

The Development of an E-Cancer Registry



Princess Margaret Hospital

University Health Network

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“Right off the Bat-Electronic Reporting”

NAACCR June 2005



Outline

- Overview of Princess Margaret Hospital
Toronto, Canada
- Case Ascertainment Processes
- Enterprise Data Warehouse integration into
the Cancer Registry
- Data Uses



Princess Margaret Hospital

- Princess Margaret Hospital opened in 1958 in Toronto, Canada
 - Hospital Cancer Registry has data back to the beginning
- Comprehensive Cancer Centre Treatment Facility which is part of the *University Health Network* along with 2 Acute Care Facilities
- Over *10,000* new cases per year are seen at PMH



Historical Case Finding Methods

- 1980-1997- Manual process, review of in-patient and out-patient lists and list of new chart numbers assigned
 - Charts were pulled for abstracting
 - Manual process was used to identify second primaries
- 1998-2002- Demographics from scheduling lists downloaded into Cancer Registry software
 - List of all appointments not just new patients, including non-neoplastics
 - Monthly lists were reviewed to determine cases to process



Current Case Finding Methods- Physician On-Line Staging Application

- Since July 2002, physicians required to classify and stage all new patients to PMH
- Cases for Physicians to stage automatically downloaded from scheduling system, prepared 2 days in advance
 - New Patients
- Must be completed within 3 months of the first appointment
 - Use on-line staging application developed at PMH with built in UICC staging guidelines
 - Audit process in place to ensure completeness





Darlene Dale is logged in since: June 03, 2005 at 02:02PM

Edit Patient Information

[Sign Out](#)

-Select Action-

Patient's Name:

Medical Record Number: **78**

Source: **Administrator**

Birth Date: / /
(month/day/year)

Gender:

Record Creation Date: **06/03/05**

Cases:

Appt Date: / / (month/day/year)

Disease is: Reason for referral:

Site Group: Malignant Disease:

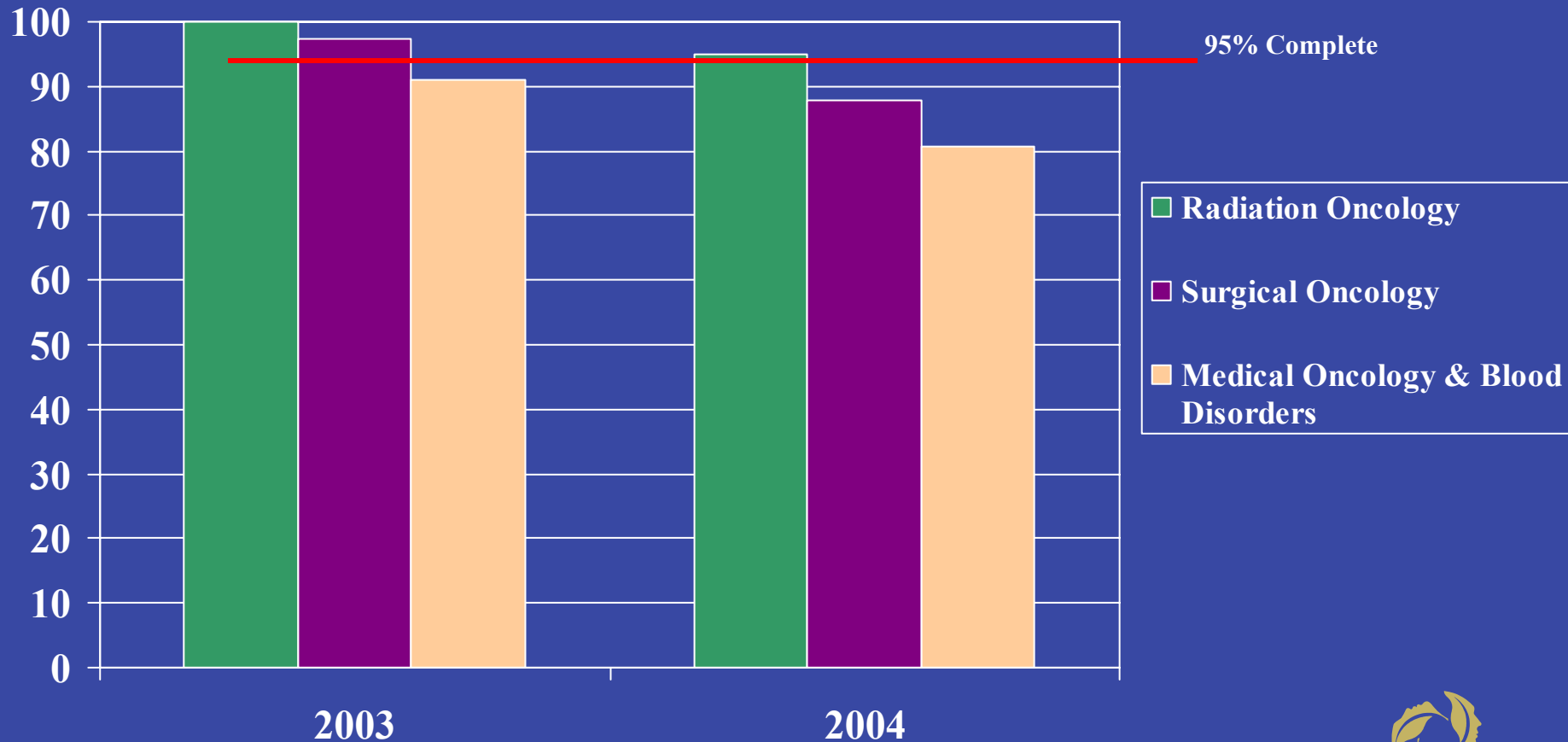
TNM Help Clinical T: Clinical N: Clinical M:

Post Neo-Adjuvant Pathological T: Pathological N: Pathological M:

Stage Help OVERALL Clinical Stage: **IIB** OVERALL Pathological Stage: **IIIA**

Responsible Oncologist:

Staging Completeness By Department 2003 and 2004



E-Cancer Registry

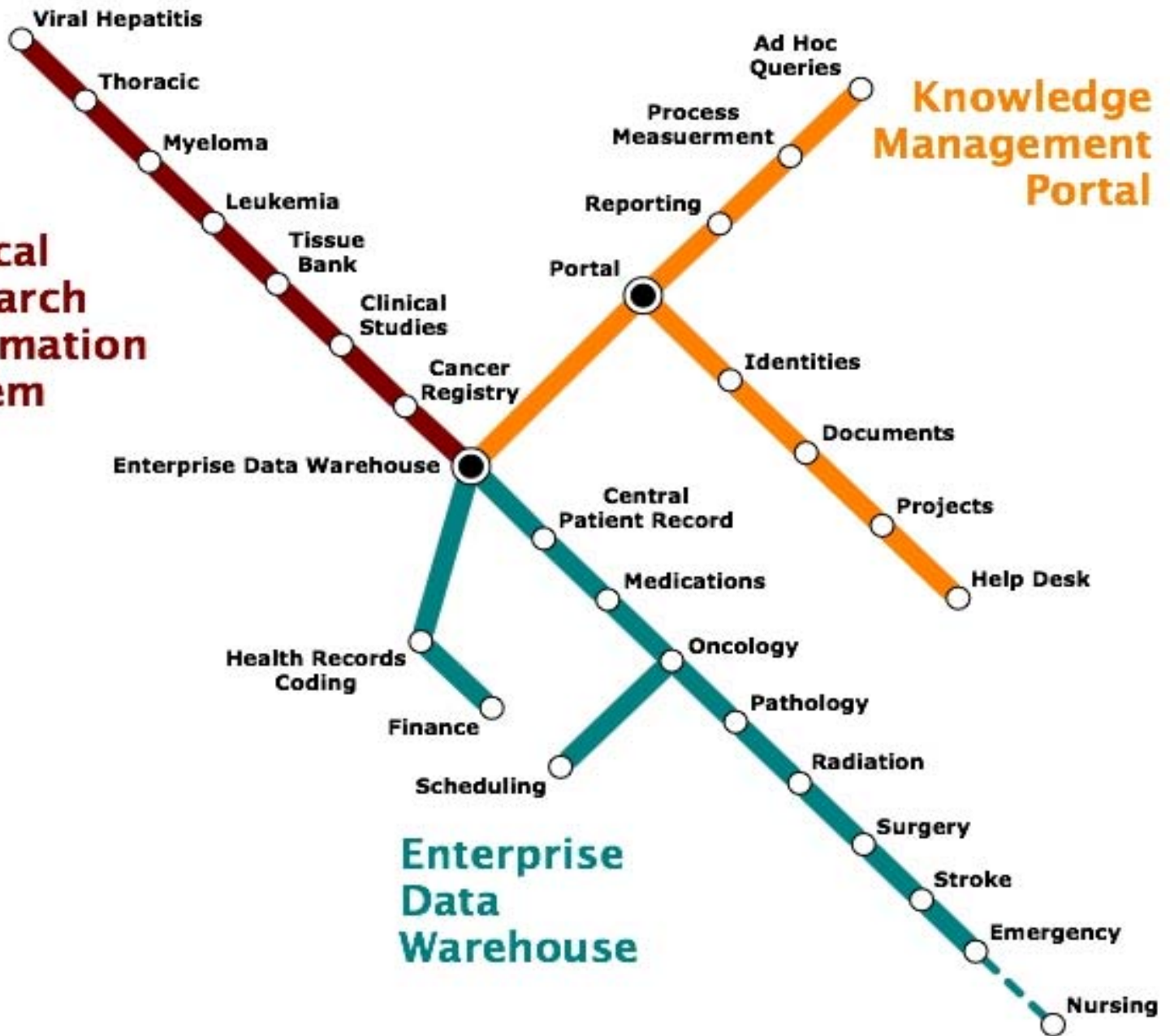


Enterprise Data Warehouse (EDW)

- EDW integrates information from various transactional systems within the UHN in order to provide a single environment that facilitates analysis for both the corporate and research communities.
- *Not just oncology cases, institution wide*
- Currently houses data from over 14 transactional systems including:
 - cancer staging, patient demographics, visits, pharmacy, radiation therapy, surgery



