CLINICAL RECORD INTERACTIVE SEARCH

National Institute for Health Research

Investigations in pharmacoepidemiology in mental health using CRIS

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Post-doctoral Research Associate

Biomedical Research Centre Nucleus

King's College London

South London and Maudsley NHS Trust

Why is CRIS data useful for pharmacoepidemiology research?

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Advantages of using CRIS data

- Observational research allows us to investigate risks of prescribing practices that may be unethical to test in RCTs
  - Adverse drug reactions
- Longer follow-up than RTC
- Study patients with polypharmacy and comorbidities
- The use of real-world data increases **generalisability of results**

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Meet the team

Richard Hayes

Giouliana Kadra

Daniela Fonseca de Freitas

Emma Francis

Isobel Ridler

Collaboration with experts

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Experts in the CRIS database and data extraction

Megan Pritchard
Hitesh Shetty
Craig Colling

Experts on severe mental illness with CRIS experience

James MacCabe
Aviv Segev
Cecilia Casetta
Johnny Downs
Leonardo Koeser

Biostatisticians

Daniel Stahl
Deborah Agbedjro
Mizan Urkhondoker

International collaborations

Lieuwe de Haan and team
(University of Amsterdam)

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Overview

- Previous projects
- Current projects
- Example: Pharmaceutical collaboration – methods
- Future projects

Previous projects

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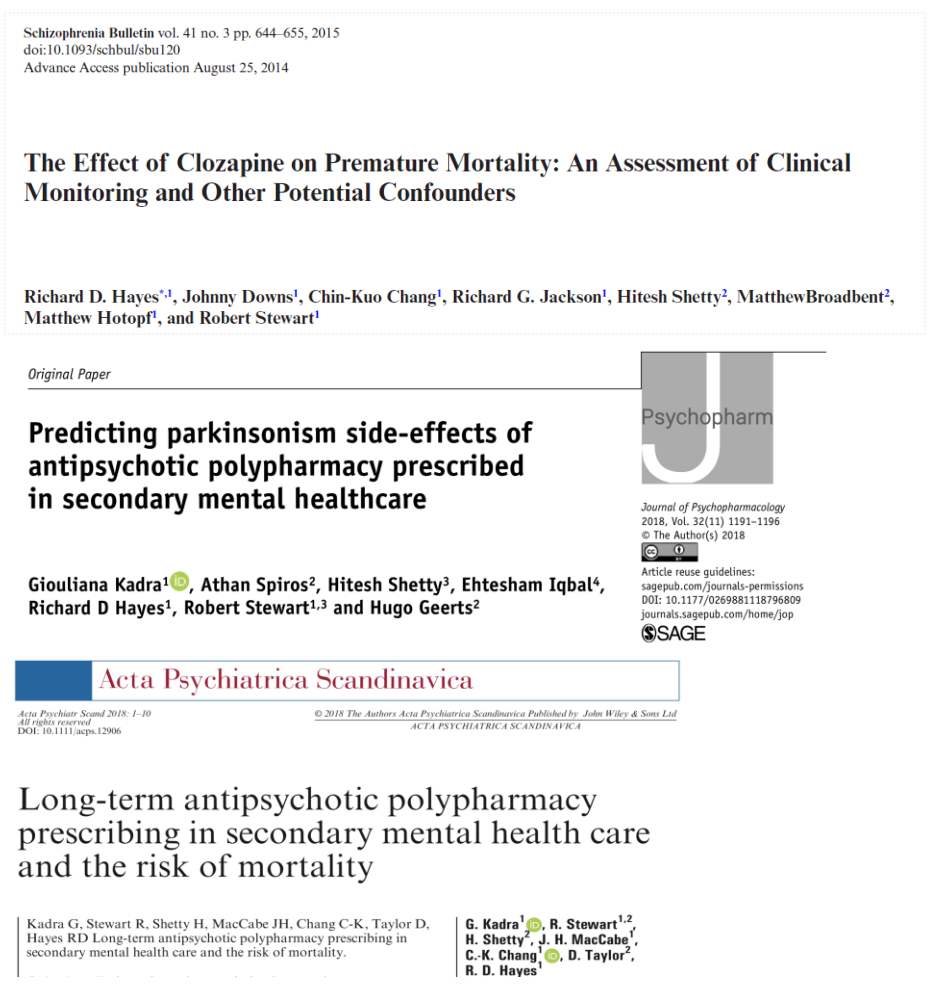

