



Identifying psychiatric patients' pathways of care by record linkage after pseudonymization: Linking inpatient and outpatient data for the total population of a province of Austria

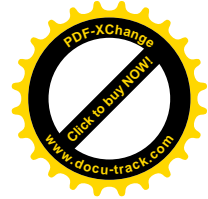
Katschnig H¹, G Endel², F Endel³, B Weibold¹, P Filzmoser³

¹Ludwig Boltzmann Institute for Social Psychiatry,

²Main Association of Austrian Social Security Institutions,

³Vienna University of Technology, Vienna, Austria

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Routine health care information should inform policy, but

- Routine Information about the working of the health care system comes from **event/episode** statistics (e.g. number/rates of hospital discharges, average length of stay) – EUROSTAT, OECD, WHO-HFA
- Mostly **hospital data, rarely outpatient and social service** use data = distortion of the real pattern of service utilization

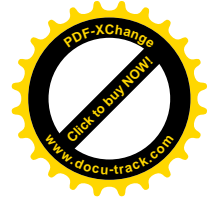
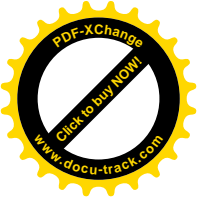
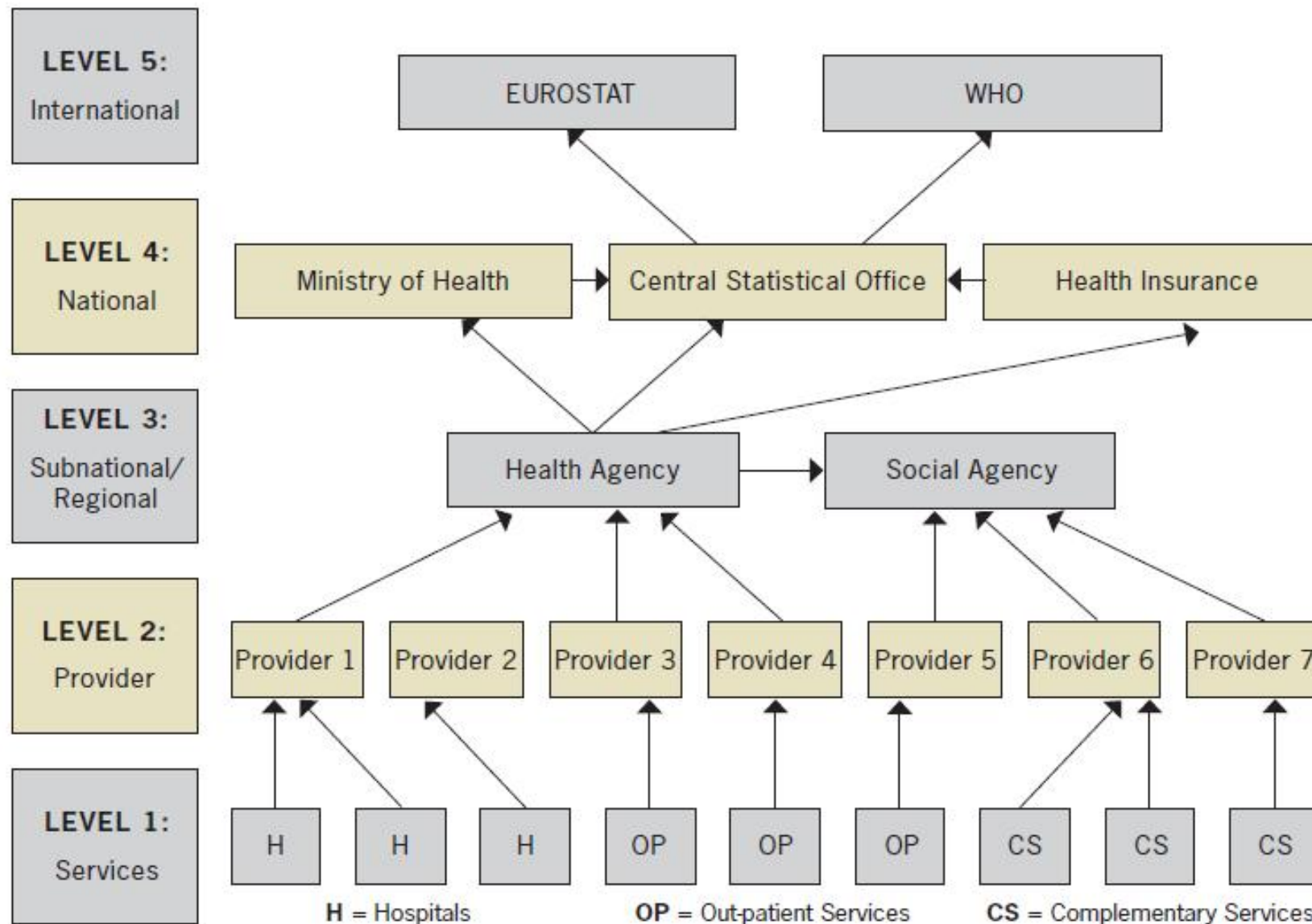
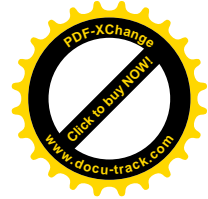


