



# Israeli National Diabetes Registry (INDR)- current status

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# Israel's Health System

- National Health Law
- All citizens have medical insurance covering outpatient & inpatient medical services
- Outpatient services are delivered through 4 health providers
- The 4 HMOs use EMRs (since 1998) and advanced IT systems
- All hospitals use EMR (though not all activity is paper-less)

# Establishment of The Israeli National Diabetes Registry

- Formed in 2013
- Managed by the ICDC which is a research institute of the Ministry of Health
- Reporting is mandatory (legal base)
- Operates as a partnership of the 4 HMOs and Ministry of health

# National Diabetes Registry -goals

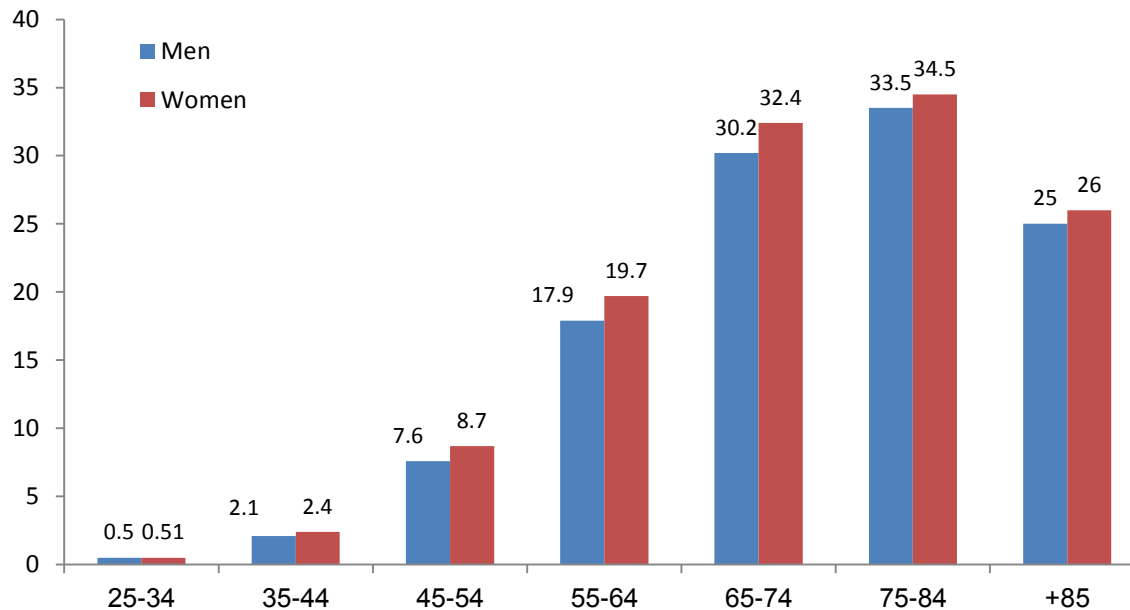
- Providing data for policy makers that would be used for planning:
  - Prevalence, incidence, time trends
  - Incidence of complications
  - Mortality rate
  - Identifying risk groups
- Planning prevention interventions and monitoring their efficacy
- Not focused on monitoring quality of care as this is mainly done through a separate program

