

Burden of Down Syndrome in Romania, 1990-2019: results from the Global Burden of Disease 2019 study

Diana A. Grad*, Periklis Charamlampous, Monica Mazzucato, Brigid Unim, Márta Korbonits, Pavel Kolkhir, Ferit Sevim, Enkeleint A. Mechili, Ala'a Alkerwi, Juanita A. Haagsma

INTRODUCTION

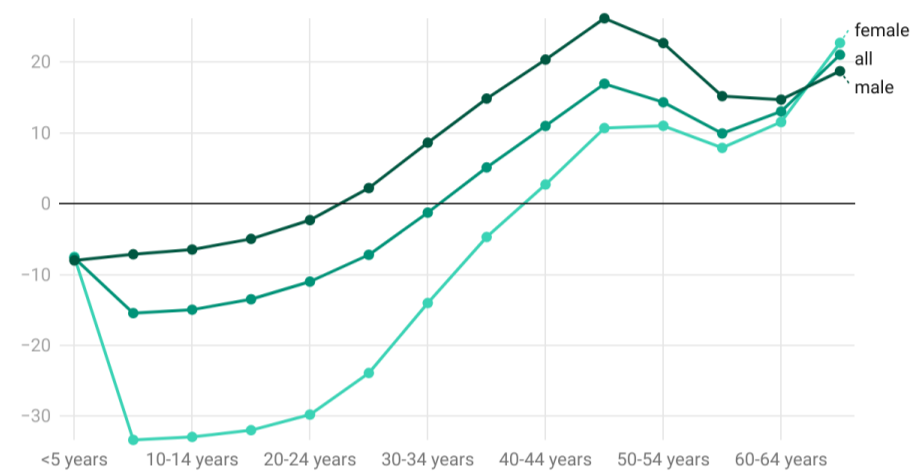
Down Syndrome (DS) - ORPHAcode 870:

- characterized by the presence of an additional chromosome 21
- affects patients on multiple levels (due to motor and cognitive impairments or high risk of developing multiple chronic diseases)
- significant burden on the affected patients, their family, and on society

RESULTS - AAPC

- DS prevalence rates - the highest rates were among children aged <5 years (males: 1990 vs. 2019: 56.19 vs. 51.68, %Δ: -8%; females: 1990 vs. 2019: 30.99 vs. 28.67, %Δ: -7.5%)

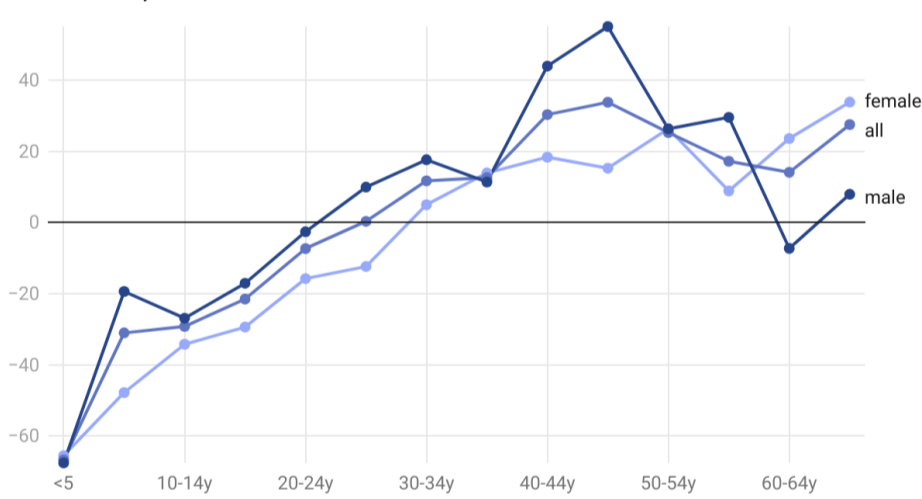
Prevalence % change (1990-2019) for Down Syndrome (in Romania)



Created with Datawrapper

- DALY rates - the highest decreases were observed in the same age group - children aged <5 years (male: %Δ, -67.59%; female: %Δ, -65.57%)

DALY % change (1990-2019) for Down Syndrome (in Romania)



Created with Datawrapper

- overall - both the prevalence (1990: 19.77, 15.7-25.53 95% UI; 2019: 13.09, 10.02-16.91 95% UI; %Δ: -33.7%) and the DALY (1990: 9.2, 4.86-20.18 95% UI; 2019: 3.13, 2.44-3.98, 95% UI; %Δ: -66.57%) rates decreased between the same timeline

