



# Systemic Anti-Cancer Therapy Information Standard and Chemotherapy Dataset

National Cancer Action Team  
Part of the National Cancer Programme



# Improving Outcomes: A Strategy for Cancer

## *January 2011*

6.19.....

- ❑ to improve the collection and publication of data on chemotherapy activity, outcomes and costs, the chemotherapy dataset will be introduced in April 2012 and this should provide commissioners, providers and others with invaluable information; and
- ❑ to enhance the information available to patients on the benefits and toxicities of treatment

# SACT development background

- ❑ Cancer 10% NHS budget
- ❑ Chemotherapy £100,000,000+ annually
- ❑ Who has what, where, when and why?
- ❑ What does it cost and what are the benefits?
- ❑ NAO report – critical
  - Chemotherapy (SACT) dataset
  - National regimen list
  - Payments by results

# SACT development strategy

- ❑ National implementation group – all disciplines
- ❑ Develop a dataset which is rich enough to be useful but small/generic enough to be collectable from all providers for all tumour sites
- ❑ Capable of collecting data on all current and predictable management
- ❑ Robust enough to achieve implementation
- ❑ Not intended to replace audit or research

# SACT development strategy 2

Each field had to pass:

- ❑ Is it collectable electronically?
- ❑ Is it applicable to most tumour sites?
- ❑ Will the content be consistent?
- ❑ What would you do with it that justifies national collection?
- ❑ Can it linked meaningfully to other datasets?

# Systemic Anti-Cancer Therapy Dataset [SACT]

- Includes all drugs given with an anti-cancer affect
  - Cytotoxics
  - Drugs affecting the immune response
  - Hormones and hormone antagonists
  - Bisphosphonates

# Dataset coverage

- ❑ Solid tumours
- ❑ Haematological malignancy
- ❑ Paediatric tumours
- ❑ Inpatient, daycase, outpatient and community settings
  
