



Diabetes Data Sources - Poland

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Majority:

public system based on National Health Service *NFZ*

Minority:

private insurance: private clinics & hospitals

fully paid: private clinics

Reimbursement of medicines: separate system – *NFZ* database

Health service in Poland



All children (0-18yrs) are fully insured

Pediatrics care (in- & outpatients): 0-18yrs

Specialized pediatric care as: diabetes in childhood:
centralized

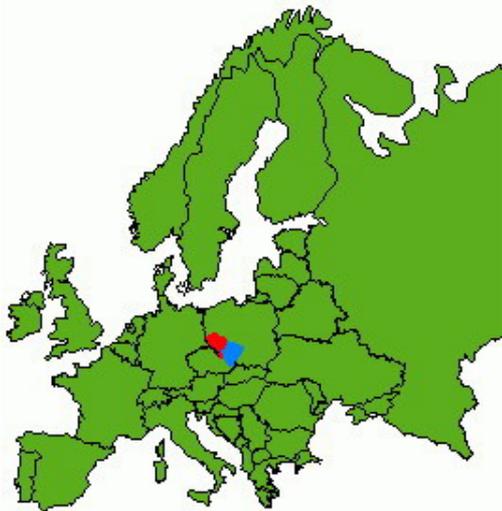
Lack of any **diabetes** national register
(only scientific, regional, universities registers)

Several national registers exist, examples:

- Polish National Cancer Registry

- Central Register of Occupational Diseases

- Polish National Register of Cardiac Surgery



Upper Silesia region

- area: $\sim 12.300 \text{ km}^2$ (3.9%, 14th of 16)
- population: $\sim 4.900.000$ (12.7%, 2nd of 16)
- density: $\sim 400 \text{ persons/1km}^2$ (average for Poland = $125 \text{ persons/1km}^2$)
- 68 towns, Gliwice are 4th biggest one.

Participation in the following international level projects:

- 1999- still; EURODIAB - Epidemiology of Type 1 Diabetes Mellitus in Europe (grant EU 1989-1998)
- 2002- still; TRIGR - Trial to Reduce IDDM in the Genetically At Risk (NIH grant, regional coordinator)
- 2003, 2005; PedPumpStudy PPSG European Pediatric Pump Survey, Round 2 i 3
- 2003-2008; EUCID - EU - European Core Indicators in Diabetes
- 2008-2011; EUBIROD -EU - European Best Indicators through Regional Outcomes Diabetes

Aim



There is no national registry of diabetes in Poland. Diabetes care in adults is spread out to numerous diabetes & GP units, while diabetes care in children is centralized, mainly at the university, regional centers.

The aim was to establish the multiregional academic registry of diabetes.

Although there is no national registry of diabetes available, the national registry of governmental health insurance company exists and stores the detailed information on health service provided to, among the others, diabetic patients - both children and adults.

The goal was to get access to that database and to check whether it is possible to use it as a substitute to the national register.

Diabetes care - children



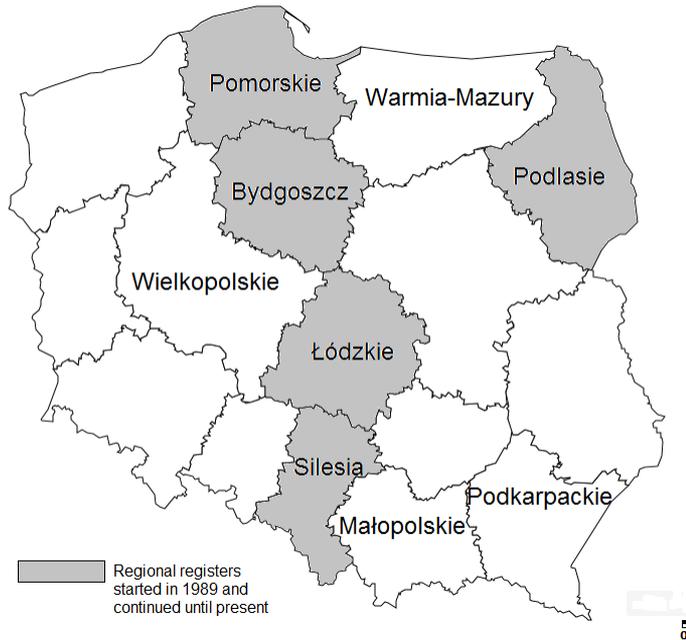
Since the beginning of pediatric diabetology in Poland in the 1960s, the system of diabetological care for children aged up to 16 years remains uniform.

