




Using country level socioeconomic data to define high risk groups for targeting interventions

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Objectives

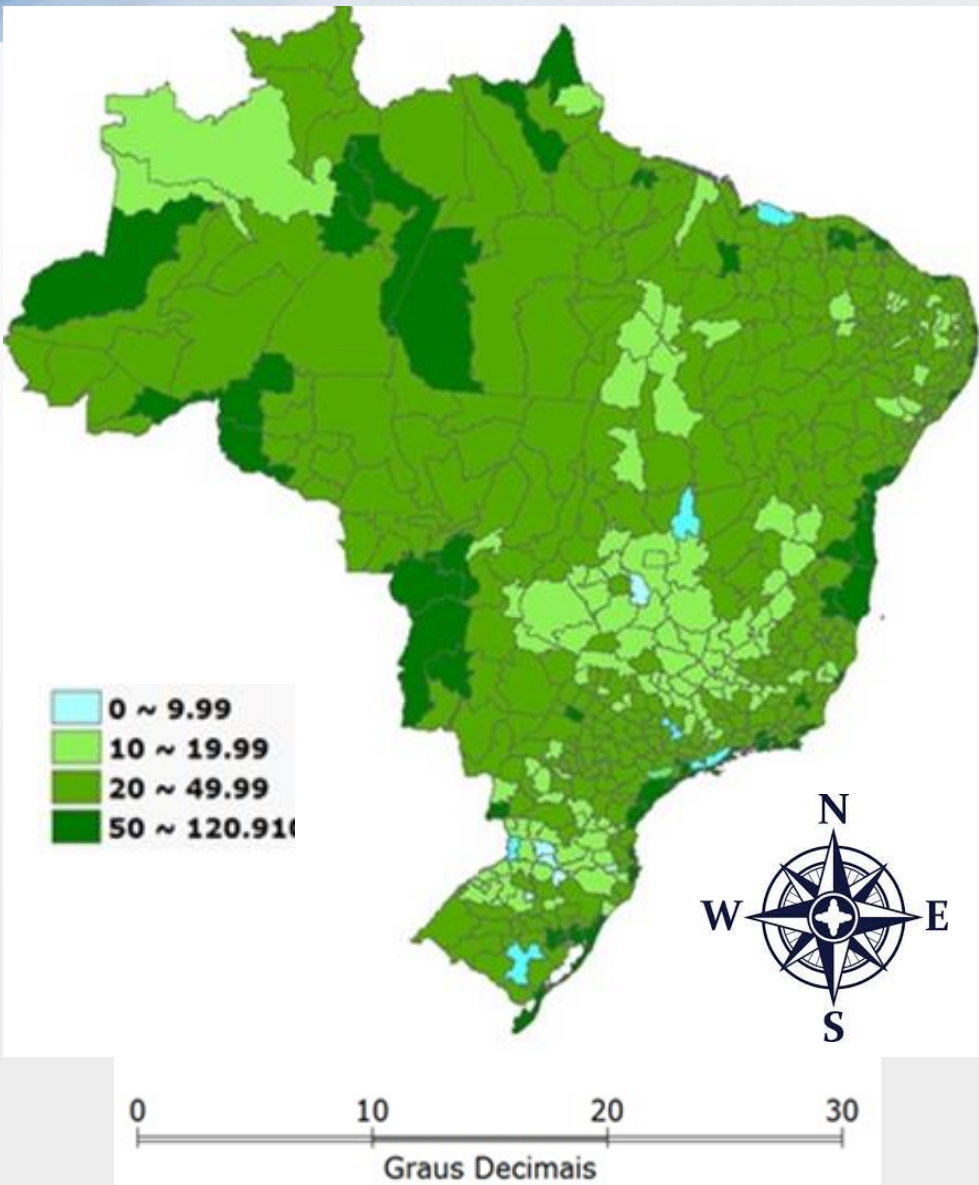
- State of the Art in Research for TB and Socioeconomic Status (SES)
- Describe Background of research on National TB database
- Gaps in Current approaches for decision-making

Background

- Poverty in Brazil continues to be a serious problem
- 10% of the population lives on less than 1/4th minimum wage
- This matches cut off point for entering the federal program ~10 % of population qualifies for “Bolsa família”
- Largest conditional cash transfer program in the world--14 million people receive benefits

Map of tuberculosis incidence Brazil - 2001 – 2011.