Clinical Research Information System

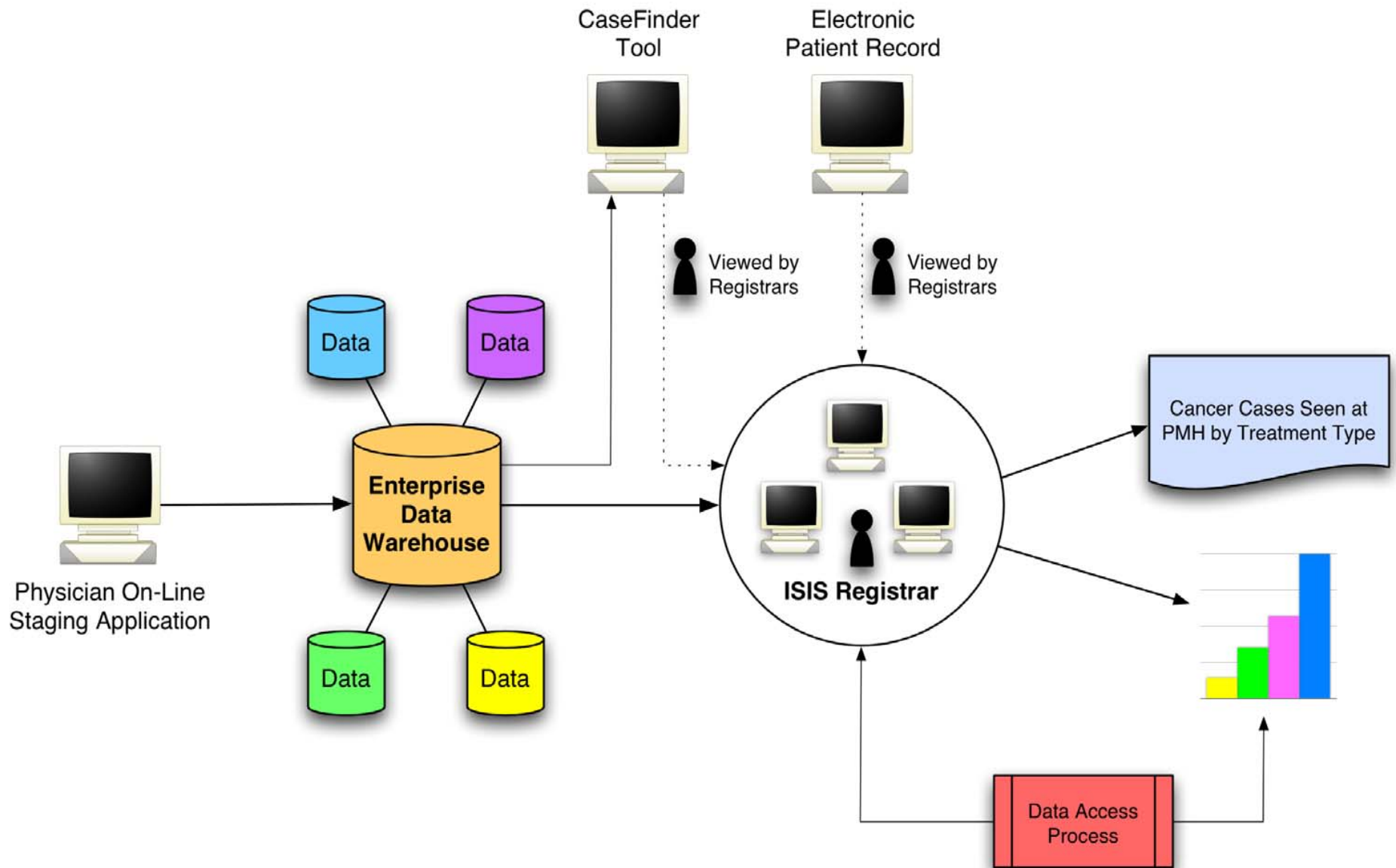


Data Sources in EDW Integrated into the Cancer Registry

- Cancer Staging
- Patient Scheduling
- Clinical Desktop-Electronic Chart
- Radiation Therapy
- Pharmacy
 - Chemotherapy
 - Hormones
- Future
 - Surgery
 - Chemotherapy & Hormones from order/administer system
 - Synoptic Pathology
 - Radiology



PMH E-Cancer Registry



Data Elements Transferred from EDW to Cancer Registry Software

Data Elements	Total Number	Available in Data Warehouse
Abstract	10	8
Patient ID	19	11
Tumour/Extent of Disease	27	12
Treatment-Surgery	4	0
Treatment-Radiation	6	3
Treatment-Chemotherapy	9	5
Hormone	5	2
Biological	5	0
Admission/Follow-Up	12	7
Totals	97	48 (49.5%)





Abstract Patient Tumor/EOD Treatment Admission/Follow-up Notes/Over-rides Audit/QA Perform Validation Format: NAACCR 9.1

Patient Information (at time of diagnosis)

Title (Mr., Mrs., Dr.) **Mr**

Surname: FLINSTONE

Given Name: Fred

Middle Name:

Alias Surname:

Alias - Given Name:

Maiden Name:

Sex: **1** Male

Date of Birth: 1999-99-99 (yyyy-mm-dd; give estimate if unknown)

Diagnosis Date: - -

Age at Diagnosis: **999** (999 means 'unknown')

Patient Address at time of diagnosis:

Address - Street/No: 1155 FIRST STREET