# Organization of The Israeli National Diabetes Registry

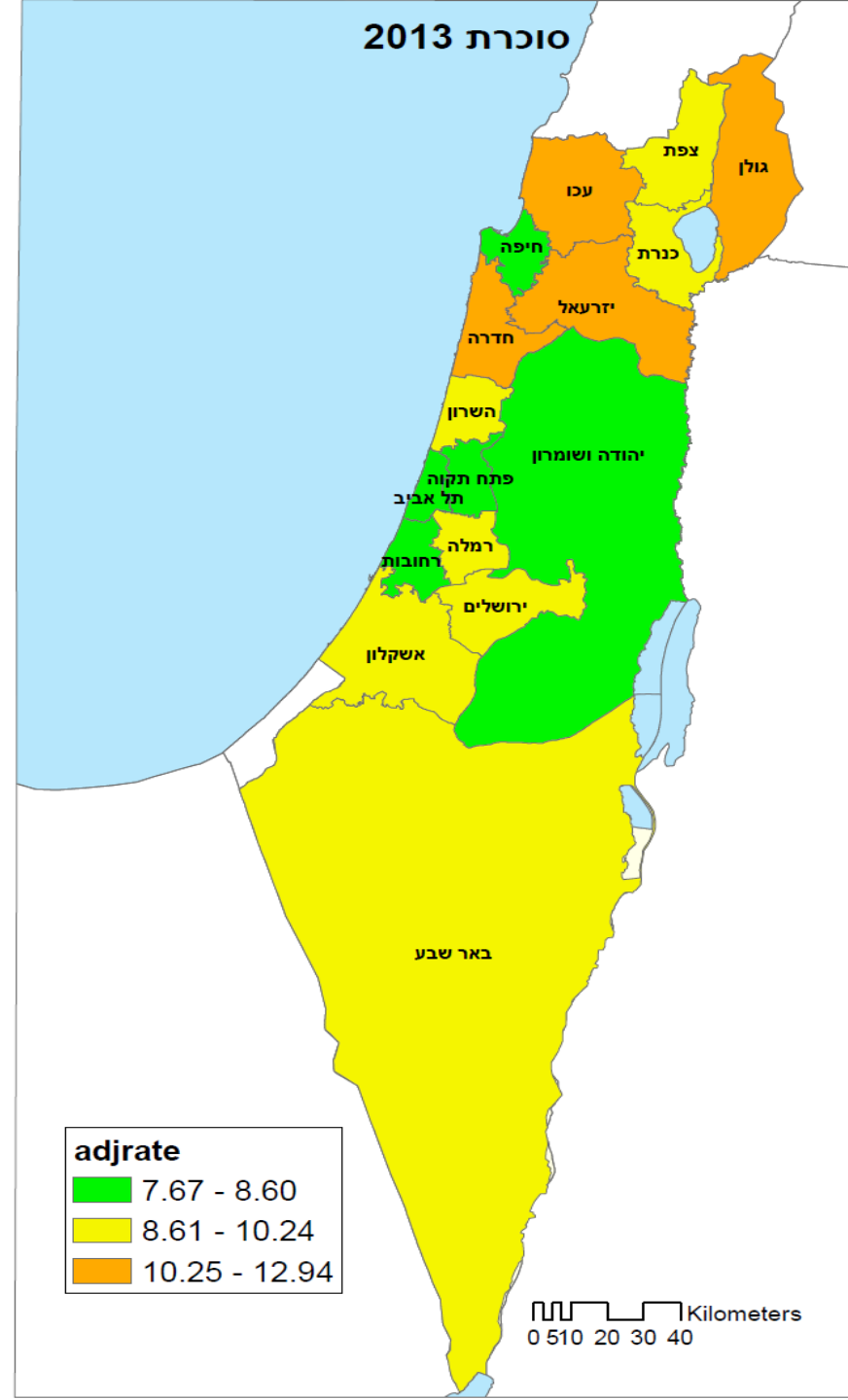
- Individualized records with coded id numbers
- Electronic automated extraction, criteria based on Hba1c/Glucose values and drug purchase
- Data collected: demographic variables, weight and height, smoking status, lab results (HbA1c, proteinuria, lipids), insulin treatment, Ace/Arb treatment
- Reports submitted for 2012, 2013, 2014.
- Data for 2015-6 is delayed due to technical issues