High heterogeneity inside country



In a 11-year time series (2001-2011), almost one million of TB cases were reported in Brazil:

65% were male;
64% were in the 15-34 years old age;
only 4% were younger than 15 years old;

Smear microscopy was not performed in 23% of the cases, while 77% did not have culture done.

The cure rate was 69%. Default was 14% and deaths (by TB or by other causes) comprised 7%.

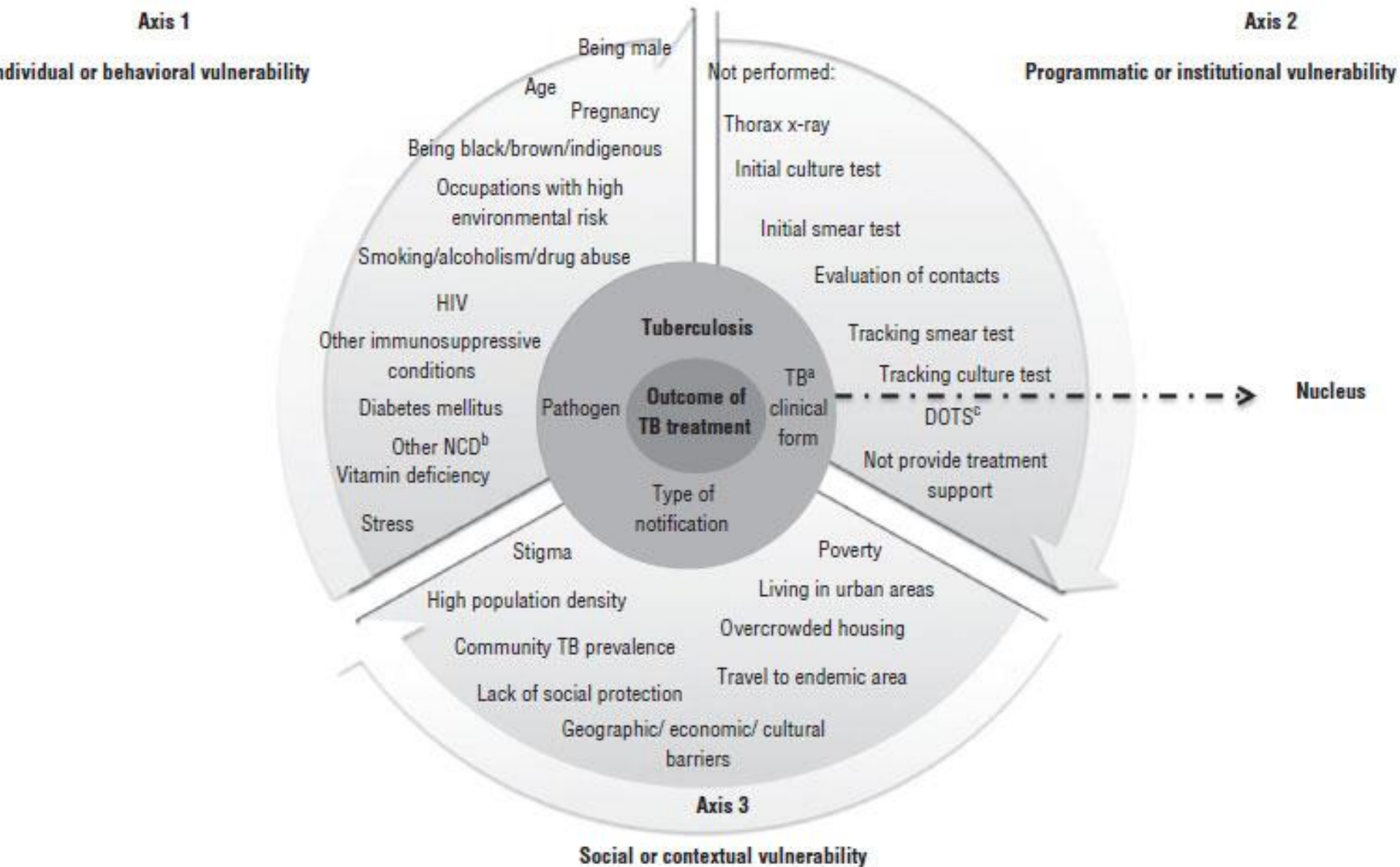
Research Question

How can social protection data on TB patients inform better or more targeted interventions?

