

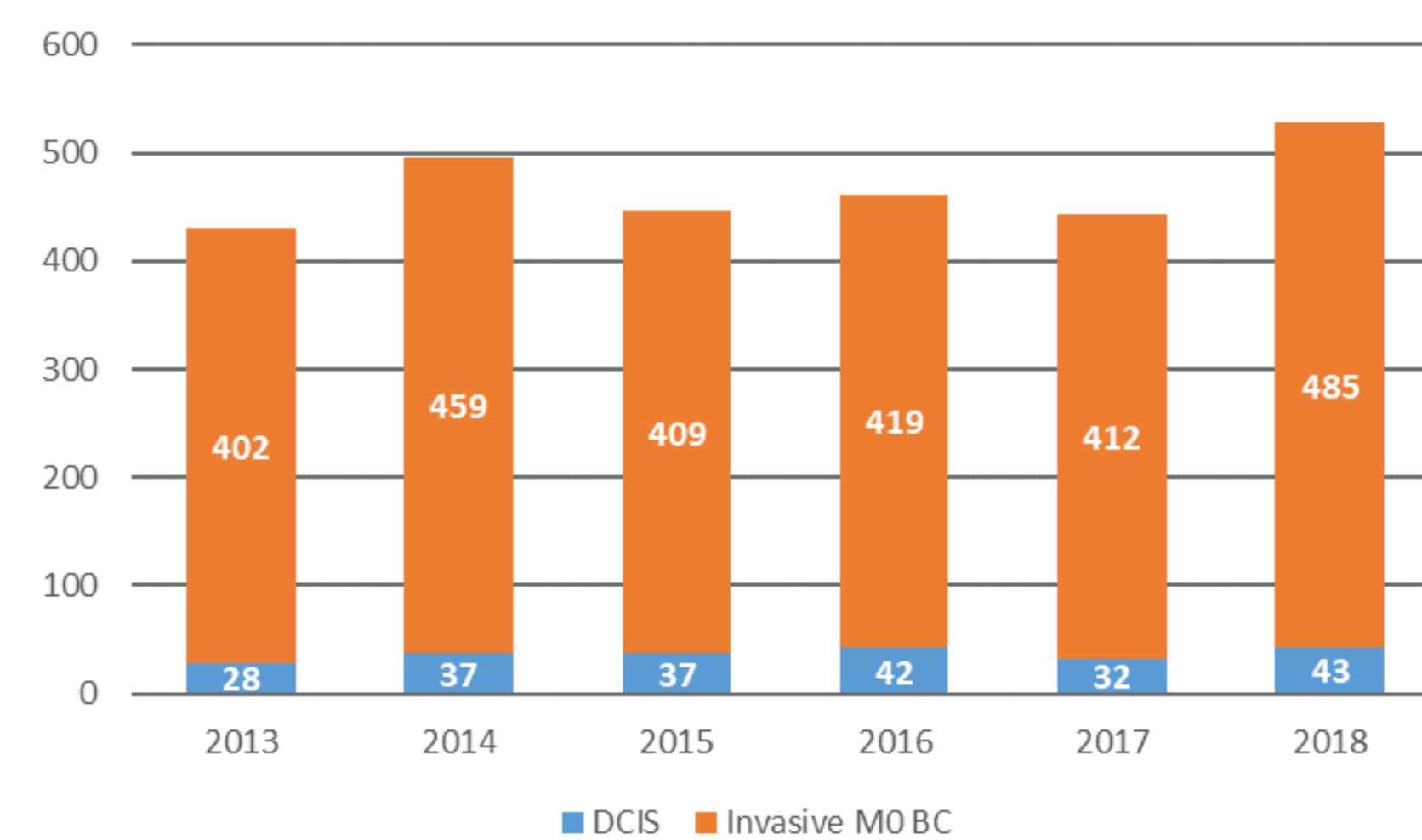
The National Breast Cancer Cohort 2013-2018 of Luxembourg's National Cancer Registry: Quality of care in Luxembourg

