



National Reports

The Diabetes Register of Luxembourg

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Data on Diabetes:

Epidemiological studies on obesity or metabolic syndrome with a small number of diabetic patients.

One study using medico-administrative databases from the National Health Insurance.

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Reference Population



Country: Luxembourg

Region: /

Total Population: 480,000 (2006)

Prevalence of **Treated** diabetes : 3.8%

Type of data sources: Claims

N. Participating centres: 18

10 diabetologists

1326 doctors and physicians

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Reference Diabetes Data



Year: **2006**

Region: /

Total N. Subjects: 17,711

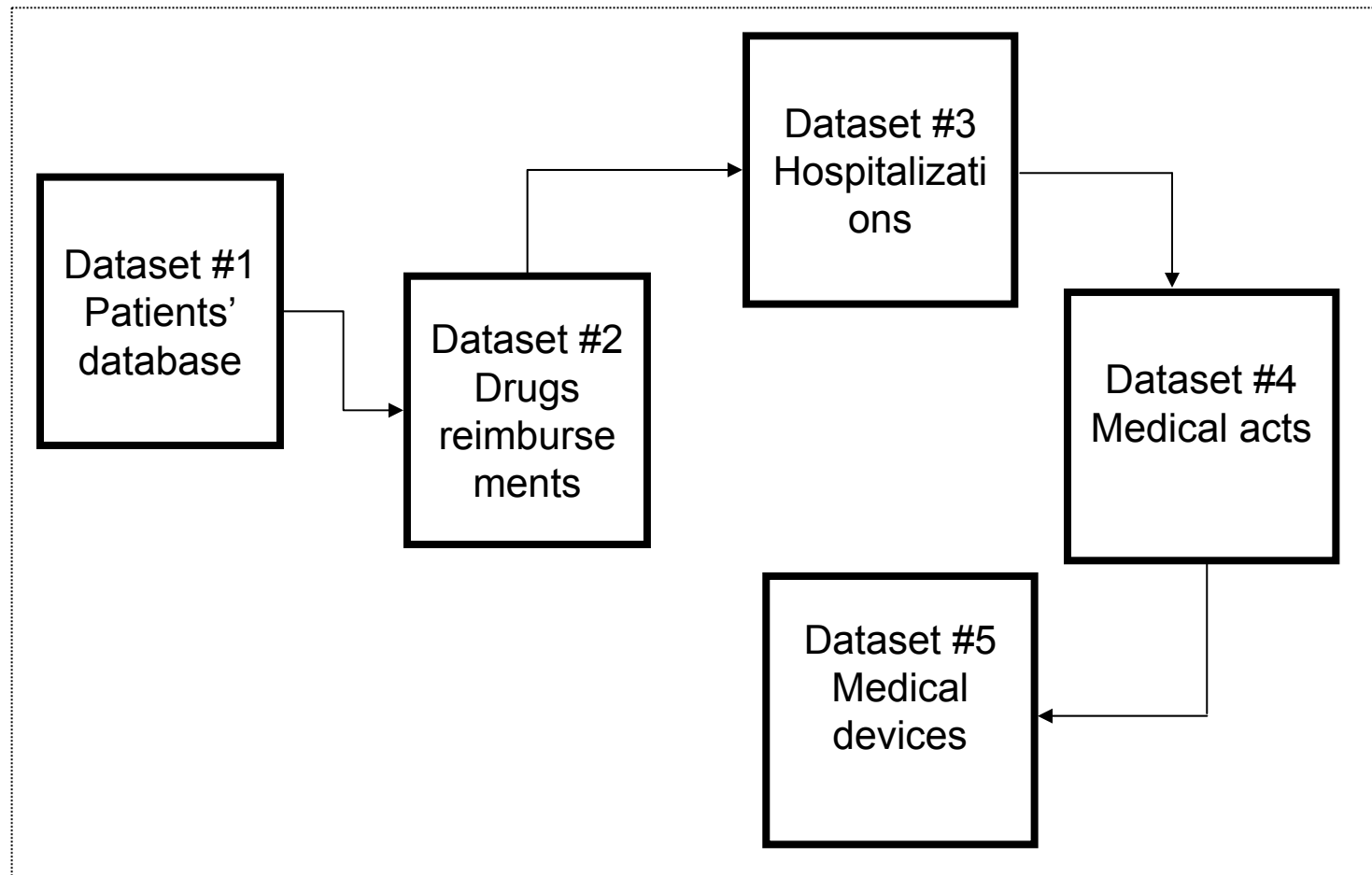
Total N. Episodes: 1,005,286

T1: 5.3 (%)