Schizophrenia Bulletin vol. 41 no. 3 pp. 644–655, 2015
doi:10.1093/schbul/sbu120
Advance Access publication August 25, 2014

The Effect of Clozapine on Premature Mortality: An Assessment of Clinical Monitoring and Other Potential Confounders

Richard D. Hayes*[,1], Johnny Downs[1], Chin-Kuo Chang[1], Richard G. Jackson[1], Hitesh Shetty[2], MatthewBroadbent[2], Matthew Hotopf[1], and Robert Stewart[1]

Original Paper

Predicting parkinsonism side-effects of antipsychotic polypharmacy prescribed in secondary mental healthcare

Psychopharm

Giouliana Kadra[1], Athan Spiros[2], Hitesh Shetty[3], Ehtesham Iqbal[4], Richard D Hayes[1], Robert Stewart[1,3] and Hugo Geerts[2]

Journal of Psychopharmacology
2018, Vol. 32(11) 1191–1196
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Acta Psychiatrica Scandinavica

Acta Psychiatr Scand 2018: 1–10
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DOI: 10.1111/acps.12906

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ACTA PSYCHIATRICA SCANDINAVICA

Long-term antipsychotic polypharmacy prescribing in secondary mental health care and the risk of mortality

Kadra G, Stewart R, Shetty H, MacCabe JH, Chang C-K, Taylor D, Hayes RD Long-term antipsychotic polypharmacy prescribing in secondary mental health care and the risk of mortality.

G. Kadra[1], R. Stewart[1,2], H. Shetty[2], J. H. MacCabe[1], C.-K. Chang[1], D. Taylor[2], R. D. Hayes[1]

ADDICTION
SSA SOCIETY FOR THE STUDY OF ADDICTION
SHORT REPORT
doi:10.1111/add.14114

Excess overdose mortality immediately following transfer of patients and their care as well as after cessation of opioid substitution therapy

Karolina M. Bogdanowicz[1], Robert Stewart[1], Chin-Kuo Chang[1], Hitesh Shetty[2], Mizanur Khondoker[1,3], Edward Day[1,4], Richard D. Hayes[1]* & John Strang[1,2]*

King's College London, Institute of Psychiatry, Psychology and Neuroscience, London, UK,[1] South London and Maudsley NHS Foundation Trust, London, UK,[2] Norwich Research Park, University of East Anglia, Norwich Medical School, Norwich, UK[3] and Birmingham and Solihull Mental Health NHS Trust, Birmingham, UK[4]

ELSEVIER

Contents lists available at ScienceDirect

Schizophrenia Research

journal homepage: www.elsevier.com/locate/schres

Predictors of long-term (≥6 months) antipsychotic polypharmacy prescribing in secondary mental healthcare

CrossMark

Giouliana Kadra[a,*], Robert Stewart[a], Hitesh Shetty[b], Johnny Downs[a], James H. MacCabe[a], David Taylor[b], Richard D. Hayes[a]

[a] King's College London, Institute of Psychiatry, Psychology and Neuroscience, London, UK
[b] South London and Maudsley NHS Foundation Trust, London, UK

Psychopharmacology (2018) 235:281–289
https://doi.org/10.1007/s00213-017-4767-6

CrossMark

ORIGINAL INVESTIGATION

Antipsychotic polypharmacy prescribing and risk of hospital readmission

Giouliana Kadra[1] · Robert Stewart[1,2] · Hitesh Shetty[2] · James H. MacCabe[1,2] · Chin-Kuo Chang[1] · Jad Kesserwani[1] · David Taylor[2] · Richard D. Hayes[1]