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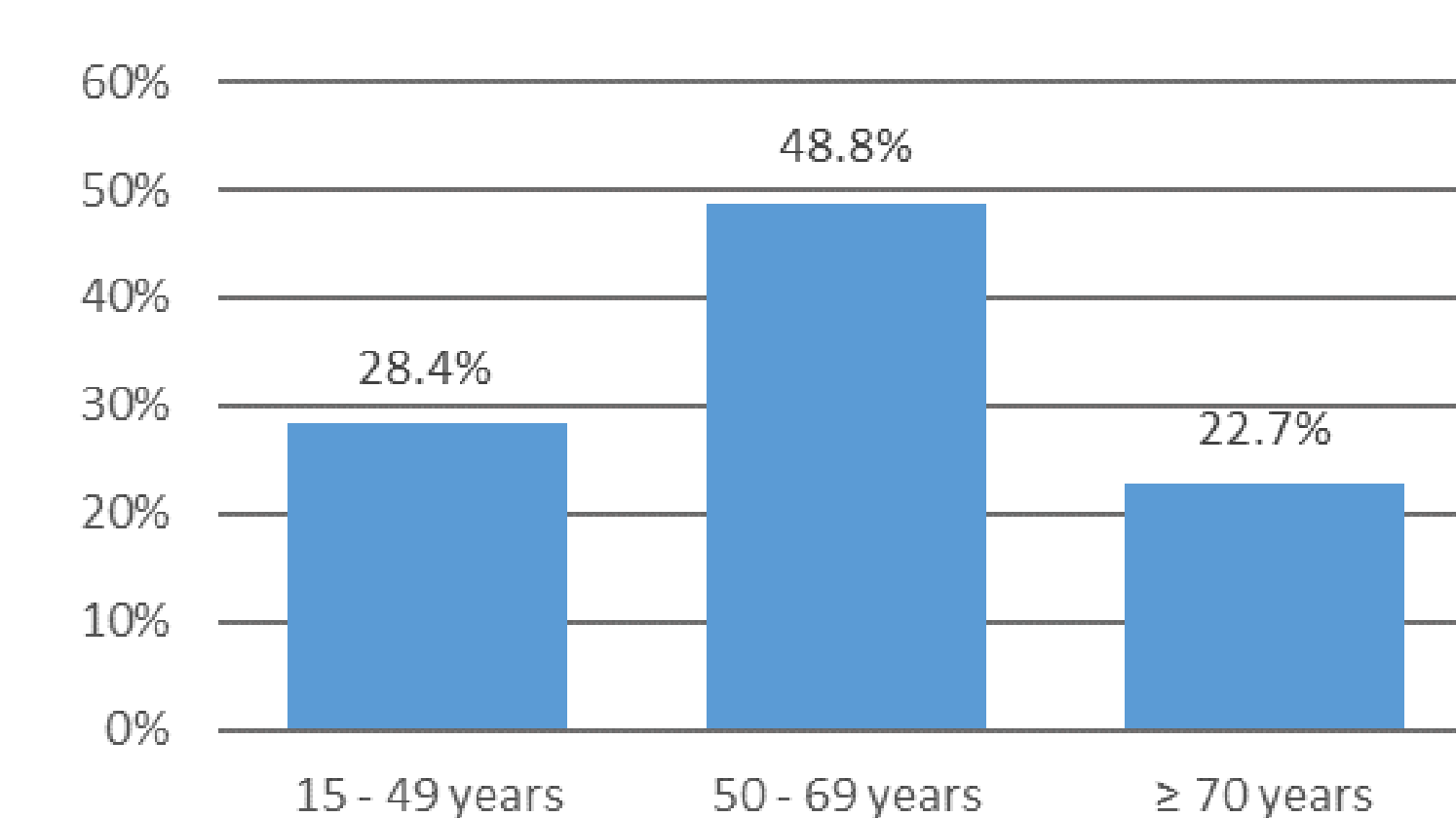
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Objectives: The evaluation of quality of cancer care is one of the main objectives of the Luxembourg's National Cancer Registry (*Registre National du Cancer* - RNC). Cancer care is based on coordinated and multidisciplinary interventions, according to clinical guidelines. Quality indicators (QIs) are developed to evaluate and improve the quality of care in a continuous and systematic way. In Luxembourg, **breast cancer** is the most common and the most lethal type of cancer in women. This study aims at investigating the quality of care of breast cancers in Luxembourg between 2013-2018 by using data from the RNC and by providing a particular focus in waiting times and breast cancer treatments.