Figure 1: A General Model of a Reporting System of Mental Health Service Utilization Data





Functional service types and responsible societal sector:

Availability of data for monitoring service utilization

	Societal sector/funding		
	Medical	Social	Other (edu, legal)
In-patient	Hospital		
Day-patient			
Out-patient			
Mobile			
Telephone			



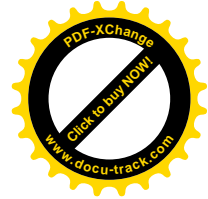
Availability of data for monitoring service utilization by patients with mental disorders

	Medical		
	Psy	Non-Psy Specialized	Primary care
In-patient	Hospital		
Day-patient			
Out-patient			
Mobile			
Telephone			



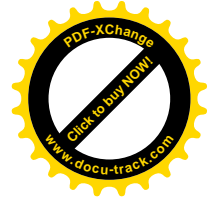
Routine health care information should inform policy, but

- Routine Information about the working of the health care system comes from **event/episode** statistics (e.g. number/rates of hospital discharges, average length of stay) – EUROSTAT, OECD, WHO-HFA
- Mostly **hospital data, no outpatient and social** service use data = distortion of the real pattern of service utilization
- **No linked pathway data available > many questions cannot be answered, such as**



Lack of routine information on

- Hospital readmissions (> revolving door, failure of community psychiatry?)
- Referral patterns (> motives for referral, e.g cream skimming? Calculating costs for pathways of care and not only for episodes, contacts)
- Pathways to / out of care
- Continuity of care
- Heavy utilizers (e.g. in Austria 17% of patients account for 50% of psychiatric hospital days)



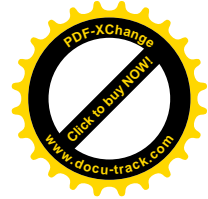
Collecting and allocating funds for health care in Austria

- Outpatient care paid on a flat rate basis per patient/per period (1mo, 3mo) plus fee for service
- In-patient care financed via a DRG system in each province (from a pool of funds)



Data on service use in Austria

- Collected for reimbursement purposes in a highly **fragmented payment system**
- Outpatient: 19 different insurance companies (mandatory, no choice of insurer)
 - Positive: Unique patient identifier
 - Negative:
 - Different semantics (e .g. what is a psychiatrist)
 - Different fee for service catalogues
- Inpatient: 9 different regional funds (one for each province)
 - Positive: data finally collected at the federal level
 - Negative: no unique patient identifier recorded
- Data on service utilization are located in **many different databases** some of which record a unique patient identifier some don't