Current projects

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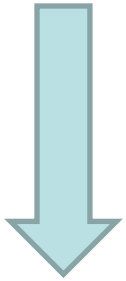
- Predictors of Treatment Resistant Schizophrenia (TRS)
- Predictors of early vs. late-TRS
- Predictors of response to clozapine
- Correlates of treatment-resistant depression

- **Predictors of Treatment Resistant Schizophrenia (TRS)**
- Predictors of early vs. late-TRS
- Predictors of response to clozapine
- Correlates of treatment-resistant depression



Example of a project with a pharmaceutical company

Aim:

Identify predictors of Treatment Resistant Schizophrenia (TRS)

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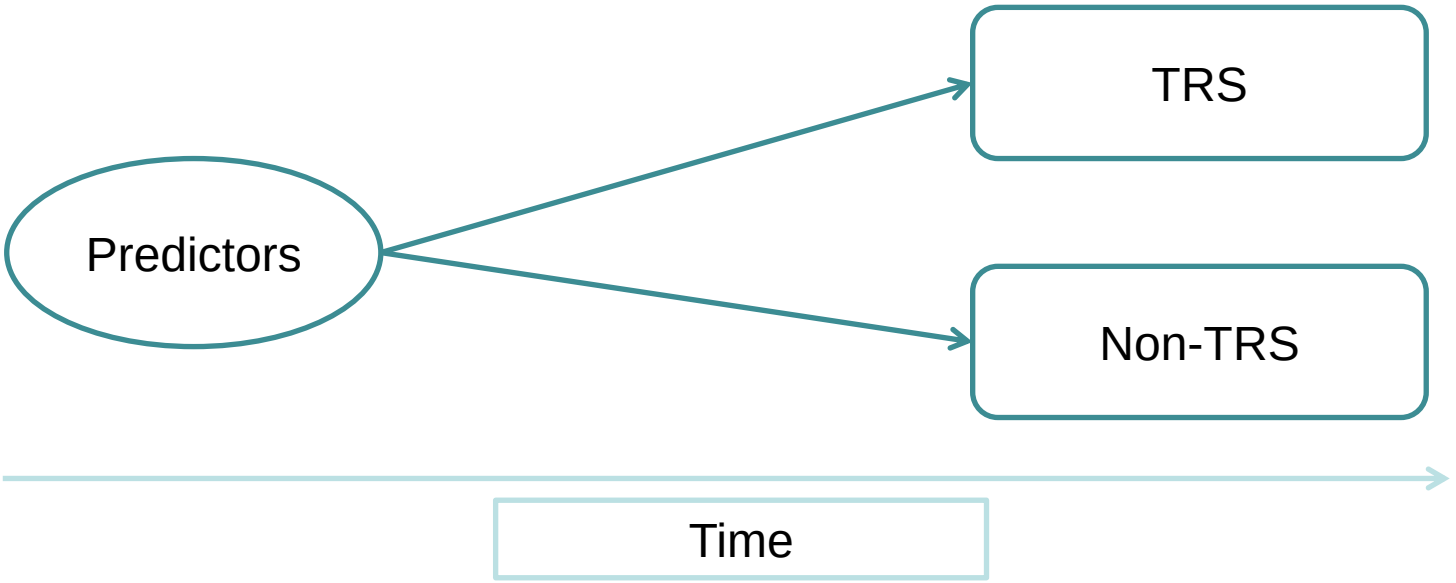
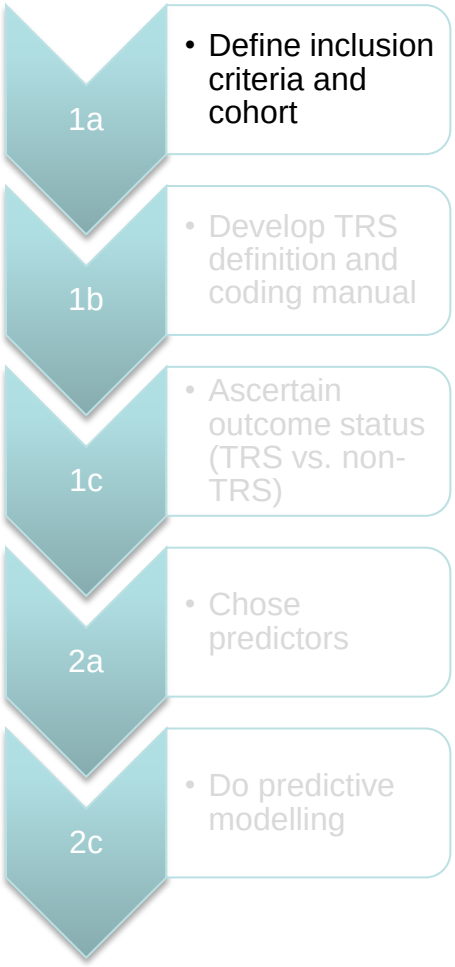


