TIMELINE OF CANCER DIAGNOSIS AND TREATMENT IN MALAYSIA: A MULTICENTRE CROSS-SECTIONAL STUDY

ICR MINISTRY OF HEALTH MALAYSIA *Research that matters to patients*

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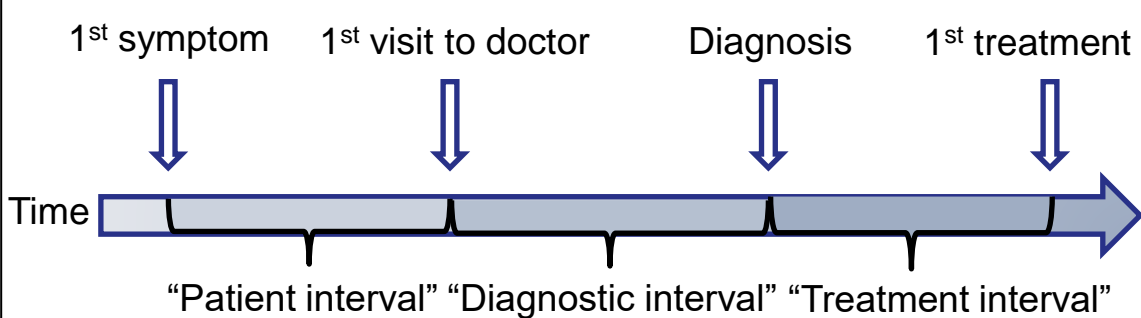
Introduction

Cancer is the fourth common cause of death in Malaysia.[1] Late presentation of stage III and IV cancers is one of the primary challenges in Malaysia. About two-thirds (64%) of cancer patients presented late to the healthcare system in 2012 -2016 which results in lower survival and higher cost of treatment. [1,2,3]

In Malaysia, breast, colorectal, nasopharynx and cervical cancers are among the commonest cancers accounting for 40% of cancer diagnosis between 2007 – 2011 and amenable to early detection.[4]

Objectives

This study explores the timeline from symptoms onset to initiation of cancer treatment which are patient (PI), diagnostic (DI) and treatment (TI) intervals among breast, colorectal, nasopharyngeal and cervical cancers. (Figure 1)

Figure 1 represents the main steps in early diagnosis and treatment

1st symptom · 1st visit to doctor · Diagnosis · 1st treatment

Time

"Patient interval" "Diagnostic interval" "Treatment interval"

Methodology

- This is a multicentre, cross-sectional study involving Malaysian adult cancer patients with primary tumour diagnosed from 2015 – 2020.
- Eight sites were included: Hospital Pulau Pinang, Hospital Raja Permaisuri Bainun, Hospital Kuala Lumpur, Hospital Tengku Ampuan Rahimah, Hospital Selayang, Institut Kanser Negara, Hospital Tuanku Ja'afar and Hospital Raja Perempuan Zainab II.
- Data were collected using patient self-administer survey and from medical records.

Results II

- A total of 596 patients were recruited in this study. (Figure 2) The overall median age was 56 years old, with most patients (70.1%) had at least one existing comorbid condition.

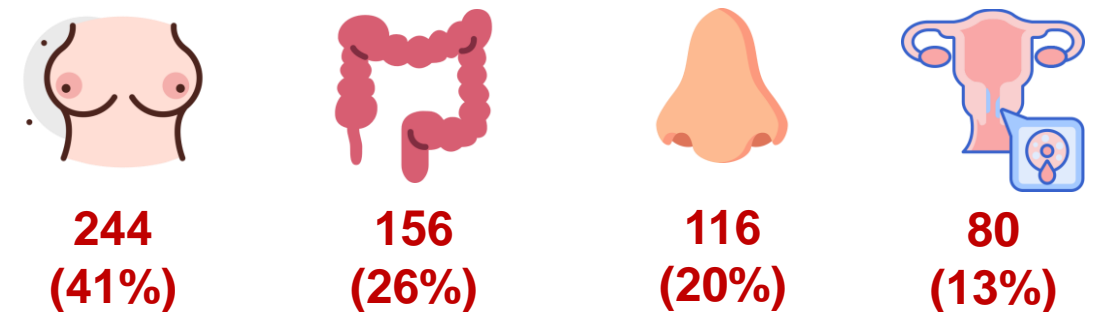**Figure 2 represents the proportion of cancer patients in this study**