It is mandatory to refer all cases of newly diagnosed or decompensated Type 1 DM to a regional pediatric diabetes center (hospital).

This center at the same time supervises pediatric diabetes care in the region. Ambulatory care in each region is provided by 2-3 out-patient clinics that strictly cooperate with the regional diabetes center.

Treatment of type 1 diabetes in children does not belong to the competences of the general practitioner or pediatrician.

Results - academic registry

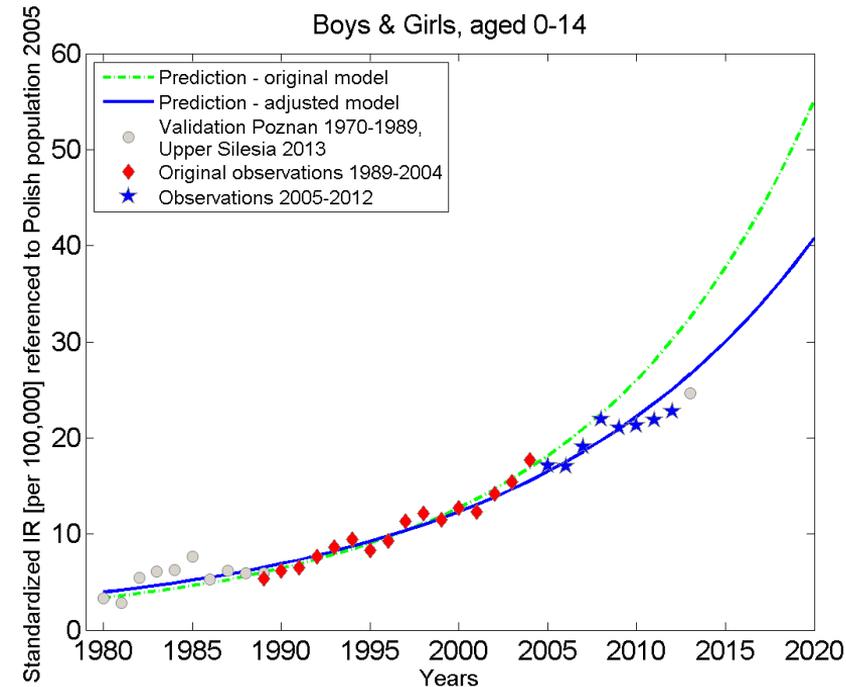


New cases of T1DM in children aged below 15 years have been recorded prospectively.

The chosen five regional registers cover over 35% of the Polish population.

All registers were and still are based on two independent data sources (hospitalizations and visits in out-patient clinics).

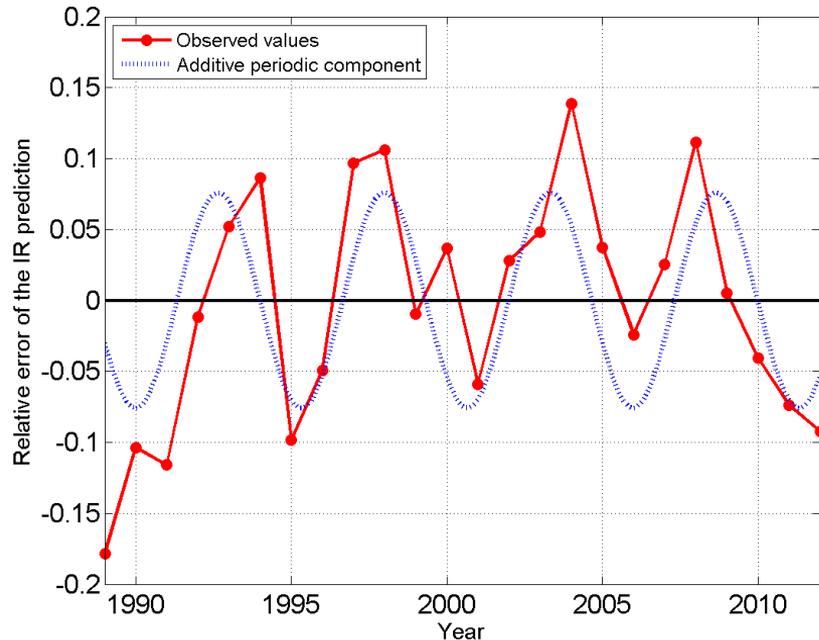
The estimated completeness of data acquisition is 99.9 %.