- ❑ Excludes non cancer chemotherapy

# Definitions

- ❑ **Programme**

Pre-planned sequence of treatment with a purpose

- ❑ **Regimen**

A group of drugs given in a specific way

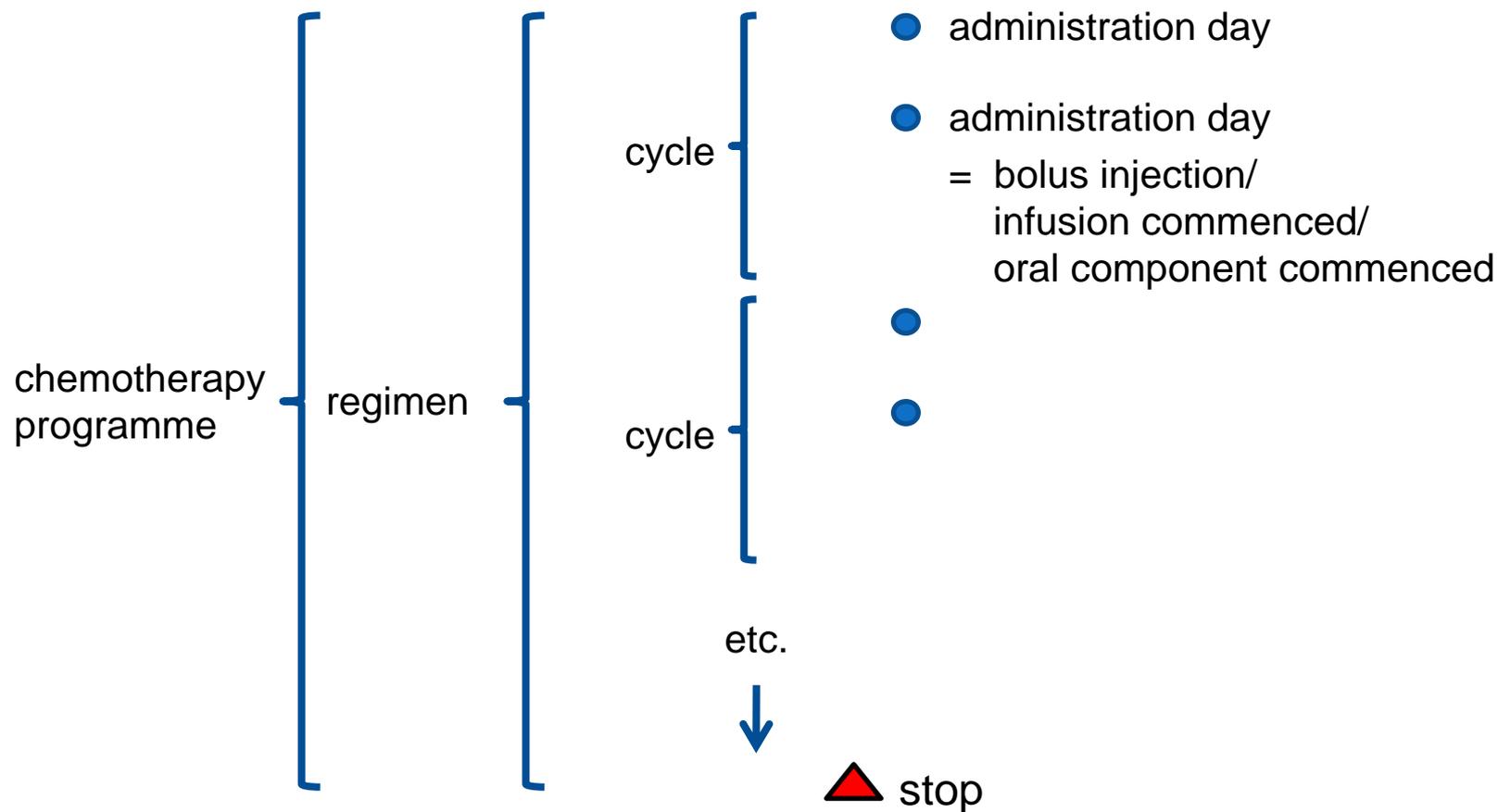
- ❑ **Cycle**

Repeating elements within a regimen

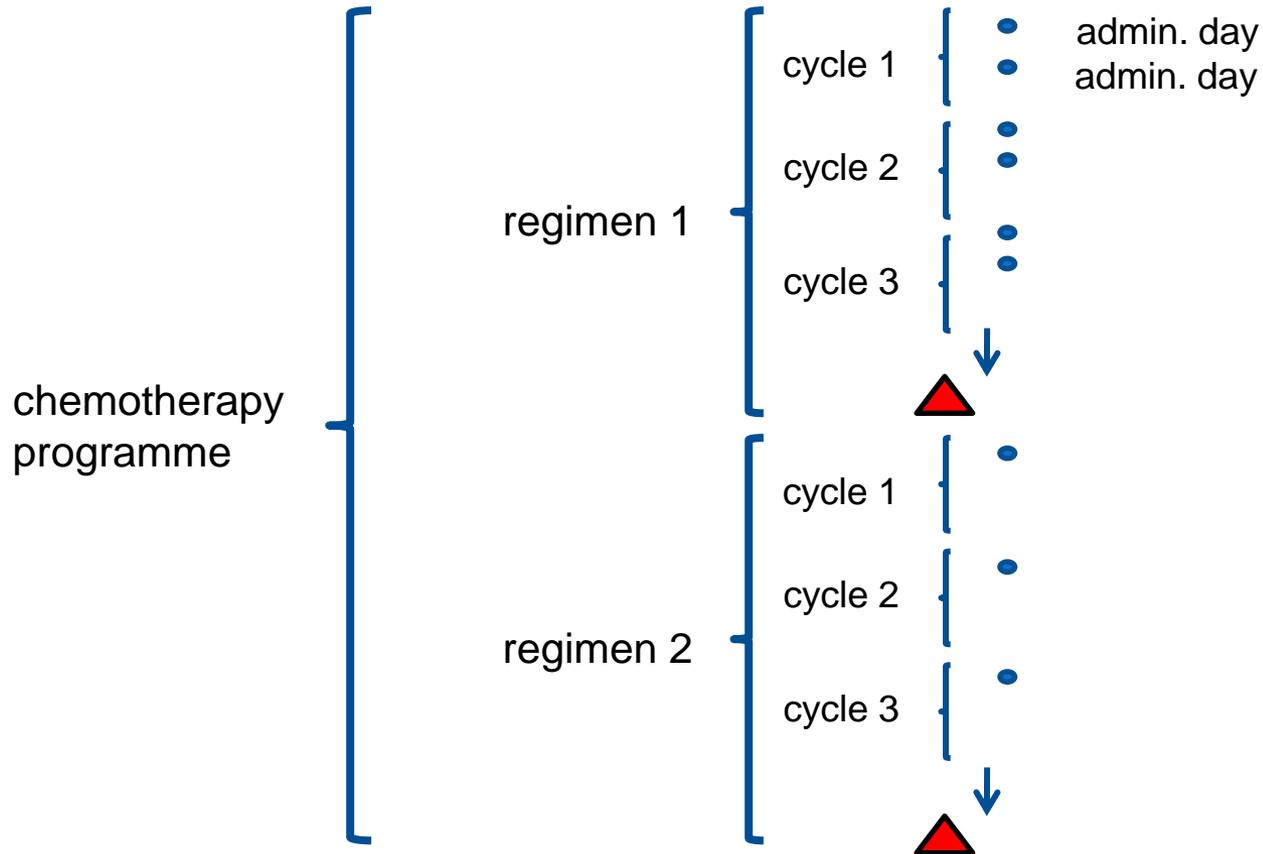
- ❑ **Administration date**

Note the term “course” is not used

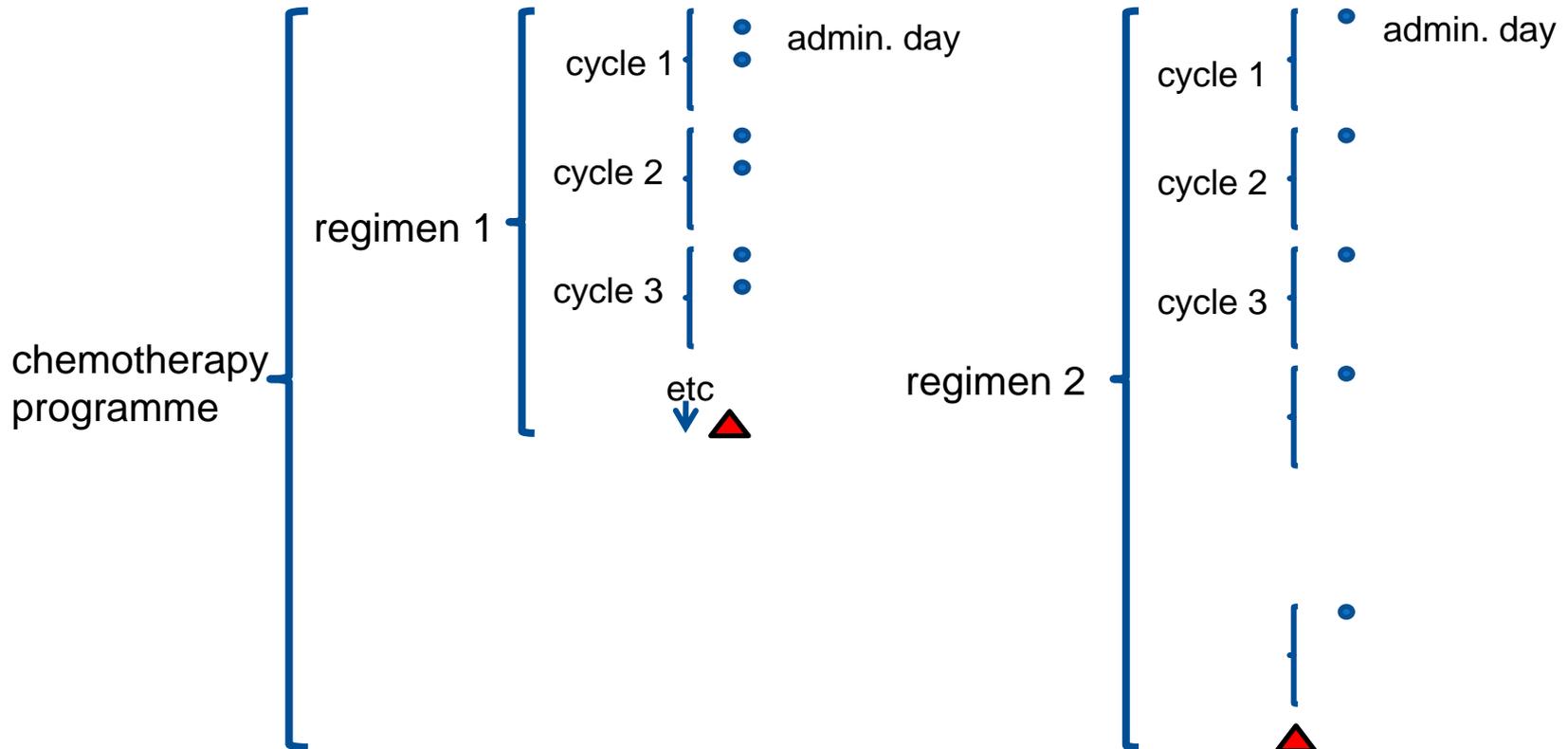
# Dataset structure - 1

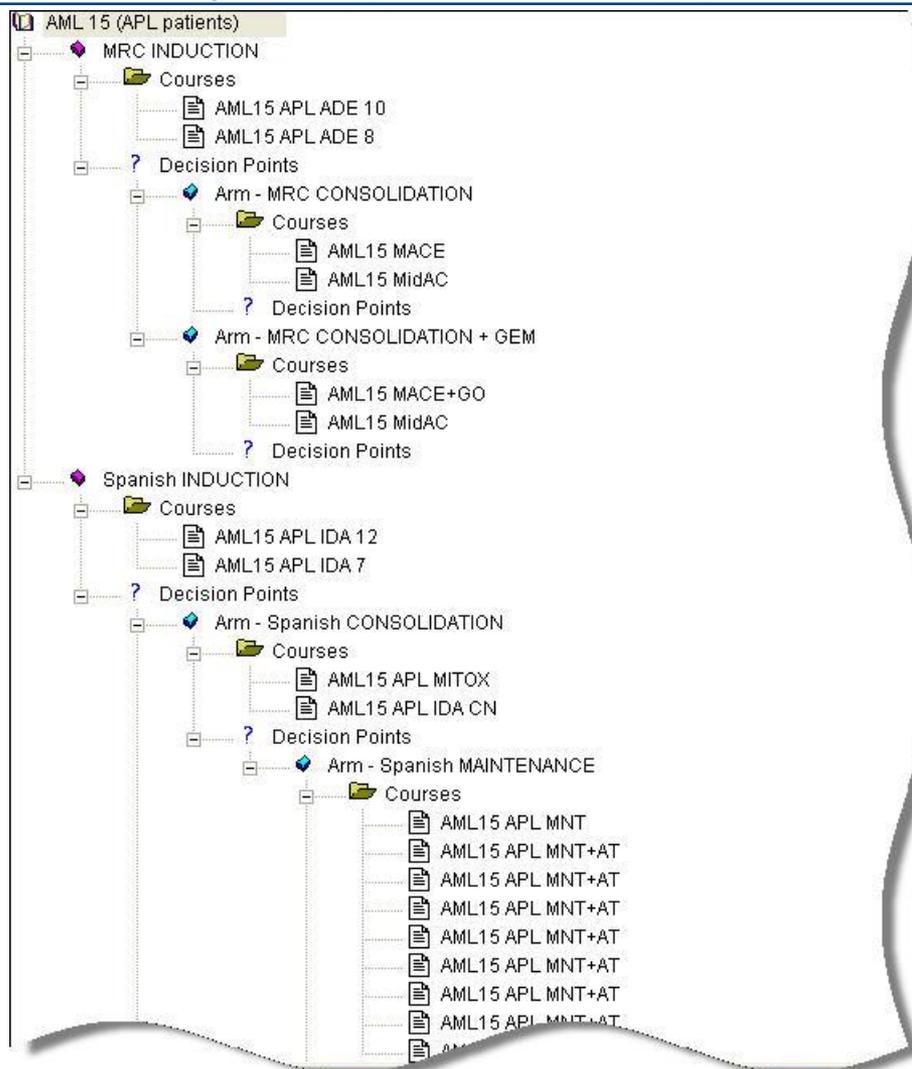


# Dataset structure - 2



# Dataset structure - 3





A typical protocol tree view of a complex treatment protocol with decision points.



# Information Standards Board [ISB]

All NHS datasets must go through this process which comprises:

- ❑ Requirement Stage
  - Definitional testing
- ❑ Draft Stage
  - Piloting
- ❑ Full Stage
- ❑ Issue of an ISN to the NHS

# Where does SACT link?

- ❑ National Chemotherapy Implementation Group (NCIG)
- ❑ Chemotherapy Information Group co-ordinates governance, management and maintenance of SACT dataset
- ❑ NCIN Site Specific Clinical Reference Groups (SSCRGs)
- ❑ Commissioning link to Payment by Results (PbR)

# Where does SACT fit?

- ❑ The data will flow from e-prescribing and other hospital systems
- ❑ The dataset will be part of the NCIN matrix of interoperable datasets
- ❑ A national chemotherapy regimen list will be common to all chemotherapy collection

# Data collection and analysis

- ❑ The Chemotherapy Intelligence Unit (CIU), has been established which is based at Oxford
- ❑ Data will be sent from trusts on a monthly basis and initial quality checks will be carried out before being incorporated
- ❑ A suite of routine analyses and reporting is being developed and will be issued as soon as feasible

# Implementation

National Cancer Action Team  
Part of the National Cancer Programme



# SACT Implementation 1

The SACT dataset is divided into six sections:

1. Demographics – including commissioner and provider initiating treatment
2. Clinical status
3. Programme and regimen
4. Cycle
5. Drug details
6. Outcome

# SACT Implementation 2

Current situation	Sept 2011 – April 2012	April 2012 – Sept 2012	Sept 2012 – April 2013	April 2013 – Sept 2013	Sept 2013 – April 2014	From April 2014 onwards
