



Materials, Methods and Data Analysis of Diabetes Registers

The Diabetes Register of Primary Health Care of Skaraborg, Sweden

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Special BIRO Academy Meeting
“Coordinated Information Delivery from Diabetes Registers
to improve quality and outcomes in Europe”
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Primary Health Care of Skaraborg, Sweden Reference Population



Country: Sweden

Region: Västra Götaland

Study area: District of Skaraborg
with 15 municipalities

Total Population: 252407

Diabetes Prevalence: 4.1%

Type of Data Sources:
Computerized medical records in
Skaraborg Primary Health Care.

N.Participating Centres: Data
from 24 Health Care Centres

Continuation...



- About 250 000 HCC visits each year.
- 75% of all drug prescriptions were issued by the Primary Health Care of Skaraborg.
- Diabetes Mellitus registered in 80-90 % of cases (ICD 10)
- Hypertension, registered in 80-90% of cases (ICD 10)

Reference: Hjerpe P, Merlo J, Ohlsson H, Bengtsson Bostrom K, Lindblad U. Validity of registration of ICD codes and prescriptions in a research database in Swedish primary care A cross-sectional study in Skaraborg primary care database. BMC Medical Informatics and Decision Making.10(1):23.

Primary Health Care of Skaraborg

Reference Diabetes Data



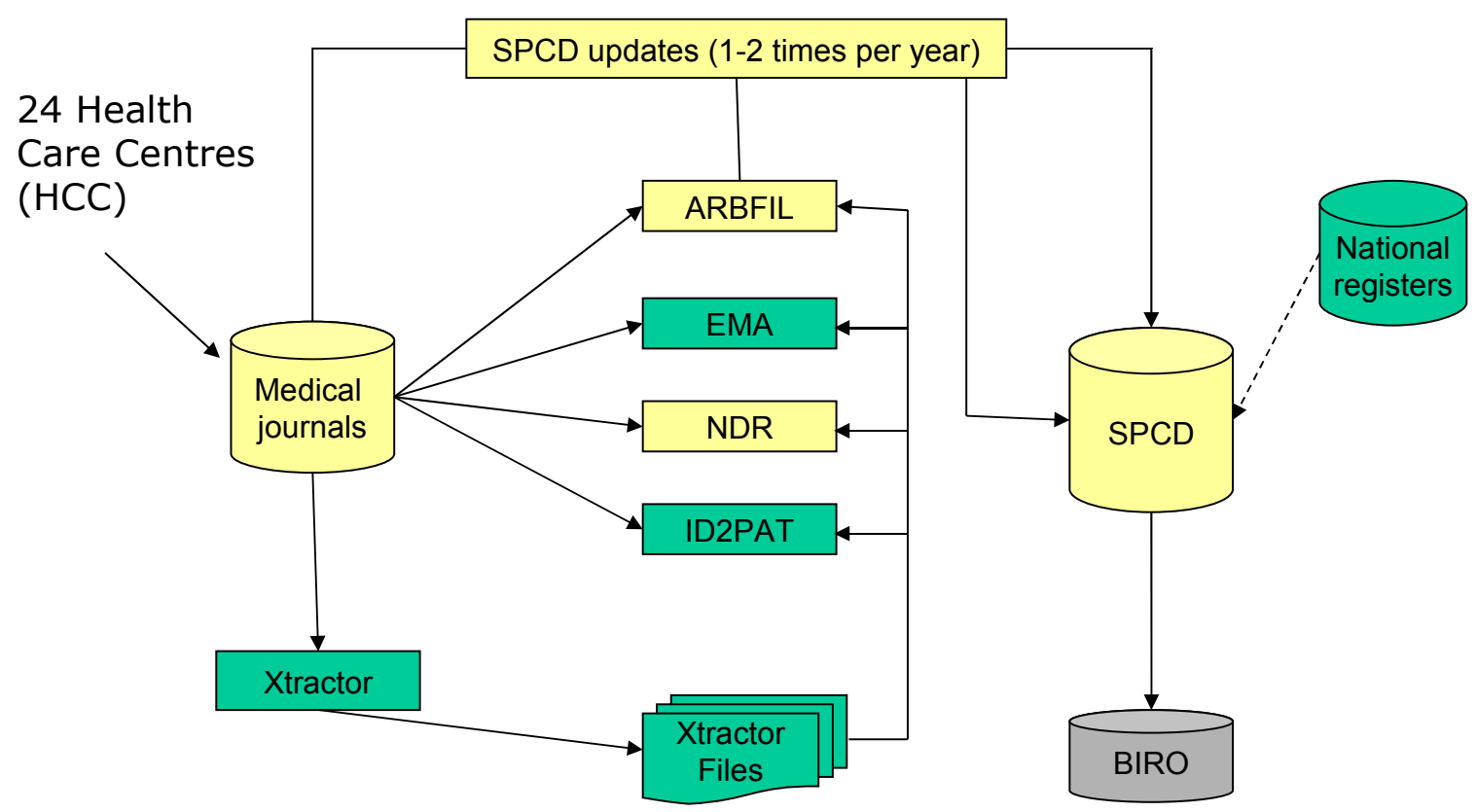
**Number of inhabitants in Skaraborg, having Diabetes Mellitus per 1000 inhabitants.
Year 2007. Men and women.**