T2: 94.7 (%)

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Local Database Structure



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Local Database Structure and the BIRO Merge Table

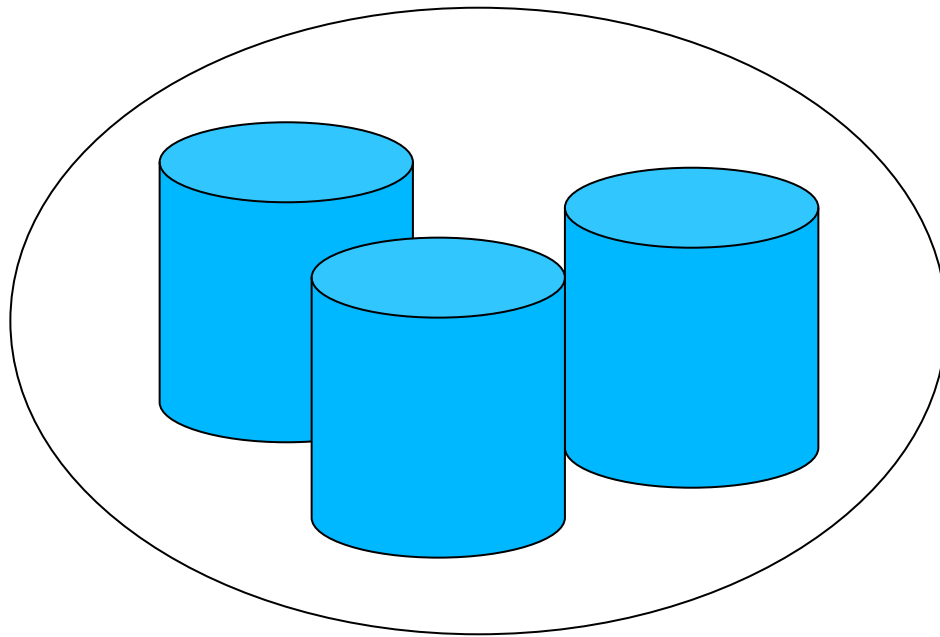


Specificities of the databases:

- No clinical results
- No biological results available for laboratory analyses.
- Data on drug deliveries come from physician's outpatient prescriptions.
One row = one delivery but one row \neq one visit to the physician.
A physician's prescription (=1 visit) can lead to several deliveries.
- Idem for the medical devices database
- One hospitalization period can lead to several rows.
- One medical act corresponds to one visit but there could be several medical acts (=rows) for one visit.

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Local Database Structure: IT



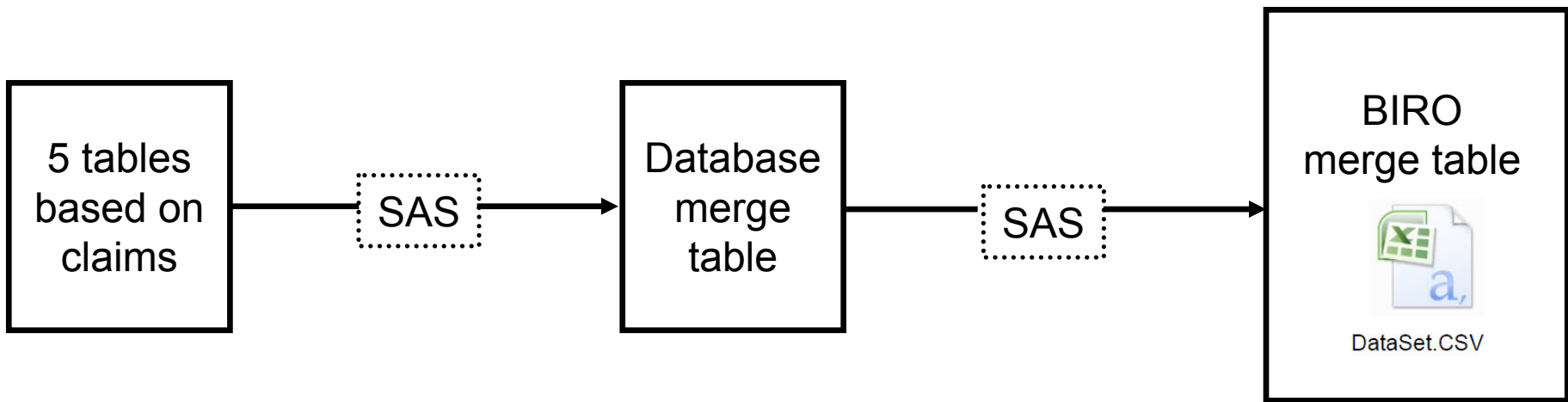
Hardware: Windows XP
Software: SAS 9.2

Anonymised patients and
physicians directly given by
the National Health
Insurance