Trusts with fully implemented e-prescribing systems	Trial downloads (voluntary basis)	Start full downloads	Continue full downloads	Continue full downloads	Continue full downloads	Continue full downloads
Trusts with partially implemented e-prescribing systems	Preparation	Start partial downloads	Start full downloads	Continue full downloads	Continue full downloads	Continue full downloads
Electronic clinical system but no e-prescribing		Preparation	Start partial downloads, dataset sections 1-4 & 6	Continue partial downloads	Continue partial downloads	Start full downloads
Basic hospital systems only		Preparation	Start partial downloads, dataset sections 1-3 & 6	Continue partial downloads	Continue partial downloads	Start full downloads

# SACT Implementation 3

## **NHS Trusts with fully implemented e-prescribing systems**

These trusts will be required to submit data in all clinical areas by **April 2012**. That includes all inpatient, outpatient and community services for all solid tumours, haematological and paediatric malignancy.

## **NHS Trusts with partially implemented e-prescribing systems**

i.e. not all hospital sites or not all tumour types. These trusts will be required to submit data in all clinical areas that have e-prescribing implemented by **April 2012**. They will be expected to develop full coverage of all tumour sites and services by **September 2012**.

# SACT Implementation 4

## **Electronic clinical systems but no e-prescribing**

Systems capable of capturing some information on chemotherapy. These trusts will be required to submit partial data from **September 2012**. They will be expected to develop the functionality to submit full downloads by **April 2014**.

## **Basic hospital systems only**

Systems capable of recording demographics, cancer waiting times and commissioning data. These trusts will be required to submit partial data from **September 2012**. They will be expected to develop the functionality to submit full downloads by **April 2014**.

# SACT Database design

The main data relationships are as follows:

- ❑ Each Patient can have more than one organisation (hospital) during the course of the chemotherapy treatment
- ❑ Each Patient can have one or more diagnoses (tumours)
- ❑ Each Patient can have one or more programmes (generated in the database)
- ❑ Each programme can have one or more regimens
- ❑ Each Regimen will have associated Outcomes
- ❑ Each Regimen can have more than one cycle
- ❑ Each Cycle can have one or more Administration days
- ❑ Each Administration day will have one or more Drug details

# Provider dashboard reporting

Report Manager - Microsoft Internet Explorer provided by SW Public Health Observatory

http://cisbdbdev/Reports/Pages/Report.aspx?ItemPath=%2fNational+Chemotherapy+Pilot+Study%2fData+Import+Summary+by+Trust

File Edit View Favorites Tools Help

Report Manager

SQL Server Reporting Services  
Home > National Chemotherapy Pilot Study > Data Import Summary by Trust

Home | My Subscriptions | Site Settings | Help

Search for:  Go

View Properties History Subscriptions

New Subscription

Trust: Trust1 From Date: 01/01/2011 To Date: 03/01/2011 View Report

1 of 1 100% Find | Next Select a format Export

**Chemotherapy data loading summary: Trust1 for period 1/1/2011 to 1/3/2011**



**File Validation Summary**

Filename	Date Imported	Records	%Success	%Failure
TR1 Q1.csv	15/02/2011	9065	86.35	13.65
TR1 Q2.csv	15/02/2011	9831	86.83	13.17
TR1 Q3.csv	15/02/2011	10068	89.04	10.96

**Mandatory Field Non-Compliance Errors**

Filename	Date Imported	Mandatory Fields	Errors	%
TR1 Q1.csv	Feb 15 2011	Missing\Invalid mandatory fields - Diagnosis and Morphology	1160	12.80
TR1 Q1.csv	Feb 15 2011	Missing\Invalid mandatory field - Treatment Intent	77	0.85
TR1 Q2.csv	Feb 15 2011	Missing\Invalid mandatory fields - Diagnosis and Morphology	1250	12.71
TR1 Q2.csv	Feb 15 2011	Missing\Invalid mandatory field - Treatment Intent	39	0.40
TR1 Q2.csv	Feb 15 2011	Missing\Invalid mandatory field - Patient Postcode.	6	0.06
TR1 Q3.csv	Feb 15 2011	Missing\Invalid mandatory fields - Diagnosis and Morphology	1073	10.66
TR1 Q3.csv	Feb 15 2011	Missing\Invalid mandatory field - Treatment Intent	28	0.28
TR1 Q3.csv	Feb 15 2011	Missing\Invalid mandatory field - Patient Postcode.	2	0.02

