

Deriving Initial Disease Episode from Discrete Diagnosis

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- INTRO:**
- Capturing 'date of initial cancer diagnosis' requires additional data collection effort
 - Within many institutions, the tumor registry (TR) fulfills this data collection effort for subpopulations of patients
 - In the absence of TR data, ascertainment of the initial date of diagnosis from electronic health record (EHR) can be challenging and might require abstraction from pathology reports or medical charts

- Objective:**
- To assess concordance between 'date of initial diagnosis' captured within TR and 'date of initial encounter' captured within EHR
 - To evaluate the impact of information on biopsies (performed within or outside the institution) and other diagnostic procedures on the concordance

- METHODS**
- Data:** EHR data with linkage to the institutional TR
 - 79,968 breast cancer
 - 13,181 pancreatic cancer
 - 45,083 prostate cancer
 - Setting:**
 - Northwestern University (NW)
 - Memorial Sloan Kettering (MSK)
 - Tufts Medical Center (TMC)
 - Columbia University Medical Center (CUMC)

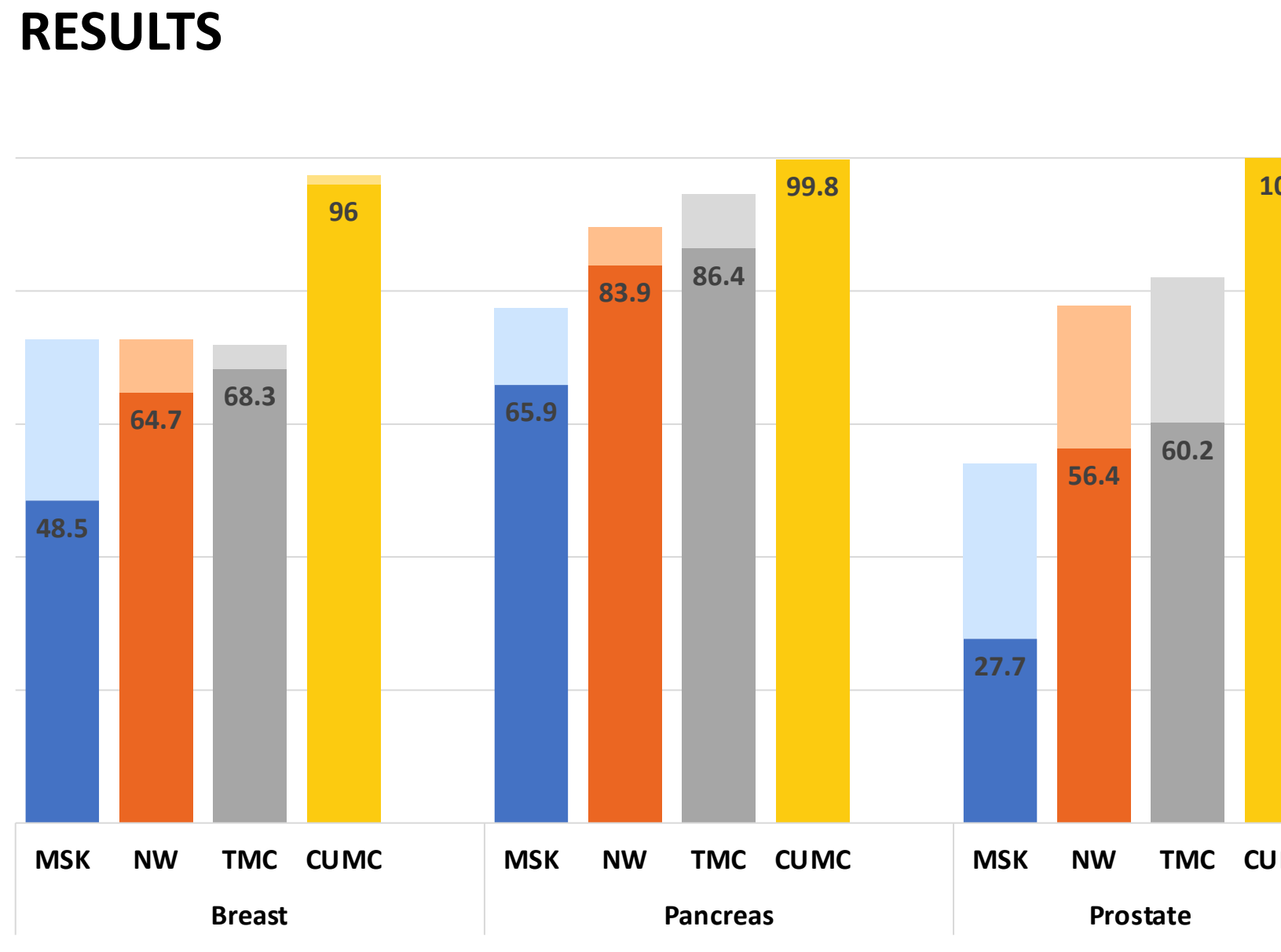


Fig 1. % of tumors with EHR initial date of diagnosis within 30 days (dark bars) and 60 days (entire bars) of tumor registry date of diagnosis

- Variability in the difference between TR date of diagnosis and date of initial EHR encounter in across databases and tumor type (except for CUMC) (Table 1, Figure 2)
- Less pronounced difference in patients who had a biopsy procedure performed within the institution (Figure 3)

Discrepancy between the initial EHR encounter and Tumor Registry date of diagnosis supports the need for more comprehensive approaches in identifying date of cancer diagnosis from EHR.

