



Bibliometrics combined with external sources: An enhanced tool to support R&D priority setting



- Complex exercise where many factors need to be taken into consideration
- Looking at the European context
 - Which type of research needs to be funded? Biomedical? Risk factors?
 - Is the EU performing enough research on cancer types which most affect the EU?
- With the next slides we aim at illustrating how bibliometrics combined with additional information may support decision making in R&D priority setting

Data source for publications

RISIS



- PubMed
- CWTS in-house version of the Web of Science (WoS)

Specific cancers considered

RISIS



- | | |
|--|-----------------------------------|
| • Bladder cancer | • Melanoma and other skin cancers |
| • Brain and nervous system cancers | • Mesothelioma |
| • Breast cancer | • Multiple myeloma |
| • Cervix uteri cancer | • Nasopharynx |
| • Colon and rectum cancers | • Non-Hodgkin lymphoma |
| • Corpus uteri cancer | • Oesophagus cancer |
| • Gallbladder and biliary tract cancer | • Ovary cancer |
| • Hodgkin lymphoma | • Pancreas cancer |
| • Kidney, renal pelvis and ureter cancer | • Prostate cancer |
| • Larynx cancer | • Stomach cancer |
| • Leukaemia | • Testicular cancer |
| • Lip and oral cavity | • Thyroid cancer |
| • Liver cancer | • Trachea, bronchus, lung cancers |