244 (41%) · 156 (26%) · 116 (20%) · 80 (13%)

Table 1. Patient Main Characteristics

Patient characteristics	Breast (N = 244)	Bowel (N = 156)	NPC (N = 116)	Cervical (N = 80)
Age in years, median (IQR)	55 (16.3)	60 (17.4)	52 (17.4)	54 (21)
Sex, n (%)				
Male	0 (0)	95 (60.9)	93 (80.2)	0 (0)
Female	244 (100)	61 (39.1)	23 (19.8)	80 (100)
Ethnicity, n (%)				
Malay	138 (56.6)	78 (50.0)	36 (31.0)	38 (47.5)
Chinese	70 (28.7)	64 (41.0)	74 (63.8)	33 (41.2)
Indian	32 (13.1)	14 (9.0)	2 (1.7)	5 (6.2)
Others	4 (1.6)	0 (0.0)	4 (3.6)	4 (4.8)
Education level, n (%)				
PhD/ Masters/ Degree/Diploma/ Form 6	61 (25.0)	39 (25.0)	21 (18.1)	19 (23.7)
Secondary education (GCE O-Level equivalent) and below	128 (51.4)	67 (42.4)	64 (55.2)	36 (45.0)
Primary education and below	45 (18.4)	46 (29.5)	27 (23.3)	19 (23.8)
No formal education	10 (4.1)	4 (2.6)	4 (3.4)	6 (7.5)
Personal Income				
RM 6001 and above	9 (3.7)	8 (5.1)	5 (4.3)	1 (1.2)
RM 3000 – 6000	30 (12.3)	21 (13.5)	14 (12.1)	5 (6.2)
RM 1000 - 3000	72 (29.5)	71 (45.5)	59 (50.9)	27 (33.8)
RM 0 -999	130 (53.3)	56 (35.9)	37 (31.9)	46 (57.5)
Refused to answer	3 (1.2)	0 (0.0)	1 (0.9)	1 (1.2)

- PI is the shortest median interval while DI is the longest median interval across the cancer types. (Figure 3)
- Breast cancer timelines are the closest to the World Health Organization's recommendations of one months target indicator per interval. (Figure 4)