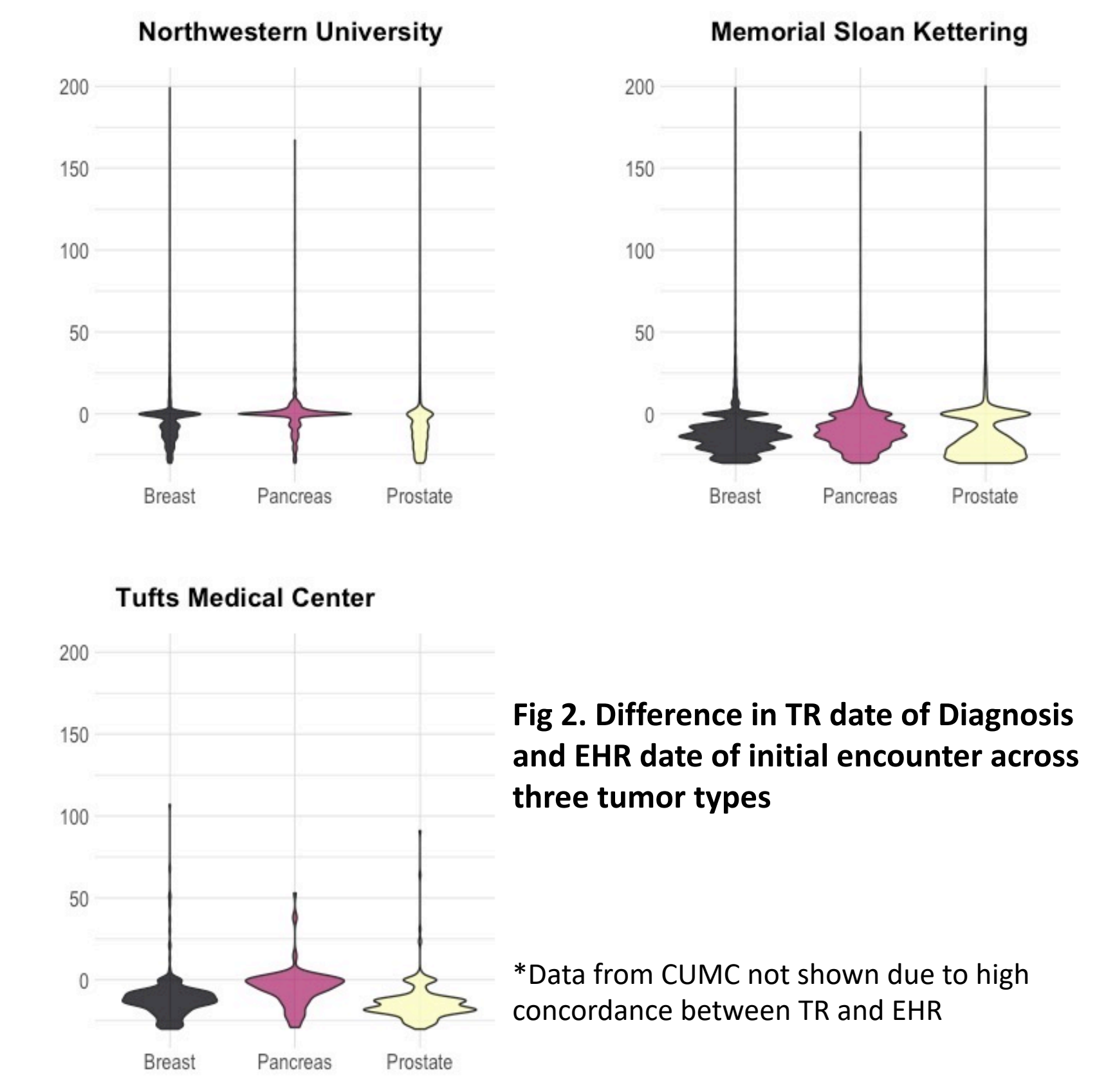


Fig 2. Difference in TR date of Diagnosis and EHR date of initial encounter across three tumor types

Fig 3. Distribution of difference between TR date of diagnosis and date of EHR first encounter in breast, pancreas, and prostate cancer in NW and MSK in all patients (black), those with biopsy within the institutions (pink), and those with biopsy outside the institution (blue).