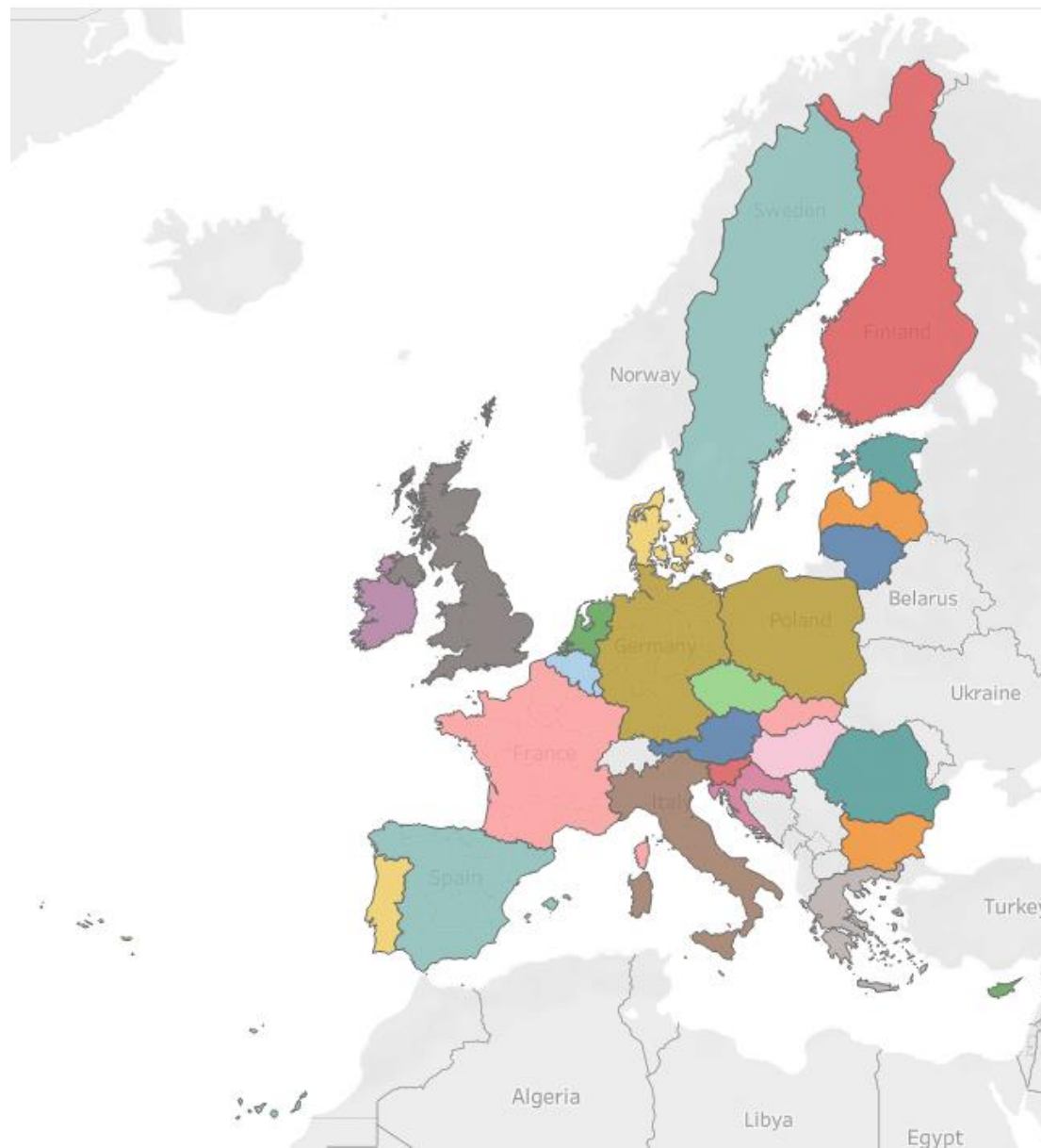
Countries considered

RISIS



➤ EU27

➤ UK

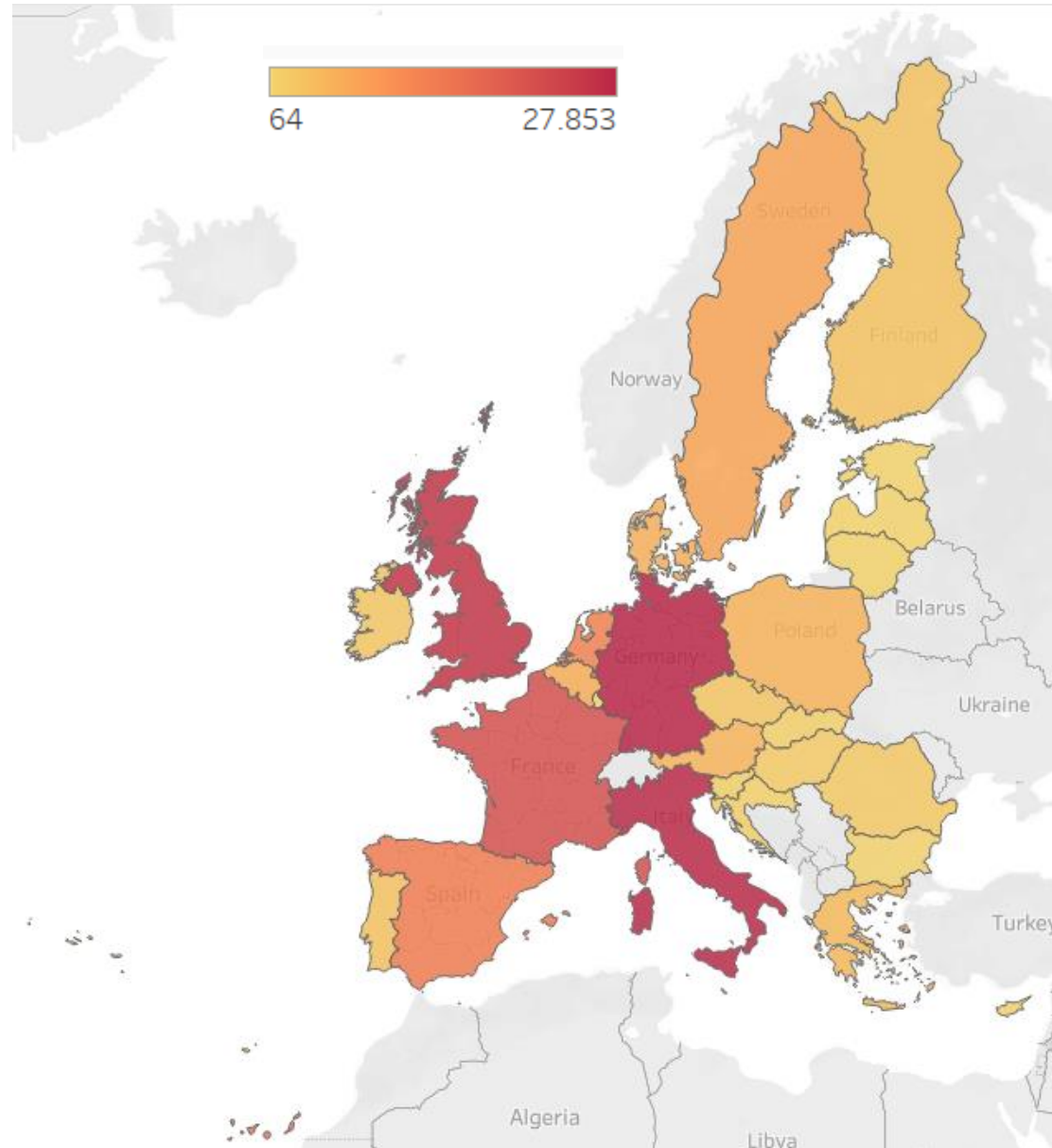


- Identification of publications related to specific cancer using MeSH descriptors in PubMed
 - For ‘Trachea, bronchus, lung cancers’, we selected the following descriptors:
 - Bronchial Neoplasms
 - Lung Neoplasms
 - Tracheal Neoplasms
- CWTS in-house version of WoS to gather author-affiliation information
- Time period 2013 - 2017

Publications on cancer research (I)



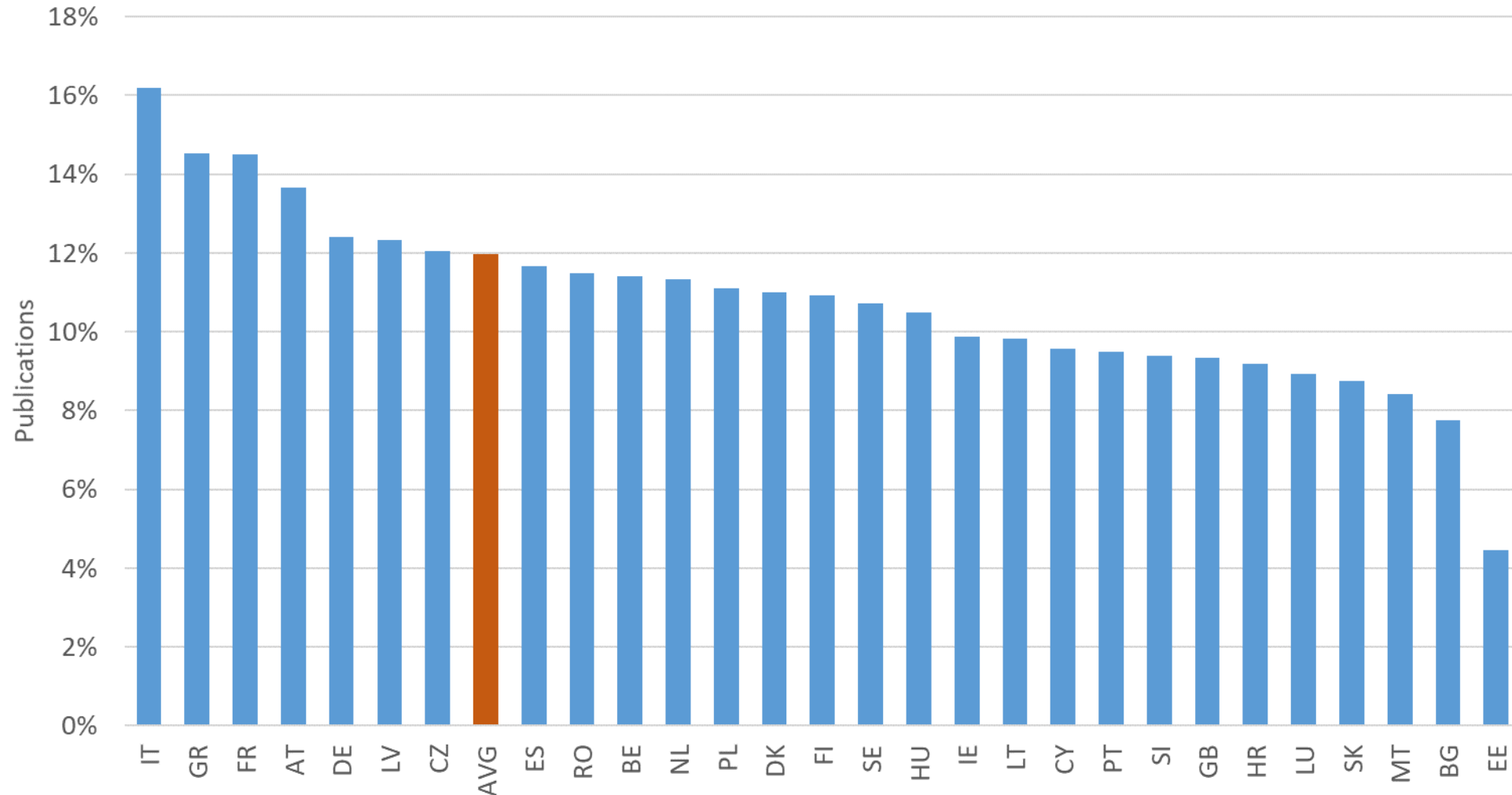
- Number of publications on cancer by country EU27 and UK