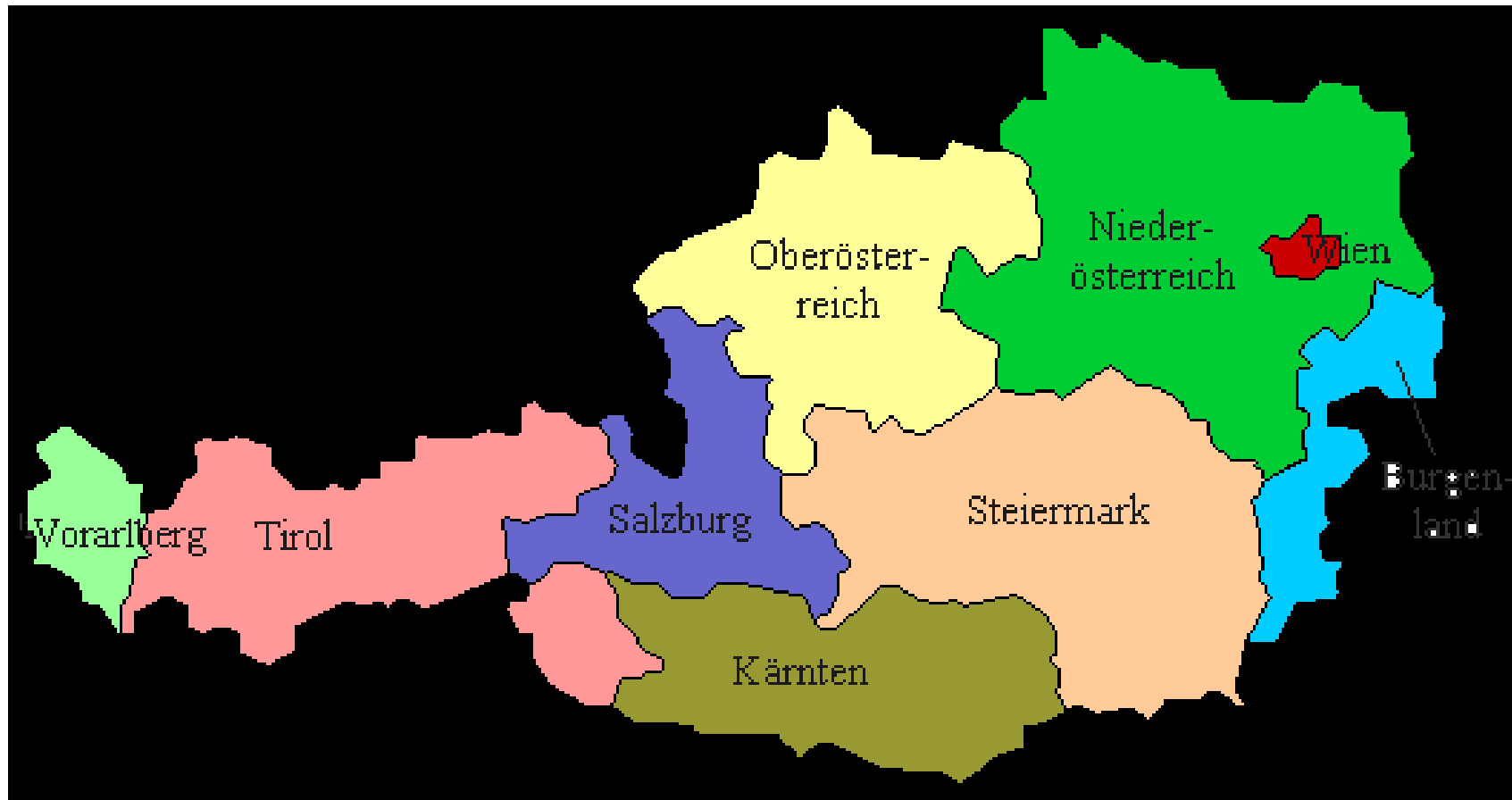
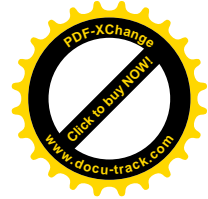
Challenges for record linkage

- Ethical, if unique patient identifier is available
 - > pseudonymisation
- Lack of unique patient identifier
 - > probabilistic matching
- Different semantics in different databases
 - > clearing house approach
- Large computer power needed
 - > cooperation with large computer clusters



Study population

- All resident of the Austrian Federal State of Lower Austria (1,6 million inhabitants)





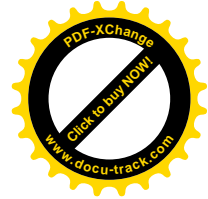
Study population

- All residents of the Austrian Federal State of Lower Austria (1,6 million inhabitants)
- Covered by obligatory health Insurance – 98% of the population are covered
- Age 19+
- First discharge from a psychiatric bed in 2006



