

Cancer registries in support of planning and assessing population-based oncology outcomes in Europe

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Disclosure of interest

- Funded as coordinator by EU DG Research & Innovation
 - Within 6th and 7th Framework
- At Erasmus University MC Rotterdam, Dept of Public Health:
 - for translational epidemiology within EORTC Melanoma Group
- At Comprehensive Cancer Centre South (IKZ) & Eindhoven Cancer Registry
 - Also serving industry
 - Especially in phase 4 studies of utilization of targeted drugs
 - Haematological malignancies (Pharos project)
 - Kidney cancer

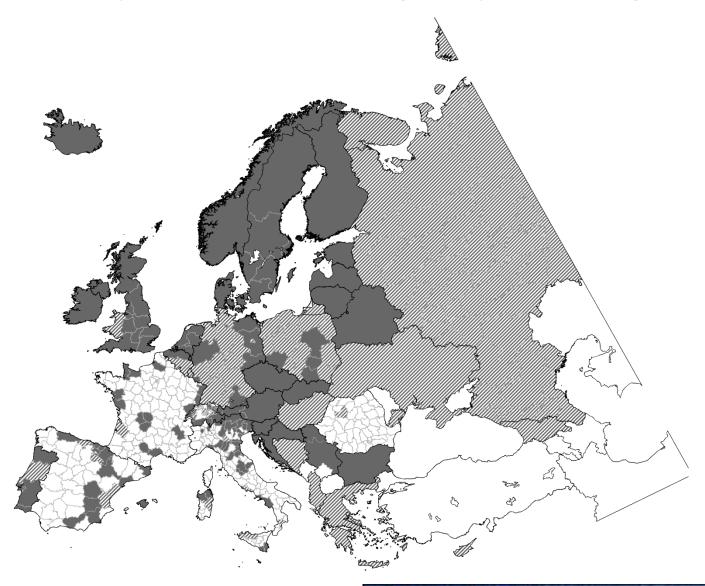
ESMO, 2012



- Funded by DG Research & Innovation in FP 7
- Aims to strengthen infrastructure etc. for population-based cancer registries in the EU
 - Looking at good practices and stakeholders
 - Increasingly patients
 - Defining & Attacking the bottlenecks
 - Fantasy
 - Funding
 - Privacy

ESMO, 2012

European Cancer registry coverage 2002



- Dark = High quality CR & i
- Dashed = CR but not yet in



Critical importance/relevance of cancer in Europe in 2012 and beyond

- Most frequent cause of death at age 25-75 yrs
 - At middle age (35-69 yrs): about 50% of all deaths
 - NB lowering cardiovascular mortality
- Lifetime risks: up to 30-40%
 - Affected by failing prevention, mass screening and second cancers
- Increasing in old age and with higher expectations → greater complexities with co-morbidities
 - Dilemma's of over under- and overtreatment, especially at age 75+

• Prevalence rising from 1 to 5% → awareness





Major ongoing changes: increasing interest & impact for cancer registries

- Individualization (more subgroups, new classifications)
 - Molecular medicine: diagnosis & treatment
 - Patterns of care, also palliative, 2nd, 3rd, 4th line etc.
 - Study questions please on utilization & nasty side effects
 - Geriatric oncology
 - Co-morbidities + their treatment: patterns of care etc
 - Study questions on over- and undertreatment
- Increasing prevalence → Survivorship
 - Disease + individual + long term side effects
 - Follow-up, surveillance: more or less active



A population-based cancer registry could provide objective information

- On Incidence of all, including rare /multiple cancers
 - Variation in time and place
 - Conduct or Support studies of etiology and screening
- On Detection & Survival of all cancers
 - Variation in time and place
 - Conduct or support prognostic studies: short/long term
- On Process and outcome of oncological care
 - Variation in time and place
 - penetration & impact of new treatment approaches including survivorship
 - Contribute to planning and cost-effectiveness



Position of cancer registries as of 2012

- A rather strong position for the cancer registries within cancer control (50+% of EU)
 - Public health and just survival