# Diabetes prevalence in adult population is 9.6%

## Diabetes prevalence by age and gender population



# Age adjusted diabetes prevalence rate by sub-district



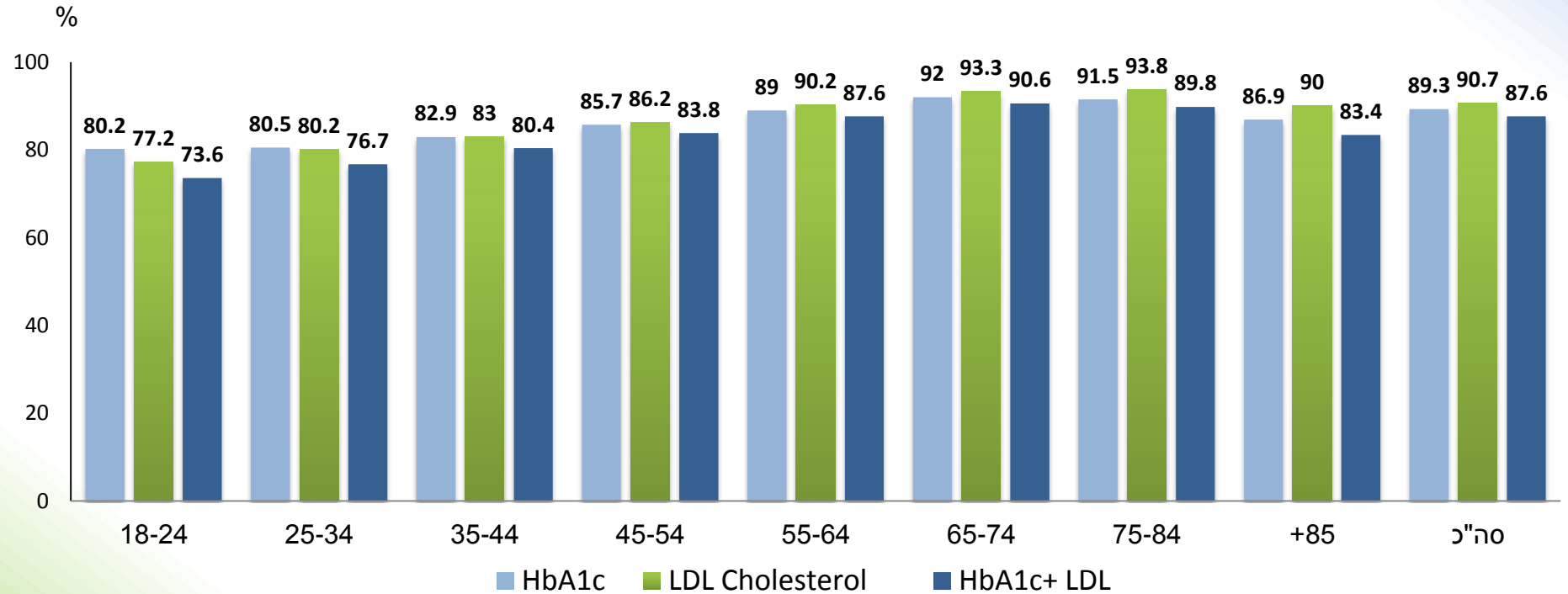
## Multiple cross-linking options in the INDR

- Between different clinical parameters e.g Hba1c and lipids tests.
- Between consecutive years of reporting to assess continuous control/ poor control
- With other data bases

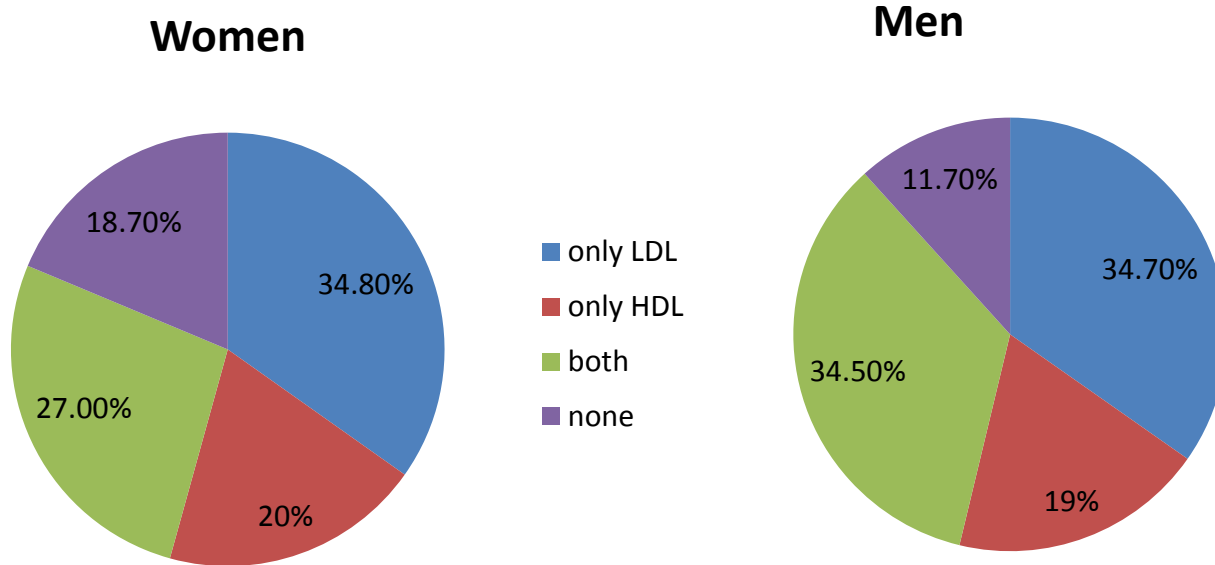
A few cross-linking examples...