2nd step: Identify predictors

a. Choose predictors
b. Do predictive modelling

1st step: Identify TRS cases

a. Define inclusion criteria and cohort
b. Develop TRS definition and coding manual
c. Ascertain outcome status (TRS vs. non-TRS)



People with a record in SLaM BRC case register to date

N = 330,030

Patients with diagnosis other than (ICD10: F20-29)

N = 302,479

Patients with schizophrenia, schizotypal and delusional disorders (ICD: F20-F29)

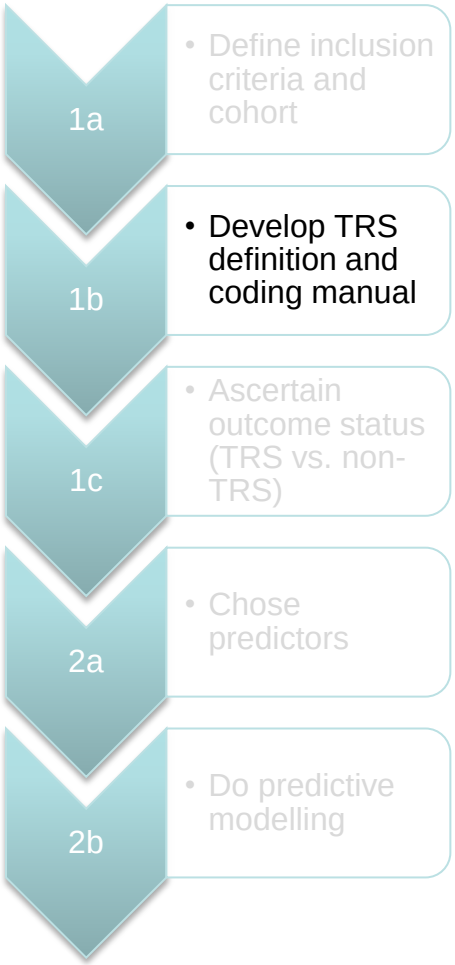
N = 27,551

Patients excluded N = 12,426

- Not taking antipsychotics between 2007 and 2017
- No residence within SLaM catchment area or homelessness at first post-2007 antipsychotic mention
- Evidence of ever having had a contact with national psychosis services