**Data Quality Errors and Warnings**

Initial feedback on data quality

Done Local intranet 100%

# Analysis

# Provisional initial analyses

- ❑ Based on mandatory fields
- ❑ Overall analyses i.e. based on all data received from all trusts sending monthly returns
  - Regimens commenced by diagnosis group
  - Cycles given by diagnosis and regimen
  - Age spectrum of cycles given by diagnosis
- ❑ Analyses by provider
  - Regimens commenced by diagnosis group
  - Cycles given by diagnosis and regimen

# Second phase analyses

- ❑ Analysis by intent
- ❑ Analysis by performance status ? age banded
- ❑ Regimen summaries – reasons for stopping and regimen modification
- ❑ Early deaths following treatment
- ❑ Clinical trial entry

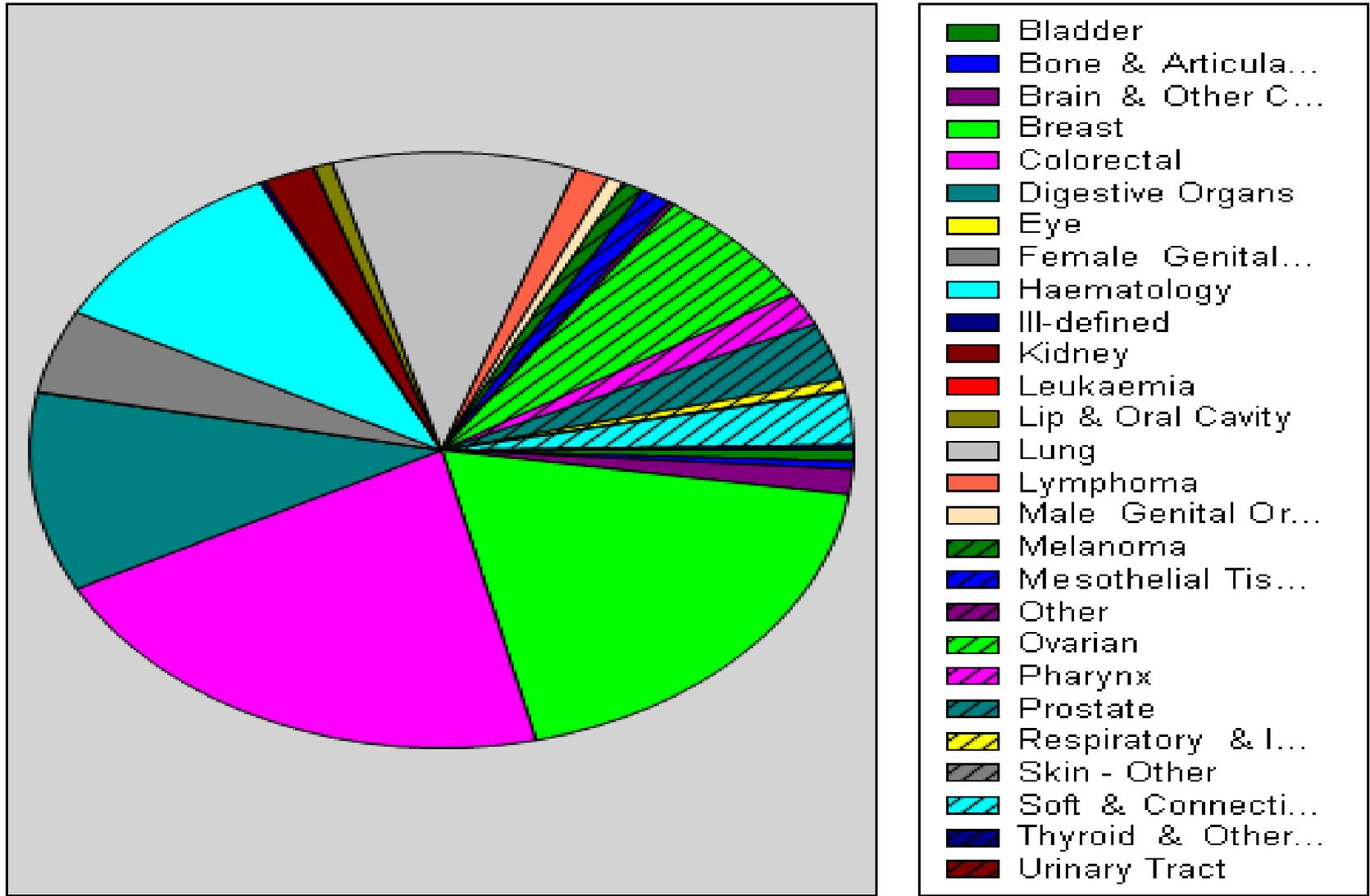
# Population based analysis

*Once returns are being received from all providers, population based analyses are possible and can be linked to incidence and other demographics e.g.*

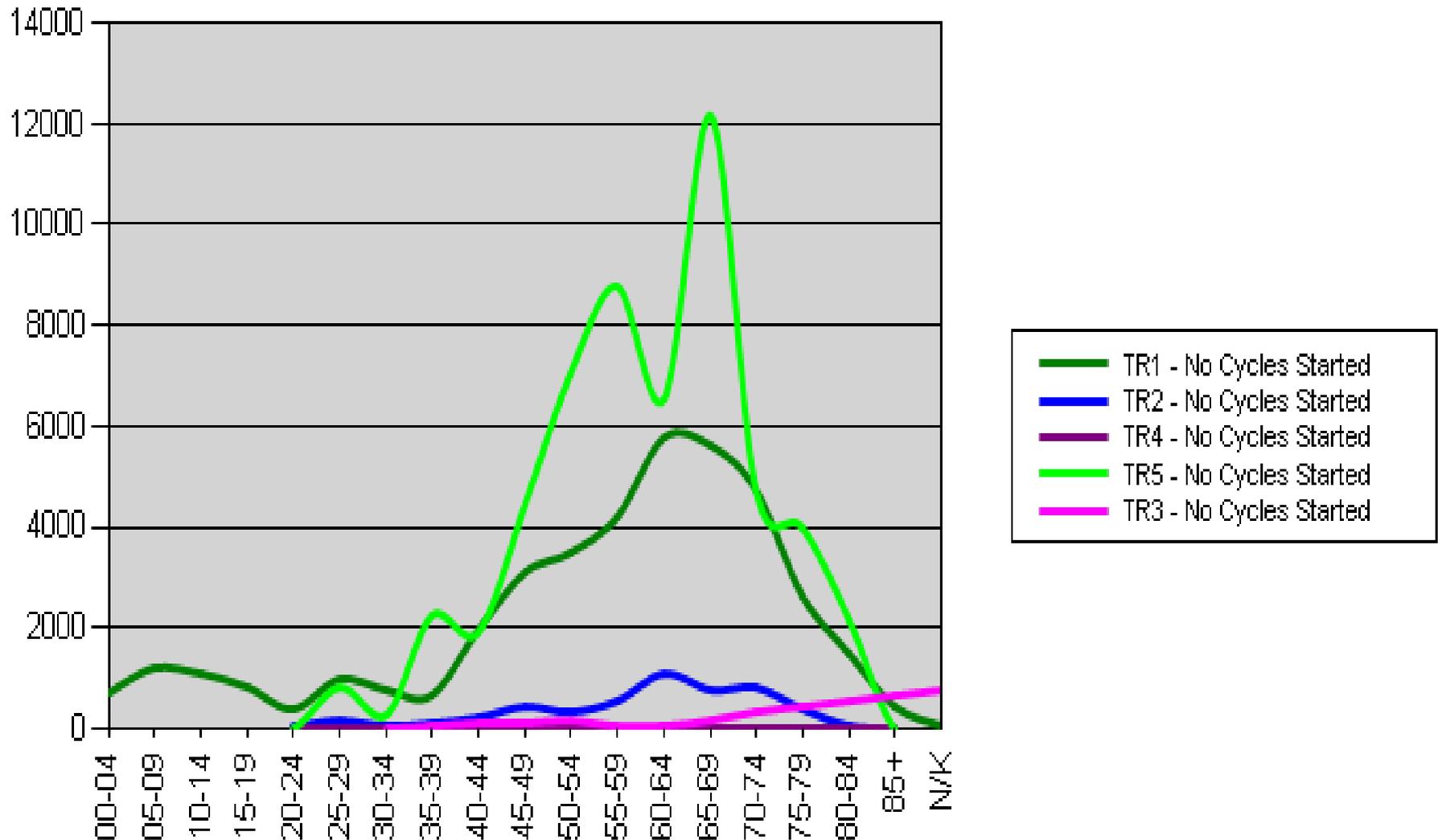
- ❑ Treatment rates per 100,000 population by diagnosis (cycles given or regimens started)
- ❑ Treatment rates by deprivation, ethnicity, etc
- ❑ Treatment completion
- ❑ Early deaths