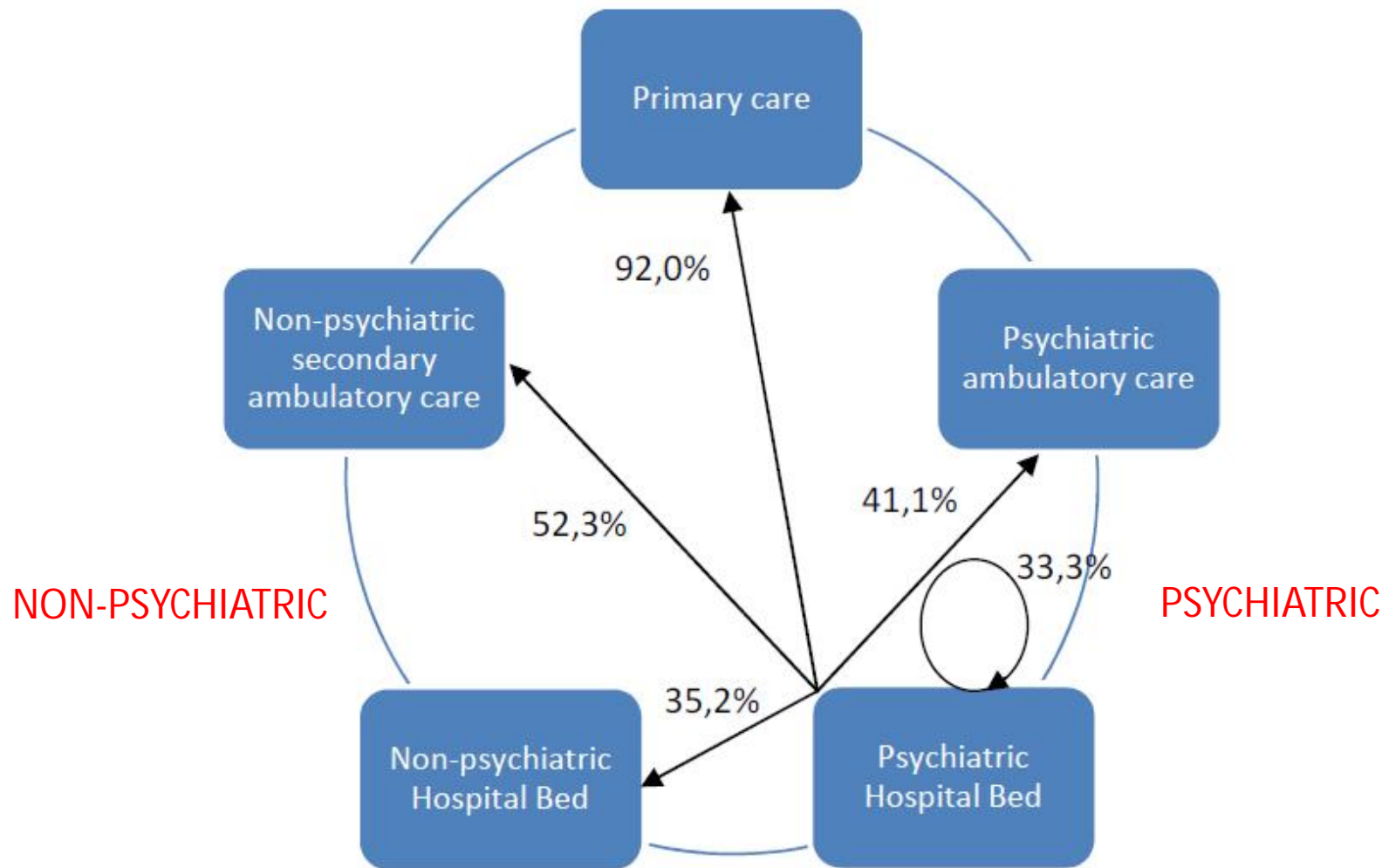
Outcomes

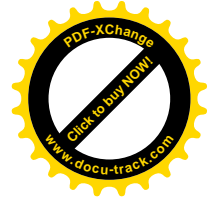
- First health service utilisation after discharge (= one step pathway)
- In five types of services (actually more: also pharmacy, ...)
 - Psychiatric bed
 - Non-psychiatric bed
 - Outpatient psychiatric service
 - Outpatient non-psychiatric specialized
 - General practitioner
- Within 12 months after discharge
- Problem: What to do with deaths during follow-up?