Patients fulfilling all inclusion criteria

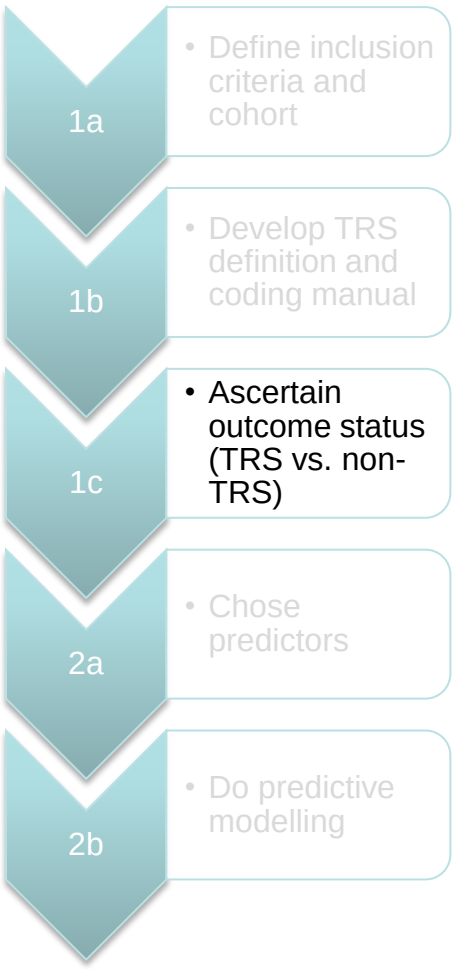
N = 15,129

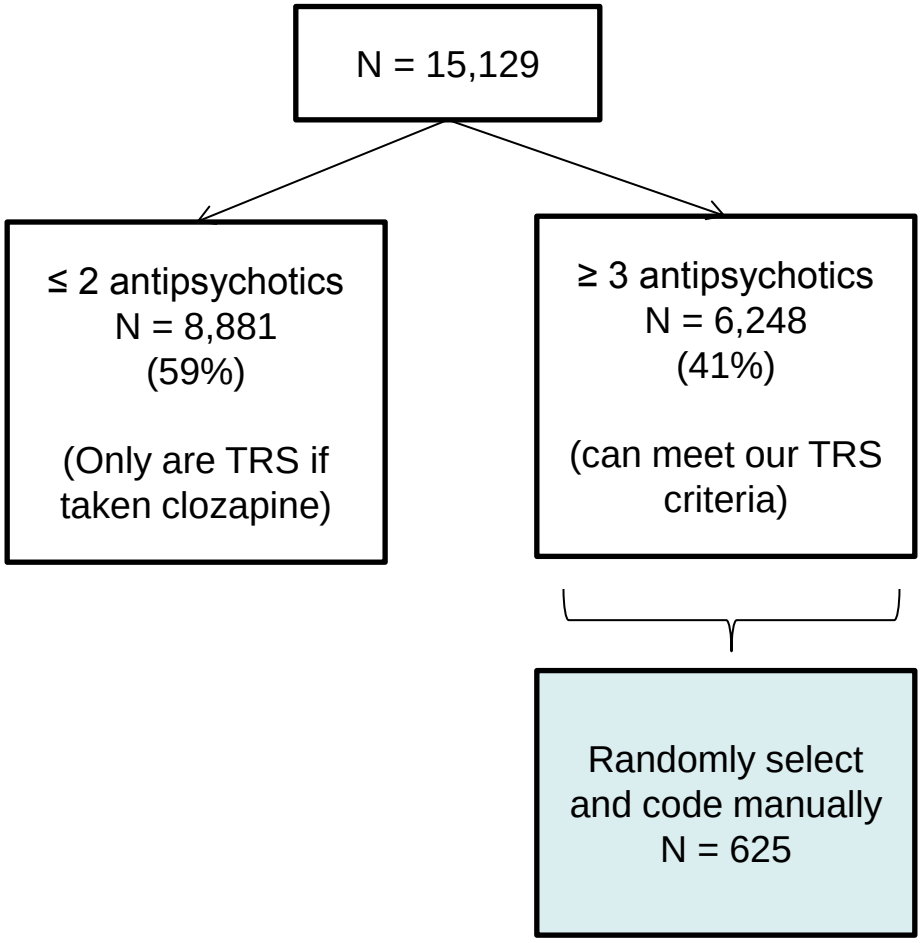


TRS definition:

- A **prescription of a third antipsychotic**, after adequate trials (six or more weeks) of two different antipsychotic:
  - The initiation of each antipsychotic was due to **treatment failure** and not due to non-adherence and/or medication switching as a result of side-effects.
- Clozapine prescription

Specific coding rules were developed


1a
• Define inclusion criteria and cohort
1b
• Develop TRS definition and coding manual
1c
• Ascertain outcome status (TRS vs. non-TRS)
2a
• Chose predictors
2b
• Do predictive modelling


