



# **ROUTINE QUALITY CONTROL IN PRACTICE**

**Nadya Dimitrova**

## OUTLINE

- Sampling and re-abstraction
- Quality control programme checks



## ROUTINE QUALITY CONTROL

- **Purpose:** Accuracy of recorded data, completeness and accuracy of detail
- Acting to:
  - **correct** any obvious deficiencies
  - constantly **improve** the level of accuracy
  - **guide ongoing training** in the quality control of standard cancer registration.



## ROUTINE QUALITY CONTROL

- To check, formally or informally, the accuracy of the work of staff by:
  - **re-abstraction study** - originally recorded registry data are compared with that obtained through independent abstraction by expert registrars
  - **recoding** exercises
- Checks incorporated into a **quality control programme**



# RE-ABSTRACTION AND RECODING

## Possible approaches:

- **All incoming reports** are checked immediately upon arrival
  - main variables
  - any errors can be rectified while the original hospital records are still easily available
- **Sampling**
  - Selection of recorded cases – by year of diagnosis, site, geographical region, etc.



# RE-ABSTRACTION AND RECODING

1

- **Selection** of recorded cases – by year of diagnosis, site, geographical region, etc..

2

- **Re-abstraction and recoding** of the case without reference to the original registration

3

- **Comparison** of the original and reprocessed registrations
  - every data item is checked separately to calculate error rates for each one

4

- **Evaluation of errors**
  - establish a scale of error for the item
- Example: For site of tumour distinguish errors in the fourth digit of ICD code from those in the first three

## RE-ABSTRACTION AND RECODING – EXAMPLE\*

- **Design:** reabstraction of cancer data from hospitals and outpatient facilities (female breast cancer and prostate cancer).
- Study trained, state cancer registry staff **selected** cancer cases from the registries, **reabstracted** data on these cases from hospital medical records, solicited **additional data** from various nonhospital settings.
- The reabstracted data were used as the gold standard to **calculate measurements of agreement.**

\* German R. Quality of Cancer Registry Data: Findings from CDC-NPCR's Breast and Prostate Cancer Data Quality and Patterns of Care Study. Journal of Registry Management 2011 Volume 38 Number 2

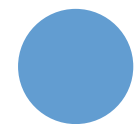


# RE-ABSTRACTION AND RECODING – EXAMPLE\*

**Agreement of Original Abstraction Data on 9,103 Female Breast Cancer Cases Diagnosed in 2004 and Reabstraction Data in 2007-2009: Breast and Prostate Cancer Data Quality and Patterns of Care Study in 7 States**

Item	Agreement Measurements		Distribution of Unknowns		
	<i>n</i> *	Percent agreement	<i>n</i> (%)*	Percent of original unknown recoded to known ( <i>n</i> )	Percent of original known recoded to unknown ( <i>n</i> )
<b>TNM clinical stage group</b>	5,213	41			
Stage 0	830	90.3			
Stage I	1,837	72.2			
Stage II	1,252	80.7	659 (12.6)	85.3	10.0
Stage III	402	93.2			
Stage IV	233	97.5			
Unknown stage	659	48.1			

\* German R. Quality of Cancer Registry Data: Findings from CDC-NPCR's Breast and Prostate Cancer Data Quality and Patterns of Care Study. Journal of Registry Management 2011 Volume 38 Number 2





## CONTINUOUS OR *AD HOC* QUALITY CONTROL

### ○ **Continuous process**

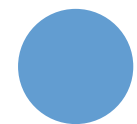
- any routine procedural errors can be corrected quickly
- raises staff awareness of the need to maintain high quality
- disadvantage: time-consuming, may require more resources – staff, funds

### ○ **Occasional ad hoc exercises**

- Planned/initiated by the registry
- Upon a request from external researchers, projects (CI5, EUROCARE, RARECARE, CONCORD, ENCR-JRC, others)



# QUALITY CONTROL PROGRAMME CHECKS



# QUALITY CONTROL PROGRAMME CHECKS

- Based on **logical rules**, included in a computer algorithm
- **All records** are checked for:
  - item validity
  - internal consistency
  - inter-record consistency
- Checks can be carried out at several points in the registration process:
  - to **newly submitted** tumour records before they are linked with the central registry database
  - to the registry database, after the addition of new records or **after any changes** have been made



# QUALITY CONTROL PROGRAMME CHECKS

- Checks may involve:
  - a single field
  - multiple fields in a single record
  - multiple fields in different records
- The check procedure should “**flag**” those records which **need review**.



# QUALITY CONTROL PROGRAMME CHECKS

## Examples:

- Single field

Basis of diagnosis (BoD)

ENCR recommendations

<http://www.encr.eu/images/docs/recommendations/basisd.pdf>

Allowed values: 0, 1, 2, 4, 5, 6, 7, 9

0 → Death certificate only (DCO)

1 → Clinical

2 → Clinical investigation

4 → Specific tumour markers

5 → Cytology

6 → Histology of a metastasis

7 → Histology of a primary tumour

9 → Unknown

**Warning for value = 9**



# QUALITY CONTROL PROGRAMME CHECKS

## Examples:

- Multiple fields in a single record
  - Age/topography/morphology

Table 3. Unlikely and rare combinations of age and tumour type.


Age group [years]	Morphology	Topography
0-2	Hodgkin lymphoma: 9650-9667	-
> 9	Neuroblastoma and ganglioneuroblastoma: 9490, 9500	-
> 5	Retinoblastoma: 9510-9514	-
> 8	Wilms' tumour, rhabdoid, and clear cell sarcoma	8960, 8964
		8963
0-8	Renal carcinoma: 8010-8041, 8050-8075, 8082, 8120-8122, 8130-8141, 8143, 8155, 8190-8201, 8210, 8211, 8221-8231, 8240, 8241, 8244-8246, 8260-8263, 8290, 8310, 8320, 8323, 8401, 8430, 8440, 8480-8490, 8504, 8510, 8550, 8560-8573	C649
		8312



# QUALITY CONTROL PROGRAMME CHECKS

## Examples:

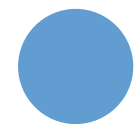
- Multiple fields in different records



2_Pati	2000149						3_Tumo	20001491
12_BoD	13_Topo	14_Morpho	15_Beh	7_Sex	DoI	DoB	Laterality	
7	c503	8500	3	2	99/2/2000	99/11/1963	2	

2_Pati	2000149						3_Tumo	20001492
12_BoD	13_Topo	14_Morpho	15_Beh	7_Sex	DoI	DoB	Laterality	
7	c508	8500	3	2	99/10/2001	99/11/1963	1	



## QUALITY CONTROL PROGRAMMES - EXAMPLES

- IARC/IACR Check Program

<http://www.iacr.com.fr>.

- JRC-ENCR Quality Check Software

<http://www.encr.eu/index.php/downloads/jrc-encr-qcs>





THANK YOU AND ENJOY CHECKS!

