Epidemiologie

Využití rutinních dat v epidemiologii

Descriptive studies often use routine data

- Vital statistics
- Administrative data systems
- Compulsory notifiable diseases
- Specific disease registries (population based, or hospital based) e.g. Cancer registration, Congenital malformations
- Continuous or repeated surveys of representative samples of the population

Vital statistics – rutinní statistika (ČSÚ)

- Narození
- Úmrtí
- Potraty
- Sňatky
- Rozvody
- Stěhování

- https://www.czso.cz/csu/czso/pohyb-obyvatelstva-metodika

Národní zdravotní registry v ČR
https://www.uzis.cz/index.php?pg=registry-sber-dat--narodni-zdravotni-registry

- Národní onkologický registr
- Národní registr hospitalizovaných
- Národní registr reprodukčního zdraví
- Národní registr kardiovaskulárních operací a intervencí
- Národní registr kloubních náhrad
- Národní registr nemocí z povolání
- Národní registr léčby uživatelů drog
- Národní registr úrazů
- Národní registr pitev a toxikologických vyšetření
- Národní diabetologický registr
- Národní registr intenzivní péče

Národní registr novorozenců

- Identifikace zařízení
- RČ novorozence – pokud se narodil živě, u mrtvě narozeného s koncovkou „0000"
- Rodné číslo matky
- Četnost těhotenství - pořadí těhotenství
- Bydliště – číslo obce, ORP, kraj, okres
- Novorozenec – státní občanství
- Způsob porodu
- Poloha plodu
- Datum narození
- Vitalita
- hmotnost (g),
- gestační stáří
- Léčba na sále – povinné, pokud nebyl porod doma nebo mimo ZZ
- Apgarové skóre (nepovinné u narození mimo ZZ)
- Léčba na oddělení Vybrané nemoci a komplikace
- Provedený screening
- Vrozená vada (u živě narozeného)
- Datum a hodina ukončení ZN
- … Důvod ukončení ZN vč. IČA při překladu
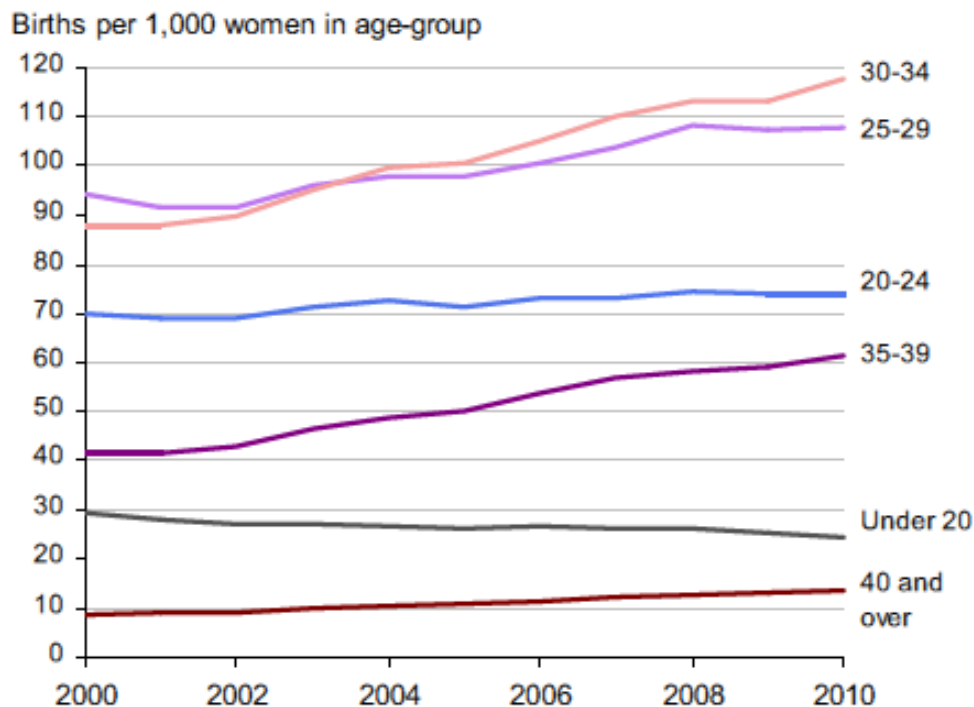- Dg. u úmrtí

Úmrtnost

List o prohlídce zemřelého

- Věk

- pohlaví

- rodinného stavu

- Vzdělání

- státní občanství a stát narození

- místo úmrtí (v nemocnici, doma atd.)

