

# Pilot of One-Stop Clinic for Timely Breast Cancer Diagnosis

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## Background

Breast cancer is the most common cancer diagnosed in Singaporean females, accounting for 29.7% of all cancer diagnoses from 2017 -2021 locally<sup>[1]</sup>. There has been a 3-fold increase in breast cancer incidence from 1968 – 1972 to 2017-2021<sup>[1]</sup>. It is the leading cause of cancer mortality in females across all the major ethnicities in Singapore, accounting for 1 in 6 cancer deaths<sup>[1]</sup>.

While the prognosis of breast cancer has improved dramatically, with the local 5-year age-standardised relative survival rate of breast cancer increasing from 49.9% in 1968 – 1972 to 82.5% in 2017-2021<sup>[1]</sup>, there is still much that can be done to optimize timely cancer diagnosis to facilitate earlier initiation of treatment. We aim to assess the time taken for a patient to be worked up for symptoms concerning for breast cancer at Singapore General Hospital (SGH) and implement measures to reduce the time to breast cancer diagnosis.

## Analysis

The **Diagnostic Interval (DI)** is the time from when a patient first presents with symptoms concerning of cancer to the diagnosis of cancer. Currently, there are no standardized timeline targets for patients in Singapore who present to primary healthcare providers with symptoms concerning for breast cancer. A systematic review<sup>[2]</sup> comparing guidelines for breast cancer DI from 8 developed countries is shown in Fig. 1. The median guideline DI across these countries is 28 ±14 (SD) days, with a mean of 31 days. Thus, a DI of 28 days was deemed a feasible target for our institution.