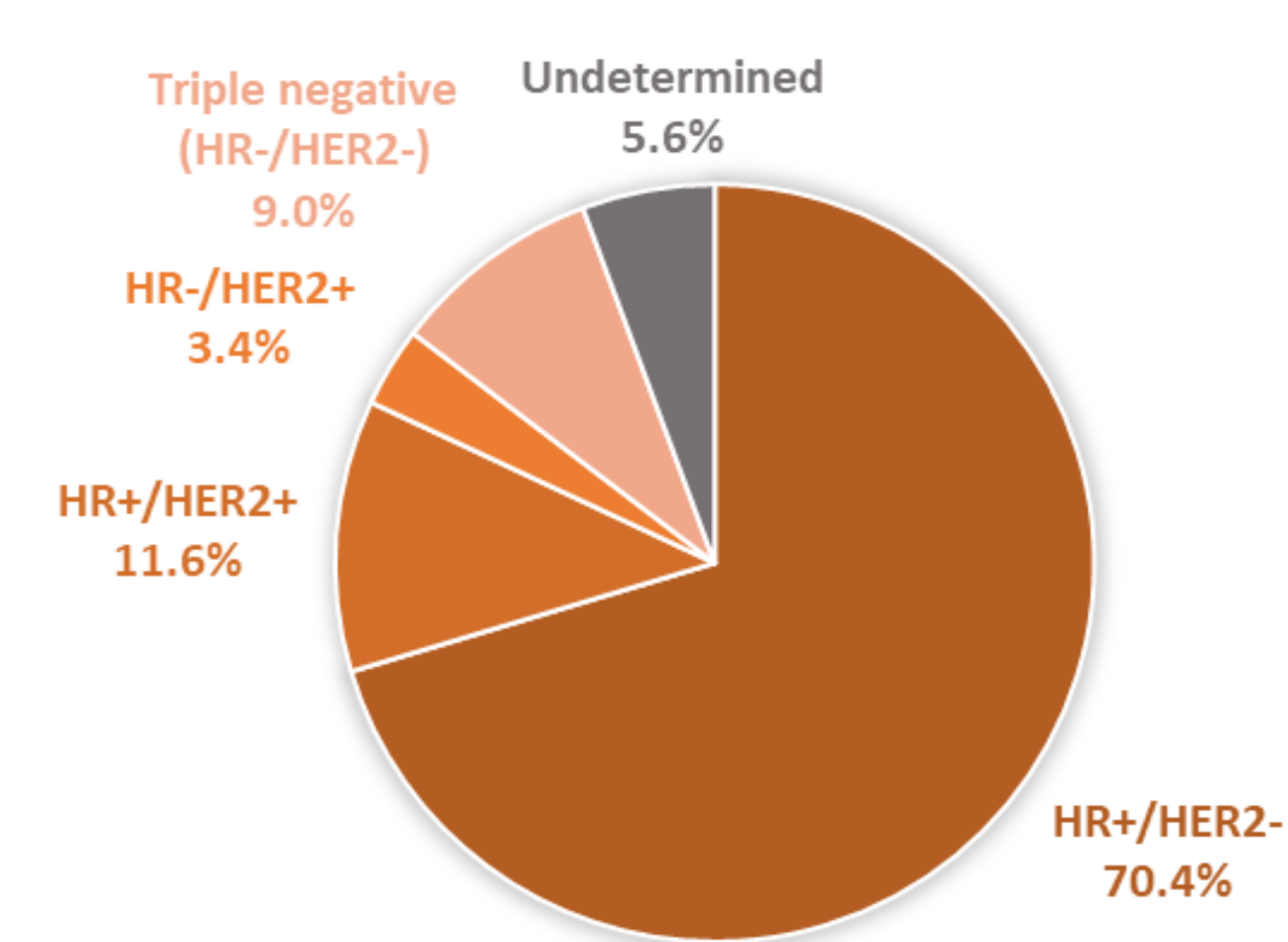
Distribution of breast cancer by year



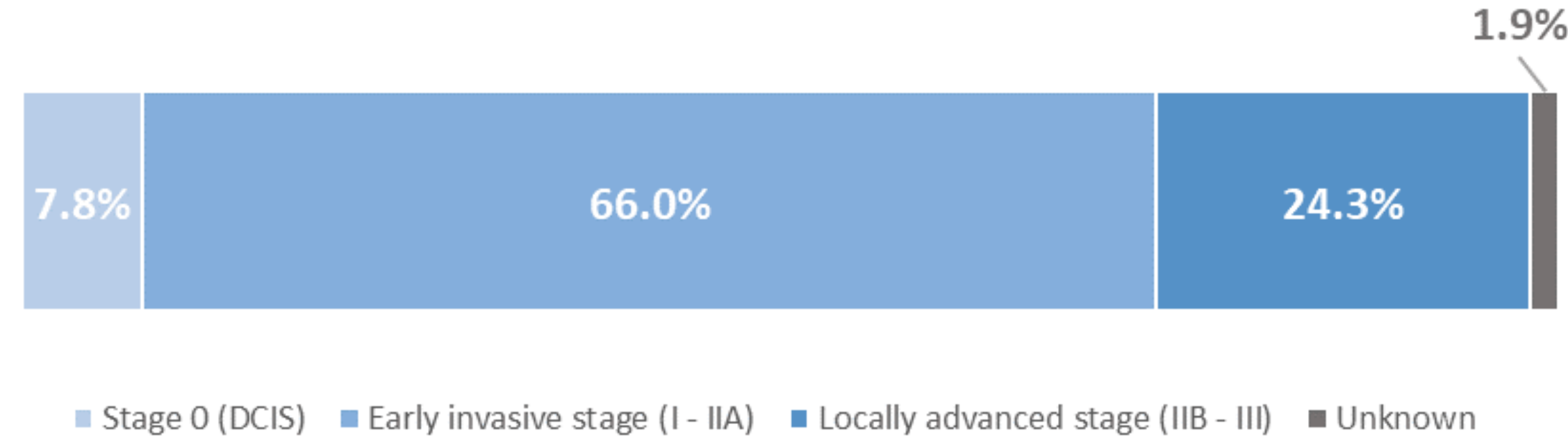
Age at diagnosis (n = 2 805)



Molecular subtypes (Invasive M0 BC, n = 2 586)



Stage at the time of diagnosis (n = 2 805)



Waiting times (median in days)

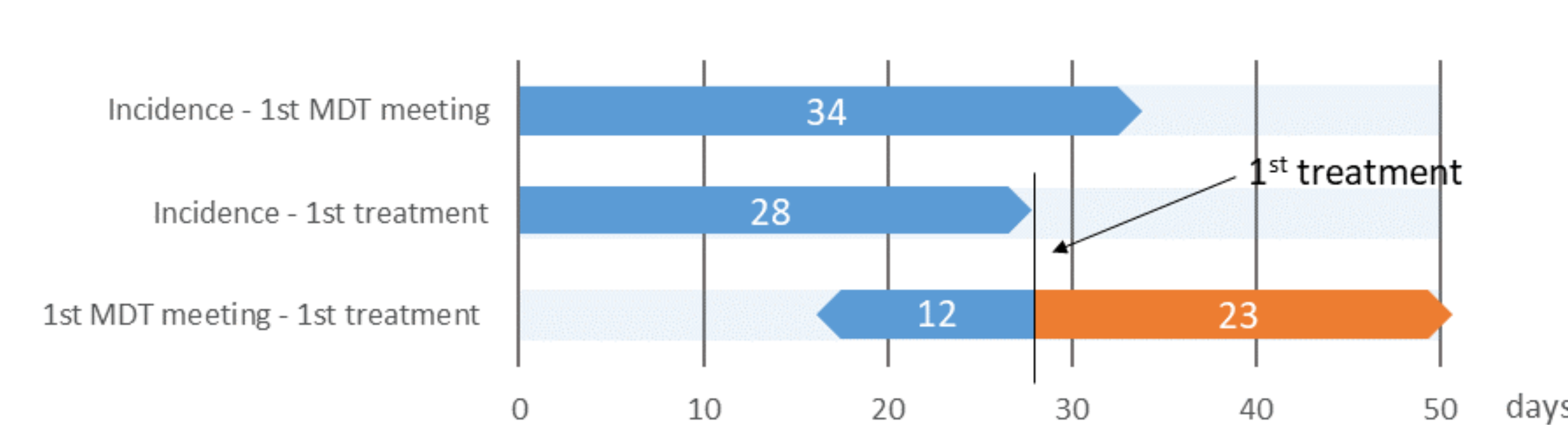


Table 1 : Quality of care indicators, breast cancer, Luxembourg 2013-2018

Diagnosis - DCIS and invasive M0 Breast Carcinoma, Luxembourg, 2013 - 2018	QIs%	Num	Den
Women with BC who preoperatively underwent mammography, physical examination and ultrasound	89,5%	2 510	2 805
Women with BC who had a histologically confirmed malignant diagnosis before their first treatment	93,7%	2 505	2 673
Women with invasive M0 BC for whom the following biomarkers have been collected: oestrogen receptors (ER), progesterone receptors (PR) and HER2 status	94,3%	2 439	2 586

