The Cost of Cancer in England: Evidence from Population-Based Patient-Level Data

Mauro Laudicella, PhD
City University London

September 2016

Project Overview

- Three Years Research Project

- Three Research Questions:
    1. What is the Cost of Cancer Care in England?

    2. What is the impact of Routes to Diagnosis on following resource use and Costs of Care?

    3. What is the impact of Primary Care on Emergency Admissions and their Costs?

Today Presentation

– What is the Cost of Cancer Care in England?

- Pathways of Resource Use in different Phases of Care
- Variation in Resource Use over time
- Total Resource Use compared to a "Control" Population

Cost of care for cancer patients in England: evidence from population-based patient-level data

Mauro Laudicella[*,1], Brendan Walsh[1], Elaine Burns[2] and Peter C Smith[3]

Objectives

- To expand existing patient-level data allowing for the analysis of the costs of the patient care pathways

- To examine pathways in the use of heath resources by patients with main four cancer in England

Motivations (1)

- Evidence on Resource Use and Costs of Care can support policy makers:
  - Planning future allocation of resources
    - What will be the cost of cancer if we do nothing?

  - Planning Health Interventions
    - What will be the cost of cancer if we improve survivals? If we reduce incidence?
    - What are the impacts of alternative policy interventions on pathways of care and resource use?

Motivation (2)

- England has very rich data on cancer patients
  - Patient-level data on all cancer patients in England (NCDR) linked to their utilisation of Hospital Care (HES)

  - Limited use in cost analysis due to lack of cost data
    - Existing Cost Studies are based on Simulation Models
    - Assumptions on the pathways of care rather than observations

Data

- We combined millions of data records at the Patient-Level covering the whole England from
  - Cancer Registry data (NCDR)
  - Hospital Inpatient and Outpatient admissions (HES dataset)
  - Hospital costs of care delivered to patients (NSRC)

Study Sample

|	Colorectal	Breast	Prostate	Lung
Patients 18+ Diagnosed between 1st Jan 2001 and 31st Dec 2010	281K	357K	284K	282K

Hospital Activity

	Colorectal	Breast	Prostate	Lung	Total
Inpatient Admissions	1.5M	1.7M	1M	0.9M	5.1M
Outpatient Visits	3.8M	7.1M	4.8M	2.4M	18.1M

Costs & Resource Use

- Costs as an Indicator of Resource Use
  - Purged from inflation and price variation over time

- What kind of Costs?
  - Costs of Utilisation of Inpatient and Outpatient Services to Hospital Providers
    - Different from costs to commissioners (CCGs)
   - Different from costs to society (value of lives lost)

- What type of Cost Indicators?

