

Evaluating a Type 2 Diabetes (T2D) Screening Program Using Interrupted Time Series Evidence from the Autonomous Province of Bolzano (Italy)

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BACKGROUND

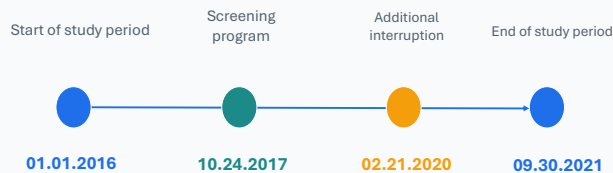
Population aging, sedentary lifestyles, and the increasing prevalence of overweight and obesity are contributing to the growing burden of T2D. Substantial unwarranted geographical variation persists across Italian regions in diabetes management and diabetes-related complications^{1,2,3}. The Autonomous Province of Bolzano (APB), with approximately 540,000 inhabitants, implemented a large-scale, non-invasive screening program combining the Finnish Diabetes Risk Score (FINDRISC)⁴ questionnaire with second-level glycated hemoglobin (HbA1c) testing among individuals aged 35–74 years.

OBJECTIVES

To evaluate the impact of the T2D screening program on the T2D prevalence in the APB by applying Interrupted Time Series (ITS)⁵ methods to administrative health care data.

35–74 yrs
Target age group

FINDRISC + HbA1c
Two-step screening approach

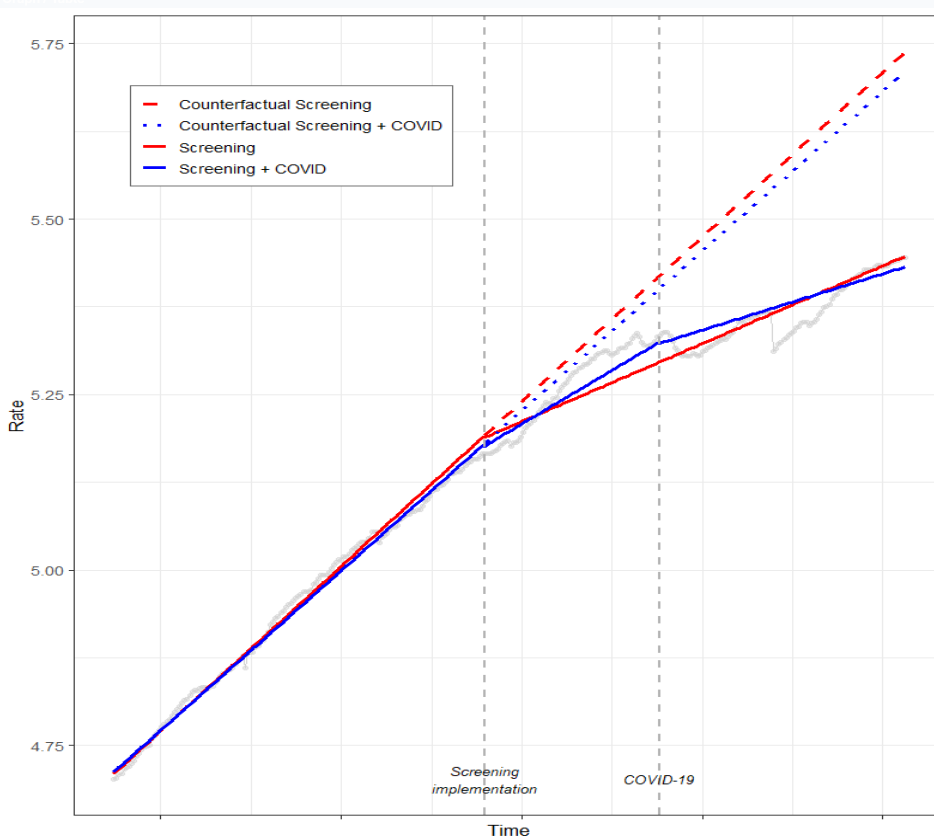


METHODS

ITS analysis based on administrative healthcare data

- Population: Residents of the APB (aged 35–74 years)
- Outcome: Weekly T2D prevalence rate (x 100)
- Study period: 2016–2021
- Intervention: Introduction of the screening program on October 24, 2017
- Additional interruption: Onset of the COVID-19 pandemic

ITS OF T2D PREVALENCE RATE (x 100)



FINDINGS

Prevalence (x 100 inhabitants) of T2D increased from 4.70 (2016) to 5.45 (2021) → + 15.8%

Before implementation of the screening program, the diabetes rate showed a statistically significant upward trend ($p < 0.001$), although the effect size was small

No immediate level change was observed following the intervention ($p = 0.736$)

Screening program may have contributed to improved case detection, but the available evidence does not demonstrate a statistically significant impact on the overall T2D prevalence trend

Adding terms representing the COVID-19 period did not significantly impact the trend of the prevalence

Limitations:
Short follow up period after the intervention

Lack of data on individuals identified with prediabetes

Quality and completeness of administrative healthcare data

CONCLUSIONS

Findings suggest that the screening program did not have a significant impact on T2D prevalence. However, the benefits of screening might emerge gradually given that prevalence is a cumulative measure influenced by both disease incidence and disease duration. Therefore, immediate changes following preventive interventions might not be expected.

Further analyses are warranted to better assess the impact of the screening strategy, including for instance prediabetes cases and also considering the program cost-effectiveness.

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