# Examples from pilot study

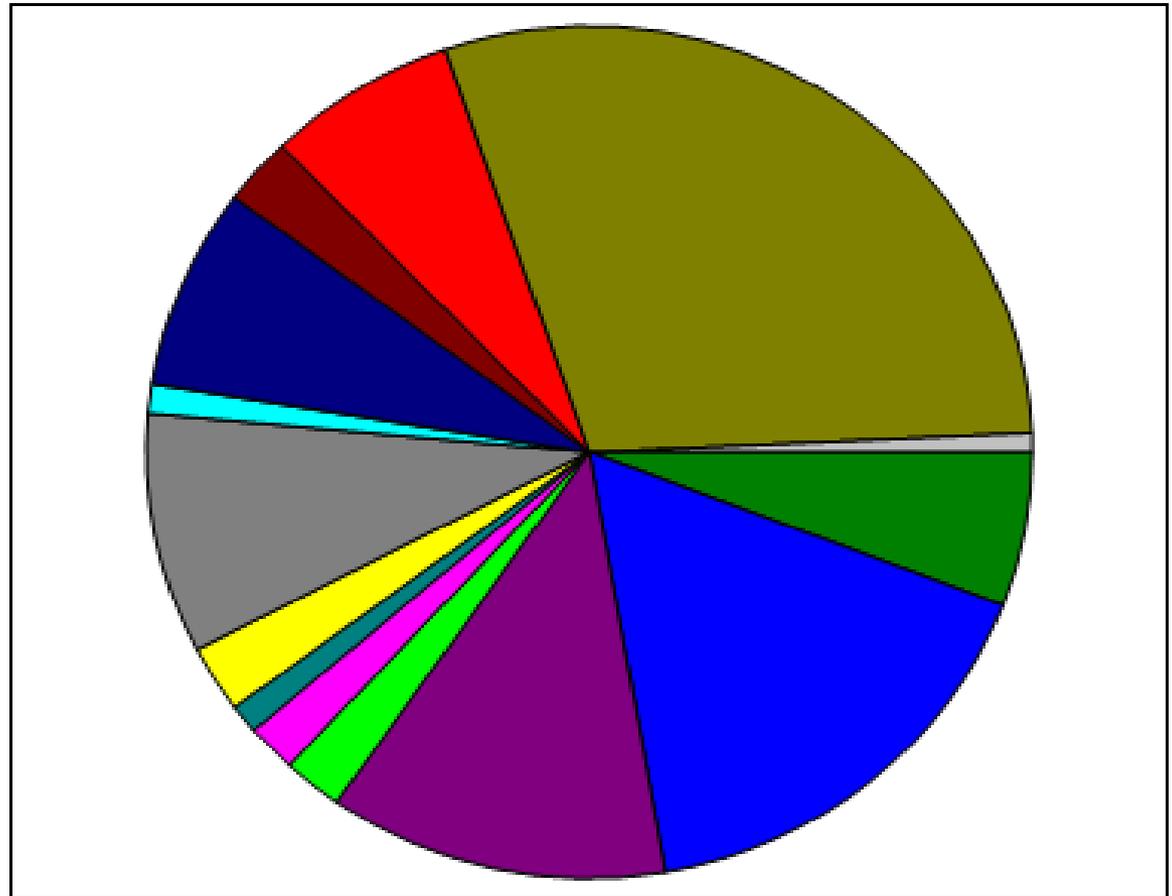
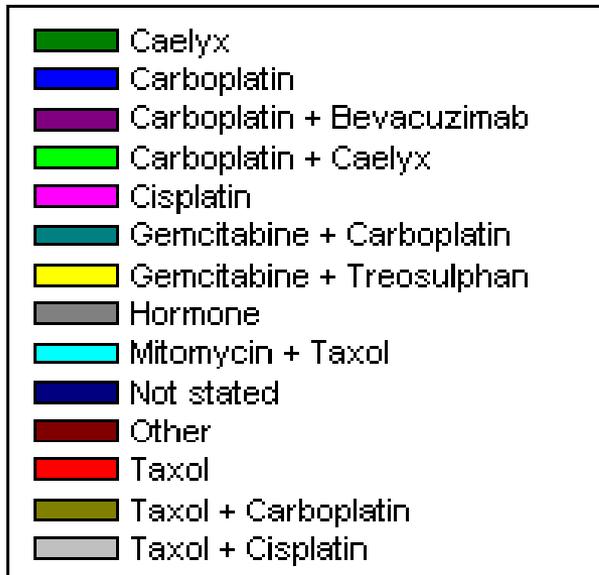
# Cycles given by tumour group



# Cycles given by patient age band



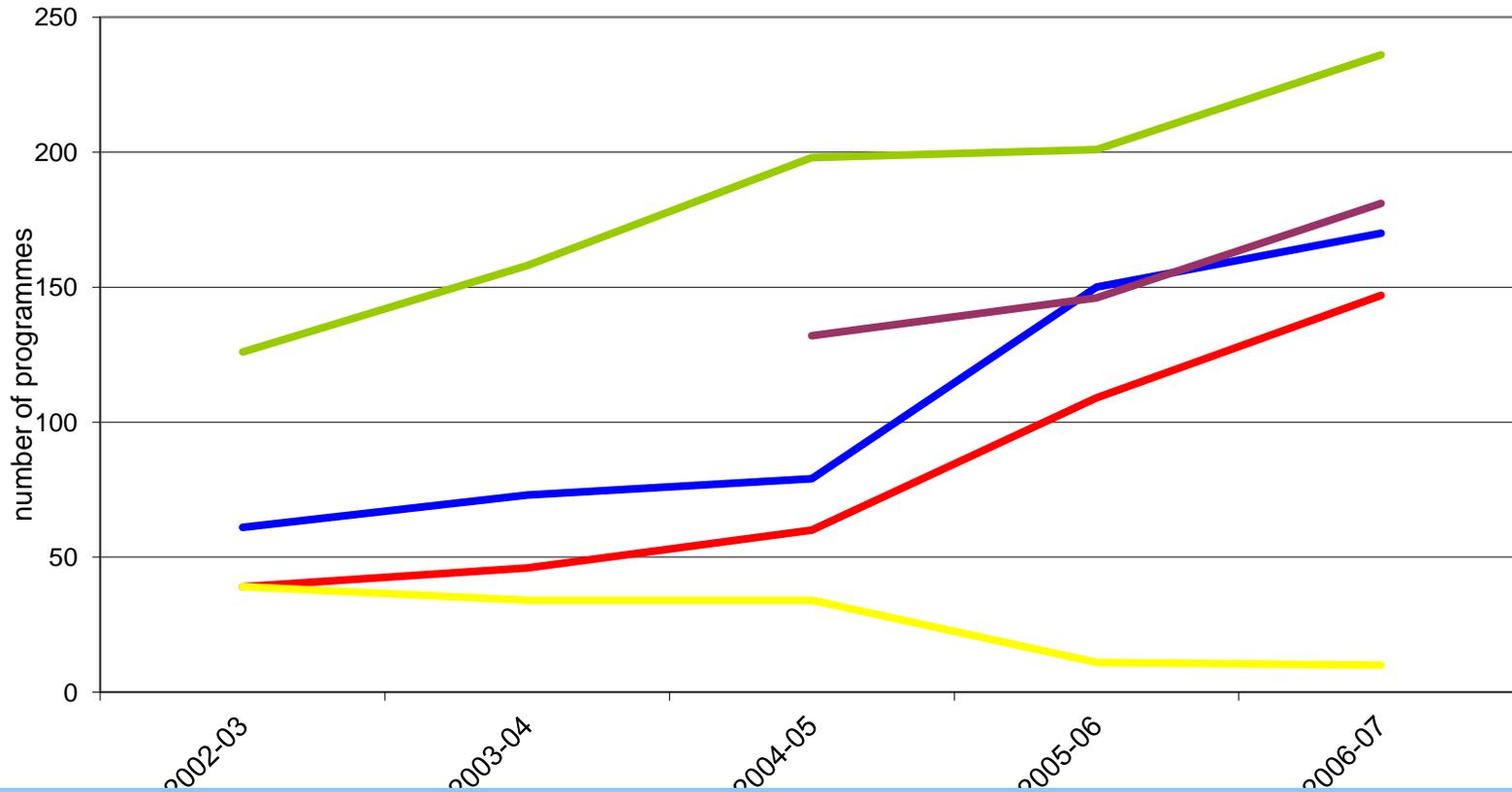
# Ovarian chemotherapy regimens delivered - by grouped regimen