# LDL/HbA1c yearly performance rate by age



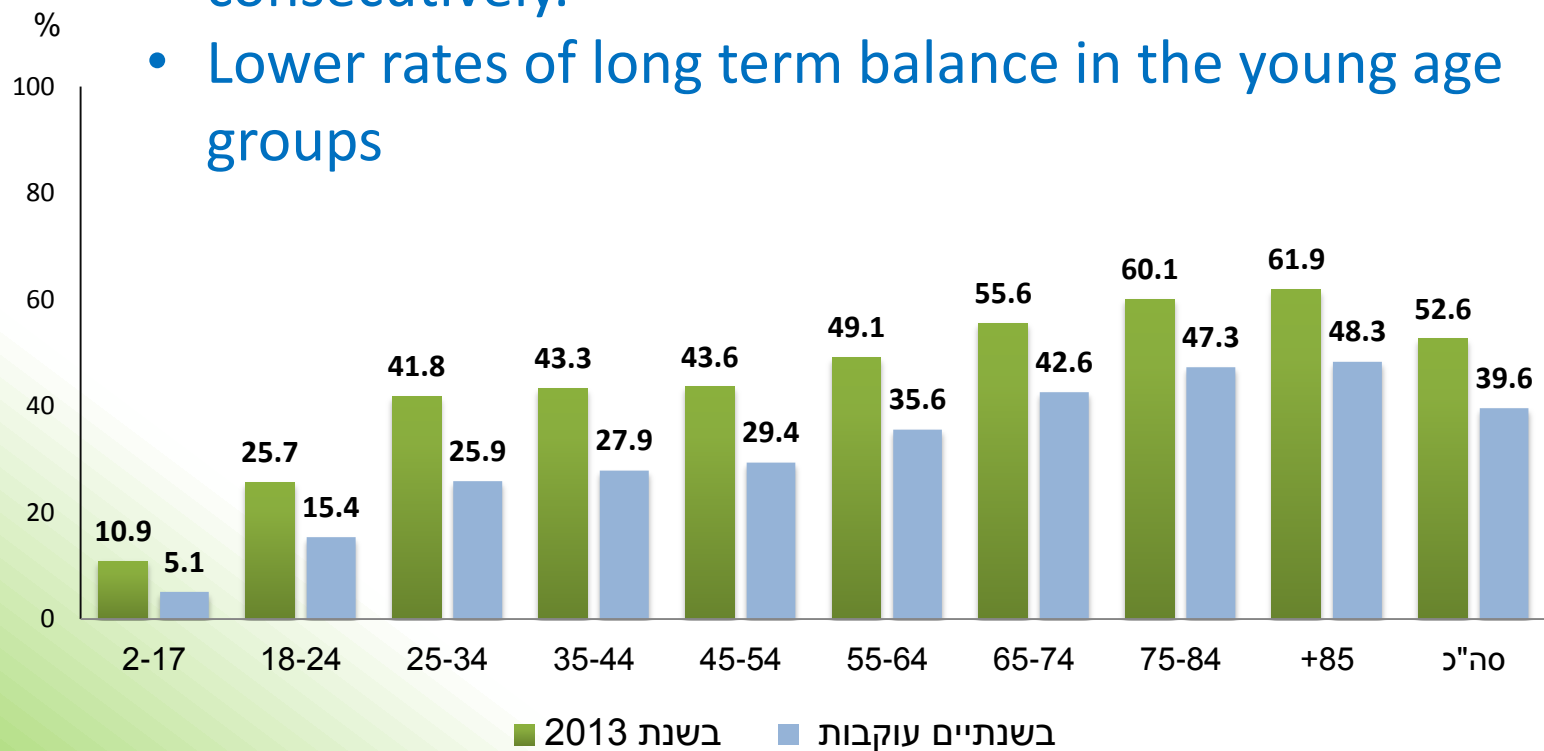
# Distribution of lipid control



Only 25% of men and 20% of women had both lipids and HbA1c well controlled

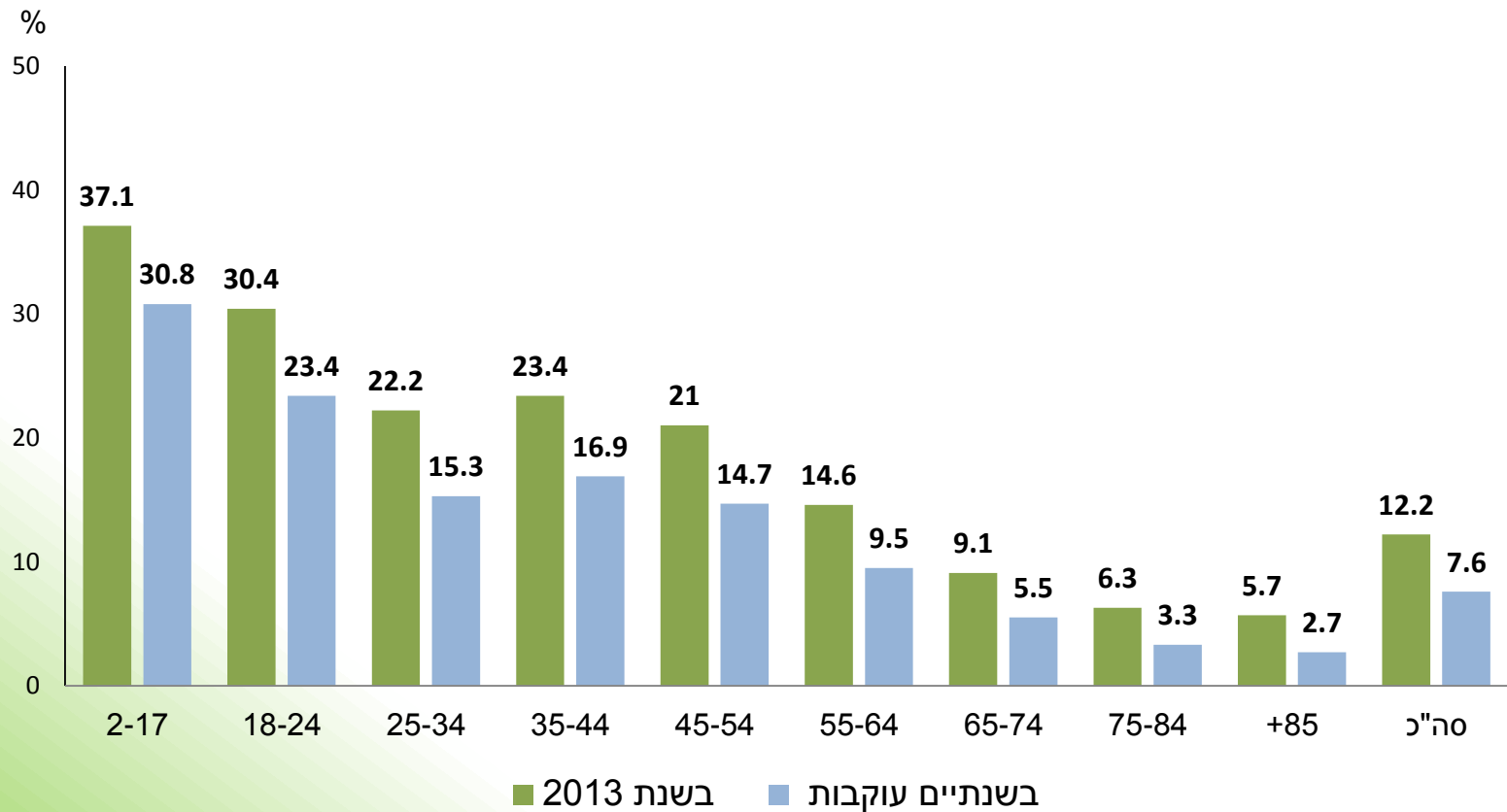
# Glycemic control (HbA1C $\leq$ 7%) by age in 2013 and in two consecutive years

- Higher rates of good control in the elderly (62%)
- Only 60%-80% of those who are controlled in a single year will be controlled in two years consecutively.
- Lower rates of long term balance in the young age groups



# Poor glycemic control (HbA1C > 9%) by age 2013, and 2012-3 consecutively

- Almost 8% have poor control for two years in a row



# A glimpse at 3 years data

- 579,327 reported in any single year
- 375,670 (65%) are reported for 3 years continuously
- In any single year 12% with HbA1c>9%
- 4.6% (17,113) not balanced for 3 years continuously
- Young age (<35) associated with poor balance: 2% of the patients but 4.8% of those with poor balance for 3 years.