Network protection
Data cleaning/correction

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Local Database Structure and the BIRO Merge Table



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Problems:

- Unfriendly environment of the application
- Very dependent on Eubirod staff, need of IT consultancy
- Difficulties for Birox to suit to different data sources (clinical data, registries, claims, ...)
- Some mistakes remaining in the Statistical Report

Strengths:

Eubirod staff: high level IT consultancy and availability

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Mapping to BIRO European Standard



LIMITATIONS

Requirement in Birox to include some indicators

Diagnostic year: not available in the Lux database.



Solution 1: diagnostic year = date of first A10 delivery in the database

Limits: left-truncated database in 2000. Numerous patients with a wrong diagnostic year in 2000. Patients under diet not counted.

Solution 2: diagnostic year = date of first A10 delivery after 01/01/2001

Limits: Patients with a first delivery before 2001 not counted (40%). Patients under diet not counted.

Solution 3?

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Mapping to BIRO European Standard

=> Problem with the variable duration

Strengths: Standardization

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Merge Table Contents



Patient ID		End Stage Renal Therapy
Data Source ID		Renal Dialysis
Type Of Diabetes		Renal Transplant
Sex		Stroke
Date of Birth		Active Foot Ulcer
Date of Diagnosis		Myocardial Infarction
Episode Date		Laser
Smoking Status	Total Cholesterol	Hypertension
Cigarettes per day	HDL	Blindness
Alcohol Intake	Triglycerides	Amputation
Weight	Eye Examination	Antihypertensive Medication
Height	Retinopathy Status	Hypoglycemic Drug Therapy
Body Mass Index	Maculopathy Status	Oral Drug Therapy
Systolic Blood Pressure	Foot Examination	Pump Therapy
Diastolic Blood Pressure	Foot Pulses	
HbA1c	Foot Sensation	
Creatinine	Nasal Therapy	
Microalbumin	Average Injections	
	Self Monitoring	
	Diabetes Specific Education	
	Lipid Lowering Therapy	
	Anti-platelet Therapy	
	Patient Enrolment in DMP	

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Additional Data



Activity Table:

NA

Population Table:

- Female and male populations
- Population age band
- Population year

Diabetic Population Table:

Available

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Running BIRO: Data Quality Results

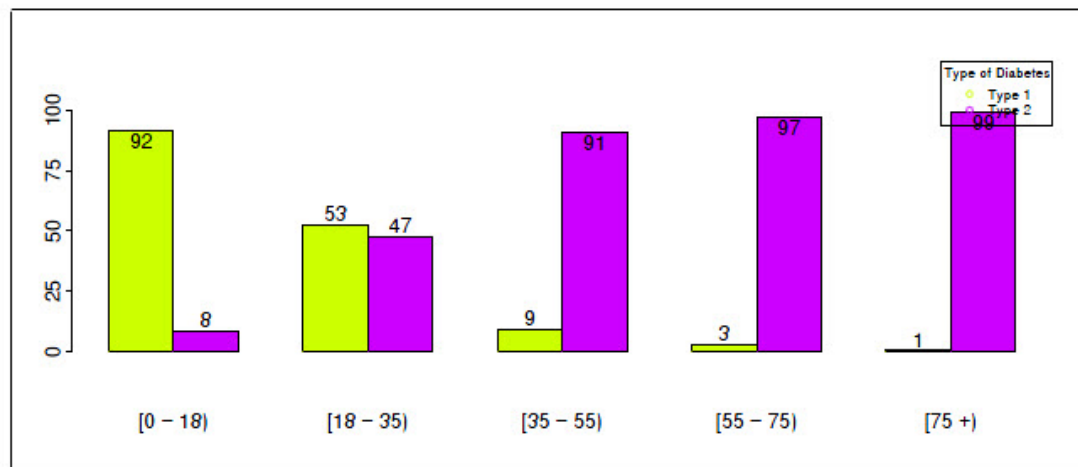


Distribution of missing values:

Self_monitoring: 8380 (47.32%)

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Statistical Report: General Characteristics



Type of diabetes * age

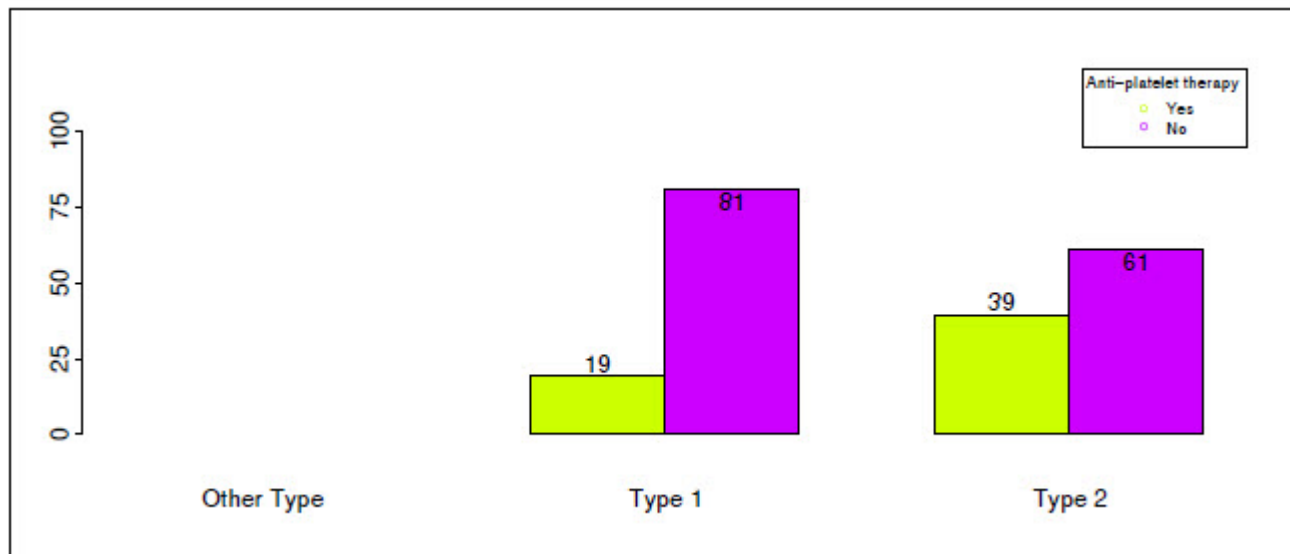
Type of Diabetes	Age					N (%)
	[0 - 18] (%)	[18 - 35] (%)	[35 - 55] (%)	[55 - 75] (%)	[75 +] (%)	
Type 1	111 (91.7)	207 (52.5)	330 (9.3)	255 (2.8)	27 (0.6)	930 (5.3)
Type 2	10 (8.3)	187 (47.5)	3234 (90.7)	8975 (97.2)	4375 (99.4)	16781 (94.7)
TOTAL	121 (0.7)	394 (2.2)	3564 (20.1)	9230 (52.1)	4402 (24.9)	17711 (100.0)

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Statistical Results: BIRO Indicators (1/3)



Antiplatelet



Anti-platelet therapy	Type of Diabetes			N (%)
	Type 1 (%)	Type 2 (%)	Other Type (%)	
Yes	179 (19.2)	6581 (39.2)	0(0.0)	6760 (38.2)
No	751 (80.8)	10200 (60.8)	0(0.0)	10951 (61.8)
TOTAL	930(5.3)	16781(94.7)	0(0.0)	17711 (100.0)