Incidence Costs per Patient
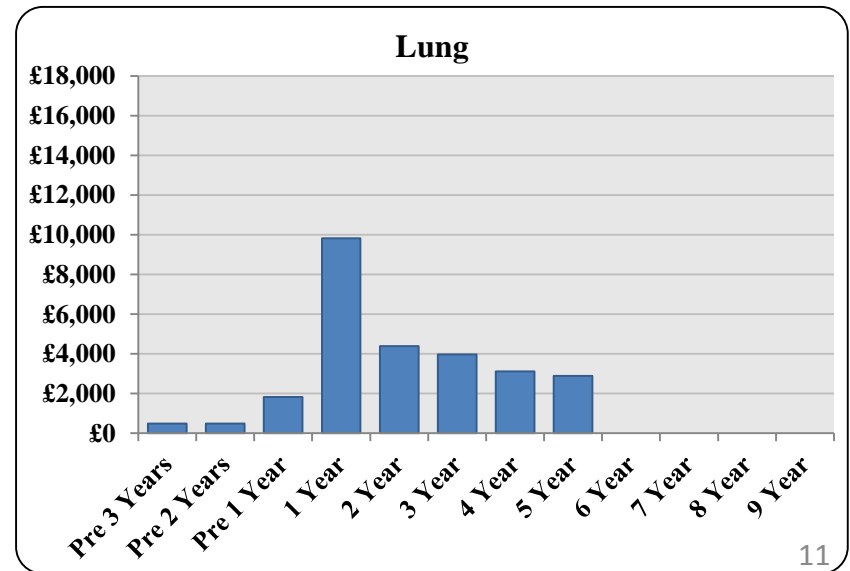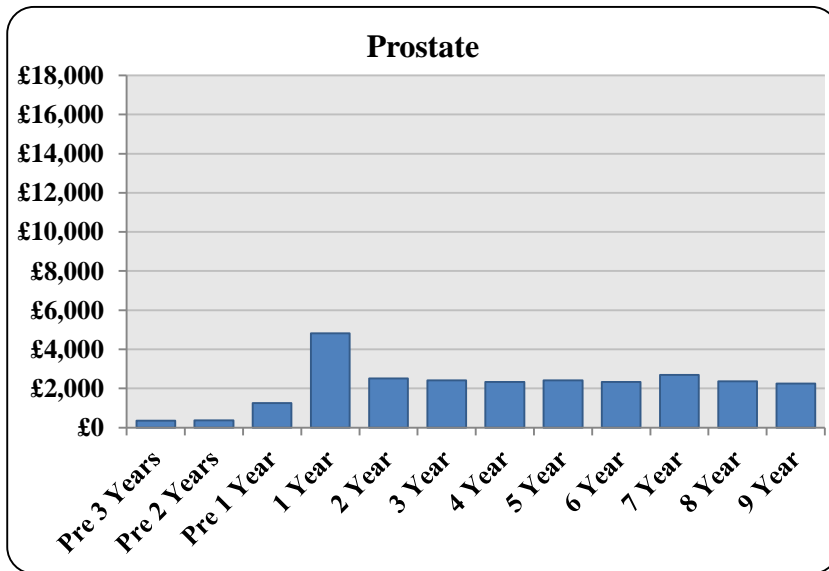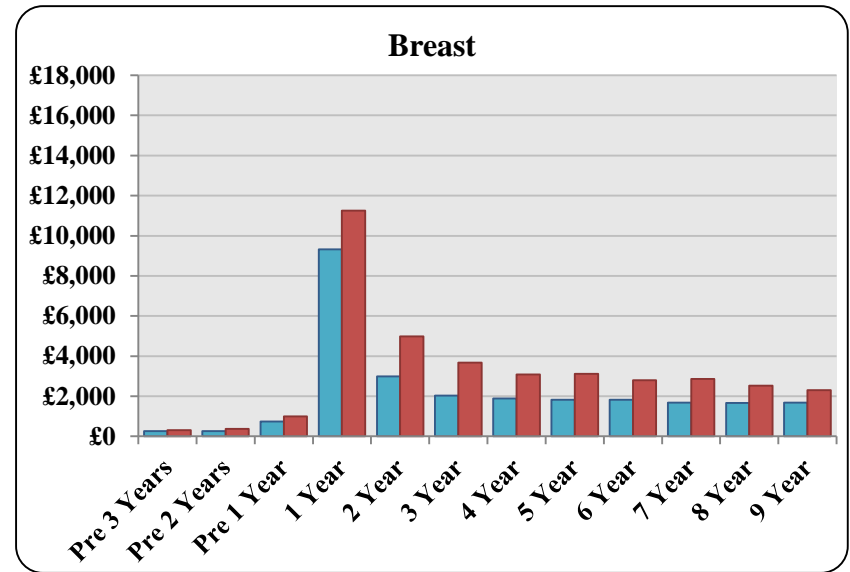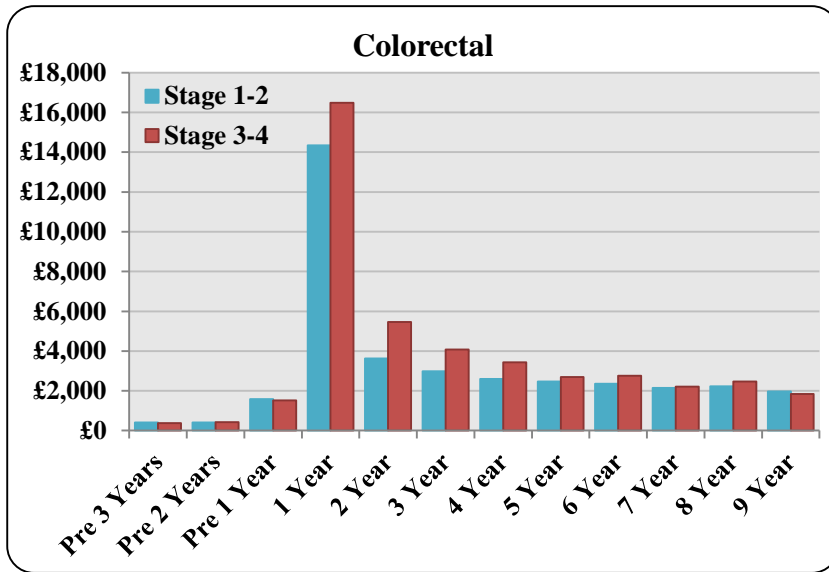
Phases of Care Costs