Surgery - DCIS and invasive M0 Breast Carcinoma, Luxembourg, 2013 - 2018	QIs%	Num	Den
Surgically treated women with DCIS who did not undergo axillary lymph node removal (axillary lymph node dissection or sentinel lymph node removal)	69,7%	136	195
Surgically treated women with DCIS, with a tumour size ≤ 2 cm (multifocal tumour excluded), who underwent breast-conserving surgery	93,0%	40	43
Surgically treated women with invasive M0 BC, with a tumour size ≤ 2 cm (multifocal tumour excluded), who underwent breast-conserving surgery	86,3%	872	1 011
Surgically treated women with DCIS, who underwent a single breast operation for the primary tumour	77,9%	152	195
Surgically treated women with invasive BC (T1, T2), who underwent a single breast operation for the primary tumour	85,7%	1 783	2 080

Radiotherapy - Invasive M0 Breast Carcinoma, Luxembourg, 2013 - 2018	QIs%	Num	Den
Women with invasive M0 BC treated with breast-conserving surgery who underwent whole breast adjuvant radiotherapy	87,7%	1 468	1 673
Women with invasive M0 BC with involvement of axillary lymph nodes (pN+), who underwent radiotherapy after mastectomy	83,8%	268	320

Systemic therapy - Invasive M0 Breast Carcinoma, Luxembourg, 2013 - 2018	QIs%	Num	Den
Surgically treated women with hormone-sensitive (ER+ and/or PR+) invasive M0 BC who were prescribed endocrine therapy	55,8%	1 133	2 030
Surgically treated women with HER2+ invasive M0 BC treated with chemotherapy, who received anti-HER2 therapy	88,0%	264	300
Surgically treated women with ER- (T > 1 cm or pN+) invasive M0 BC who received adjuvant chemotherapy	68,7%	156	227
Surgically treated women with stage II and III, triple negative or HER2+, invasive BC who underwent neoadjuvant chemotherapy	43,2%	130	301

Process of care - DCIS and invasive M0 Breast Carcinoma, Luxembourg, 2013 - 2018	QIs%	Num	Den
Women with BC who had a histologically confirmed malignant diagnosis, with a time interval, from the date of biopsy to the start of 1st treatment, is ≤ 4 weeks	52,8%	1 322	2 505
Women with BC presented in a pre-therapeutic Multidisciplinary Team Meeting	42,9%	1 049	2 446

*BC: Breast Carcinoma ; DCIS: Ductal Carcinoma In Situ ; Den: denominator; HR: Hormonal Receptor ; IQR: Interquartile Range ; M0: Non-metastatic at diagnosis ; MDT: Multidisciplinary Team ; Num: Numerator; QIs: Quality Indicators

Methods: Data concerned all newly breast cancer diagnosed between January 2013 and December 2018. Vital status was determined by linkage with death certificates (up to 2019). The following eligibility criteria were applied:

1. Women ≥15 years old at diagnosis;
2. First primary invasive breast carcinoma (BC) or ductal carcinoma in situ (DCIS);
3. Non-metastatic BC (M0) at diagnosis;
4. Diagnosed and/or treated at least in one Luxembourgish's hospital.

A set of QIs for BC was defined by the Scientific Committee and the Breast Cancer clinicians working group of the RNC. **16 QIs for DCIS and invasive M0 BC were defined and analysed** (table 1).

The area covered by the QIs are:

- Diagnosis
- Initial treatment: surgery, radiotherapy, systemic treatment (endocrine therapy, chemotherapy, targeted therapy)
- Process of care

For each QI, an algorithm was built to select eligible cases for the denominator and the numerator of the QI, expressed as a proportion (%). QIs related to process of care are mainly median delays, expressed in days. The QIs were stratified on year of incidence, age groups, and stage at diagnosis (TNM, 7th edition, (8th edition for 2018)).

