

Using Administrative Data to Assess Quality of Diagnostic Care in Breast Cancers - A Validation Study in Alberta, Canada

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Brief Biography Yan Yuan

2011- present, Assistant Prof; School of Public Health, University of Alberta

2008-2011, Biostatistician, Population Health Research, Cancer Control, Alberta Health Services

2003 MMath, 2008 PhD in Statistics, University of Waterloo

1999-2001 Lab manager and research technician in an Animal behavior lab, University of Guelph, Canada

1999, MSc in Animal Behavior, Michigan State University, USA

1996 BSc in Biochemistry, Nanjing University, China

Background and Objectives

- Quality of breast cancer diagnostic care – early detection and timely diagnosis.
- Potential/perceived issues with administrative health data
 - Lack of details
 - Data quality
- To develop and validate an algorithm for the administrative health data to identify the **first test** in breast cancer patients, through assessing the estimates of
 - the percent of screen/symptom-detected breast cancers;
 - the length of the diagnostic interval in screen vs. symptom-detected breast cancers.

Data Sources

Alberta Cancer Registry (Identify cohort)

- Patient ID
- Demographics
- Tumor details
- Date of breast cancer diagnosis
- Method of diagnosis
- Diagnosed **2007 to 2010**

Alberta Society of Radiologists (Fee-for-service radiologists)

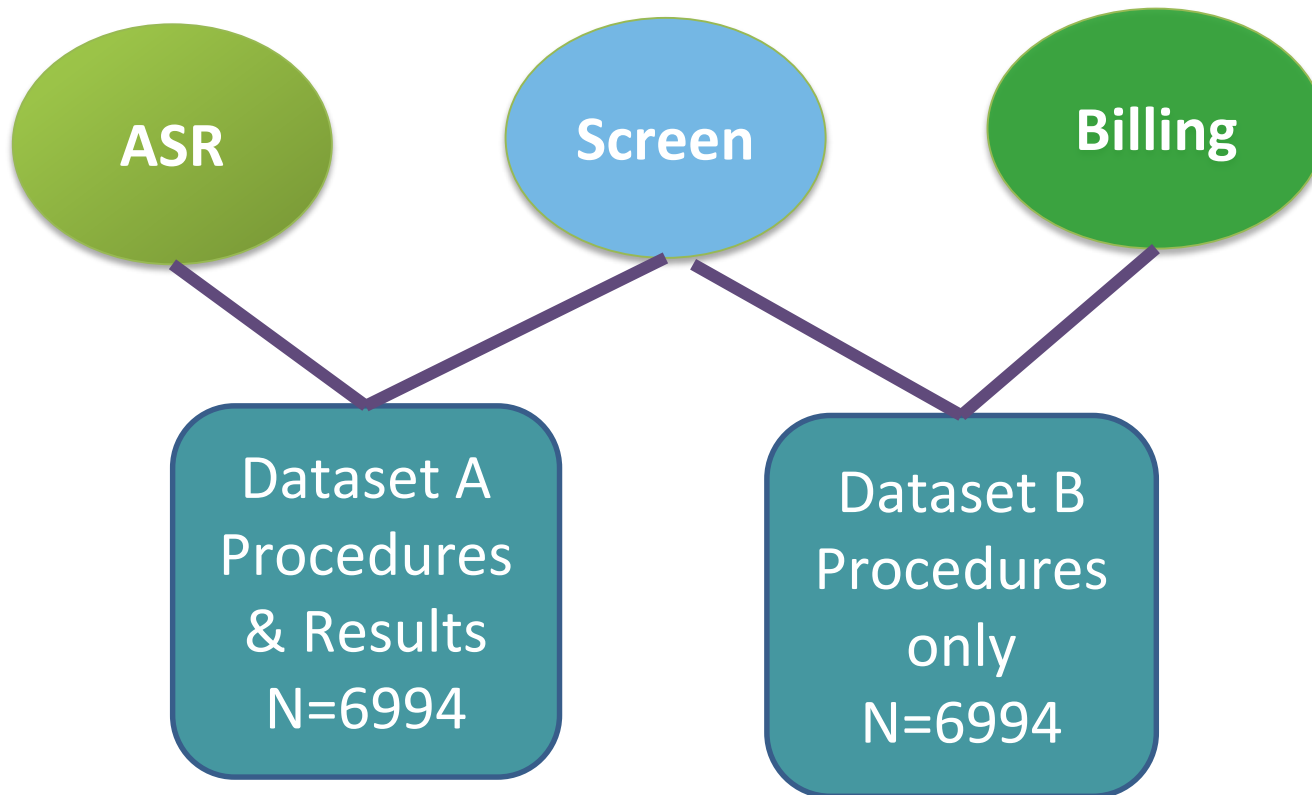
- Patient ID
- Dates/results of screening and diagnostic mammograms
- Dates/results of breast ultrasound and biopsy
- ASR 2006-2010**