- Základní příčina smrti (WHO definována jako (a) onemocnění nebo zranění, které iniciovalo řetězec chorobných stavů přímo vedoucích ke smrti, nebo (b) okolnosti nehody či násilí, jež způsobily smrtelné poranění).

- Příčiny smrti jsou kódovány dle Mezinárodní statistické klasifikace nemocí a přidružených zdravotních problémů (MKN)
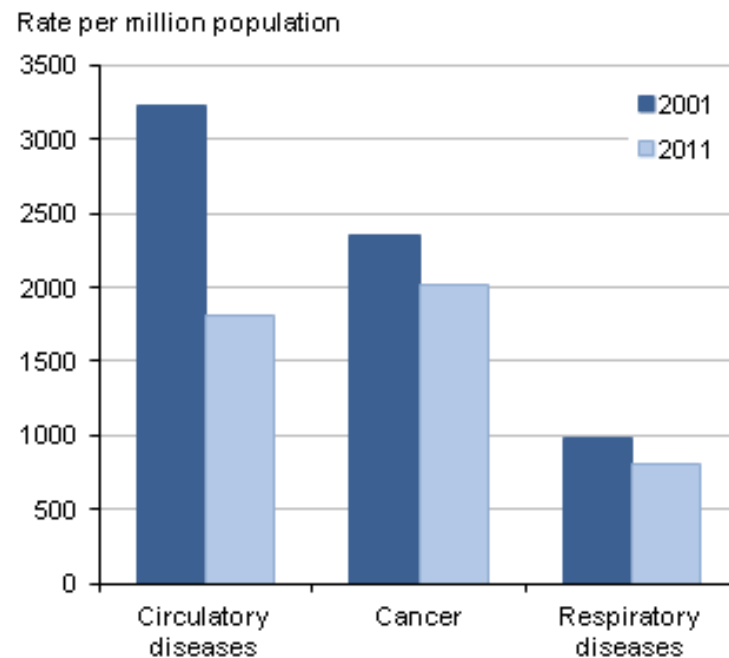
Using births and deaths data

Age-specific fertility rates, England and Wales, 2000–2010

Births per 1,000 women in age-group

Source: Office for National Statistics

Male age-standardised mortality rates, for three categories of cause of death, 2001 and 2011

Rate per million population

Source: Office for National Statistics

Numerator for routine statistics

- Census
- Birth statistics
- Administrative data

Health surveys

- Often designed to be nationally representative
- Often open access data
- Much more information than routine data

- Often limited by low response rates (so not strictly nationally representative)

Health surveys – examples

- The Health Survey for England (HSE)
- Scottish Health Surveys (SHeS)
- European Health Interview Survey (EHIS)
- European Health Examination Survey (EHES)
- US National Health and Nutrition Examination Survey (NHANES)
- Study of Health, Ageing and Retirement in Europe (SHARE)
- …

The Health Survey for England (HSE)

HSE designed to:

- provide annual data from nationally representative samples to monitor trends in the nation's health

- estimate the proportion of people in England who have specified health conditions

- estimate the prevalence of certain risk factors associated with these conditions

- examine differences between subgroups of the population (for example by age, sex or income) in their likelihood of having specified conditions or risk factors

continued….

- assess the frequency with which particular combinations of risk factors are found, and in which groups these combinations most commonly occur;

- monitor progress towards selected health targets;

- (since 1995) measure the height of children at different ages, replacing the National Study of Health and Growth; and

- (since 1995) monitor the prevalence of overweight and obesity in children.

HSE basics

- Annual survey since 1991
  - c. 8,000-16,000 adults aged 16+ and
  - 2,000-6,000 children aged 0+
- Based on households
- Participants visited by trained interviewers and then nurses
- Content: CORE + additional modules

Data linkages

- Various types of routine data can be linked
  - Register with register(s)
  - Survey with register(s)
  - Survey with survey(s)