Results II

FIGURE 3. THE DISTRIBUTION OF PATIENT, DIAGNOSTIC AND TREATMENT INTERVALS BY CANCER TYPES
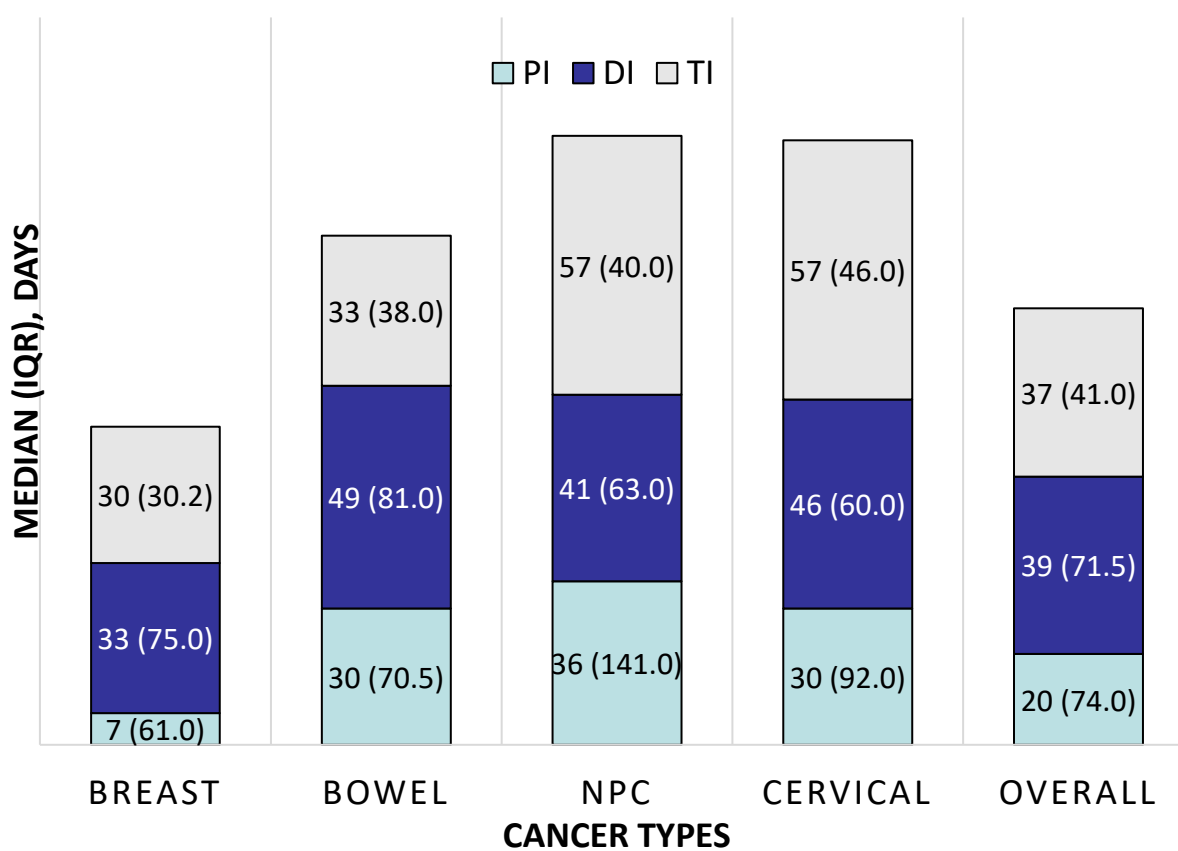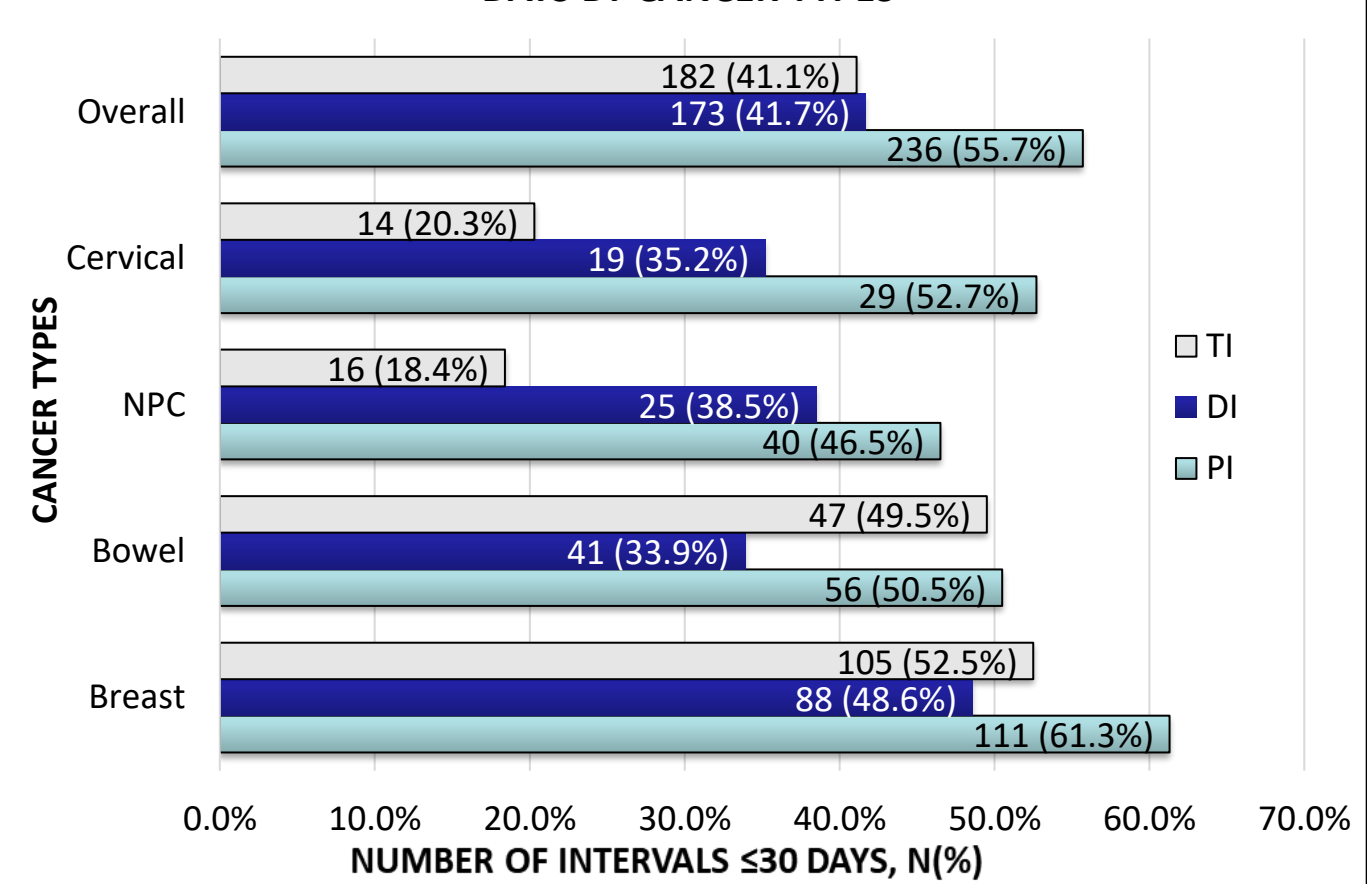