Agegroup	No. of diabetics per 1000 inhabitants
0-14	0,3
15-24	0,2
25-34	0,5
35-44	1,5
45-54	4,0
55-64	9,0
65-74	10,7
75-84	10,6
85+	4,3
Total	41,1

Source: SPCD, 2007.

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Local Database Structure: IT



The structure of data retrieval from HHC.

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Local Database Structure: IT (continuation)

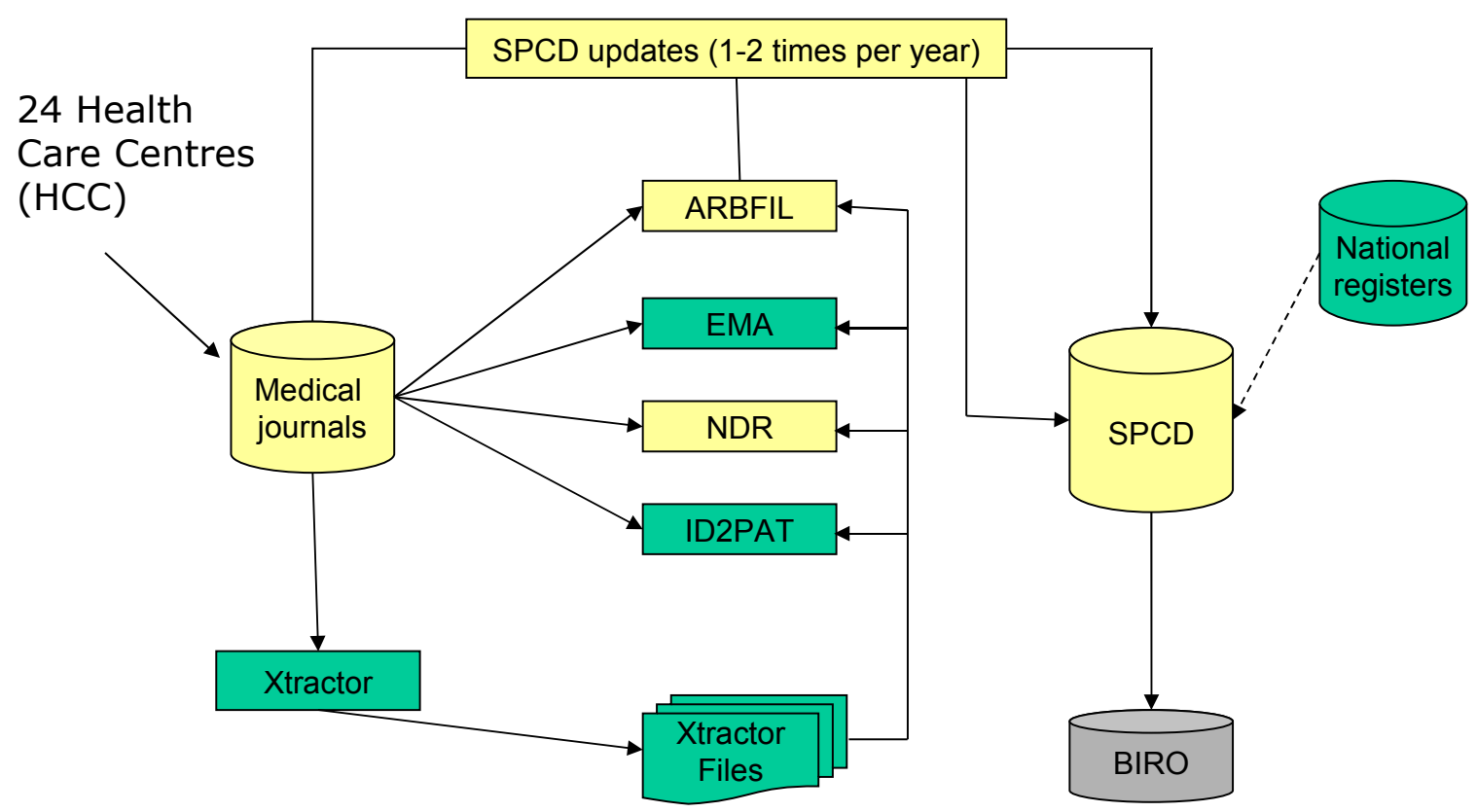


SPCD-database:

- Data since 1998. Last update: 2009-12-31
- 9 databases for one health care centre:
(laboratory data, drug prescriptions, ICD Codes, contact information, documents (referral letters), part of journal free text, therapeutic procedures, information on sick leave and postal codes X 24 HHC

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Local Database Structure: IT



The structure of data retrieval from HHC.

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Local Database Structure: IT (continuation)



The retrieval of data to SPCD is done automatically at the clinical visit.

Patient and staff identities are blinded. HCC are named by numbers.

The data from the SPCD can be linked to external databases, such as registers from Statistics Sweden and the Swedish Prescribed Drug Register, after permission from the Central Ethical Review Board.