City: NEW TOWN

County:

State/Province: **ON** Ontario

ZIP/Postal Code: M1M4M3

Patient Current Address:

Address - Street/No: 1155 FIRST STREET

City: NEW TOWN

County:

State/Province: **ON** Ontario

ZIP/Postal Code: M1M4M3

Chart/MRN: 007

Old T Number:

Health Insurance Number: 1111111111



Cancer Abstracts FLINSTONE, Fred 007

Abstract Patient Tumor/EOD Treatment Admission/Follow-up Notes/Over-rides Audit/QA Perform Validation Format: NAACCR 9.1

Primary Site: C349 Lung, NOS Site Coding System: 5 ICD-O, Third edition
Primary Site Text: Morphology Coding System: 7 ICD-O, Third edition
Laterality:

Morphology/Behavior:
ICD-O-3:
ICD-O-2:
Morphology Text:

Grade: 9 Not Available
Confirmation:

TNM Edition No: 6 Sixth Edition

Clinical Staging T: 3 T3 N: 3 N3 M: 0 M0 Group: 3B IIIB COC Desc. Staged By:
Path. Staging T: N: M: Group: COC Desc. Staged By:
Other Staging T: N: M: Group: COC Desc. Staged By:

Other Staging Basis:

Tumor Markers 1: 9 N/A; unknown; no information 2: 9 N/A; unknown; no information 3: 9 N/A; unknown; no information 4: 9 N/A; unknown; no information
Distant Mets 1: 0 None 2: 0 None 3: 0 None
Estrogen:
Progesterone:

CFACS Ontario Screen

Status: Malignancy Code:
ICD-8 Code: ICD-9 Code:
ICDO Site: ICDO Morphology:
HOW Code: Staging:



Abstract Patient Tumor/EOD **Treatment** Admission/Follow-up Notes/Over-rides Audit/QA Perform Validation Format: NAACCR 9.1

Course	Treatment	Summary Flag	Start Date (yyyy-mm-dd)	Details/Description:
1	Radiation	<input checked="" type="checkbox"/>	2003-03-27	
1	Chemotherapy	<input checked="" type="checkbox"/>	2003-04-29	

Add
Delete

Treatment details

Radiation:

Course Duration:

Total Dose (cGy):

No of Treatments:

Intent:

Facility: 1431 UHN-PMH

1st Course Start Date: - - (yyyy-mm-dd)

Reasons for:

No Radiation:

No Chemo:

No Hormone:

No Surgery:

CFACS Treatment Data

Medication Given:

Add Delete

Course	Treatment Type	Code	Description
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Gaps in Current Case Finding

- Missing some in-patients as they are admitted immediately, not scheduled 2 days in advance:
 - Manually entered
 - As of May 2005, electronically captured
- Missing some palliative radiation, not scheduled 2 days in advance:
 - Manually added once a month
- Missing some surgical cases, booked through surgical booking
 - Manually entered
 - As of June 2005, electronically captured

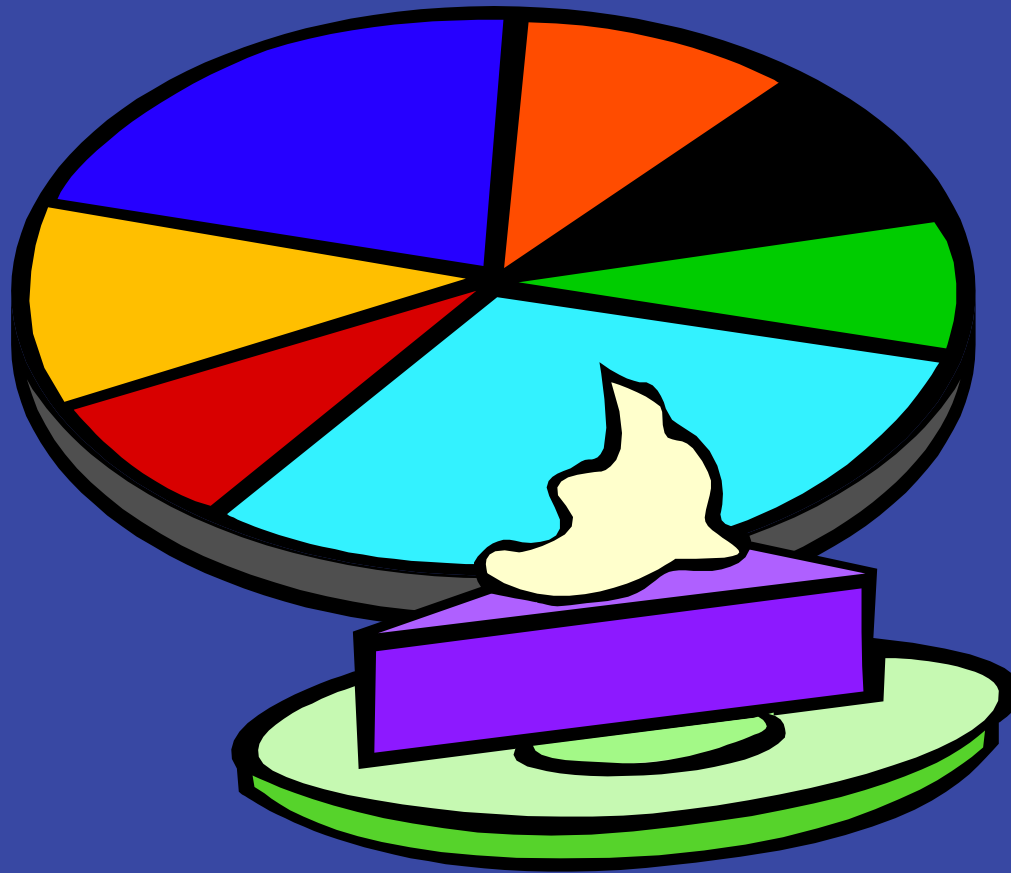


Advantages of E-Registry

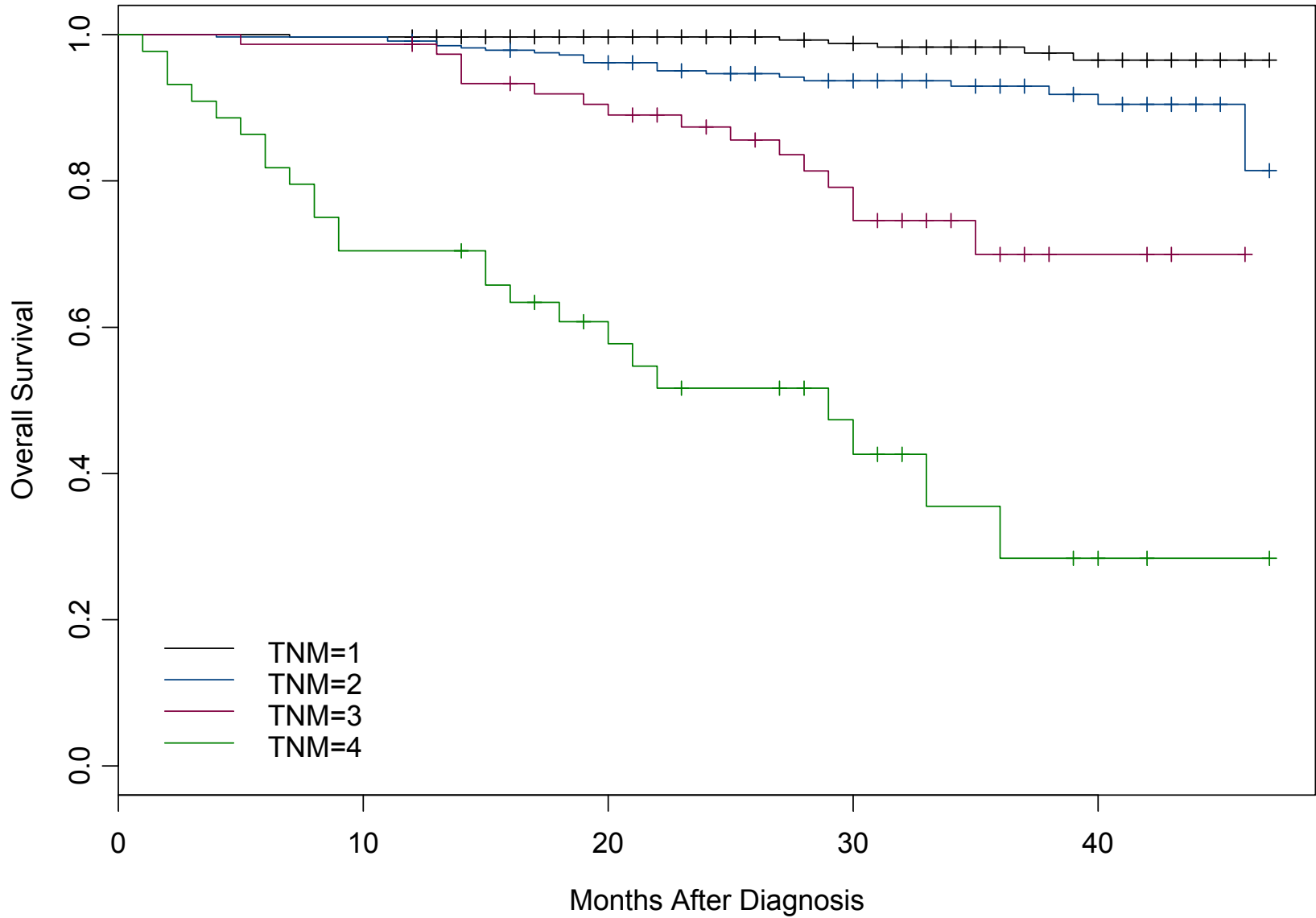
- The demographics are downloaded. These are tedious to enter: name, full address, date of birth
- First contact date gives a hint as to where to start in reviewing the electronic chart which is UHN wide, not oncology specific
- Can specify what types of cases to download
 - Malignant, in-situ, benign, non-neoplastic
- Physician selects generic primary site
 - Can pull out certain cases if required