Screen Test (Salaried radiologists)

- Patient ID
- Dates/results of screening and diagnostic mammograms
- Dates/results of breast ultrasound and biopsy
- Screening 2006-2010**

Physician Claims (Fee-for-service radiologists bill the province)

- Patient ID
- Dates of screening and diagnostic mammograms
- Dates of ultrasounds and biopsy
- Billing 2006-2010**

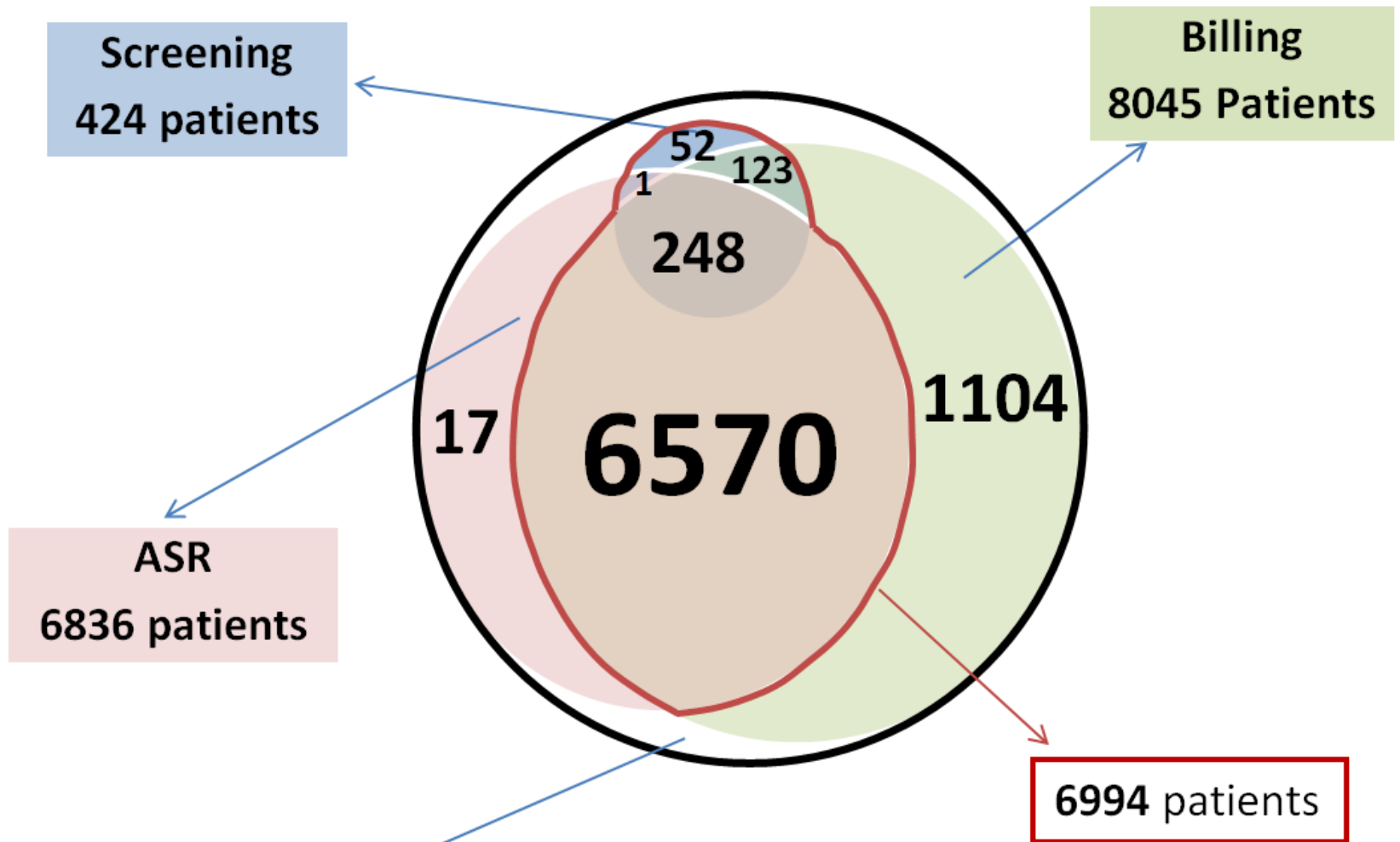


Inclusion Criteria

- Women diagnosed with histological confirmed, first-ever primary breast cancer in Alberta between 2007 and 2010
- At least one record in both datasets A and B in the year prior to breast cancer diagnose date