- A rather small & heterogeneous position in the domain of quality of care (<25%)
- Same for Quality of Life
 - Stronger in the northwest
 - Weaker to none in the south → east



Badly needed: actual picture of oncological realities on the ground

- Despite extensive guideline circus
- Usually large geographic variation in:
 - Processes and outcome (albeit less)
 - Of onco-care delivery
 - (and structure as well: subspecialization !!)
- Even more in case of:
 - new treatments (expensive or not)
 - Follow-up regimes
 - older patients and by SES



How to make these roles clear for the program owners & stakeholders of CR's

- Structure the research activities
 - Through designating research domains
 - From input (data collection) to output
 - Describe the capabilities & training needed
- Show the anatomy and physiology of the CR as a program
 - Because it is so multiple and heterogenous
- Use metafors which also give perspective
 - From milk to butter and cheese
 - The tree



Cancer registries are part of Public Health & clinical Research programmes

(often set up by 'others')

Cancer risk

- Public Health + Prevention
 - Monitoring: variation of incidence in time and place
 - Planning: scenario's etc.
 - Etiology & prevention
 - Linking to cohort studies: EPIC
 - Multiple primaries
 - Determinants of inequality
 - SES, Migrants
- Public Health + Clinical
 - Evaluation of mass screening
 - Linking to screening cohorts
 - Assessment of aggressiveness

Cancer outcome

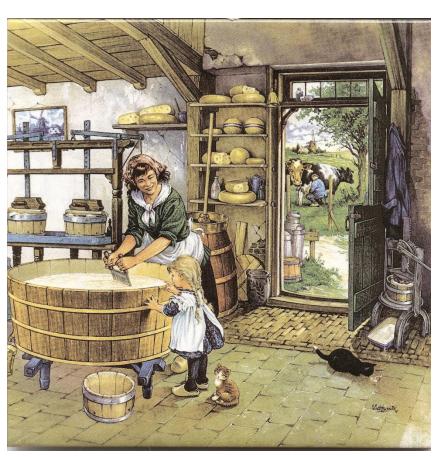
- Quality of Care
 - Process
 - Outcome
 - Recurrence/death
 - Survivorship
 - Cost-effectiveness
- Prognosis
 - Biological determinants
 - Co-morbidity: elderly
 - Rare/uncommon tumours

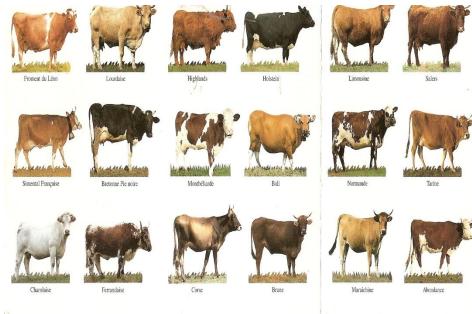
Major role of registry: lay the basis for

- Understanding change by describing variation in time and/or place
- Discussions on medical aspects are brought at a higher level
 - Within the registry but also outside
- From retrospective to prospective evaluation also based on scenario developments
- Rather reality testing than truth finding



Romantic picture of the cancer registry: from (uniform?) milk to multi-taste cheese?







Research domains: Qualify of Care, Public Health, Prognosis and Quality of Life Prognosis and Committee Committee On Committee On Committee Committee On Com
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The new registration tree input from roots & fertilizer. Output through leaves & fruits for stakeholders

Showing 4 major research domains

Public health

- primary prevention
- Evaluation mass screening

Quality of care

- process
- outcomes
- cost-effectiveness

Prognosis

- Determinants of Survival
- translational/clinical epidemiology

Quality of life

- patient reported oucome
- Aspects of survivorship

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Major strengths of cancer registries (real & potential)

- Population-based: all patients (almost)
 - As good as oncological care offered
- Neutral
- Operational already since 1950's
 - Many standards developed & problems solved
 - Linked with many cohorts
- Part of international oncological network (IARC)
 - Public health
 - Etiology & prevention
 - Mass screening
 - Cancer Research