N = 15,129
≤ 2 antipsychotics
N = 8,881
(59%)
(Only are TRS if taken clozapine)
≥ 3 antipsychotics
N = 6,248
(41%)
(can meet our TRS criteria)
Randomly select and code manually
N = 625

Coding treatment resistant schizophrenia

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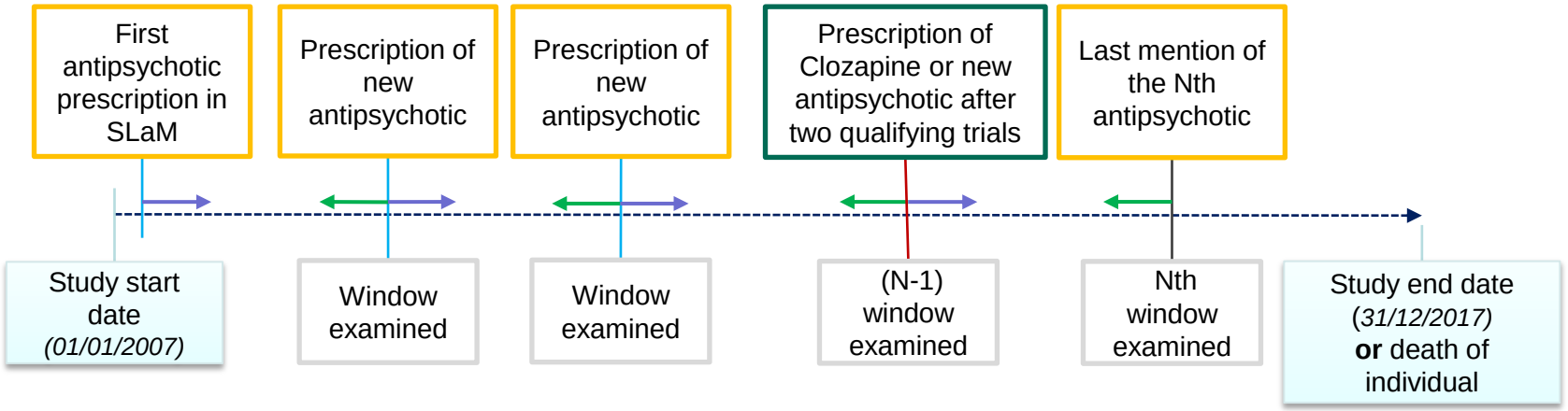


N = final antipsychotic examined
= time period of ***6 weeks*** back examined (any period where there are no clinical entries is disregarded; therefore we always examine 6 weeks' worth of documents)

= first ***6 weeks*** of records from the data extraction examined forwards from the first clinical record of the antipsychotic