Publications on cancer research (II)



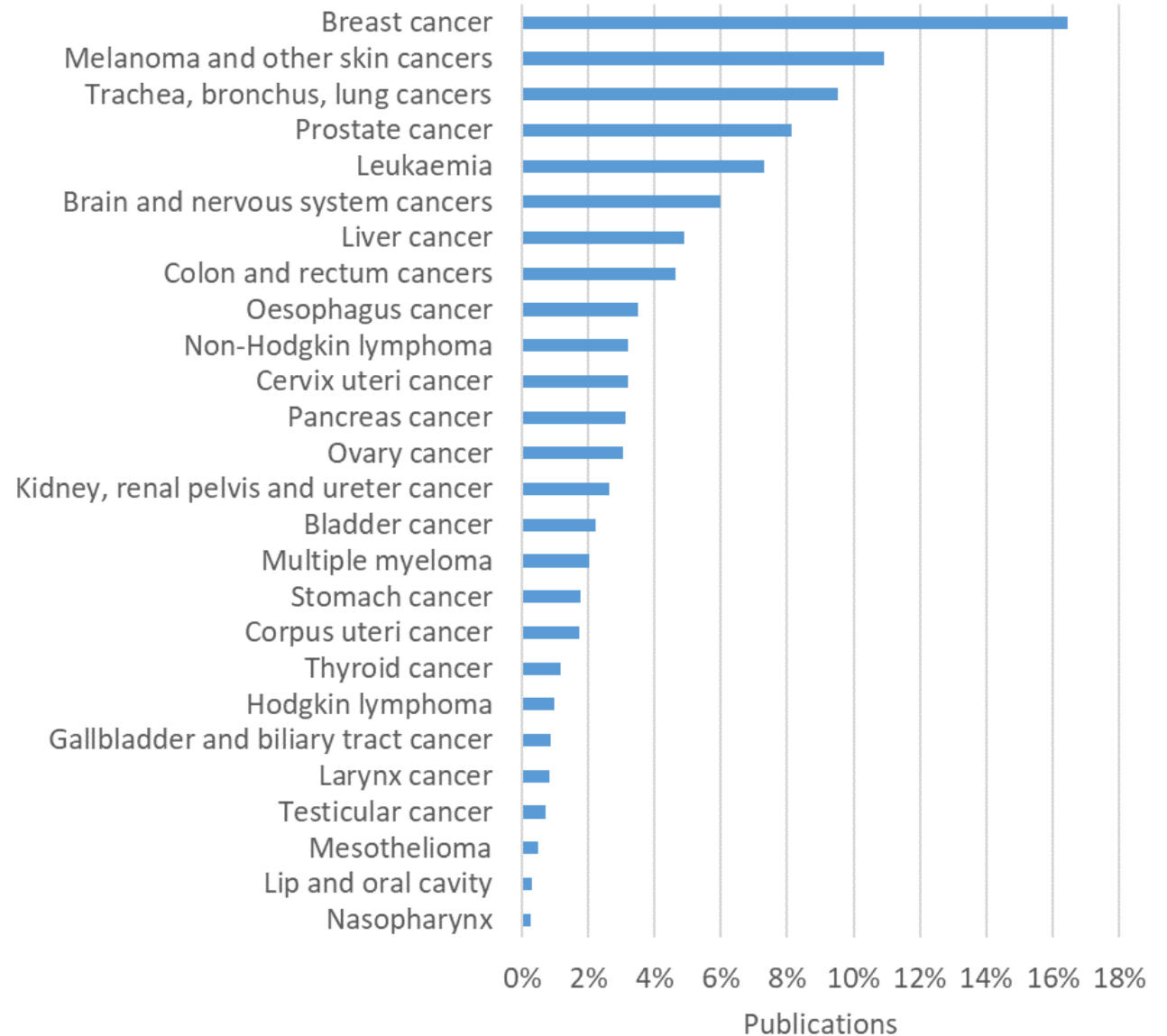
Percentage of publications on cancer over all publications in Biomedicine



Publications on cancer research (V)



➤ Breakdown of cancer research by type of cancer in NL



Data source for disease burden

RISIS



Disease burden and mortality estimates



World Health
Organization

DISEASE BURDEN, 2000–2016

The latest global, regional and country-level estimates of cause-specific disability-adjusted life year (DALYs), years of life lost (YLL) and years lost due to disability (YLD) for the year 2000, 2010, 2015 and 2016 are available for download below.