# Examples from CIA programme

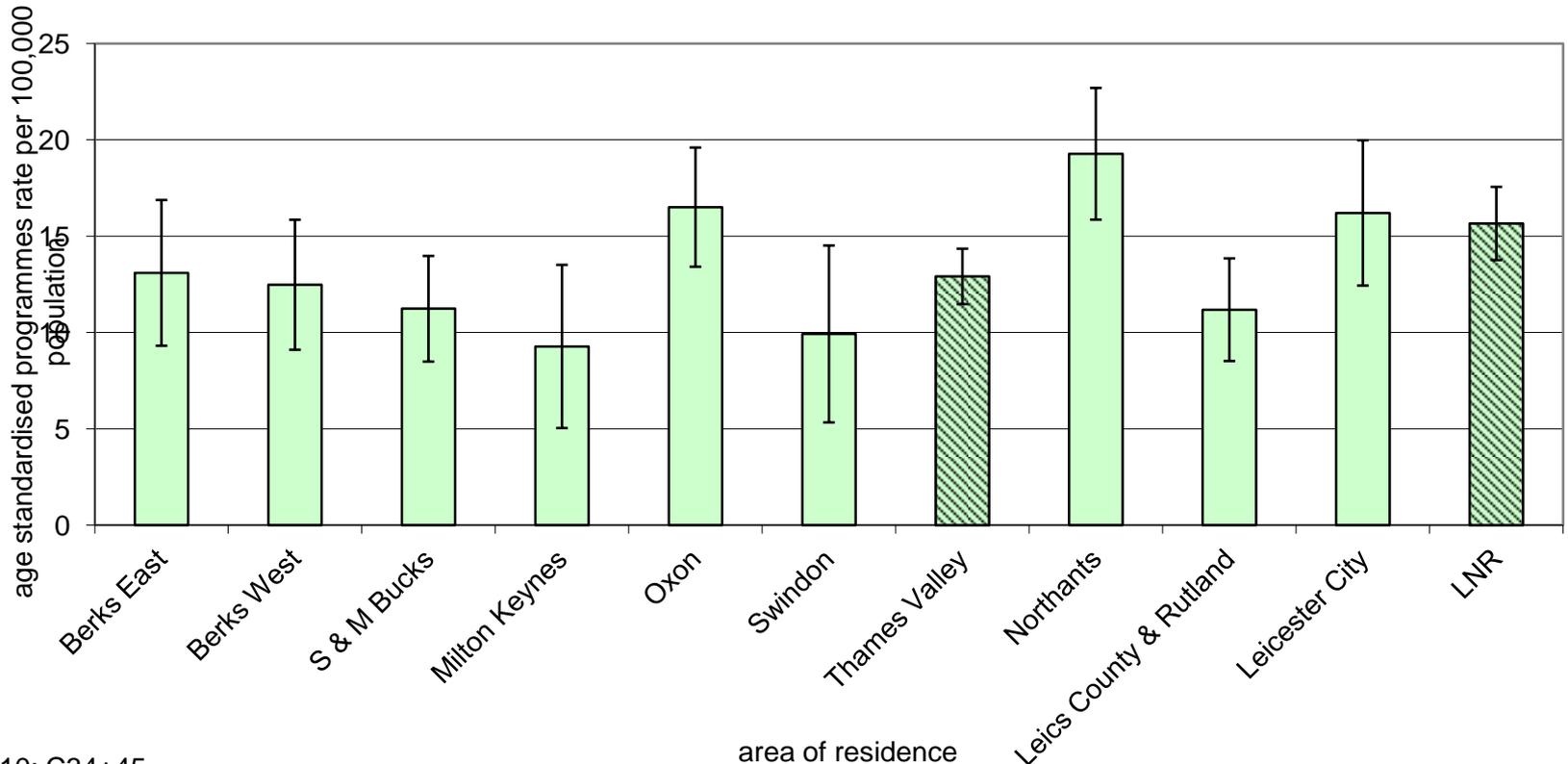
# Lung chemotherapy trend

## All lung cancer chemotherapy trend by centre



# Rates per PCT

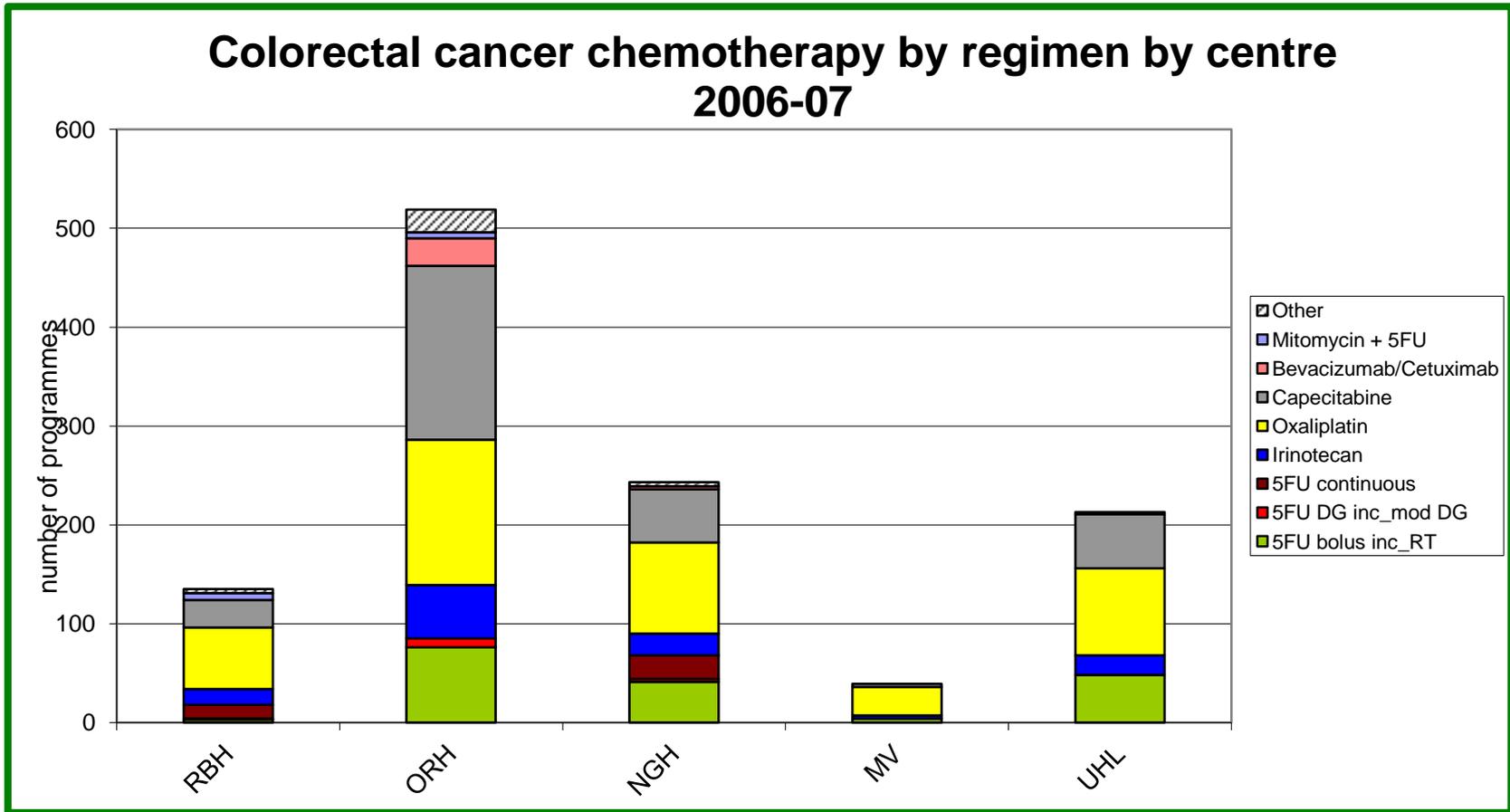
## Lung cancer programmes of chemotherapy 2005/06



ICD-10: C34+45

area of residence

# Regimens commenced by trust



# Screen shots from electronic systems

# ARIA screen shot

New Prescription Details - zzSmalls, Derek - 1478523690 \*\*\* NOT AN ACTUAL PATIENT \*\*\*

Order / Rx Medications Cum. Dose Alerts Allergies/Adverse Reactions **Docetaxel Cisplatin (75/75) inpatient NSCLC=**

Ordered by Adams, Dr. Joss on Sep 04, 2008 at 13:21  Completed  
Order ID 105200002 Start on 04 SEP 2008 **PENDING**

Line of Tx	Tx Intent	Tx Use
1		

**Internal**

Administration Start Date Sep 04, 2008 **Docetaxel Cisplatin (75/75) inpatient NSCLC= - Cycle 1 Day 1**

- 1 **SODIUM CHLORIDE** 500 ml infusion Intravenous o.d. for 1 day  
Plan - Opt 100%  Admin Instructions  Approve  Dose Mod. Reason
- 2 **MAGNESIUM SULPHATE** 8 mmol infusion Intravenous Inf o.d. over 4 hours for 1 day in ns & 20KCl 1,000 ml (1)  
Plan - Opt 100%  Admin Instructions  Approve  Dose Mod. Reason
- 3 **DOCETAXEL** 150 mg (at 75 mg/m2) infusion Intravenous Inf o.d. over 60 minutes for 1 day in 0.9ns 250 ml (2)  
Plan - Opt 100%  Admin Instructions  Approve  Dose Mod. Reason
- 4 **CISPLATIN** 148 mg (at 75 mg/m2) infusion Intravenous Inf o.d. over 4 hours for 1 day in 0.9ns 1,000 ml (3)  
Plan - Opt 100%  Admin Instructions  Approve  Dose Mod. Reason
- 5 **MAGNESIUM SULPHATE** 8 mmol infusion Intravenous Inf o.d. over 4 hours for 1 day in r  
Plan - Opt 100%  Admin Instructions  Approve  Dose Mod. Reason
- 6 **MAGNESIUM SULPHATE** 8 mmol infusion Intravenous Inf o.d. over 4 hours for 1 day in r  
Plan - Opt 100%  Admin Instructions  Approve  Dose Mod. Reason

**Pickup - Internal**

Administration Start Date Sep 04, 2008 **Docetaxel Cisplatin (75/75) inpat**

- 7 **DEXAMETHASONE** 8 mg tablet Oral b.d. for 3 days  
Plan - Opt 100%  Admin Instructions  Approve  Dose Mod. Reason

\* Additional administration instructions have been entered

Print...

**Treatment line (1st, 2nd etc)**  
**Intent (curative/palliative)**  
**Treatment use (metastatic, adjuvant etc)**  
**Will BE MANDATORY before approval of cycle 1.**

# CIS screen shot

**Patient Review** Unit No: SCOT2 Name SCOTT,HEATHER .M. NHS No: 987654321 Age: 44 GP:   
 Dob: 12/03/1963 Address: THE LOWLANDS,EDINBURGH,ED02 7SD Sex: Female

Trt Summary Laboratory Demographics Annotations Documents Cum Dose Mod History Toxicity

Treatment	Cycle	Start Date	Status	Prescriber	Modified	Modified Cytotoxics	TL
<b>Diagnosis : Breast Adjuvant, Her2+ve, ER+ .... Protocol : FEC, RT, and DOCETAXEL , (Radical) Status: (Open)</b>							
◆ FEC	1	16/04/2007	Confirmed	System Manager	Yes		HA
◆ FEC	2	07/05/2007	Confirmed	System Manager	Yes		HA
◆ FEC	3	28/05/2007	Planned	System Manager	Yes		HA
◆ RADIOTHERAPY	1	02/07/2007	Planned	System Manager	Yes		HA
◆ DOCETAXEL	1	31/07/2007	Planned	System Manager	Yes		HA
◆ DOCETAXEL	2	21/08/2007	Planned	System Manager	Yes		HA
◆ Decision point- (23/08...		23/08/2007			No		
◆ DOCETAXEL	3	10/09/2007	Planned	System Manager	Yes	Docetaxel	HA
◆ Decision point- (25/09...		25/09/2007			No		

**Alerts / Treatment Notes**

23/04/2007	Penicillin Allergy PMH- DVT and on warfarin
01/08/2007	NEUTROPENIA ADD PEG

**Drug Allergies**

AMOXICILLIN
-------------

Allocate Modify Delete Care Episode Add Delete

User : System Manager . Treatment Area : Central Location 22:52:27 Saturday

# Elekta screen shot

**Clinician Worksheet/IMPAC 2008 CW**
Close

Diagnosis: Central portion of breast [174.1] ER+ PgR+ Her2+ Stage: IIIA  
 Histology: Paget's disease and infiltrating duct carcinoma of breast (T-174\_...) [85413.00] Course: \*All\*  
MD: Gannon, Joe

Flowsheet | Clinician Worksheet | Laboratory | Vital Signs | Assessments | View: IMPAC 2008 CWS\*