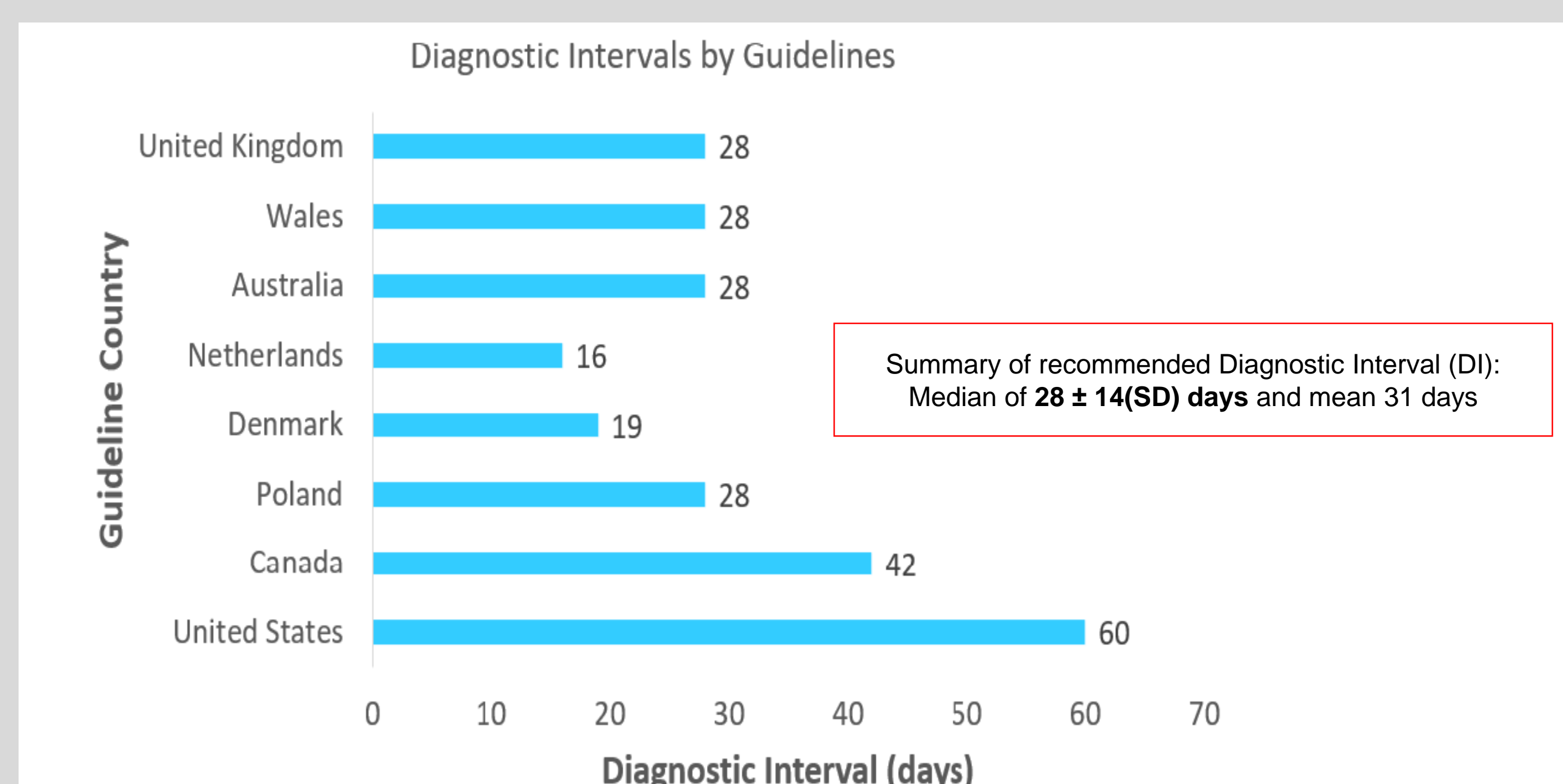


Fig. 1 Bar chart showing the diagnostic interval (days) recommended in different guidelines practiced in 8 developed countries.

In 2022, a Value Driven Care (VDC) initiative was started to improve the DI for breast cancer diagnosis in patients with an urgent referral from their primary healthcare provider for symptom(s) concerning for breast cancer. A typical patient's journey for when they are referred to SGH was mapped out (Fig. 2).