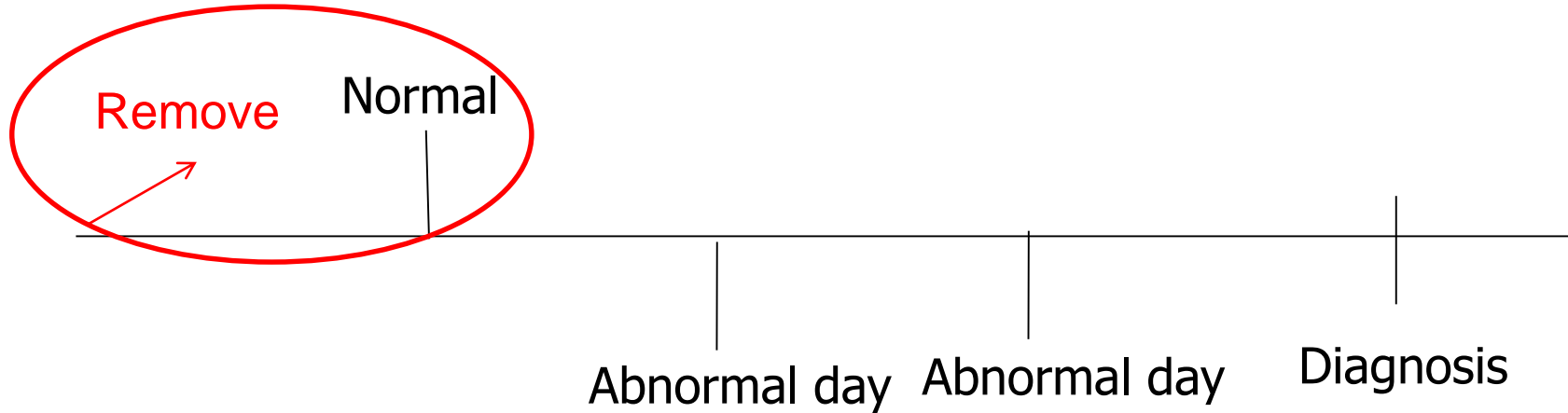


Venn Diagram for Datasets

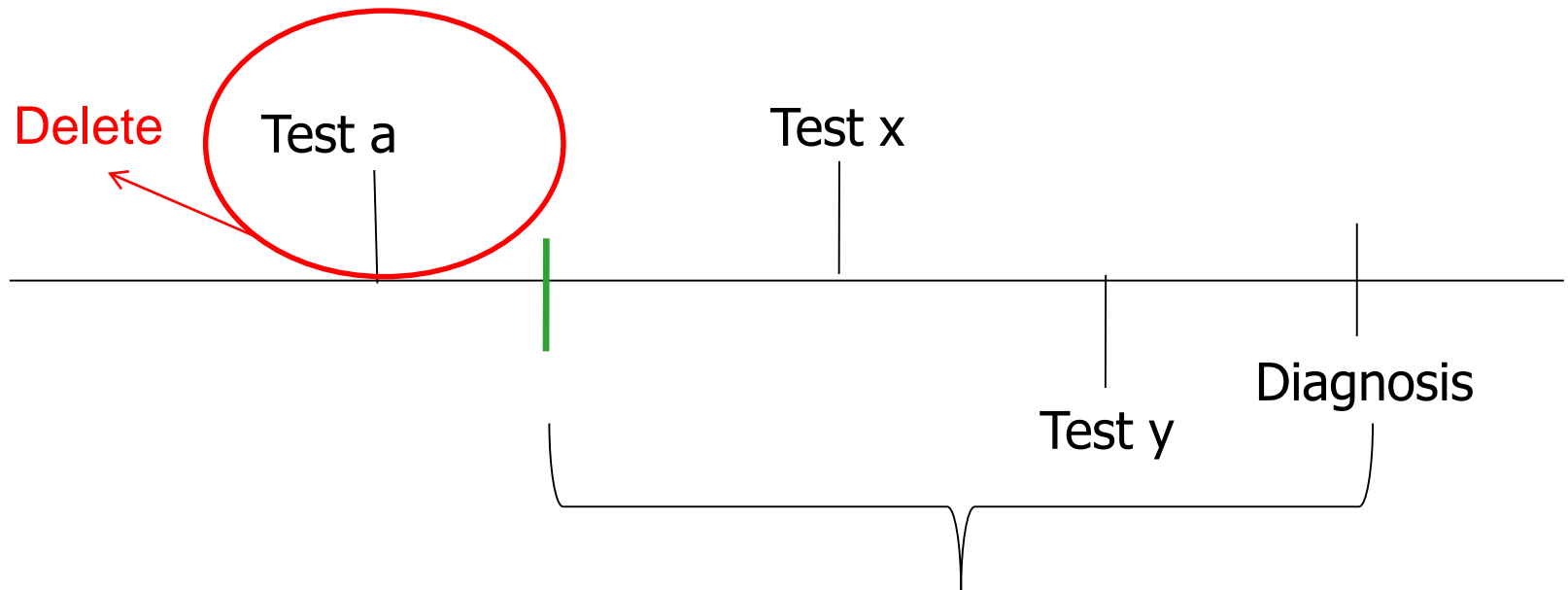


264 patients could not be found in any of the three datasets
8379 Patients in total

Dataset A: Using **Test Results** of the day to Determine “First test” and Test Type to Determine Detection Mode – the ‘Truth’