A summary of data sources and methods is available below. Due to changes in data and some methods, the 2000–2016 estimates are not comparable to previously-released WHO estimates.



Metrics: Disability-Adjusted Life Year (DALY)

Quantifying the Burden of Disease from mortality and morbidity

Definition

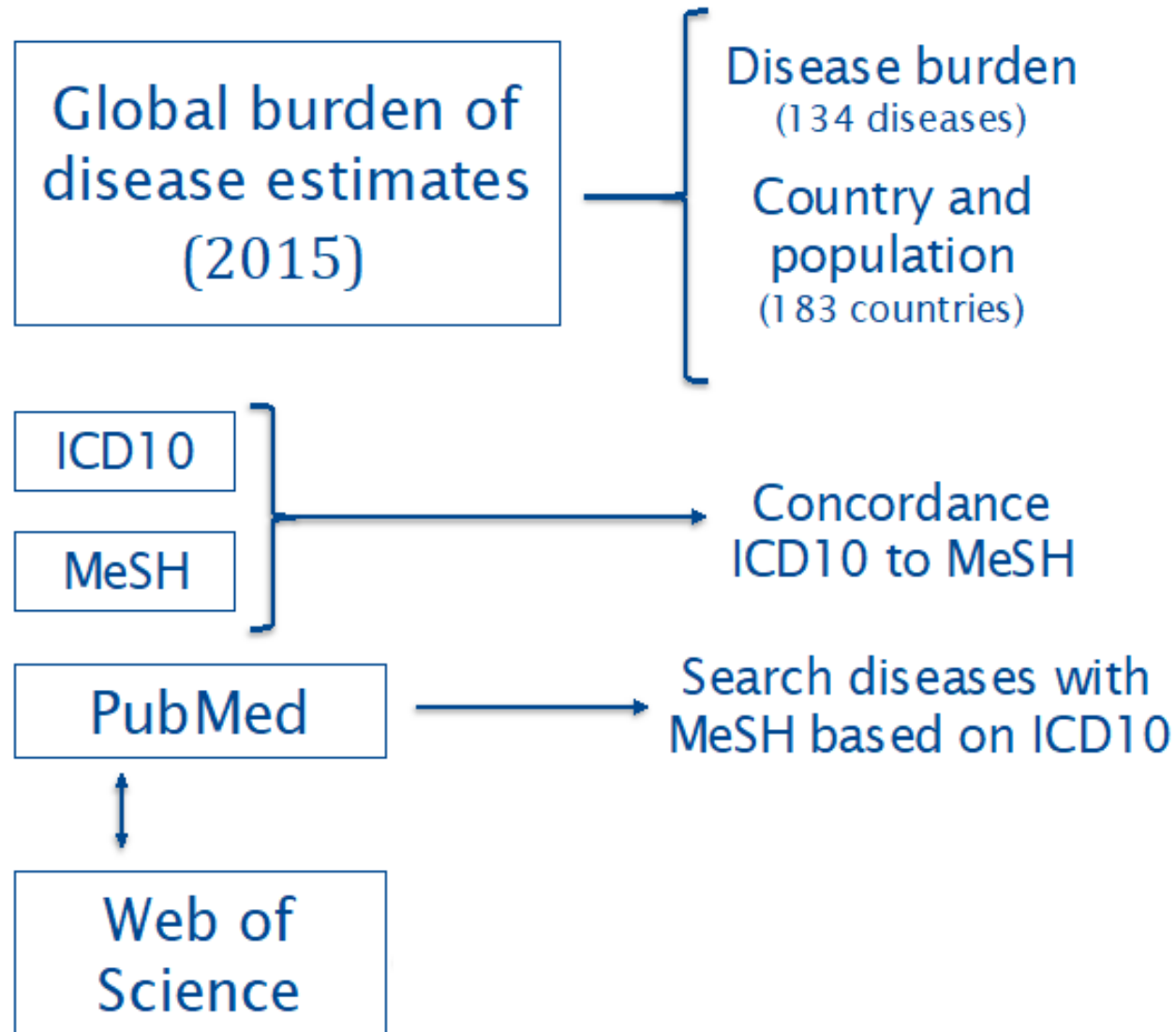
One DALY can be thought of as one lost year of "healthy" life. The sum of these DALYs across the population, or the burden of disease, can be thought of as a measurement of the gap between current health status and an ideal health situation where the entire population lives to an advanced age, free of disease and disability.