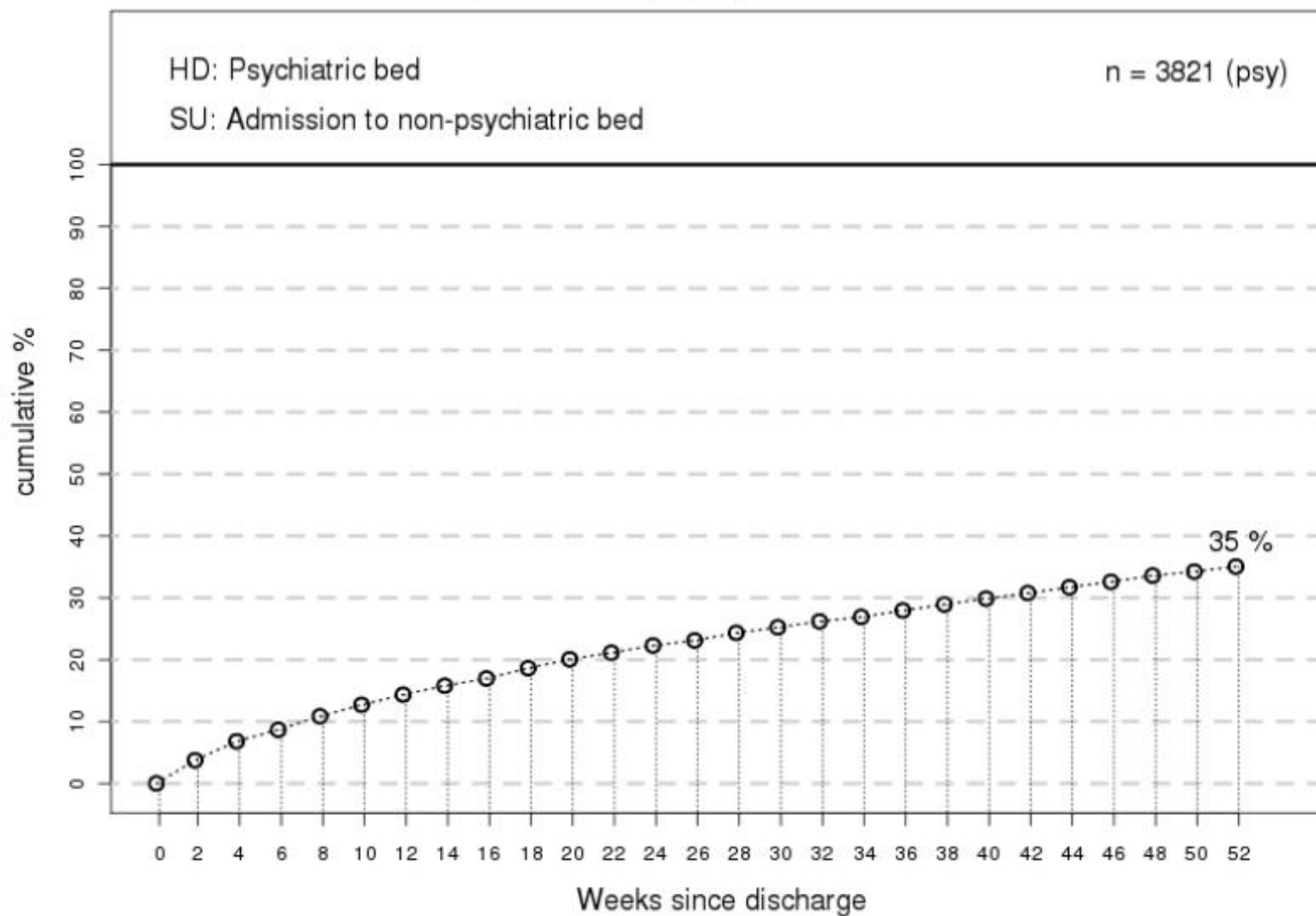
Probability of contacting five types of medical services within one year after first discharge from a psychiatric hospital 2006

N= 3.821 (for 1,256.856 aged 19+ years, Lower Austria)