Examples of population-based clinical studies using the cancer registry

- Patterns of care in the elderly
 - Staging e.g. colon cancer
 - Adjuvant treatments
 - Utilization of targeted drugs
 - Referral patterns to Radiotherapy
- Favourable Impact on survival of regionalization
- Rare cancers
- Survivorship: long term side effects
- Changing to sentinel node procedure in BC



Cancer registries and medical oncology: curative & palliative

- Patterns of (primary) care studies of all patients
 - Variation of penetration of primary treatments
 - Also of radiotherapy , immunotherapy etc
 - changes in survival related to systemic therapy
 - by stage , grade and age and co-morbidity
 - Penetration of molecular diagnosis
 - Then linked to biobanking → translational research
 - Occurrence of long term side effects (multiple cancer)
 - A.o. through survivorship studies /care plans
 - Input for scenario's of cost effectiveness



http://eco.iarc.fr/EUCAN/Default.aspx

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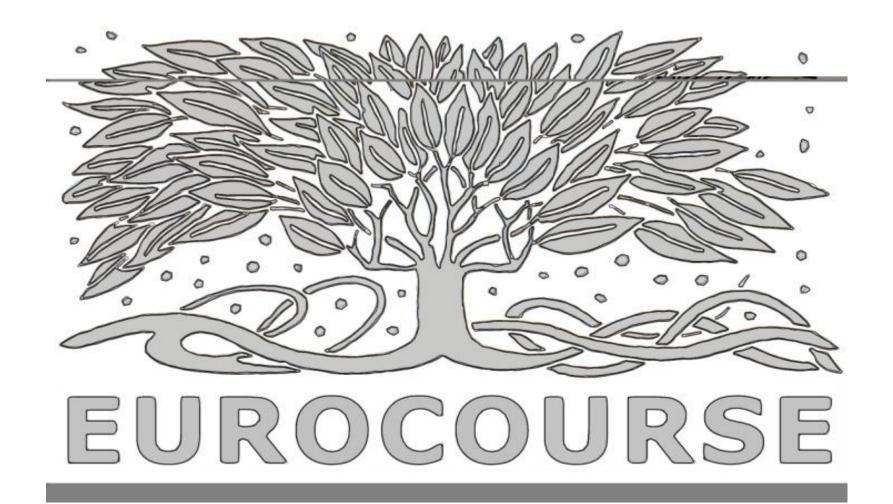


Change = Raison d'être of chronic disease registration: → watch out & adapt

- Changes to be expected in:
 - Underlying causes (tobacco, UV, viruses etc.) →
 - Detection, staging & treatment
 - Migration: regional and global (often SES-related)
 - Also in new /same (un)expected long term (side)
 effects: For better or for worse
- → Scenario based planning/allocation of (wo)manpower & resources → 10-20 years



Trees need to grow and bear fruits: through roots of clinical practice



a major statement

- Reality check serves to raise the level of <u>professional discussion</u> in a multi-disciplinary setting
- through neutral feedback
- to check clinical
 - Validity
 - relevance

- However primarily intended to protect patients against
- over- or undertreatment
 - in regions/countries
 without functioning
 registries
- And detect harmful
 - long term side effects
- So what matters is:
 - Speed
 - Lightfootedness
 - Interaction with clinicians

So, what happened in WP 6

- Inventory of major clinical challenges related to unique, position of cancer registry
 - Population-based
 - Independent , neutral, external validity
- Any weakness: being (too) slow
- NB internal validity determined by
 - Oncological care as it is (the swamp)
 - Interaction through a.o. Feed back
 - Your registry personnel and access to data