Date	19/1/09	28/1/09	02/2/09	09/2/09	16/2/09	23/2/09	02/3/09
<b>CWS</b>							
BSA	1.62						
<b>Disease &amp; Performance Status</b>							
Disease Status							
Toxicity Status							
Treatment Status							
Performance Status							
Brief Note: Impression							
<b>Chemotherapy Regimen</b>							
Adjuvant BR AC T+Trastuzmab	C6 / D15	C7 / D1 DELAY	C7 / D8	C7 / D15	C8 / D1	C8 / D8	C8 / D15
Adriamyc (60 mg/m <sup>2</sup> ) mg							
Cytosan (600 mg/m <sup>2</sup> ) mg							
Taxol (80 mg/m <sup>2</sup> ) mg	130	128	TBD	TBD	TBD	TBD	TBD
Herceptin (4 mg/kg) mg	110	110	TBD	TBD	TBD	TBD	TBD
Herceptin (2 mg/kg) mg							
<b>Additional Chemotherapy</b>							
<b>Additional Medications</b>							
Zantac PD (50 mg) mg		TBD	TBD	TBD	TBD	TBD	TBD
Benadryl (50 mg) mg	50	50	TBD	TBD	TBD	TBD	TBD
Navelbine (30 mg/m <sup>2</sup> ) mg							
Anzemet (1.8 mg/kg) mg							
Decadron IV (20 mg) mg	20	20	TBD	TBD	TBD	TBD	TBD
<b>Radiation Therapy</b>							
XRT-Total Dose							
<b>Documents</b>		Chemotherapy					
<b>CBC</b>							
WBC 1000/ul							
Neutrophils %							
Banded Neutrophils %							
ANC							
Hg g/dl							
HCT %							
Platelet Screen 1000/ul							
<b>Chemistry</b>							
Bilirubin, Total mmol/L							
Sodium mmol/l							

Change  
Delete  
Status  
Course  
MAR Sum  
Add  
Drug  
Tests  
Care Plan  
Order Set  
Dagnosis  
Approve  
Adj Apprv  
  
 Date Range  
 From: 18/8/2008  
 To:  
Refresh

# InfoFlex screen shot

InfoFlex v5 Data Entry - SACT - Systemic Anti-Cancer Therapy

InfoFlex Module View Subject Event Help

Data View: SACT - Systemic Anti-Cancer Therapy

Data View Design: Patient Demographic details, Referral (r), Diagnosis, Programme (r), Regimen (r), Drug Cycle (r), Drug Administration (r)

Subject Overview: Patient Demographic details, Referral (01/01/11 :: :), Diagnosis (01/02/11 :: Lower Gastrointestinal), Programme (01 :: 20/02/11 :: 20/02/11), Regimen (15/02/11 :: 19/02/11 :: Chemotherapy), Drug Cycle (01), Drug Administration (19/02/2011), Drug Cycle (02), Drug Administration (25/02/2011), Drug Administration (01/03/2011)

Data Entry --- Regimen (SYS - Treatment Number = '1')  
Last changed by 'system' on 03/08/2011 at 09:56:19

Hospital Number: SACT\_TEST\_001 | 2. Birth Date: 01/01/1950 | 3. Gender - Current: 1 - Male | 1. NHS Number: 000 000 0000

Regimen details

Treatment Number	1		
21. Decision to Treat Date	15/02/2011	22. Start of Actual Treatment	19/02/2011
9. Organisation Code (Provider Decision to Treat)	RA201 - ROYAL SURREY COUNTY HOSPITAL		
Cancer Treatment Modality	02 - Anti-cancer drug regimen (Cytotoxic Chemotherapy)		
Treatment Type	C - Chemotherapy		

Consultant Details

Consultant	C9999998 - Consultant not known	7. Consultant Code (GMC)	C9999998
		8. Main Speciality Code	

Regimen

14. Regimen Number	1
15. Intent of Treatment	C - Curative
16. Drug Regimen Acronym	Oxal - Oxalplatin
17. Height at Start of Regimen	1.85 m
18. Weight at Start of Regimen	90.000 kg
19. Performance Status at Start of Regimen	WHO 0 - Asymptomatic (Fully active, able to carry on all predisease activities without restriction)
20. Co-morbidity Adjustment	Y - Yes
23. Clinical Trial Indicator	01 - Patient is taking part in a clinical trial
24. Chemo-radiation	N - No
25. Number of Cycles Planned	5

Outcome

37. Date of Final Treatment	01/04/2011
38. Regimen Modification - Dose Reduction	N - No
39. Regimen Modification - Time Delay	N - No
40. Regimen Modification - Stopped Early	N - No
41. Regimen Outcome Summary	0 - Treatment completed as prescribed

CS13: Cancer Information System | system | SACT - Systemic Anti-Cancer Therapy | Data Entry Mode | (16/16)

# Somerset screen shot

Somerset Cancer Register v12.2.6 - TEST SITE - Windows Internet Explorer provided by the UHNS Trust ICT Department

## Anti-Cancer Drug Regimen (Lung)

[Back](#)

NHS Number: 100 000 1027      Hospital Number: TEST41      Name: JONES, JOHN      Date Of Birth: 19/04/1917

Consultant	Giridharan-S		
Date Decision to Treat	24 03 2010	Organisation (DTT)	University Hospital Of North Staffordshire
Date Start of Treatment	29 03 2010	Organisation (Treatment)	University Hospital Of North Staffordshire
Planned Cycles/Courses	4	Chemo-Radiotherapy	No
Treatment Event Type	Second Or Subsequent Treatment For New Primary Cancer		
Treatment Setting	Inpatient Admission	Clinical Trial	No
Drug Therapy Type	Chemotherapy	Treatment Intent ?	Adjuvant
Route of Administration	Intravenous		
Drug Regimen Acronym	regimen here		

---

Date of Treatment	28 09 2010
Drug Prescribed	blah

[Add New](#) [Save](#)

Select Record 1 2

Treatment Given	Chemotherapy Alone		
Review/End Date		Actual Cycles/Courses	
Disease Response		Treatment Outcome	

Comments

[Save](#)

Last Updated By: GERAINT OWEN      Last Updated On: 31/03/2010 10:05:00

# End

## Questions

? How to get your chemotherapy treatment data recording complete and accurate

- From MDT systems
- From e-prescribing systems                      ?culture change
- extended/oral/outliers

? national regimen list    ?what level of aggregation to include in SACT returns

? reporting priorities for Haematology    (you can only get out what you put in)

# Dataset

# Demographics

1	NHS number	M
2	Date of birth	M
3	Gender - current	R
4	Ethnicity	R
5	Patient postcode	M
6	GP practice code	R
7	Consultant GMC code	R
8	Consultant speciality code	R
9	Organisation code of provider	M

M mandatory - record will be rejected without this field

R required - must be completed if available and all fields complete by April 2014

O optional - should be completed where relevant to clinical management

# Clinical Status

10	Primary diagnosis	M or field 11
11	Morphology	M or field 10
12	Stage of disease	R

# Programme and regimen

13	Programme number	R
14	Regimen number	R
15	Intent of treatment	R
16	Regimen	M
17	Height at start of regimen	R
18	Weight at start of regimen	R
19	Performance status at start of regimen	R
20	Co-morbidity adjustment	R
21	Date decision to treat	R
22	Start date of regimen	M
23	Clinical trial	R
24	Chemo-radiation	R
25	Number of cycles planned	R

# Cycle details

26	Cycle number	M
27	Start date of cycle	R
28	Weight at start of cycle	O
29	Performance status at start of cycle	R
30	OPCS procurement code	R

# Drug administration details

31	Drug name	R
32	Actual dose per administration	R
33	Administration route	R
34	Administration date	R
35	Organisation code of provider	R
36	OPCS delivery code	R

# Outcome

37	Date of final treatment	R
38	Regimen modification - dose reduction	R
39	Regimen modification - time delay	R
40	Regimen modification - stopped early	R
41	Regimen outcome summary	R
42	Date of death	R