METHODS

Aim

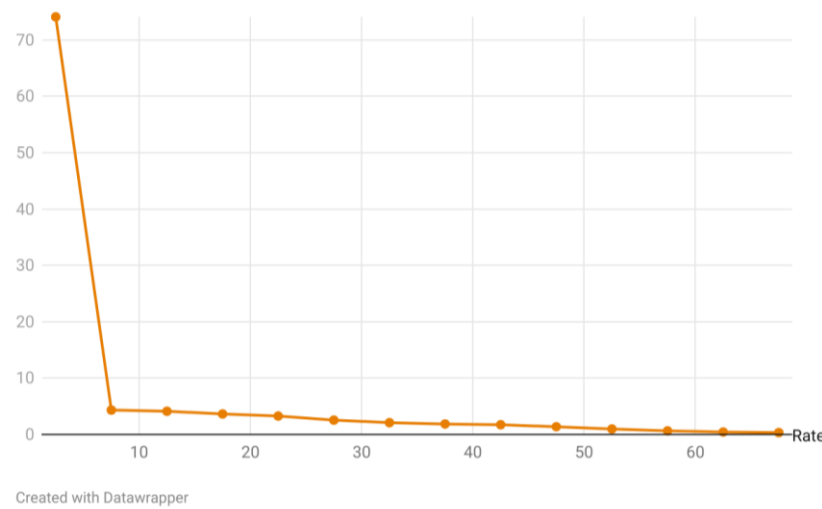
- to quantify the burden of disease of Down Syndrome in Romania

Study design

- secondary, retrospective analysis of GBD 2019 data
- annual average percentage (AAPC, %Δ) - for DALY and prevalence (age standardized rates) for both sexes, using 1990 and 2019 rates
- age, period, and cohort trends were estimated using the web tool developed for the age-period-cohort (APC) analysis, using data for all 30 years
- graphs were developed using datawrapper online tool