**Death  
registry**

**Hospitalizations  
registry**

**Dialysis  
registry**

**Blindness  
registry**

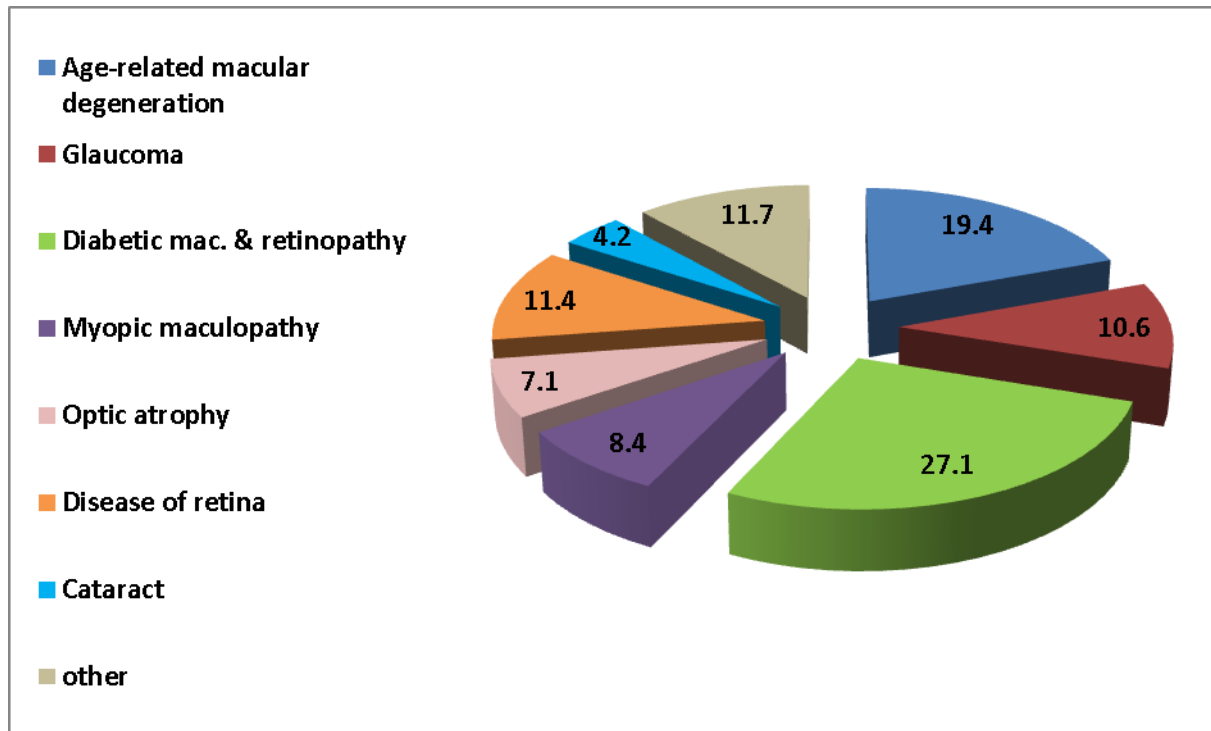
**Coding  
mechanism  
enables cross  
linking of  
INDR**