DALYs for a disease or health condition are calculated as the sum of the Years of Life Lost (YLL) due to premature mortality in the population and the Years Lost due to Disability (YLD) for people living with the health condition or its consequences:

Calculation

$$\text{DALY} = \text{YLL} + \text{YLD}$$

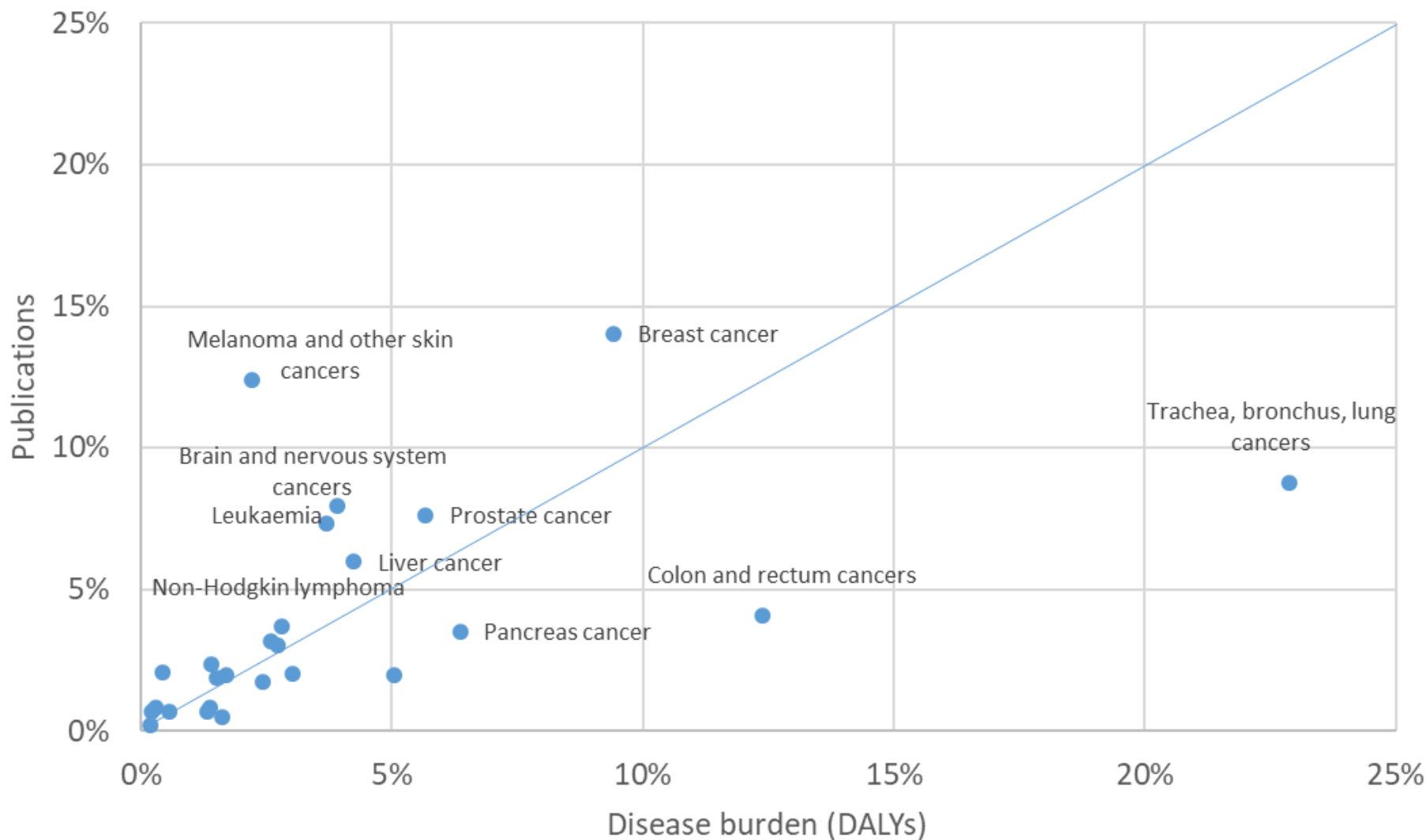
Linking publications and DALYs



Publications vs disease burden (I)