- Only possible if
  - Indivisuals have personal ID (for individual linkage)
  - Individual have known location (for geographical linkage)
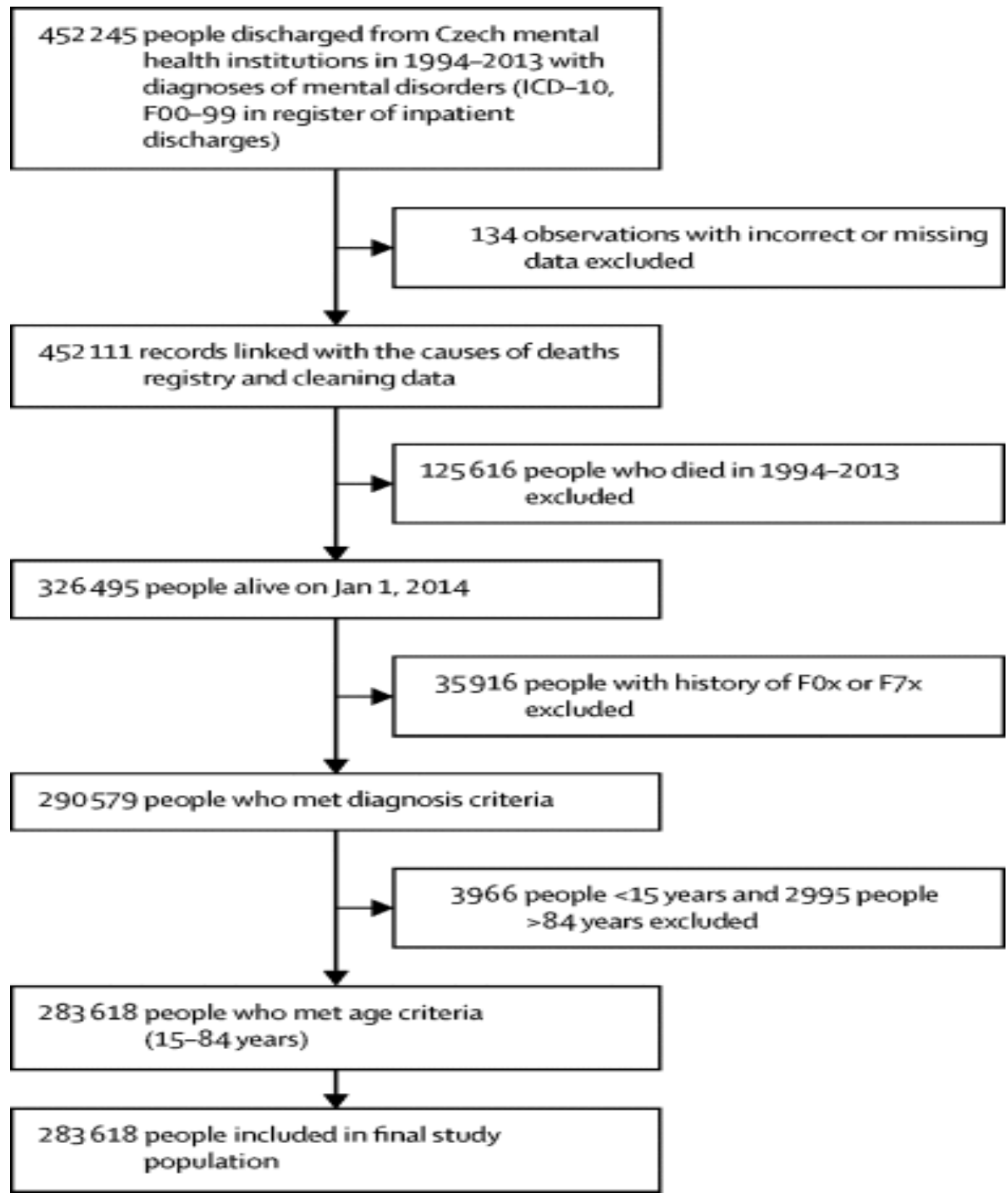
  and

  Ethical approval is available (may require informed consent0

Example of routine data linkage

- Mortality in people with mental disorders in the Czech Republic: a nationwide, register-based cohort study
- *Lancet Public Health, 2018, 3, e289-e295*

	SMR	95% CI
General population	1 (ref)	..
Any diagnoses	2·2	2·2–2·3
Disorders due to psychoactive substance use (F10–19)	3·5	3·4–3·7
Schizophrenia, schizotypal, and delusional disorders (F20–29)	2·3	2·1–2·5
Mood (affective) disorders (F30–39)	1·6	1·5–1·7
Neurotic, stress-related and somatoform disorders (F40–48)	1·8	1·6–1·9
Disorders of adult personality and behaviour (F60–69)	2·3	2·0–2·6
Individuals with a history of multiple diagnoses	2·9	2·7–3·2

The study population comprises individuals with a history of discharge from Czech mental health institutions between Jan 1, 1994, and Dec 31, 2013, with ICD-10 recorded diagnoses of mental disorders, and who were alive on Jan 1, 2014. ICD-10=WHO International Classification of Diseases tenth edition. SMR=standardised (by age and sex) mortality ratio. Individuals with more than several hospital admissions with diagnoses from different diagnostic groups were included several times into different groups accordingly. SMRs for ICD-10 categories F50–59 and F80–89 were not calculated because the number of people in these two categories was not sufficient for deriving any meaningful estimations.

Table 3: Standardised annual mortality ratios of the study population in comparison with the general population in 2014