3 meetings with about 100 participants

- Making an overview of best practices
- Focussing then on
 - Geriatric oncology: cancer management in old (M Janssen)
 - Patient reported outcome: Melissa Thong, Lonneke vd Pol
 - Methodology of studying effects of regionalization & concentration
 - Linkage to & synergy with clinical databases
 - Pharmaco-epidemiology (van Herk-Sukel): systemic treatments
 - Tumor-specific specialty focussed clinical databases (A Green, M Lambe. M Wouters)
 - General clinical oncological databases (Germany)
 - Radiotherapy databases: referral primary & subsequent therapy



workpackage 6:

clinical evaluation

- With cancer registries as they
 - Are: thus with or without access to clinical records (50%)
 - Can/may/should develop (with extra funding)
 - Also staging/treatment(s) of recurrence/progression
 - Survivorship studies
- Cancer registries as sampling frames for a.o. audits
 - Opportunities (funding)
 - Limitations (privacy?)
- Professional initiatives of clinical databases (population-based?)
 - using the cancer registries for expertise, linking
 - Asking PopulationBased cancer registries to collect and analyse more data

Via Survivorship studies to patient registries (vd Poll et al. EJC 2011)

Patients view

- 20 year prevalence
- From 1 to now 3-4%
- From 5-25% in older people
- Suffer from variety of signs & symptoms

Eurocourse wp 6 inventory

- Literature overview
- About 150-200 studies
- More or less population-based
- 60% breast cancer
- Agreement on methods of approach and motives
 - Long term side effects
 - Interventions to improve QL
 - Obstacles

Challenges and pitfalls of clinical registries

- Proliferation of databases
 - Quality purposes (professional objectives: hurry?)
 - To avoid dependency of others
 - provide cloud, power etc.
- - Only more than just data Infrastructure or -provider
 - Methodologically and procedurally potentially unsound
 - Input valid?, neutral
 - Information can have legal impact (closure of hospitals)



Assume that cancer patients are in danger in the absence of any transparency or presence of cancer registries

Issues are

- How to inform doctors, patients & authorities in their absence after peer review
 - discussions needed → begin with population-based registries
- thus needed: Rapid publication of variation in care delivery, soundly assessed
- Shun details: expeditionary observational fishing studies with large amounts of data
 - Costing more than 200 € per patient
- Thus: study questions & clinical involvement are essential
 - Stratified by age



However: adress inequalities in care delivery among &within Member States

- If 50% of the EU population is covered at all
 - and 50% of this 50 % can do such clinical work
 - But fortunately rapidly growing
- (local) funding essential (= in your own interest)
- According to inventory:
 - Unfavourable in SE Europe
 - Favourable situation develops in:
 - UK, Holland, Belgium, Norway, Sweden, Denmark
 - Following in Finland Italy, Spain, Germany, France ??

more roads leading to Rome



High/medium/low resolution studies of detection, staging and 1st treatment (Eurocare)

Very good idea but:

Sloppy performance (too few €)

- > 10 years after diagnosis
- small numbers
- arbitrary selections of relatively well performing :
- length bias in case of screening
- Also badly funded but by whom? Whose interest??
 - At home or EU?

Better Solution??

Stronger Responsibility at country/regional level

- Noblesse oblige
- perspectivise performance
- Rigorous study questions
 - Leading to discussion rather than fighting for truth
- Imagine reporting for nonparticipants to the study
 - And to patient groups





Conclusions wp 6

clinical evaluation is already booming

Content & methodology

- Geriatric oncology:
 - expanding data sets with comorbidity by good practices
- Survivorship: idem
 - (see Lonneke's presentation)
- Regionalization etc: idem
 - macro
- Clinical registries: chaotic
 - Pharmaco-epidemiology
 - Surgical: popping up
 - Systemic therapy assessment
 - Definite form to be found

Strategically: collaborate

- With each other
 - following the best practices
- With loco-regional & clinical doctors through PhD students
- European level: representatives from clinical oncological societies
- Seek synergy with EORTC through phase 4 studies (also ordered by EMA)
 - W Groups like QL, melanoma
 - EORTC is broadening interest to effectiveness after estimating efficacy

Implications for us: to intensify

- > Learning from each other
 - Paradox : good data are often result from good work
 - Rapid communication for when there are no data
 - How to come from nowhere to somewhere and then to 'heaven'
 - = More than publishing
 - ...motivation comes from transparency through literature