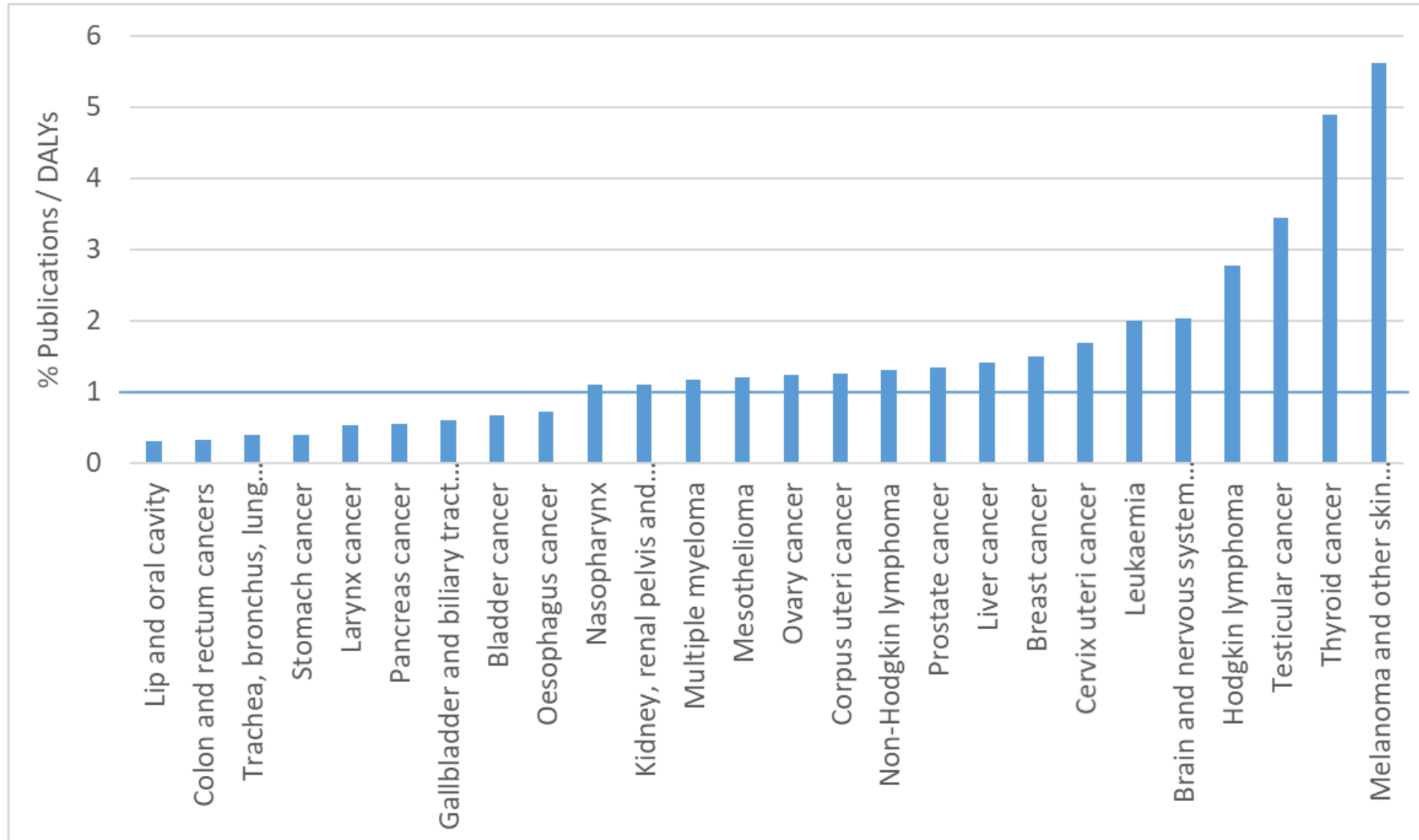
Percentage of DALYS vs percentage of publications per cancer in EU27 and UK



Publications vs disease burden (II)