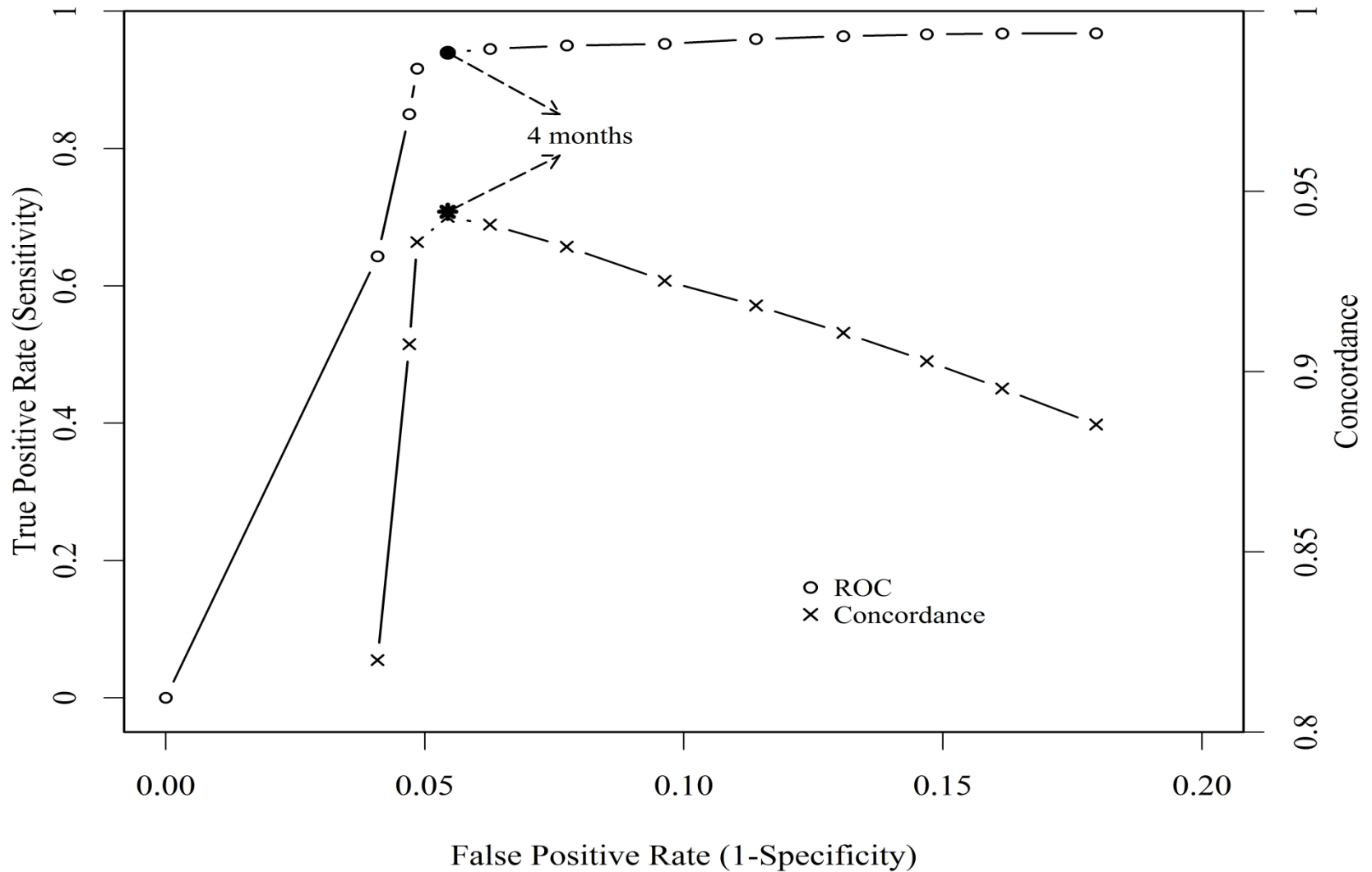


Dataset B: Using **Time** to Determine "Start" and Test Type to Determine Detection Mode



Look-back period