- **Initial Phase**: The first six months immediately following diagnosis
- **Terminal Phase**: The final 12 months of life
- **Continuum Phase**: The time period between the initial and terminal phase
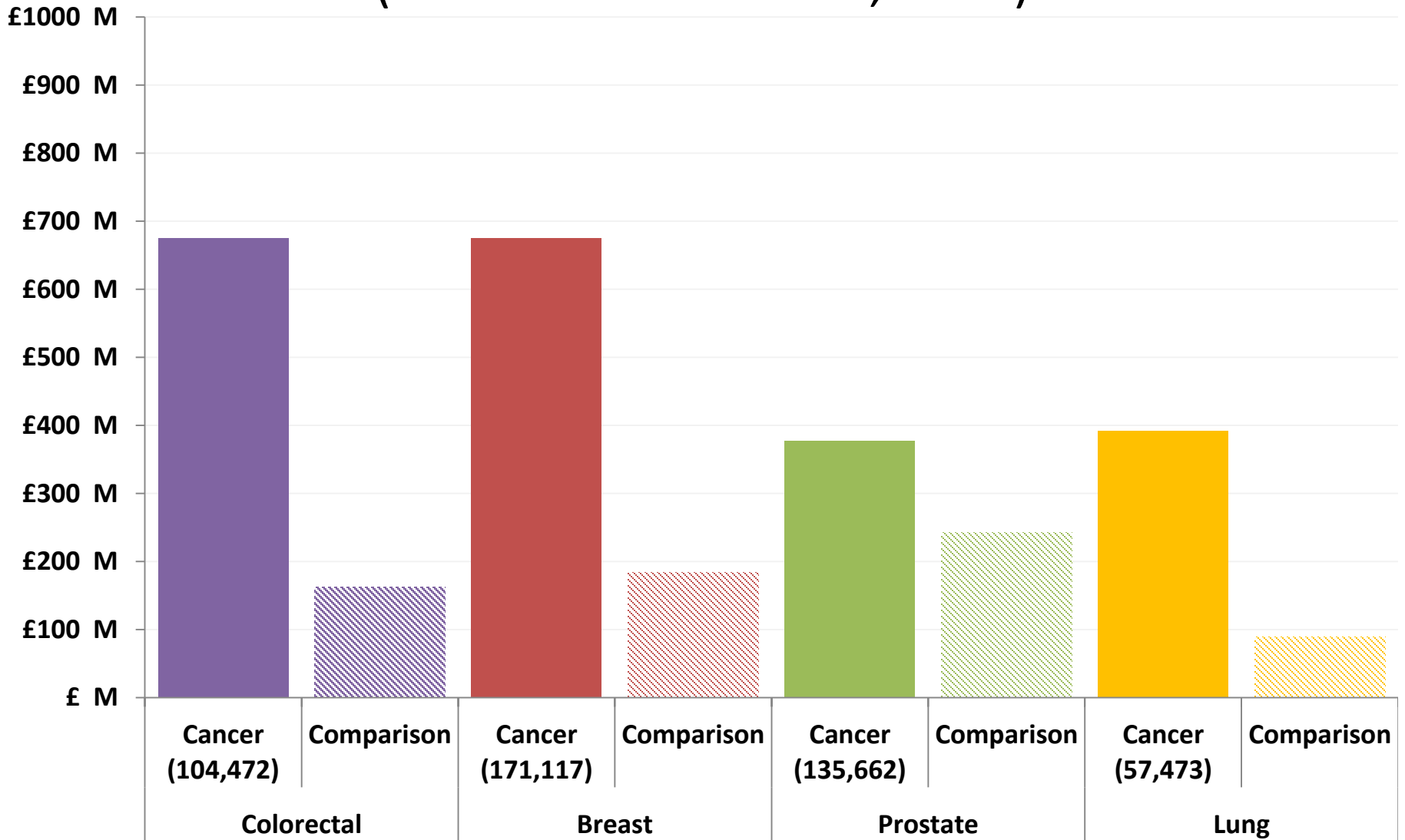