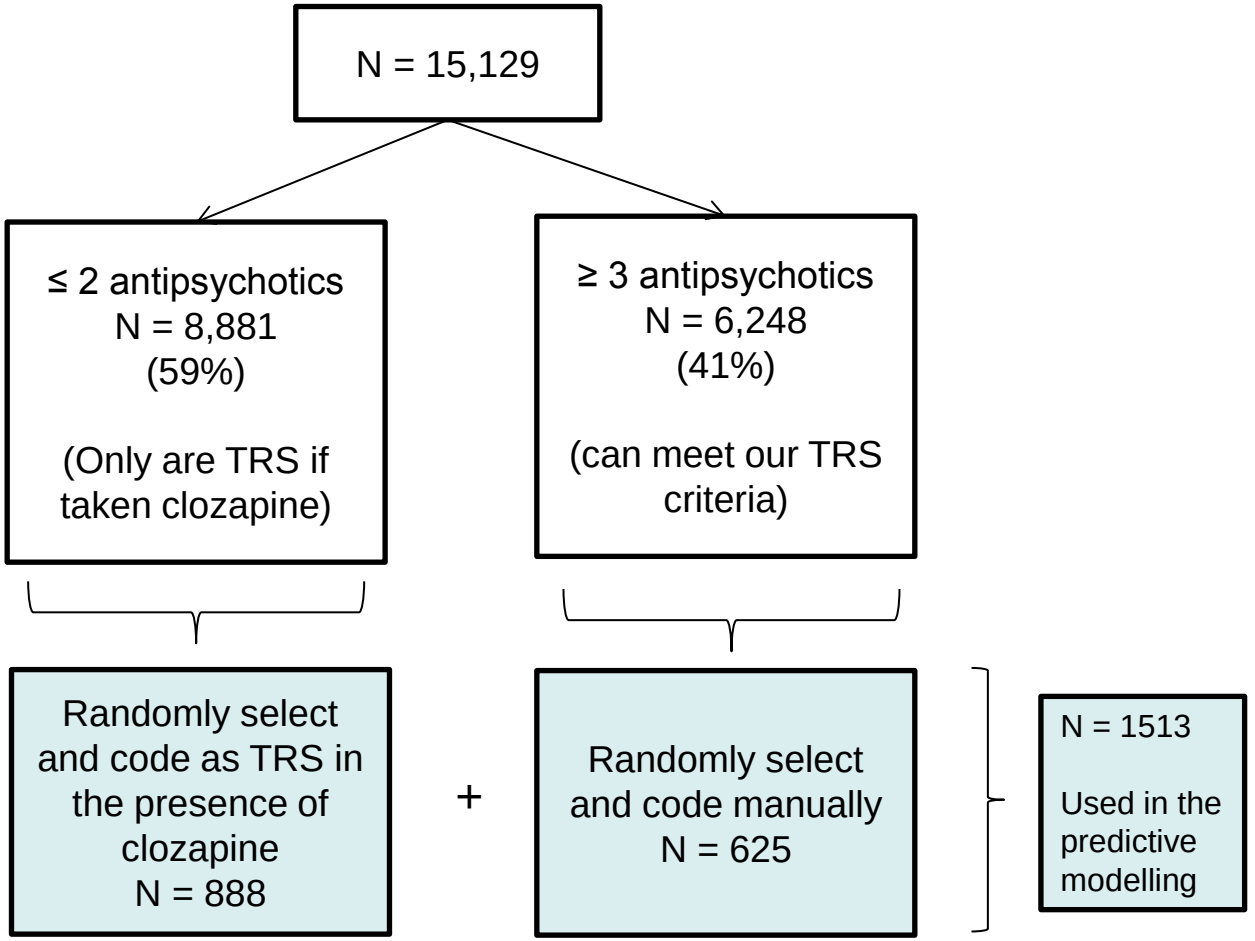
1a
- Define inclusion criteria and cohort

1b
- Develop TRS definition and coding manual

1c
- Ascertain outcome status (TRS vs. non-TRS)