Staff cannot think of any disadvantages 

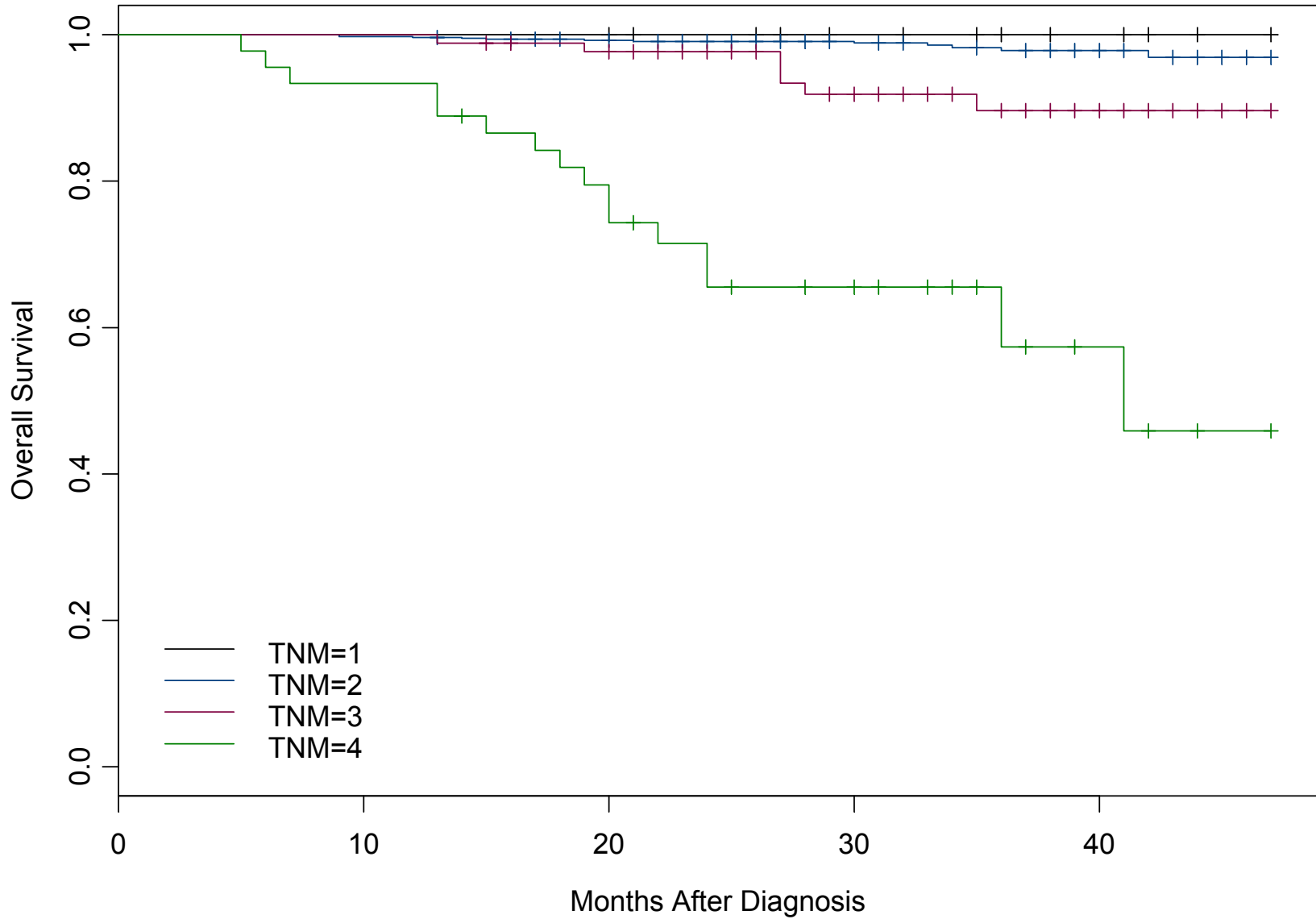
Data Use



PMH Breast Patients by TNM Status

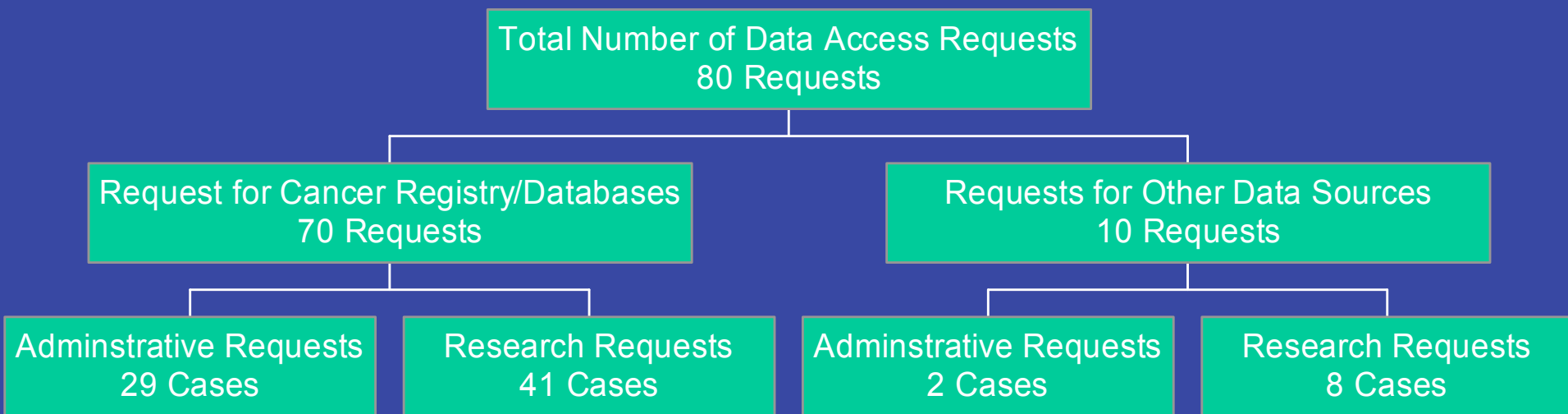


PMH Prostate Patients by TNM Status



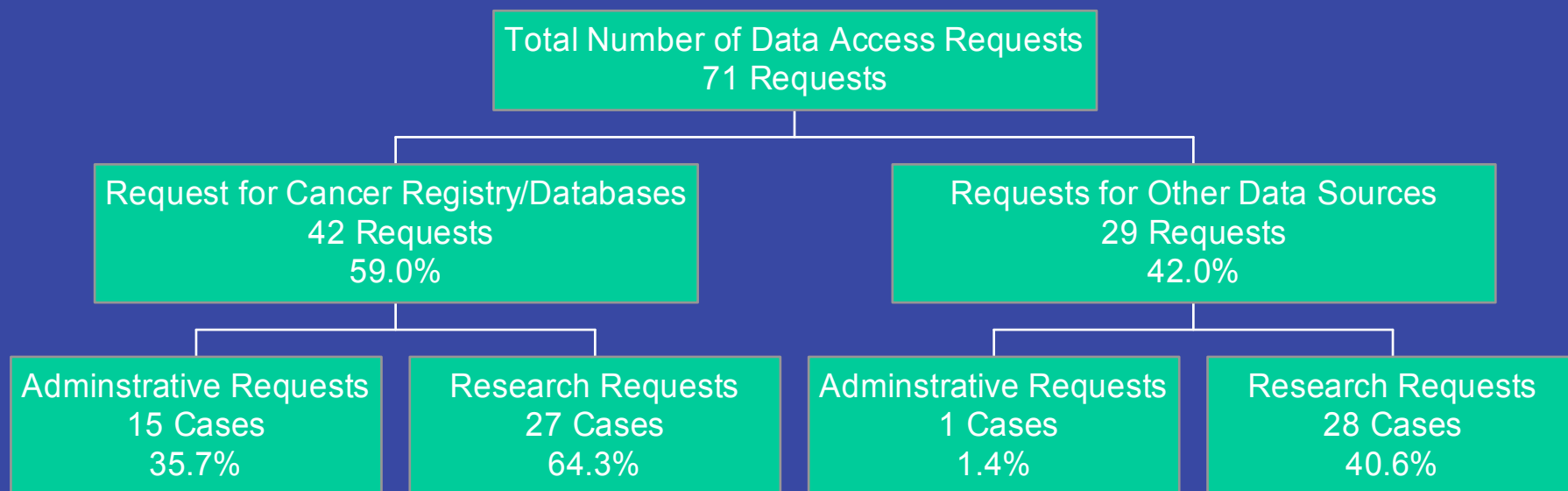
Data Requests-2004

CRDAC Data Access Requests 2004



Data Requests-2005 to Date

CRDAC Data Access Requests as of June 2, 2005



Conclusions

- The Physician- on-line Cancer Staging application drives the registry's case finding process
- The development of the E-Registry tool and incorporation into the EDW has enabled data to be rapidly accessed, which greatly facilitates analysis for both administrative and research purposes.