m months
 $m = 1, 2, 3, \dots, 12$

Results



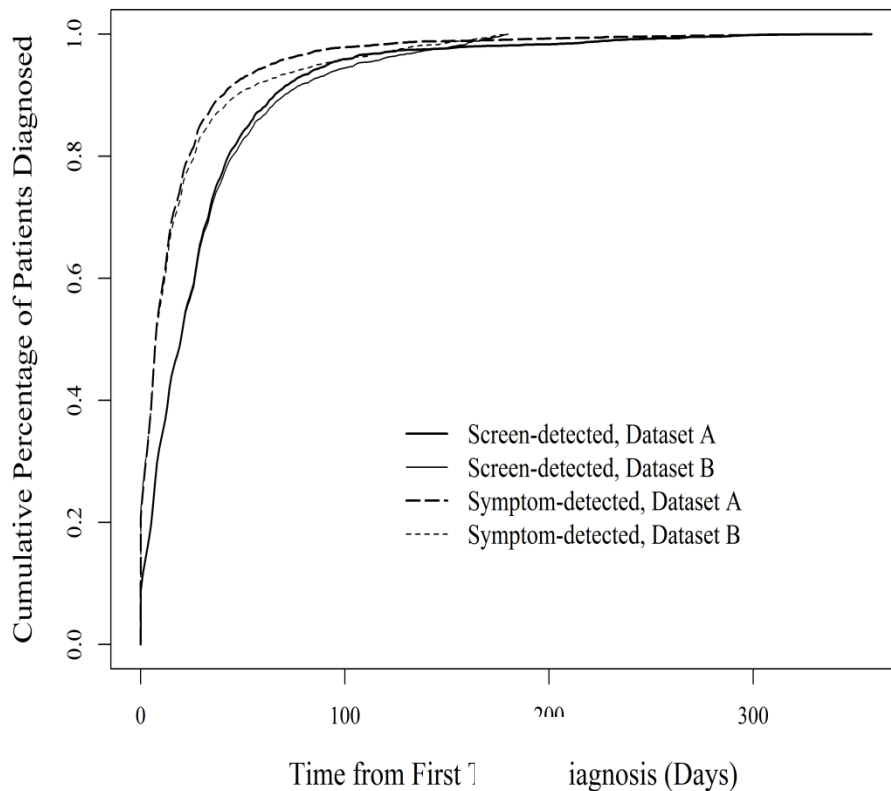
Screening mammo < 4 months with normal results