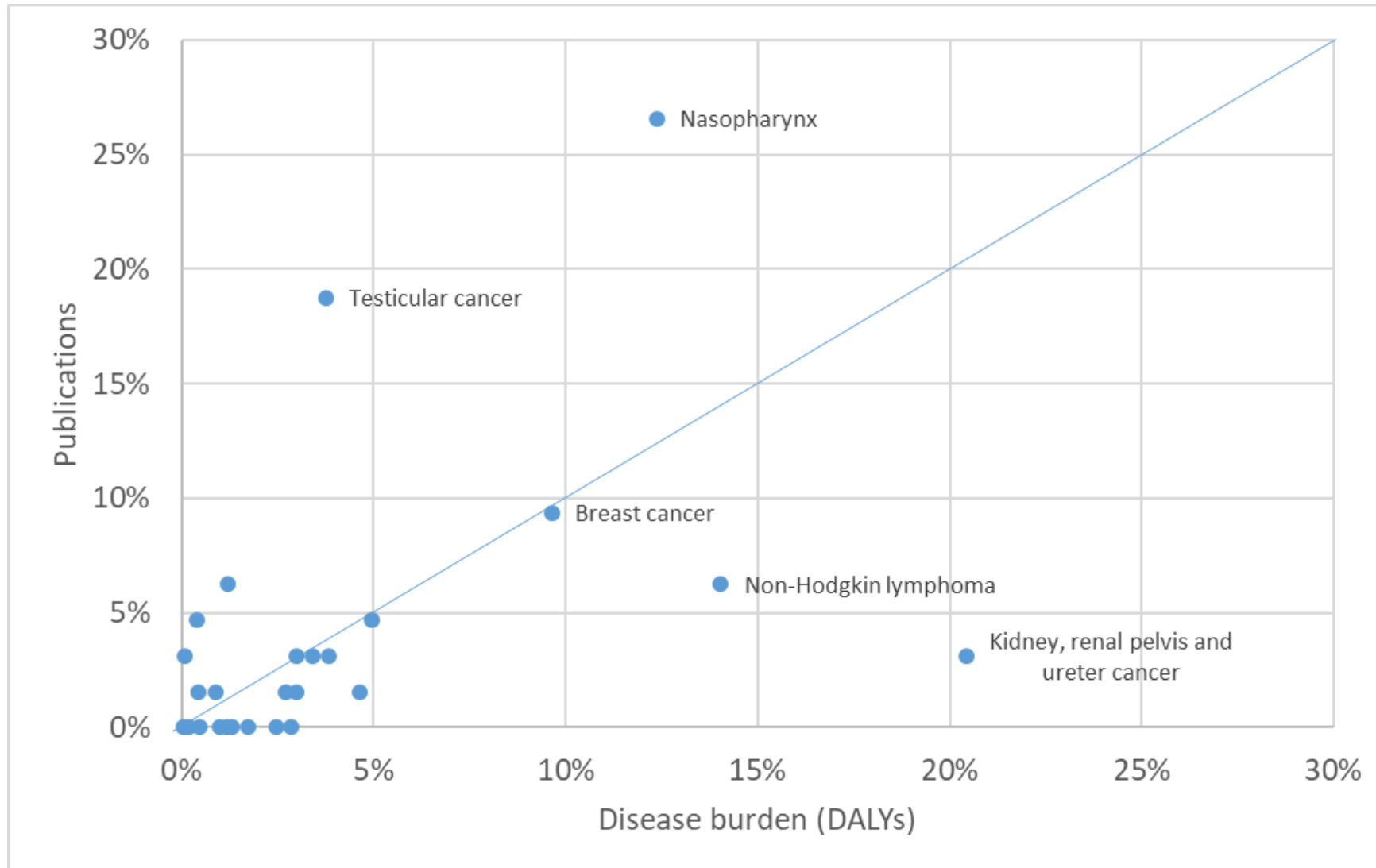
Percentage publications over percentage of DALYs in EU27 and UK



Publications vs disease burden (IV)



Percentage of DALYS vs percentage of publications per cancer in MT



Concluding remarks

- The combination of bibliometrics with additional information (e.g. burden of disease) increases its potential to support decision in R&D priority setting.
- Despite the limitations of bibliometrics (e.g. it does not capture all R&D e.g. clinical trials or industrial R&D), it is still useful to capture some important R&D developments.
- Burden of disease statistics are not free of limitations, and they are not the only element to consider in setting priorities.