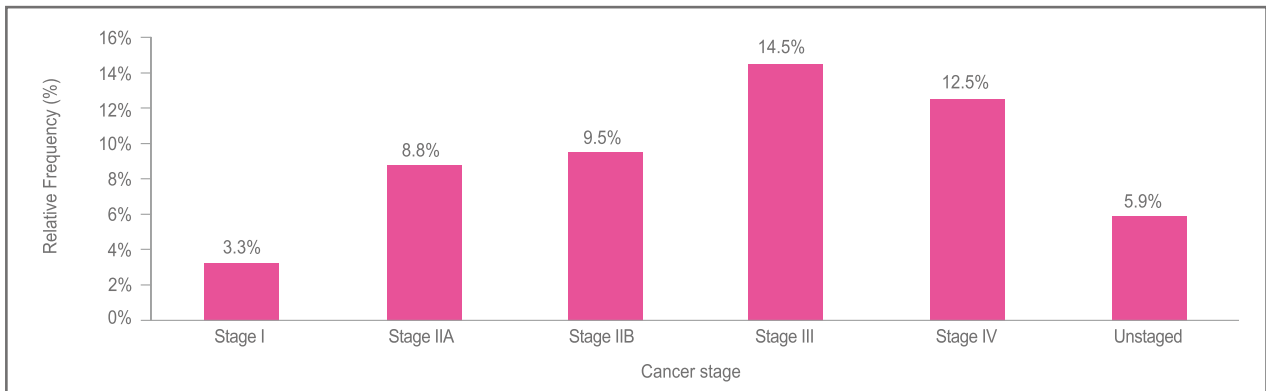
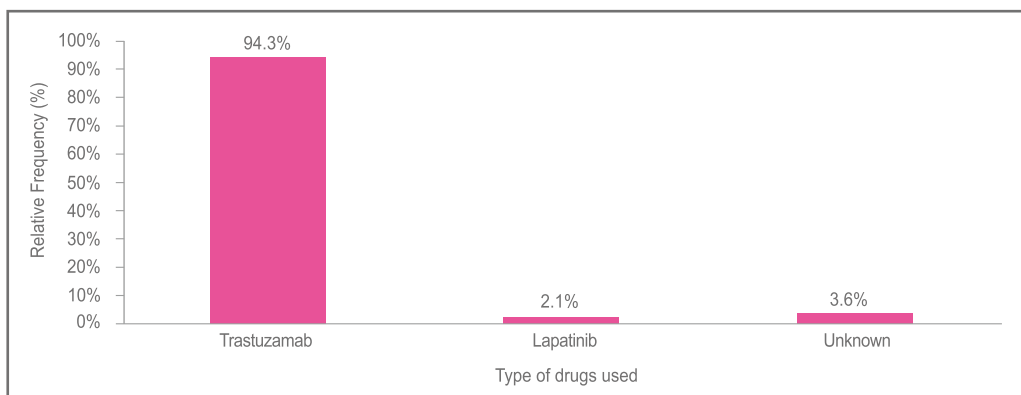


Figure 2.4.14 Type of drugs used for targeted therapy in the patients with invasive breast cancer



Complementary and alternative therapies

Out of 2,130 breast cancers, 275 (12.9%) patients were treated with complementary and alternative therapies to nourish their health conditions. Among them, one (0.4%) patient refused all Western medicine treatments for breast cancer and only received alternative therapy to uplift her health status. Major types of alternative therapies were Chinese medicine (72.0%) and health supplements (19.3%) (Figure 2.4.15).

Figure 2.4.15 Type of alternative medicine used in 275 patients