Dataset B: no test results		Dataset A: with test results		
		Screen-detected	Symptom-detected	Total
		Look-back time	N (%)	N (%)
4 months	Screen-detected	2893 (41)	213 (3)	3106 (44)
	Symptom-detected	186 (3)	3702 (53)	3888 (56)
6 months	Screen-detected	2925 (42)	303 (4)	3228 (46)
	Symptom-detected	154 (2)	3612 (52)	3766 (54)
Total		3079 (44)	3915 (56)	6994

Screening mammo > 4 months with abnormal results, or the 1st test is screen mammo in A but diagnostic mammo in B

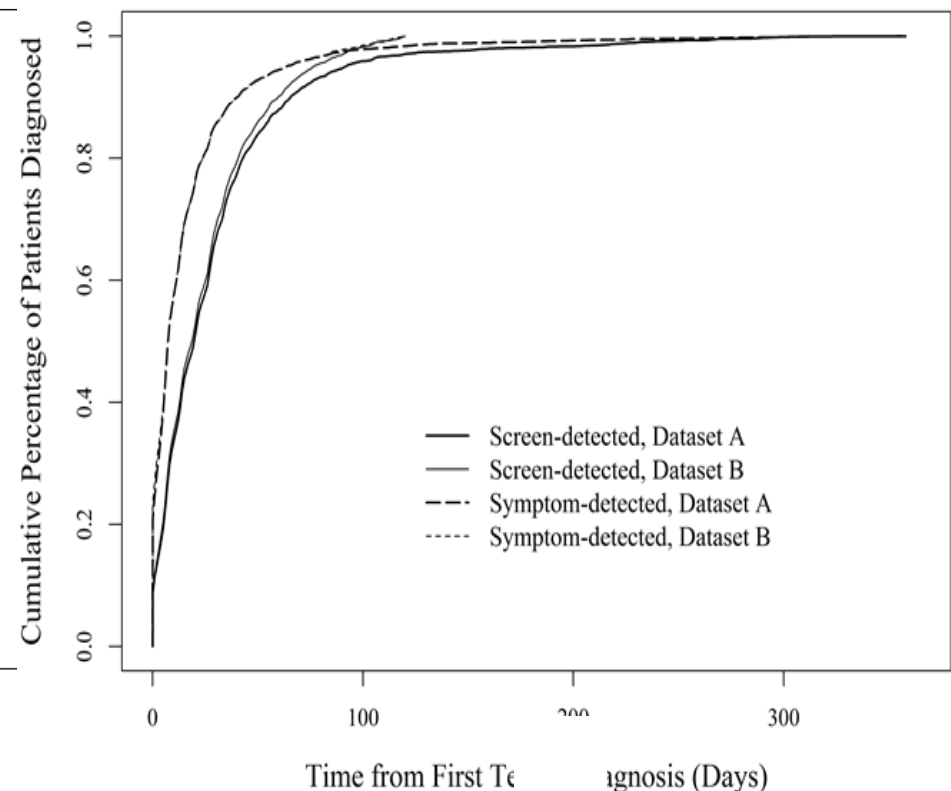
Time from the 1st Relevant Test to Diagnosis