Phases of Care Costs in Patients with Increasing Survival Time
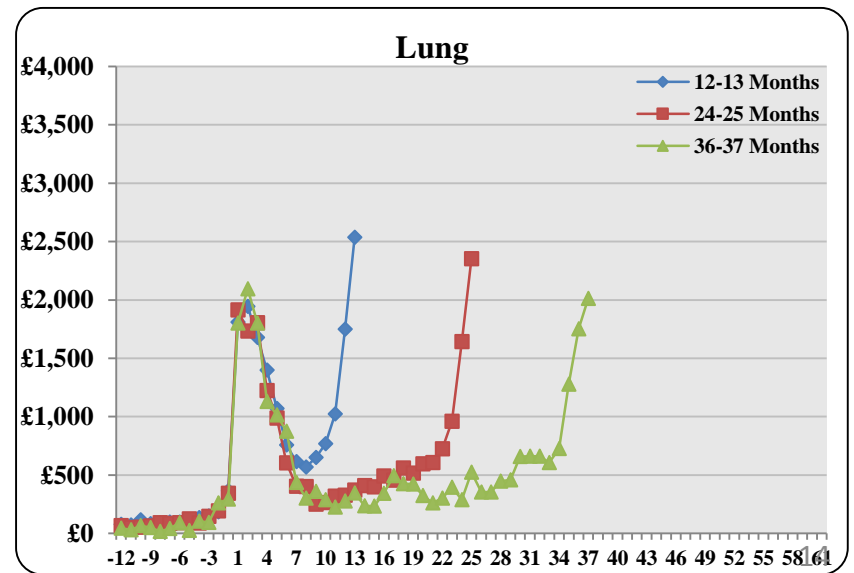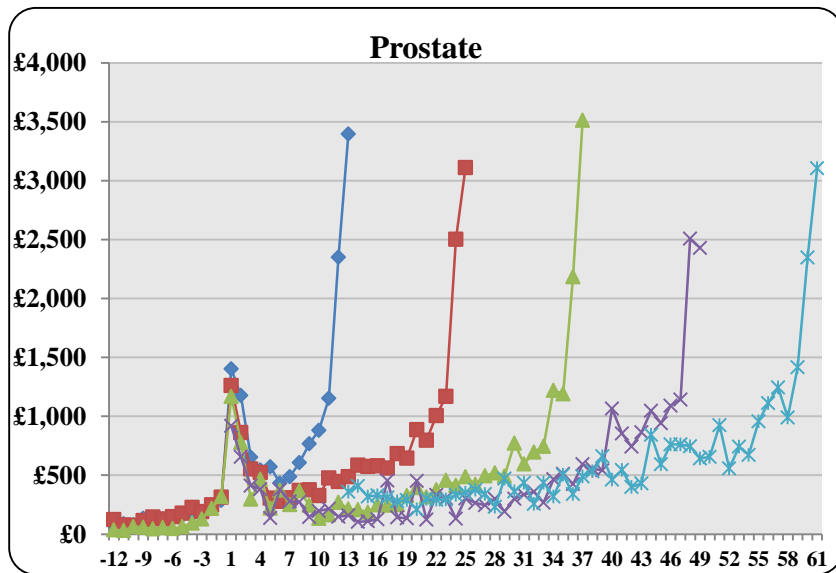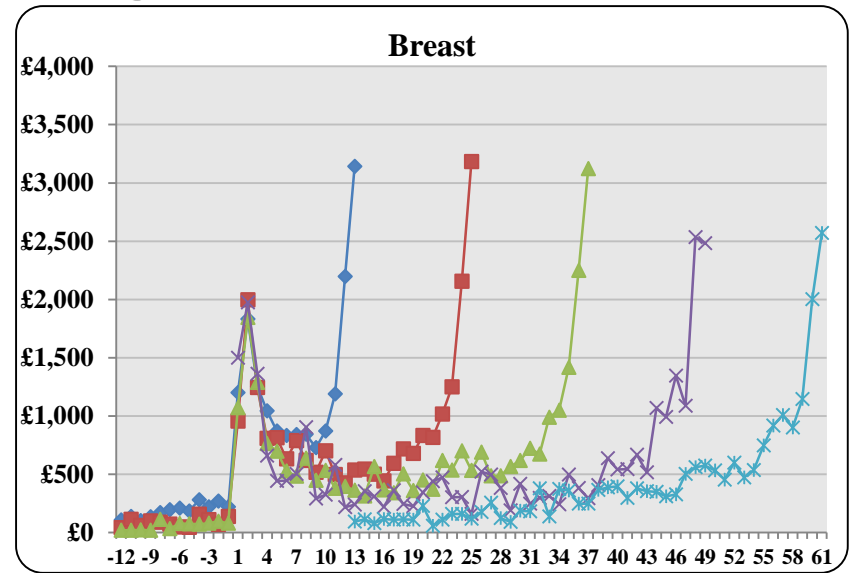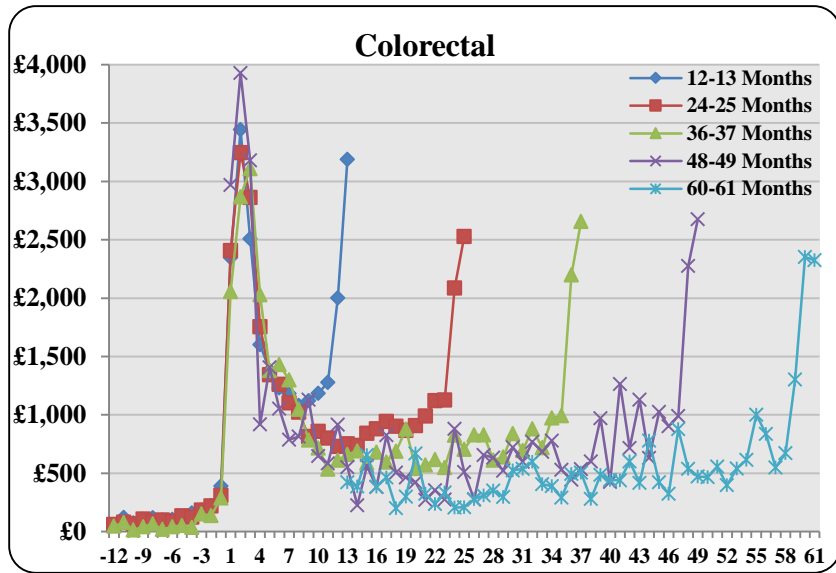
Trends in Total Costs by Phases of Cancer Care