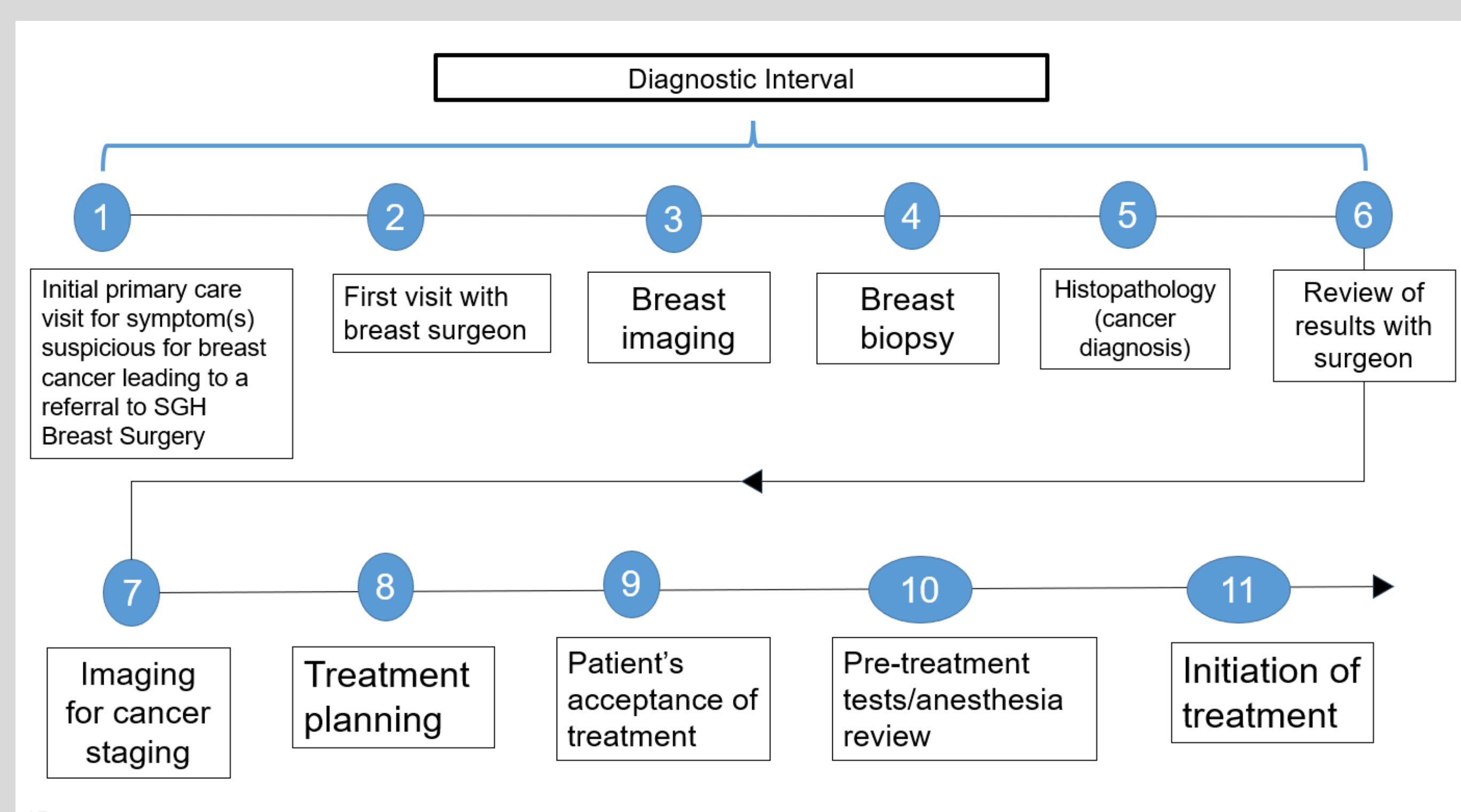


Fig. 2 Typical patient journey milestones when they are referred from primary care to SGH

Data analysis retrospectively performed for Q3 2020 - Q3 2022 found that out of the 960 patients who were referred for evaluation of breast symptoms at SGH, only 494 (51.5%) patients met a diagnostic interval of 28 days. About a third (314/960, 32.7%) of these patients had a final diagnosis of breast cancer, and in this subgroup, 62.0% met the DI of 28 days.

## Intervention

A pilot for the One-Stop clinic, launched in Nov 2022, is a collaboration between the Departments of Breast Surgery, Diagnostic Radiology and Anatomical Pathology. The clinic offers same-day patient review by the breast surgeon, followed by breast imaging and image-guided biopsy by the breast radiologist as indicated. Biopsy samples are marked for expedited processing by the pathologist. It aims to minimize the time intervals between the surgeon's assessment to breast imaging, between breast imaging and biopsy, and between biopsy to histological diagnosis (3 of 6 Clinical Quality Indicators indicators identified as part of the broader VDC project).

## Results

From Nov 2022 to Sep 2023, the pilot One-Stop clinic received 98 patients with 67 (68.3%) meeting a DI ≤28 days. The median time intervals between initial surgeon's assessment to imaging, and between imaging and biopsy in 2022 were reduced to 0 days, from prior intervals of 7 and 7.5 days respectively.

Subgroup analysis revealed that the majority had non-malignant disease and only 24 (24.5%) were eventually diagnosed with cancer. In the cancer subgroup, the majority (83.3%) had a DI ≤28 days compared to 47.1% in the non-cancer subgroup, due to further triaging by the breast surgeon in the clinic.