SINAN - NOTIFIABLE DISEASES INFORMATION SYSTEM

- Created in 1993 with the aim to collect, transmit, and disseminate surveillance data to support research on and analysis of mandatory-notification diseases using data derived from individual notifications of all Brazilians TB cases.
- Contains variable: Risk factors, lab results, clinical presentation, treatment outcomes, etc

FIGURE 1. Conceptual model for tuberculosis determination in Brazil



^aTuberculosis.

^bNoncommunicable disease.

^cDirectly Observed Treatment Short-course.

Preliminary Studies using SINAN database:

- ❑ Factors associated with completing TB treatment:
 - being older in age;
 - self-identifying as indigenous or of Asian ethnicity;
 - having participated in or completed higher education (beyond high school);
 - not living in a rural area;
 - being institutionalized in a prison; having diabetes; having extrapulmonary TB;
 - and being assigned to DOTS.

[Determinants of tuberculosis in Brazil: from conceptual framework to practical application.](#) Maciel EL, Reis-Santos B.

Rev Panam Salud Publica. 2015 Jul;38(1):28-34.

Methods

- **Model 1**

A polytomous analysis using Brazilian surveillance system: HIV, prisoners, renal chronic patients, diabetics

Papers published in : Plos one, IJTLD , BMC

- **Model 2**

A hierarchical model: To compare between groups: diabetes vs non-diabetes, HIV vs non-HIV, same approach for other co-morbidities, DOT vs non-DOT

Papers published in : International Journal for Equity in Health, CSP, BMC, IJTLD

Methods using Sinan TB and Cash transfer - Preliminary Results

- New variable “cash transfer beneficiary” on SINAN in 2015.
- Study subjects were divided into two groups: cash transfer subjects - and non- cash transfer subjects,
- Excluded from the analysis: Subjects with missing data on cash transfer - São Paulo state due to lack of information on this variable.