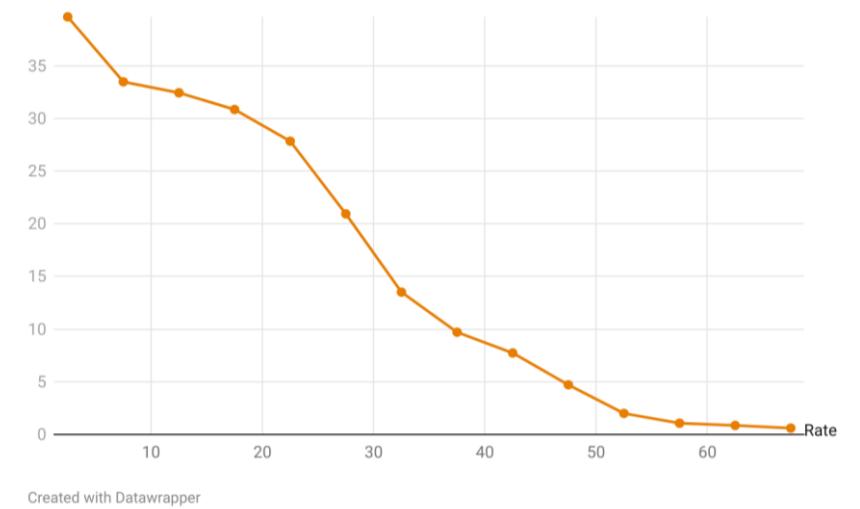
RESULTS - APC

Age effects of Down Syndrome DALY



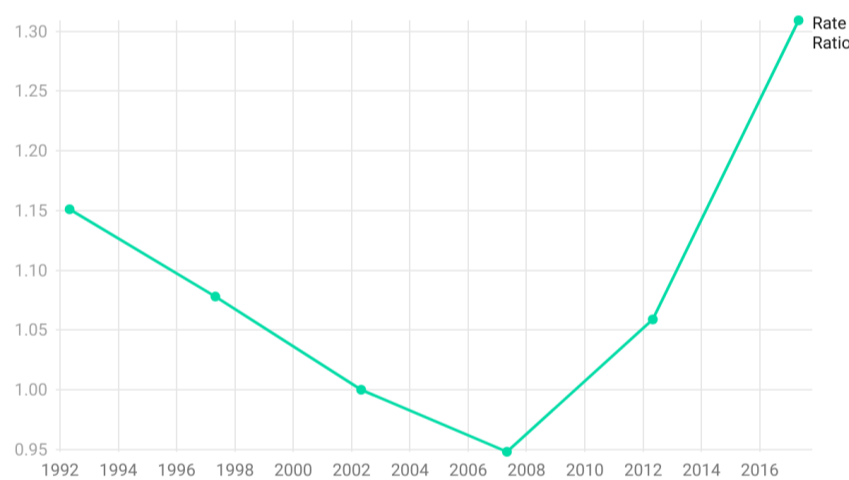
Created with Datawrapper

Age effects of Down Syndrome prevalence



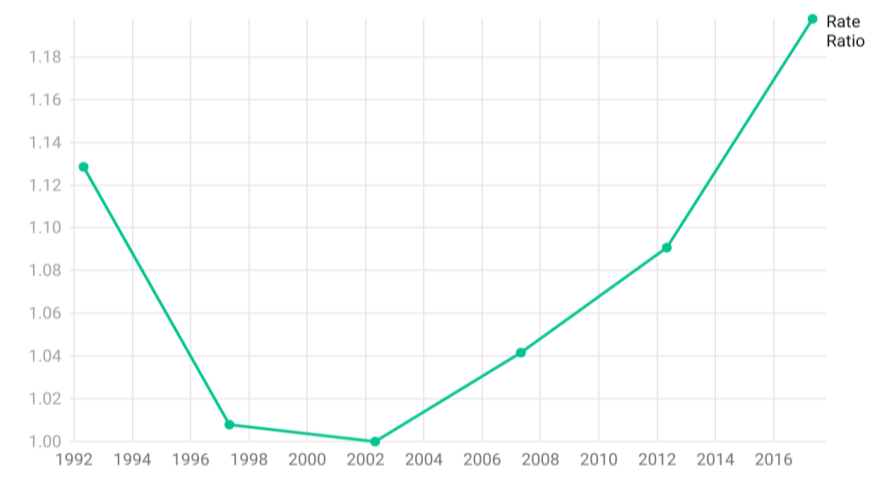
Created with Datawrapper

Period effects of Down Syndrome DALY



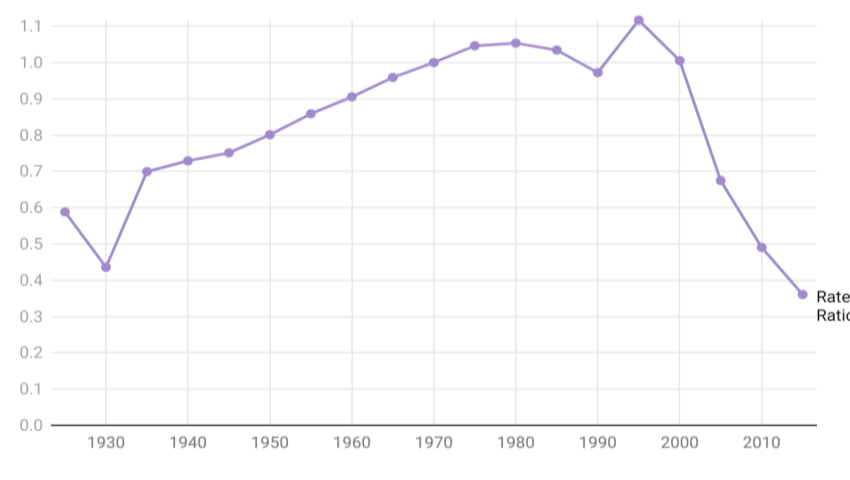
Created with Datawrapper

Period effects of Down Syndrome prevalence



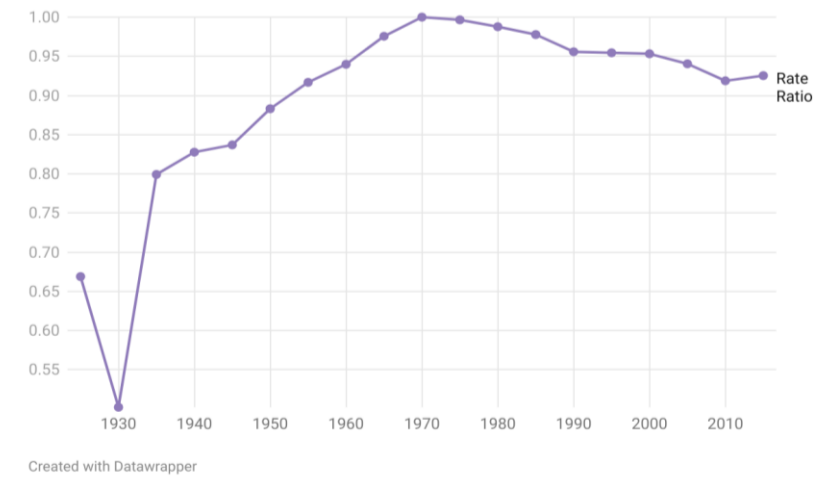
Created with Datawrapper

Cohort effects of Down Syndrome DALY



Created with Datawrapper

Cohort effects of Down Syndrome prevalence



Created with Datawrapper

Conclusion

- the overall decreasing trends might indicate the progress of provided care given at primary, secondary and tertiary level
- improvement in prenatal screening, overall decrease of natality, and mother's age could explain the decrease among those aged <5.
- future studies are needed to assess the burden of DS at a micro-regional level