6 months look-back



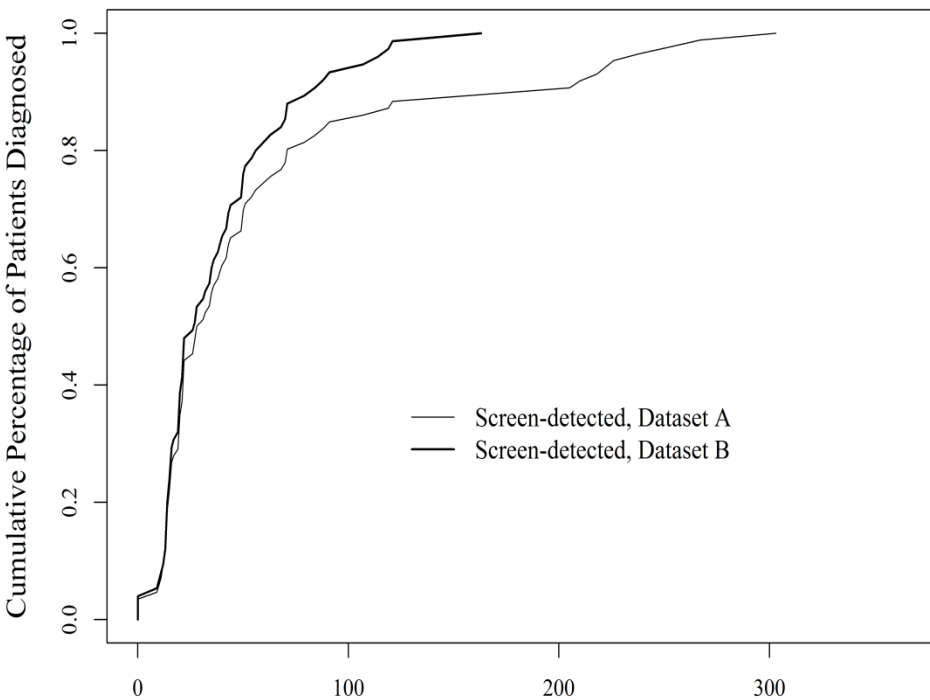
b

4 months look-back



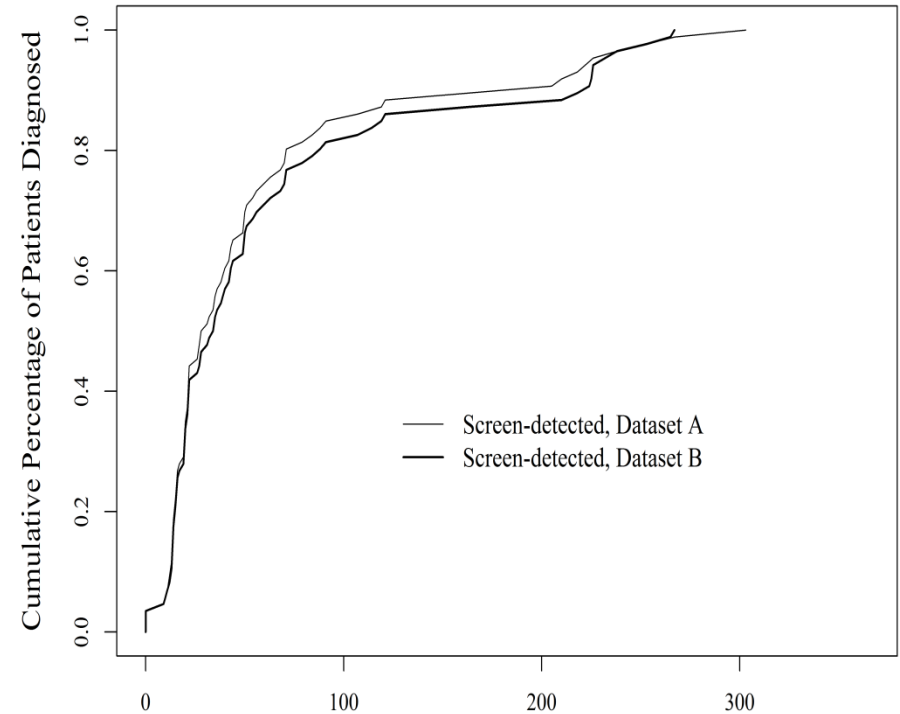
a

Health Region 8 of Alberta (a rural region)



Time from First Test to Diagnosis (Days)

6 months look-back



Time from First Test to Diagnosis (Days)

9 months look-back

Conclusion and Application

- There is excellent consistency in identifying the first test which determines the detection mode and time to diagnosis, when the administrative dataset with 4 to 6 look back time is compared to the dataset with test results.
- Important geographic variation exists.
- Applied to a 2004-2010 Alberta breast cancer cohort and assessed clinical, demographic and health system factors associated with breast cancer detection mode and diagnostic interval (shown in poster #4).

Thank you

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