**Bariatric  
registry**

**Stroke  
registry**

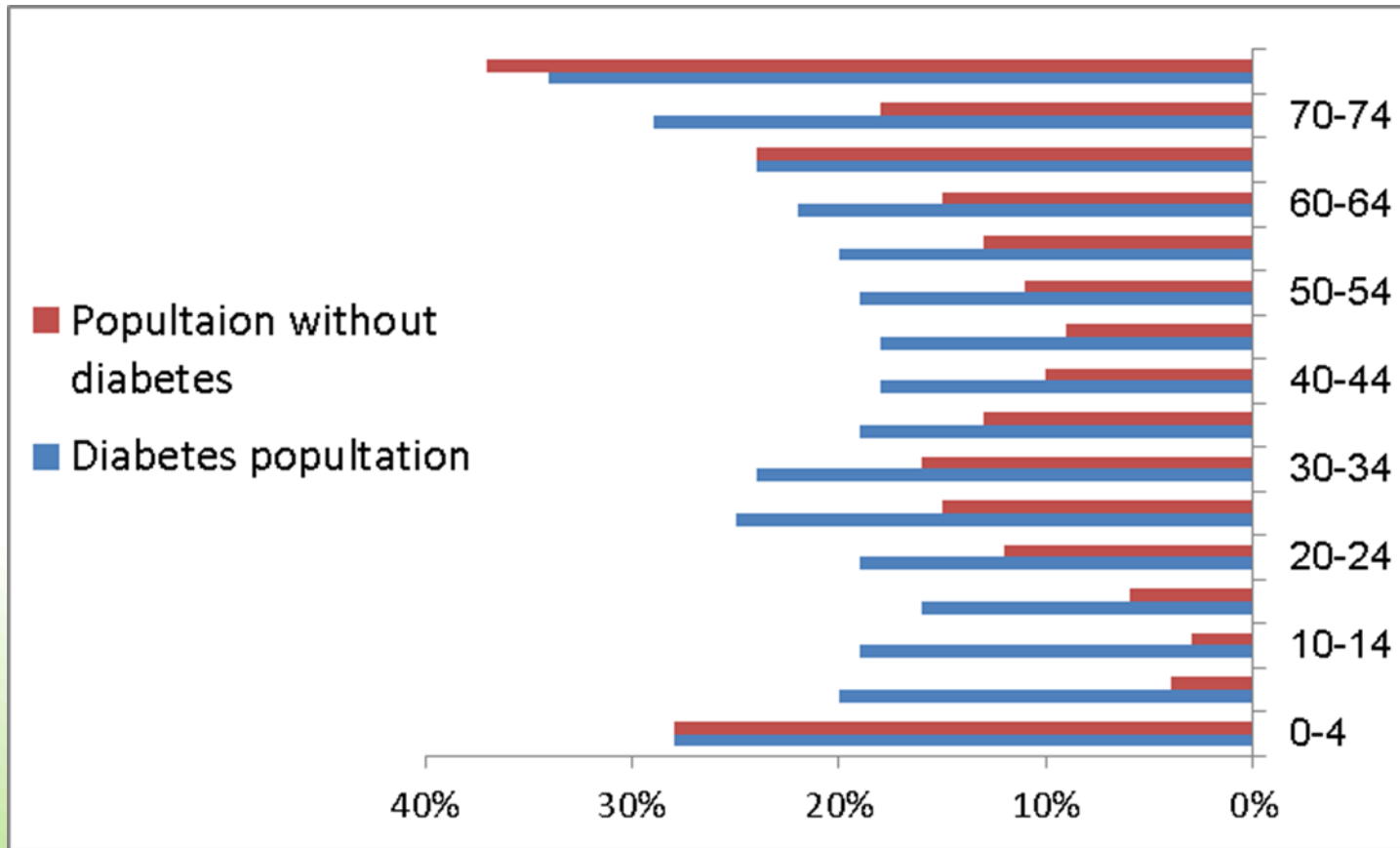
# Blindness and Diabetes

- 6,526 (1.3%) of diabetes patients in 2014 were blind
- Only in 27% diabetes was the cause of the blindness



# Hospitalizations in diabetes patients

- Higher Percentage of diabetics get hospitalized in a single year compared to the general population in every age group





# Diabetes Registry – Strengths

- Comprehensive, truly national covers ~95% of diabetics
- Mandatory reporting
- Combination of demographic and clinical data
- Can be used to form an assessment of disease course and burden through long-term follow-up and crosslinking

# Diabetes Registry – limitations

- Based on automated extraction of data – potential for misclassification
- No data about diabetes type
- Date of diagnosis –not precise, partially missing
- Limited data regarding clinical variables (e.g. type of medications, comorbidities, blood pressure values)
- No data about early complications (retinopathy, foot ulcers)