Chobot A, Polanska J, Brandt A, Deja G, Glowinska-Olszewska B, Pilecki O, Szadkowska A, Mysliwiec Malgorzata, Jarosz-Chobot P: *Updated 24-year trend of type 1 diabetes incidence in children in Poland reveals a sinusoidal pattern and sustained increase.* Diabetic Medicine, 34(9):1252-1258

Age-gender-standardized incidence rates (IRs) of Type 1 DM were calculated per 100,000 persons/year. IRs were analyzed in dependency of age, gender, geographical region, population density. Mean standardized incidence for 1989-2012 was 12.72 (95%CI 11.35 to 14.21). Within the 24-year observation incidence increased from 5.36 to 22.74/100,000/year.

New data corrected the earlier predictive model by changing the estimates of some factors related to patient age, gender and



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The multiplicative periodic component of the trend model was identified with the use of the Fourier transform. The sinusoidal component has the estimated period equal to 5.33 years and amplitude of 7.59% of predicted incidence rate value.

For the trend model with no periodic component included, the prediction error ranged from -13.89% to 17.85% with mean of absolute values equal to 6.79%. The correction for periodicity decreased the error range (to -9.63% and 15.31%

National Health Service database



Strong cooperation between Upper Silesian regional center, National Health Service and Polish Ministry of Health has been established.

Access to the National Health Service database was granted (years 2008-2016). The pilot study, for Upper Silesia region only, was performed.



Ministerstwo Zdrowia



Narodowy Fundusz Zdrowia

The NFZ database contains information about healthcare services and drug prescription for patients diagnosed with diabetes mellitus and other metabolism disorders (ICD 10).

Additional information on patient's birth date, gender, date of diagnosis, home address (zip code) and GP units providing the services is given. At the moment the data is available for Upper Silesia region from 2008 to 2016 (12.5% of the population of Poland).

Medical services to T1DM children



Records related to T1DM children aged 0-14 years were selected from 82 612 155 records in database (years 2008-2013).

The data included information on 746 children newly diagnosed with T1DM, chosen from 516 813 patients diagnosed and treated in 2008-2013.

The T1DM incidence (with respect to gender and age group) was compared to the university based regional register - 96% of coverage.

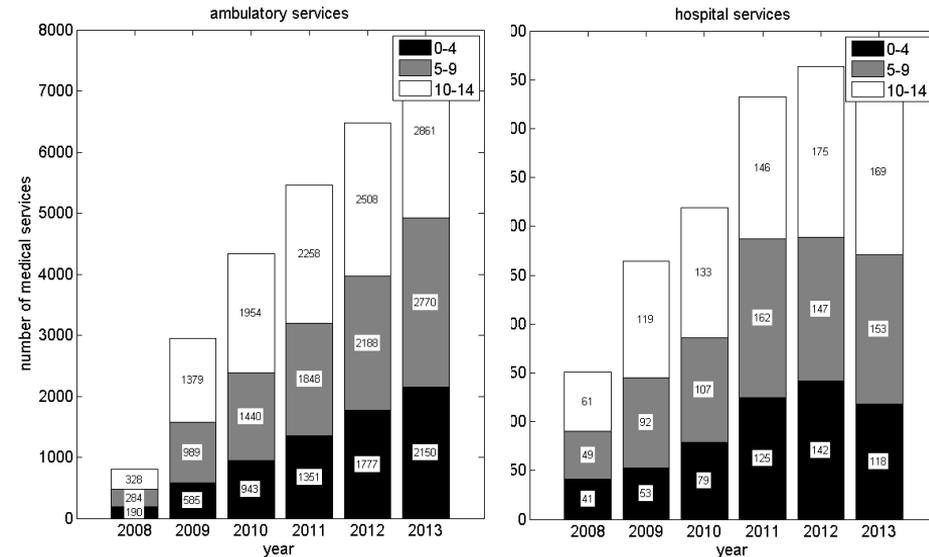
Medical services to T1DM children



The geostatistical analysis of treatment costs, diabetes complications, and comorbidity for T1DM patients was performed.

The spatial parameters included are: the distance from the diabetological clinic to the patient's house, the density of GP units in the patient's neighborhood, population density, chosen social and economical indices for the patient's neighborhood.

Preliminary results



The ambulatory medical service to the T1DM patients tends to be more frequent with years, especially in children aged 0-4. 2.5 mln € were spent for medical services given to newly diagnosed T1DM children with in 2008-2013. By average 54.51% of costs covered hospital services. As expected, the highest cost is for the first 6 months from diagnosis.

We published 37 papers in peer reviewed journals on 2012-2017

The results of our research were presented at many scientific meetings.

Przemysława Jarosz-Chobot, as a member of Polish Academy of Sciences – Public Health Section, is involved in the DM reporting to the government. We provide training to young doctors and nurses.

Thank you

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