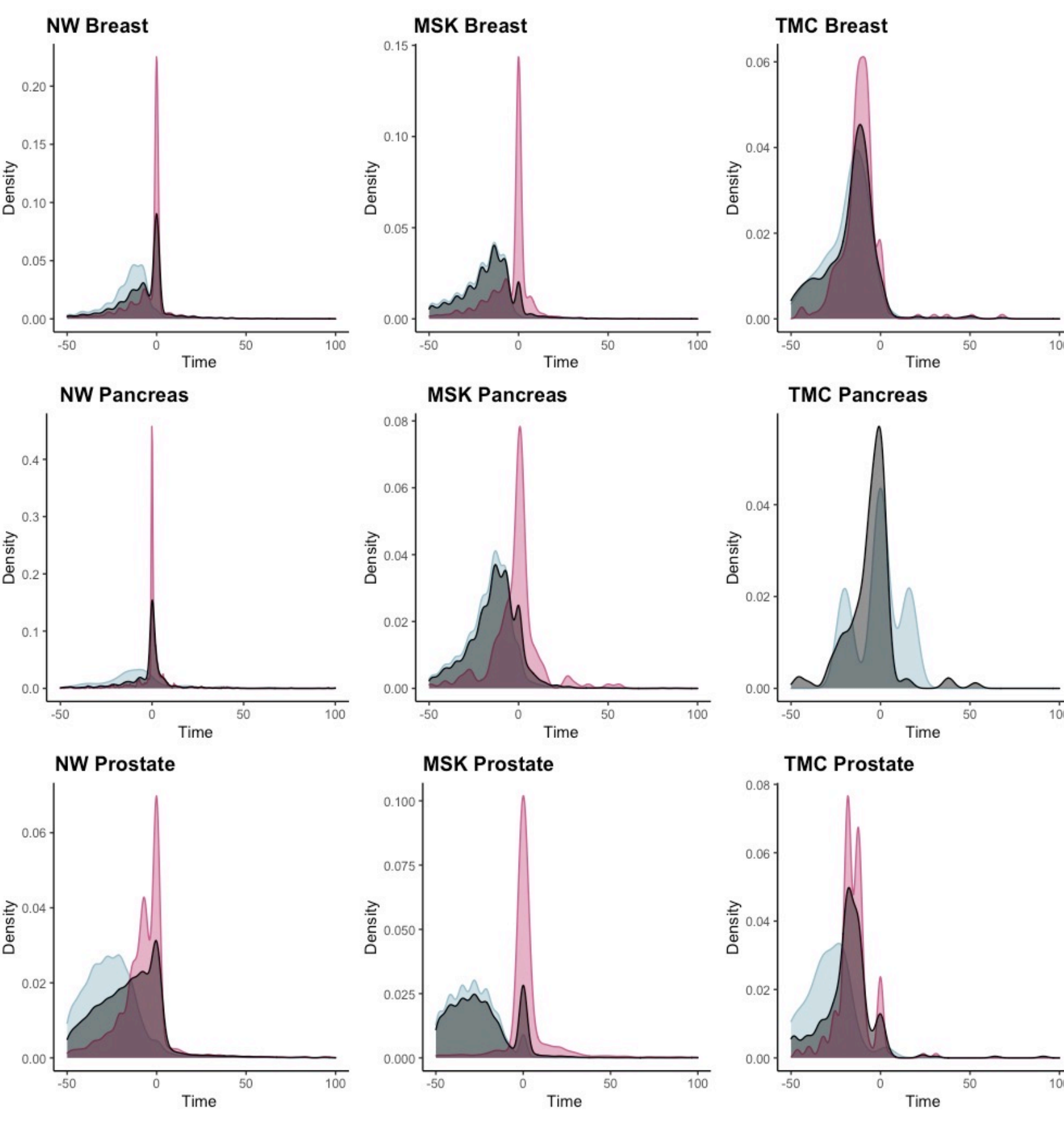
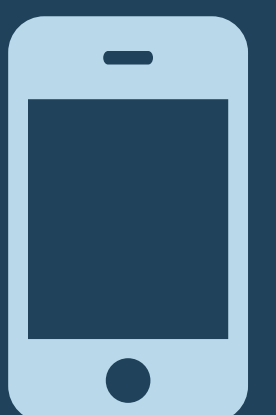


Table 1. Difference (median (IQR)) of the EHR date of initial encounter, TR date of diagnosis, biopsy

		Breast	Pancreas	Prostate
Difference between EHR date of initial encounter and TR date of Dx	MSK	-26 (-95, -11)	-18 (-47, -7)	-52 (-178, -27)
	NW	8 (0, 29)	0 (-1, 9)	21 (6, 47)
	TMC	-13 (-29, -7.5)	-5 (-14, -0.75)	-22.5 (-61, -12.8)
Difference between biopsy and TR date of diagnosis	MSK	23 (0, 62)	8 (0, 26.5)	132 (0, 433)
	NW	0 (-19, 0)	0 (0, 0)	0 (0, 0)
	TMC	0 (-6, 0)	0 (-3, 0)	0 (-47, 0)
Difference between biopsy and EHR date of initial encounter	MSK	9 (0, 36)	3 (1, 14)	56 (0, 173)
	NW	0 (-21, 0)	0 (-2, 0)	5 (0, 13)
	TMC	0 (0, 0)	0 (-2, 3)	0 (-15, 15.8)



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