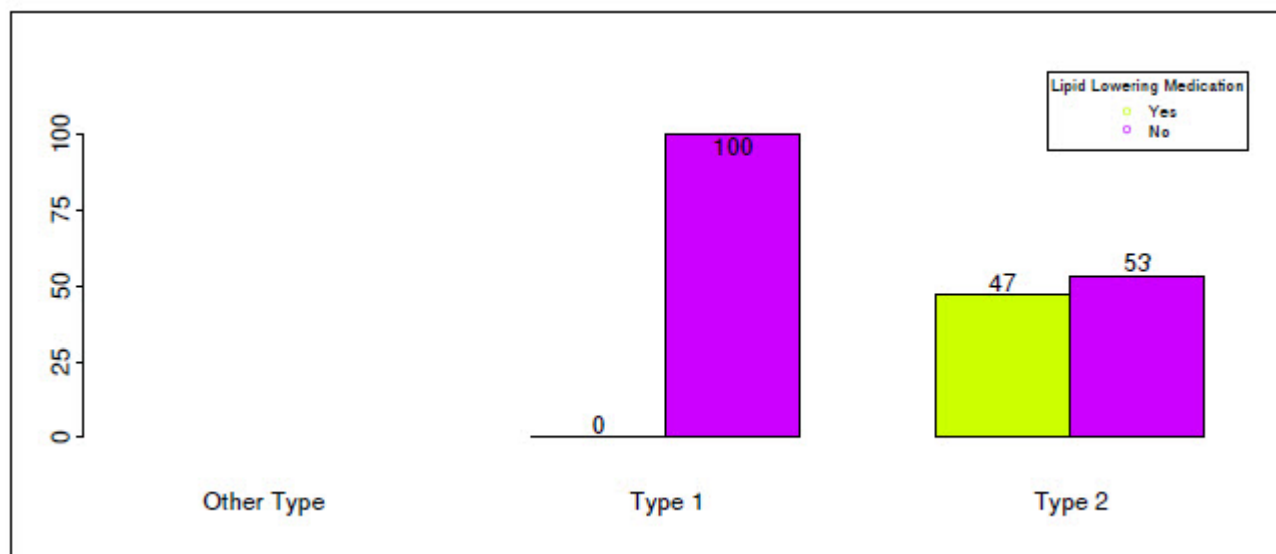
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Statistical Report: BIRO Indicators (2/3)



Lipid lowering

Lipid Lowering Medication	Type of Diabetes			N (%)
	Type 1 (%)	Type 2 (%)	Other Type (%)	
Yes	0 (0.0)	7880 (47.0)	0 (0.0)	7880 (44.5)
No	930 (100.0)	8901 (53.0)	0 (0.0)	9831 (55.5)
TOTAL	930 (5.3)	16781 (94.7)	0 (0.0)	17711 (100.0)



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Statistical Results: BIRO Indicators (3/3)



Age * dialysis and/or transplantation

dialysis and/or transplantation	Age					N (%)
	[0 - 18) (%)	[18 - 35) (%)	[35 - 55) (%)	[55 - 75) (%)	[75 +) (%)	
Yes	0 (0.0)	1 (0.3)	10 (0.3)	52 (0.6)	23 (0.5)	86 (0.5)
No	121 (100.0)	393 (99.7)	3554 (99.7)	9178 (99.4)	4379 (99.5)	17625 (99.5)
TOTAL	121 (0.7)	394 (2.2)	3564 (20.1)	9230 (52.1)	4402 (24.9)	17711 (100.0)

Type of diabetes * dialysis and/or transplantation

dialysis and/or transplantation	Type of Diabetes		N (%)
	Type 1 (%)	Type 2 (%)	
Yes	11 (1.2)	75 (0.4)	86 (0.5)
No	919 (98.8)	16706 (99.6)	17625 (99.5)
TOTAL	930 (5.3)	16781 (94.7)	17711 (100.0)

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Conclusions (1): Statistical Results



Results concern all the country

Exhaustive population

Data quality: fairly complete

Validity should be confirmed/improved (e.g. type of diabetes)

Among diabetic patients,

- 95% of type 2 and mainly 55-75 y.o.
- 0.7% of children

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Conclusions (2): Diabetes Care



No diagnosis and no clinical information

Prevalence of diabetes complications is considerable
=> possible improvements to bring

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Conclusions (3): BIRO usage



Useful tool : aggregate data quickly

Necessity to upload more easily tables/figures in different type of documents.

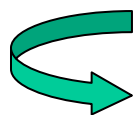
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Future LOCAL Perspectives

Add pediatric data in close future

Health Ministry in Luxembourg :

- Create a sentinel group of diabetic patients with a complete check-up.
- Consider patients' motivation



Exhaustive register

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Future BIRO Perspectives



Some mistakes to correct in Statistical Report, specially bar plots

- one inversion Yes/No
- one move back in ratio values regarding age
- one short cut : 'age at diagnostic' and not 'age'

To add economic indicators

To add indicators related to the type of physician consulted

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Thank you for the attention!