Points of interest

- Do not try to be or become perfect
 - Multi-causality anyhow
 - Don't be perfect and slow
 - Follow the 20-80% rule and become perfect later
- Realize that it is only/primarily quality of care that matters (done in a scientific way)
 - Provoking discussion rather than truth

Databases & registries are not an aim in itself

WP6: Interesting domains for populationbased clinical cancer research

Tumour/Content driven

- Cancer in the elderly
 - < 70-80 yrs: yes ,but</p>
 - > 75-80 yrs: no, unless
 - Co-morbidity → complexity
- Treatment oriented
 - New: ággressive multimodal /specific targeted therapies
 - Variation in utilization
- Effects of regionalisation/ centralisation
 - More roads lead to Rome
 - Micro versus macro

Methodology driven

- Survivorship
 - Amenable conditions
 - Spot over- or undertreatment
- Clinical databases
 - Short term: audit
 - Complications/recurrence
 - Long term:
 - side effects (incl vascular)
- Cost effectiveness
 - Input for modelling
 - Broader scope of change

Example of translational epidemiology: male-female difference in melanoma prognosis (Joosse et al., Esther de Vries etc.)

- Known from cancer registries with information on stage/Breslowthickness, subsite &type
- Also needed:
 - data on ulceration and Mitotic activity
- Lit review of determinants & mechanisms:
 - behaviour, embryological, ROS
- Proposal to study this to melanoma experts
 - In: Munich cancer registry (data on progression)
 - With extensive surveillance data in EORTC-trials

Message from the platform: patients expect 'us' to collaborate & be valid + relevant + timely

Thus Important aspects

- data protection and safety + integrity
- Benefits and dangers of modern IT
 - especially webbased data bases are vulnerable)
- Attention for research process from begin to end
 - Methodology of population-based work
 - Be quick (also to serve uncovered areas)
 - ENCR can do a lot if adequately supported
 - Also from its own constituents (= good governance)
 - From the various stakeholders



Example of emerging challenge in 2013: impact of new treatments of advanced/metastatic/hormone refractory prostate cancer

- About 4-8 new targeted drugs approved vy FDA/EMA (soon?)
 - Each adding 4-6 months
 - with substantial side effects
- Huge international consortia of medical oncologists (de Bono et al., Sternberg)
 - Randomized trial etc etc
- Role of cancer registries ???
 - Variation in utilization at population level
 - Monitor 'çostly' side effectsincl QL

Challenges and paradoxes

- > Learning from each other
 - Paradox : good data are often result from good work
 - Rapid communication for when there are no data
 - How to come from nowhere to somewhere and then to 'heaven'
 - = More than publishing
 - ...motivation comes from transparency through literature



Another example of Translational epi: peritoneal carcinomatosis with colorectal cancer

- < 10% of patients, with bad & less bad prognosis
- Few cancer registry studies being made (Klaver et al., Lemmens, de Hingst)
- Role of grade, subsite
- Explore role of heating
- Animal tests
- RCT

Essential type of study questions: simplicity = validity

Role of age, gender, SES /stage

- In various phases of the disease
- Specific biological quastions in case of biobanks
 - Existing pathology labs
 - De novo? Still rather rare
- Utilization of the various therapies
 - yes/no if yes: fully/partly
 - In case of drugs: dosages/schemes?
 - In case of radiotherapy: access to their databases
 - In case of surgery: support of surgical audits so that they are independent

European dimension: why spend EU money and how?

- Quality of care is responsibility of the care system in each memberstate
- Learn form others
- If not happening now

Most needed : reinforcement of infra structure

But realise

- Most cancer registries are collecting data on
 - All : 50-150 cancers
 - At all ages
 - Newly diagnosed cancers + follow-up

- Doing active datacollection & quality control
 - Much standardization needed
- Involved in 4+ research domains with their specific knowledge and study questions

Beneficiaries

16 out of 17 from regions (6) or countries <12 million

Executive Board from

- -Finland, Sweden, Denmark
- Holland (2), Ireland
- Italy (2)

-Subcontractors from:

- France (IARC)
- Holland (MedLawconsult;)
- Belgium: ECCO