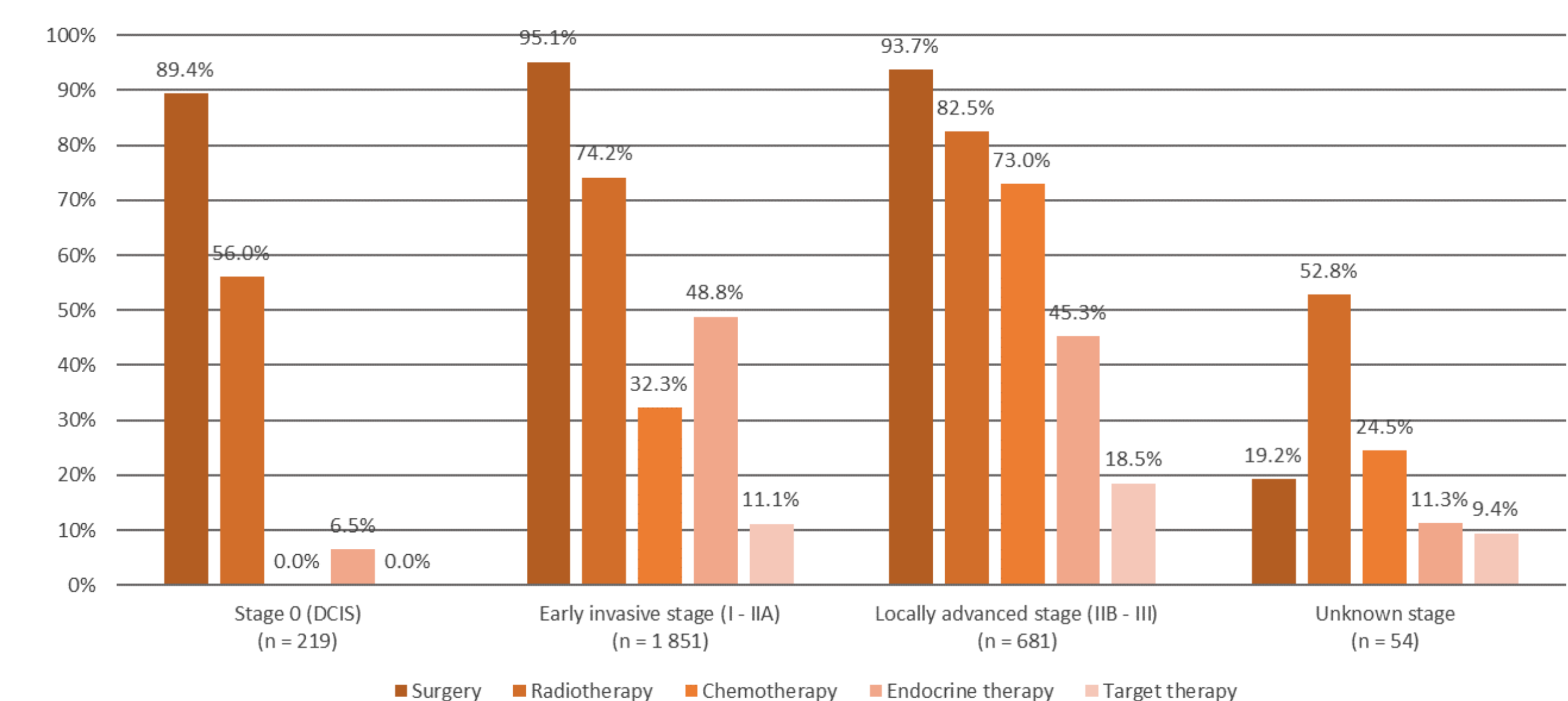
Results: For the study period 2013-2018, a total of **2 805 women** were eligible. **219 were DCIS and 2 586 were invasive M0 BC**. The median age of women was 58 years at the time of diagnosis (IQR : 48-68).

For most QIs related to diagnosis, surgery and radiotherapy, the target thresholds, defined at international level, have been reached or almost reached. For systemic therapy QIs, the proportion were significantly below the target thresholds. For all QIs, the results were stable from one year to the next.

Waiting time: for 52.8% of women with DCIS or invasive M0 BC, the time interval from the date of biopsy to the start of 1st treatment is no longer than 4 weeks.

Multidisciplinary team (MDT) meeting: 89.4% of women with DCIS or invasive M0 BC were discussed at MDT meeting. However, only 35.7% of DCIS and 43.4% of invasive M0 BC were discussed during a pre-therapeutic MDT meeting. For these patients, the median time between MDT meeting and the first initial treatment was 12 days.

Care pathways



Conclusion: The present results represent the **first comprehensive overview of quality of care for in situ and invasive non-metastatic breast carcinoma**, treated or diagnosed in Luxembourg, based on data of the National Cancer Registry (2013-2018). These quality indicators estimate the level of adherence to clinical guidelines and care pathways developed to best support breast cancer patients in Luxembourg.