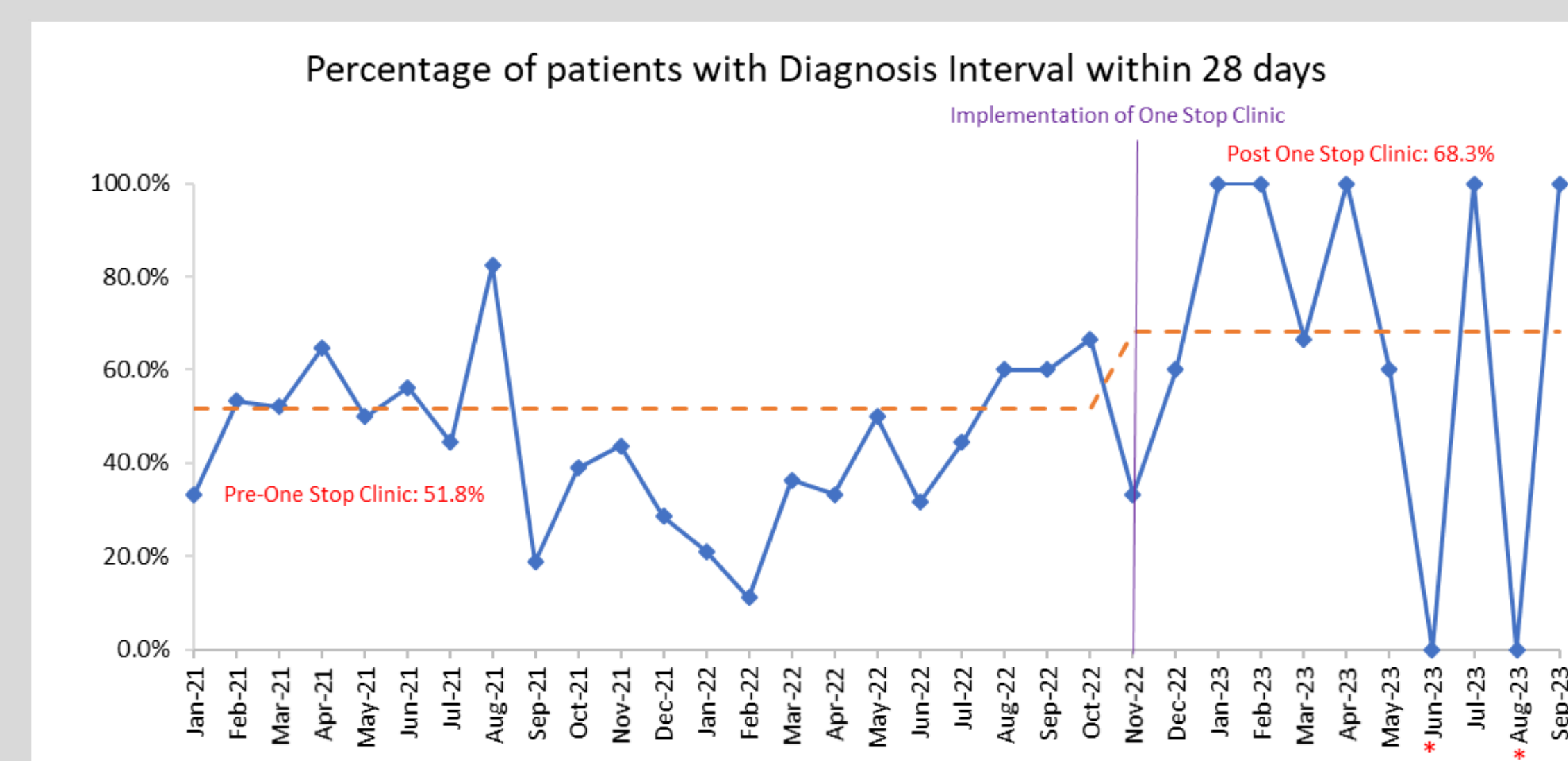


Fig. 3 Monthly distribution of patients (%) with a DI within 28 days, before and after pilot of One-Stop clinic. \*There was 1 patient each in Jun and Aug 2023 with DI of more than 28 days (52 and 69 days respectively)

An informal survey was also done to gather feedback on the One-Stop Clinic. 4 out of 5 patients reported satisfaction with the expedited services and were appreciative of the convenience that One-Stop clinic brought about.

## Conclusion

The One-Stop clinic offers expedited breast cancer diagnosis by minimizing the time intervals between clinical assessment, imaging and biopsy. Further triaging by the surgeon ensures that the majority of patients with clinical features suspicious for cancer, had a DI ≤28 days, to ensure good use of limited resources. Further efforts to address logistical challenges and expand the One-Stop service will be worthwhile to improve the experience for more patients with suspicious breast symptoms seeking healthcare at SGH.

## References

- (1) Singapore Cancer Registry Annual Report 2021
- (2) Moey THL, Abdullah HR, Tan VKM (2022). A systematic review on timely care provision for the workup and diagnosis of symptomatic breast cancer [Unpublished manuscript]