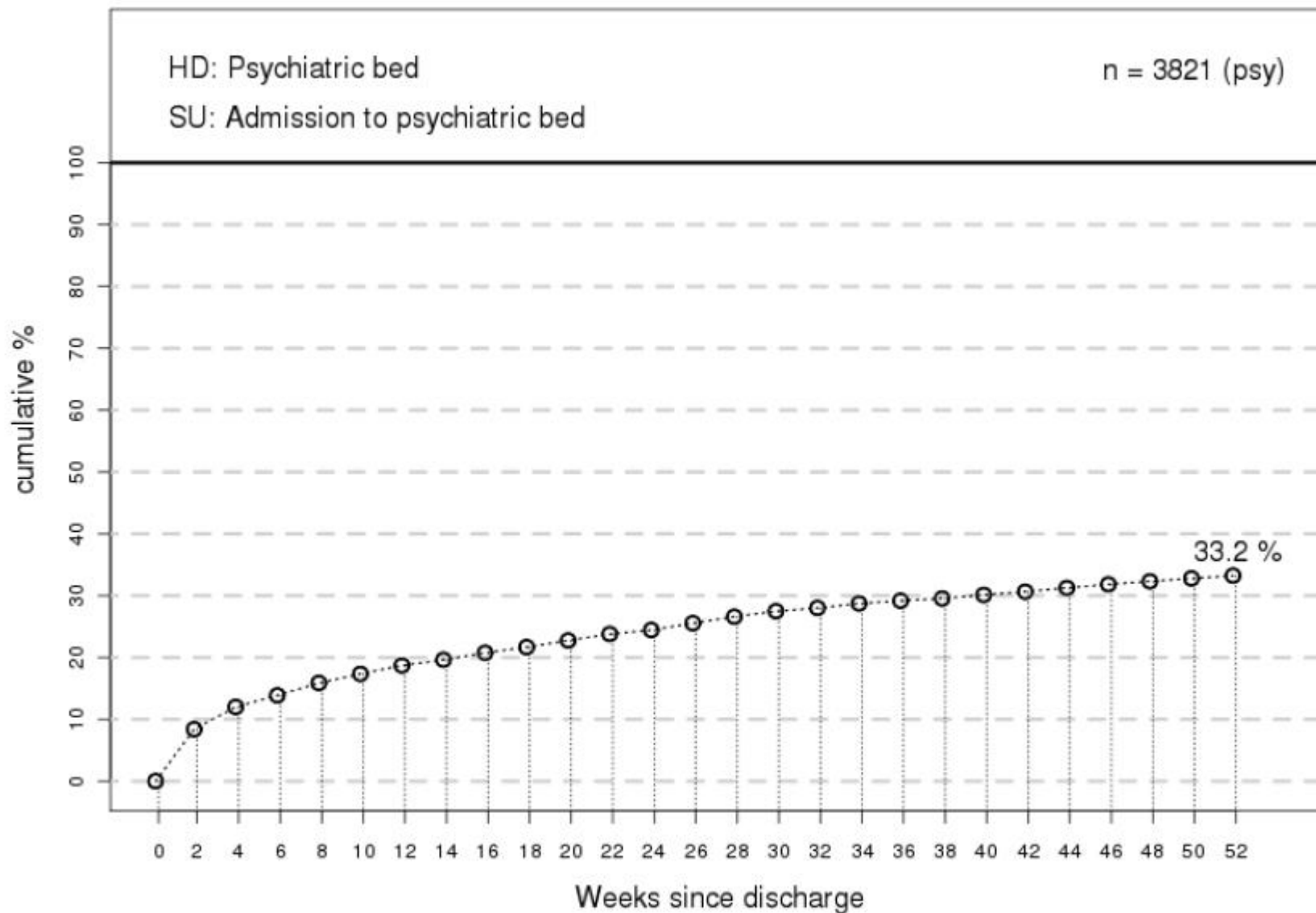


Service utilization (SU) in the 12 months after hospital discharge (HD): Discharge from a **psychiatric bed** and readmission to a **non-psychiatric bed**





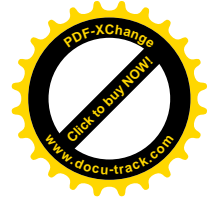
Service utilization (SU) in the 12 months after hospital discharge (HD): Discharge from a **psychiatric bed** and readmission to a **psychiatric bed**





Discussion 1

- Methods
 - Record linkage is possible also in a very fragmented payment system



Discussion 2

High utilization of non-psychiatric services and GPs

– Possible explanations

- Stigma avoidance?
- Better geographical accessibility?
- Physical comorbidity?
- Misinterpretation of symptoms by patient?

– Potential Consequences

- Psychiatric case registers are limited
- Training of staff in non-psychiatric services
- Calculating real costs of mental disorders



Outlook 1

- More specific analyses possible
 - More than one step
 - Differentiate by specific variables: gender, age, diagnosis



Outlook 2

- More specific analyses possible
 - More than one step
 - Differentiate by specific variables: gender, age, diagnosis
- Creating a tool for future continued monitoring of pathways – assess consequences of changing
 - Mental health policy
 - Payment system