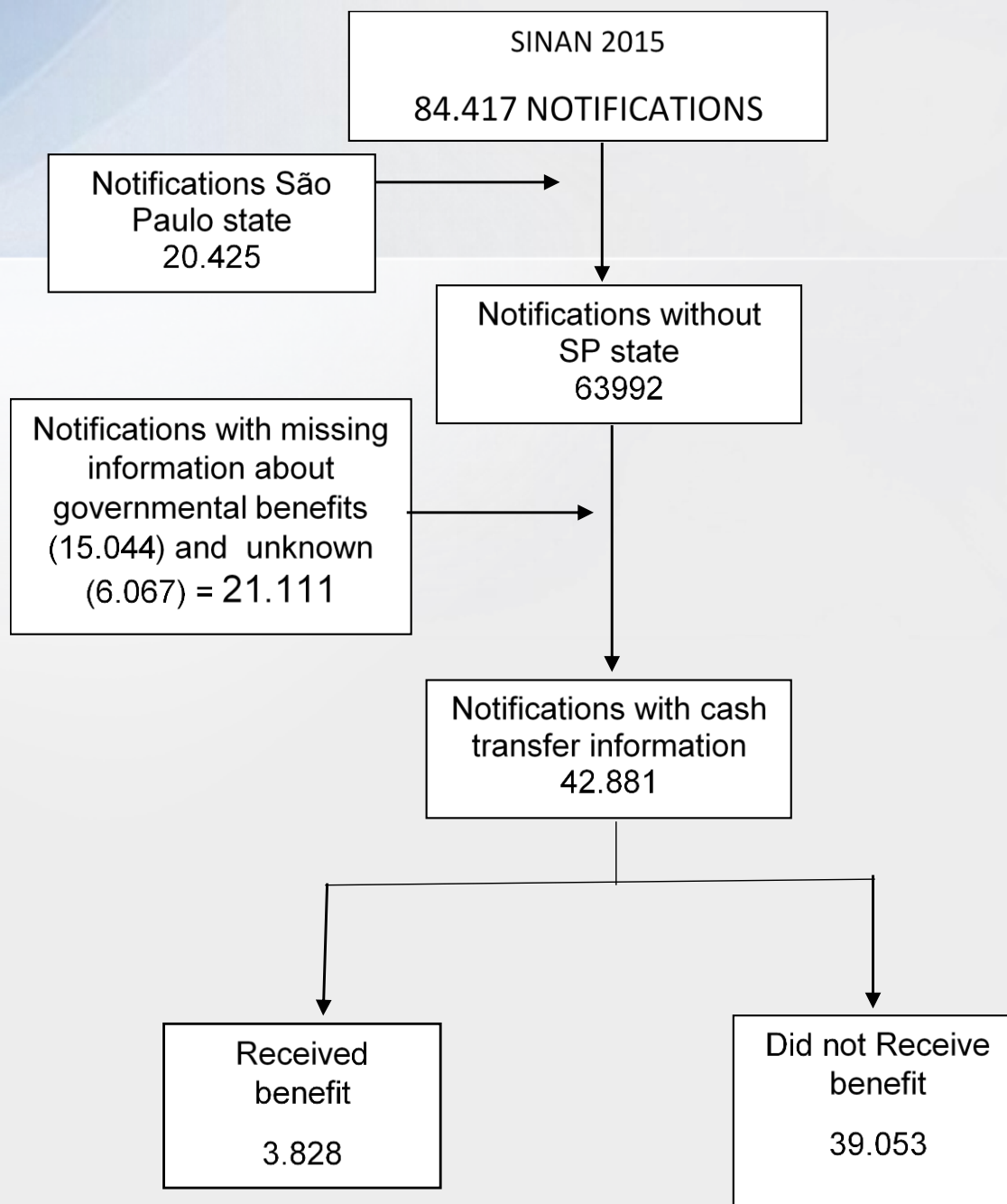


Figure- Flowchart of TB patients in SINAN-TB, 2015

Table 1: Cash transfer benefit and tuberculosis (TB) subjects characteristics in Brazil, 2015.

Characteristics	n	%
Age (n = 3827)		
0 - 17 years	459	11.99
18 - 44 years	1915	50.04
45 - 64 years	954	24.93
More than 65 years	499	13.04
Skin color (n = 3677)		
white	788	21.43
black/ prdo	2585	70.30
others	304	8.27
Sex (n = 3828)		
Male	1955	51.07
Female	1873	48.93
Schooling (n= 3399)	n	%
Illitete	845	24.86
Less than 8 years of schooling	1714	50.43
More than 8 years of schooling	840	24.71
Area of residence (n = 3728)		
Urban	2928	78.54
Rural	756	20.28
Urban/ rural	44	1.18
Administrative region (n = 3828)		
Southeast	695	18.16
Northeast	1624	42.42
Central West	371	9.69
Southeast	574	14.99
North	564	14.73

Characteristics	n	%
AIDS (n = 3275)		
No	2908	88.79
Yes	367	11.21
Alcool (n = 3632)		
No	3037	83.62
Yes	595	16.38
Diabetes (n = 3607)		
No	3273	90.74
Yes	334	9.26
Mental disorders (n = 3607)	n	%
No	3460	95.63
Yes	158	4.37
Entry type (n = 3828)		
New case	3108	81.19
Relapse	217	5.67
Return after default	336	8.78
D'ont know	12	0.31
Transferred	143	3.74
<i>Postmortem</i>	12	0.31

Table 1- Continued

Characteristics	n	%
X-ray torax (n = 3079)		
normal	185	6.01
Suspect	2847	92.47
other pathology	47	1.53
Smear status (n = 2781)		
Negative	760	27.33
Positive	2021	72.67
Culture status (n = 829)		
Negative	294	35.46
Positive	535	64.54
Characteristics	n	%
Form TB (n = 3828)	n	%
pulmonar	3317	86.65
extra pulmonar	417	10.89
Pulm. + extra	94	2.46
Outcome (n = 2193)		
Cure	1404	64.02
Abandonment	220	10.03
Died by TB	91	4.15
Died by others causes	125	5.70
Transferecy	305	13.91
TB DR	29	1.32
Change drug	17	0.78
Relapse	2	0.09

Table 1- Continued

Conclusions

- **Even within SES as a risk factor there is significant heterogeneity in relationship to TB.**
- **NTP Policies should consider heterogeneity in each local context and acknowledge these differences and provide guidance in implementing such policies and TB control activities.**
- **Research such as this is paramount to inform local and national level TB managers (integration of pillar 3 into national plans to achieve End TB goals)**
- **Research output should be an advocacy tool for developing and starting interventions aimed at mitigating risk factors**

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