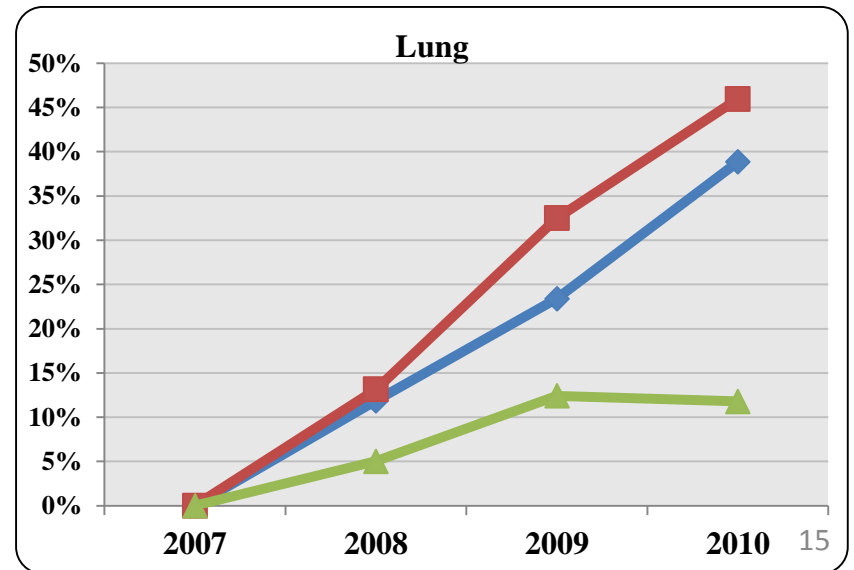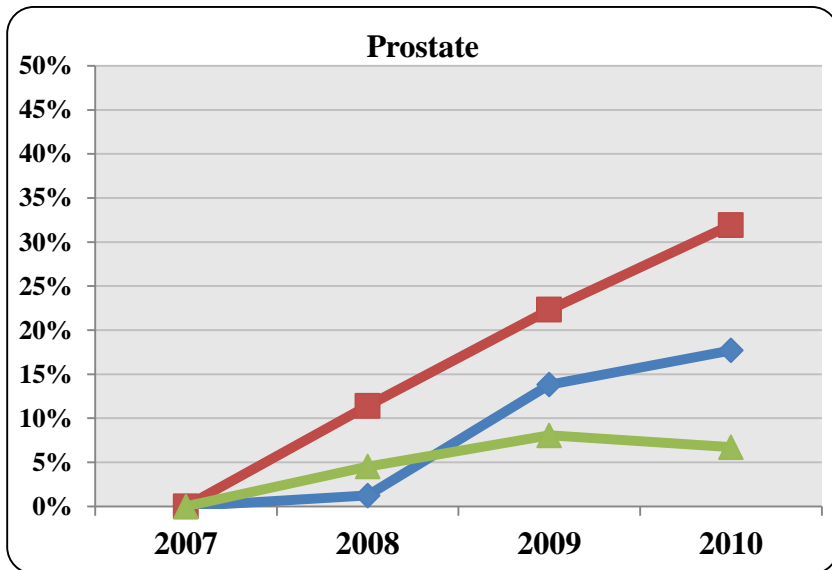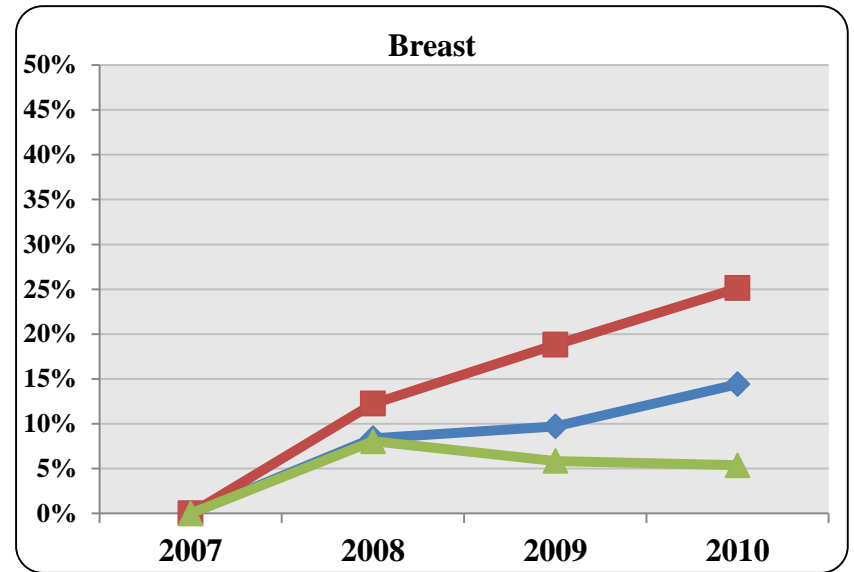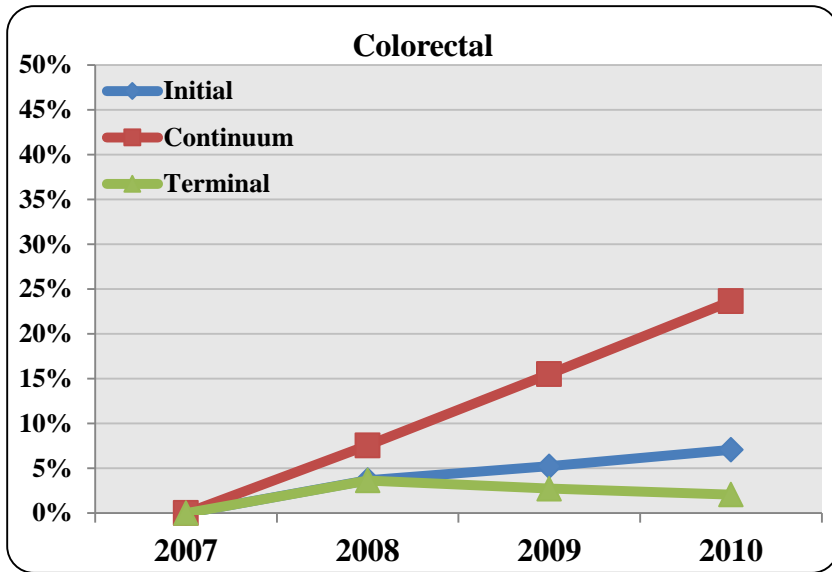
Total Costs of Cancer vs Comparison Group
(Five-Year Prevalence; 2010)

Future Work

- Effect of Routes to Diagnosis on Following Costs
  - Evidence shows better health outcomes but little is known about the impact on resource use

- Drivers of Emergency Admissions and Their Costs
  - Contribution of Primary Care

Thank you!