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Using BIRO



Improvement, suggestion ("wish-list"):

- export-function for reports to Excel-sheet format
- export-function to save a report/graph as a pictures

About the user interface:

- "Guides", dialog boxes when entering the configuration

About the software working together

- What version of the different software's works with BIRO?

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Merge Table Contents



Put in grey = no data!

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

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Running BIRO: Data Quality Results



Type of Diabetes



Best Information through Regional Outcomes

BIRO Report site: 9 , 01 June 2010

Reference date: 31/12/08

Parameter: 2.1.1. Type of diabetes

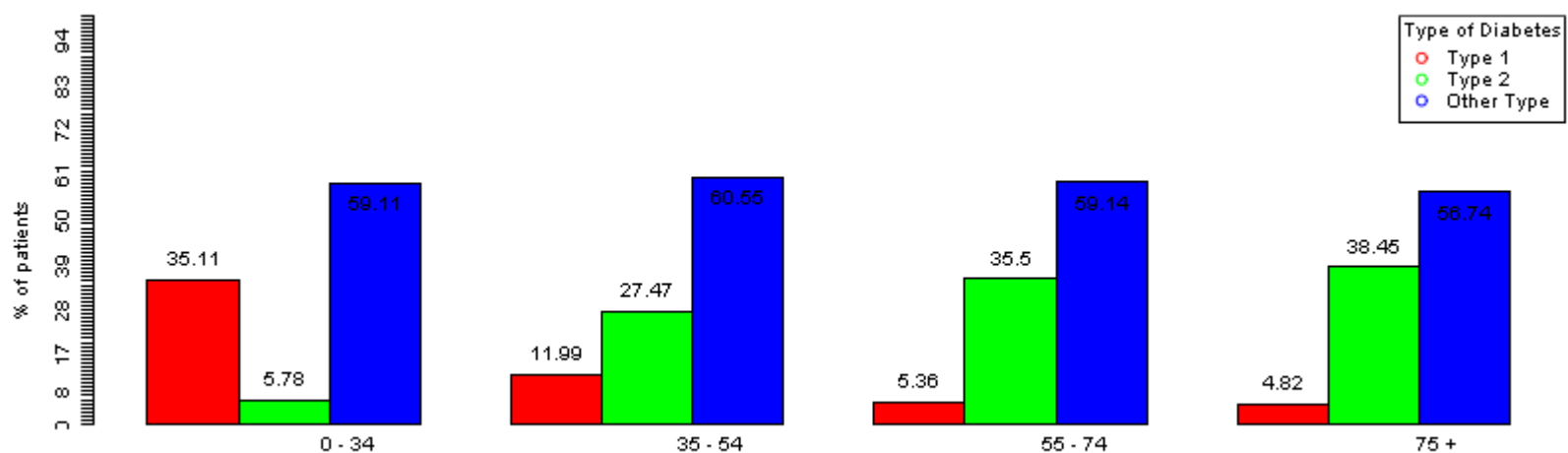
Type of Diabetes	0 - 34	35 - 54	55 - 74	75 +	
Type 1	79 (35.11 %)	158 (11.99 %)	294 (5.36 %)	189 (4.82 %)	720 (6.57 %)
Type 2	13 (5.78 %)	362 (27.47 %)	1949 (35.50 %)	1509 (38.45 %)	3833 (34.98 %)
Other Type	133 (59.11 %)	798 (60.55 %)	3247 (59.14 %)	2227 (56.74 %)	6405 (58.45 %)
	225 (2.05 %)	1318 (12.03 %)	5490 (50.1 %)	3925 (35.82 %)	10958 (100 %)