Legend: PI, DI, TI
MEDIAN (IQR), DAYS vs CANCER TYPES

- BREAST: TI 30 (30.2), DI 33 (75.0), PI 7 (61.0)
- BOWEL: TI 33 (38.0), DI 49 (81.0), PI 30 (70.5)
- NPC: TI 57 (40.0), DI 41 (63.0), PI 36 (141.0)
- CERVICAL: TI 57 (46.0), DI 46 (60.0), PI 30 (92.0)
- OVERALL: TI 37 (41.0), DI 39 (71.5), PI 20 (74.0)

FIGURE 4. THE DISTRIBUTION OF INTERVAL LENGTH ≤ 30 DAYS BY CANCER TYPES

Legend: TI, DI, PI
NUMBER OF INTERVALS ≤30 DAYS, N(%)

- Overall: TI 182 (41.1%), DI 173 (41.7%), PI 236 (55.7%)
- Cervical: TI 14 (20.3%), DI 19 (35.2%), PI 29 (52.7%)
- NPC: TI 16 (18.4%), DI 25 (38.5%), PI 40 (46.5%)
- Bowel: TI 47 (49.5%), DI 41 (33.9%), PI 56 (50.5%)
- Breast: TI 105 (52.5%), DI 88 (48.6%), PI 111 (61.3%)

Discussion and Conclusions

Strategies to shorten DI across cancer types is imperative towards improving cancer outcomes. As the interval performances varied between cancer types, it is recommended for early diagnosis interventions to be cancer specific. The WHO recommended that the proportion of target indicator is > 80% of patients within a month duration for the main intervals.[2]

References

1. National Cancer Registry, National Cancer Institute, Ministry of Health Malaysia (2018). Malaysian Study on Cancer Survival (MySCan).
2. World Health Organization (2017) Guide To Cancer Early Diagnosis
3. Azizah AM, et al. (2019) Malaysia National Cancer Registry Report 2012-2016
4. Azizah AM, et al. (2016) Malaysian National Cancer Registry Report 2007-2011