2a
- Chose predictors

2b
- Do predictive modelling



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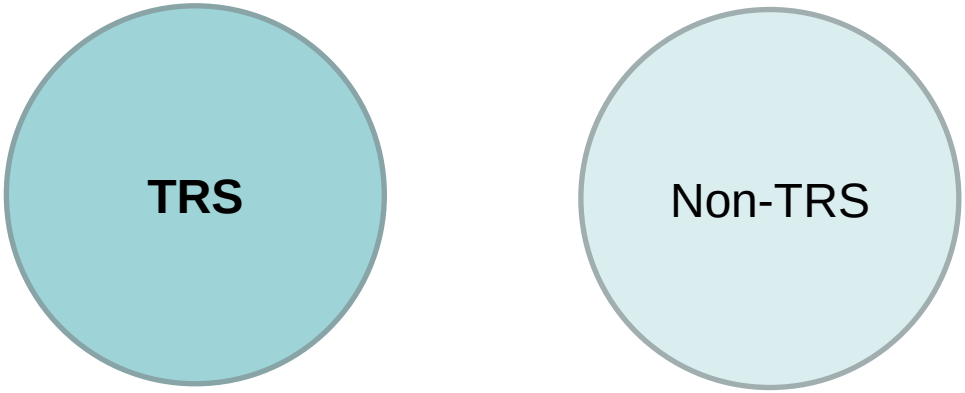
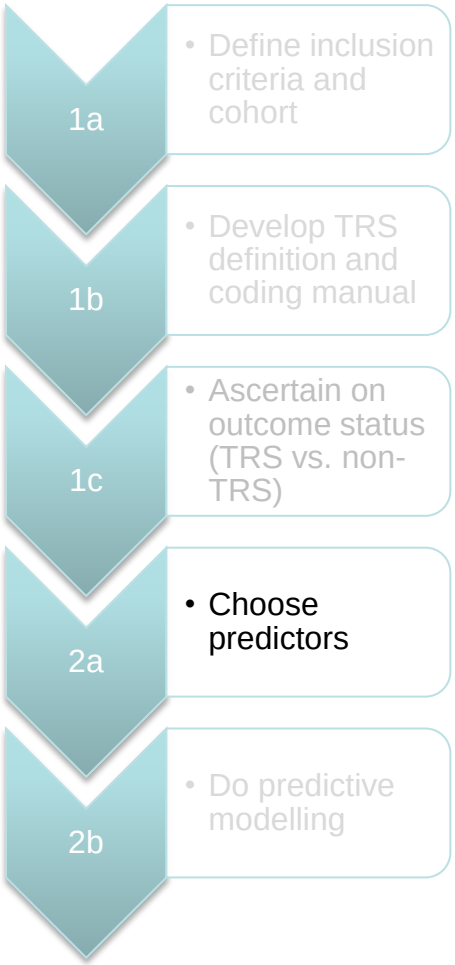
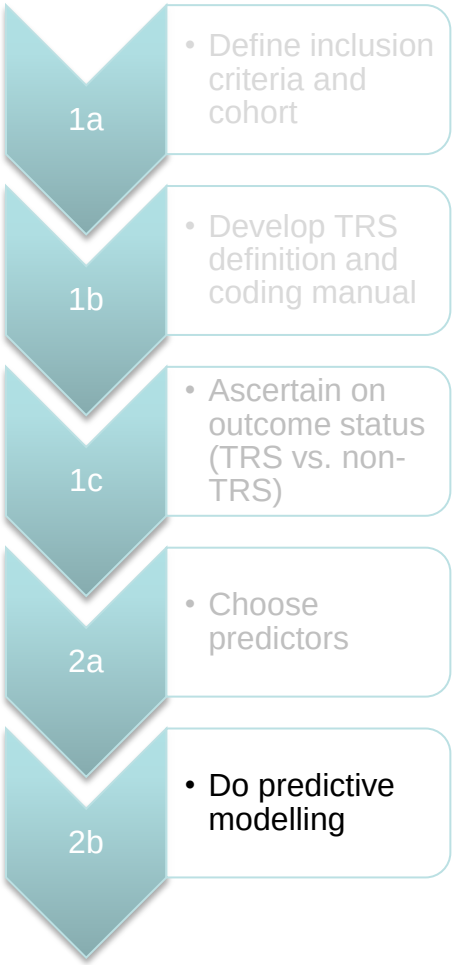




Predictors included in the statistical model include:

- Sociodemographic information (e.g., ethnicity)
- Comorbidities (e.g., other diagnosis)
- Service use (e.g., number of clinical contacts)
- Ratings of symptoms (e.g., Health of the Nation Outcomes Scales)
- Other proxy indices for severity of illness (e.g., hospitalisation)
- Proxy indices for adherence to treatment (e.g., use of a depot or a Community Treatment Order)
- Lifestyle characteristics (e.g., smoking)



Collaboration with biostatisticians who are performing the predictive modelling

- Daniel Stahl
- Deborah Agbedjro

Future projects

- Pharmacological treatment and ethnic inequalities observed in involuntary detentions (under the Mental Health Act).
- Ethnic differences in the prescription of clozapine for people with Treatment-Resistant Schizophrenia
- Impact of antipsychotics on suicidal risk
- Impact of antipsychotics in the on the development of obsessive-compulsive symptoms in serious mental illnesses

Thank you for your attention!