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Statistical Report: General Characteristics (Tables)



Type of Diabetes

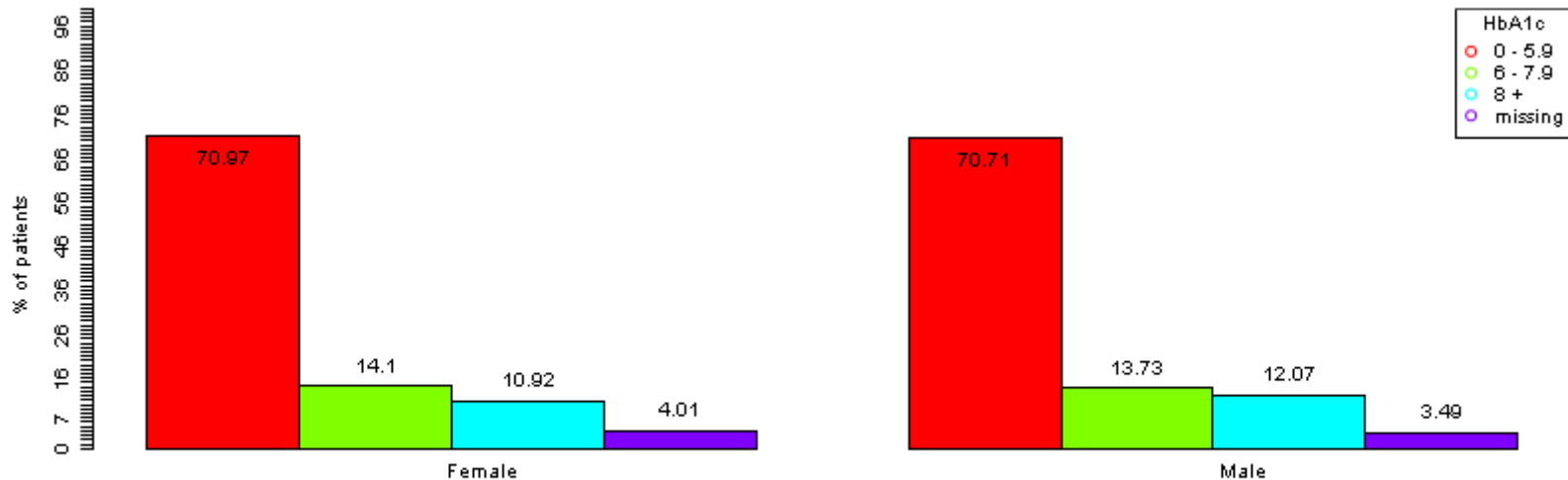


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Statistical Report: General Characteristics (Figures)



Proportion of HbA1c-levels



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Statistical Report: General Characteristics



- Known hypertension 60%
- Hypertension control <140/90 mmHg 22%
- All hypertension 75%
- BMI ≥ 30 kg/m² 35%
- BP (76%), BMI (90%), HbA1c (95%)

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Conclusions (1): Statistical Results



- Data quality: Data overall fairly complete
- Validity should be confirmed/improved (e.g. type of diabetes)
- Define study populations for comparisons between countries.
- Outcome may be better utilized for quality assurance at the HCC
- Surveillance of outcome and costs may be improved

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Conclusions (3):BIRO usage



- More work on the user interface is needed.
- More facilities to integrate reports in different type of documents.
- More build-in-help when set up the configuration.
- Definition on what program version cooperate together with BIRO.

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Future LOCAL Perspectives



- Identify a cohort (2008) to follow prospectively in National Mortality Register and in hospital databases
- National prescription database for total drug utilization
- Health economics
- Biobanking

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Thanks for the attention!

