

# Implementation and clinical effectiveness of a community-based NCD treatment program in rural Mexico: A difference-in-differences analysis

**Kevin Duan, MD**

*Economic Evaluation Collaborator, Compañeros En Salud*

*Volunteer Assistant Clinical Professor of Medicine, UCSF*

**Francisco Rodríguez Garza, MD**

*Right to Health Program Coordinator, Compañeros En Salud*

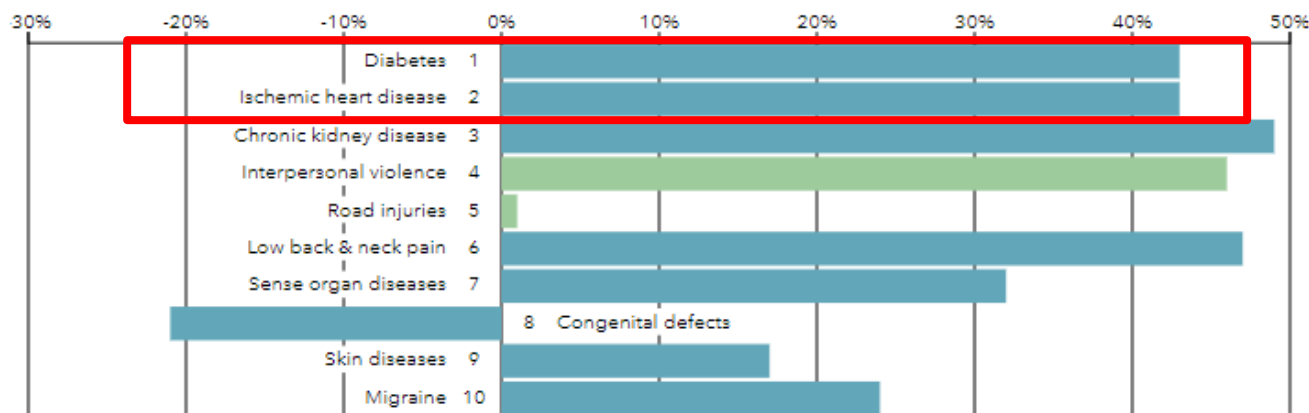
# Objective

- To describe the implementation of a novel community-based NCD treatment program
- To evaluate the clinical effectiveness of the program

# Background

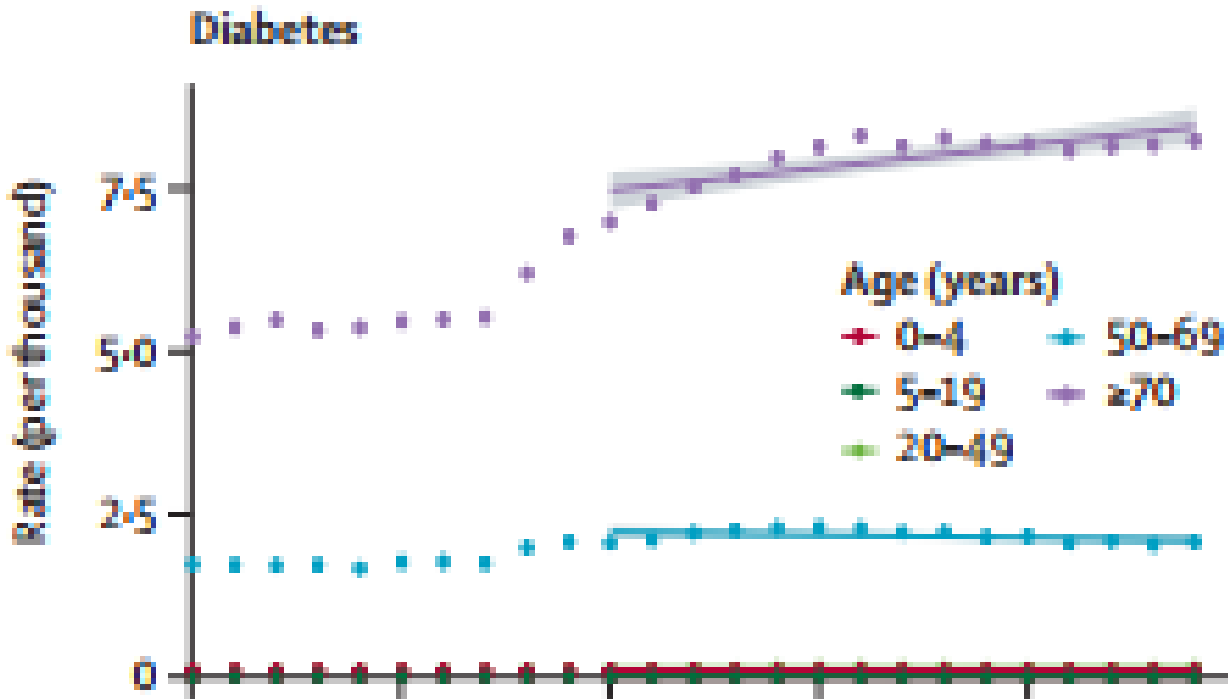
## What causes the most death and disability combined?

- Communicable, maternal, neonatal, and nutritional diseases
- Non-communicable diseases
- Injuries



Top 10 causes of disability-adjusted life years (DALYs) in 2016 and percent change, 2005-2016, all ages, number

# Background



González-Pier E, Barraza-Lloréns M, Beyeler N, Jamison D, Knaul F, Lozano R, et al. Mexico's path towards the Sustainable Development Goal for health: an assessment of the feasibility of reducing premature mortality by 40% by 2030. *Lancet Glob Health*. 2016 Oct;4(10):e714–25.

# Background



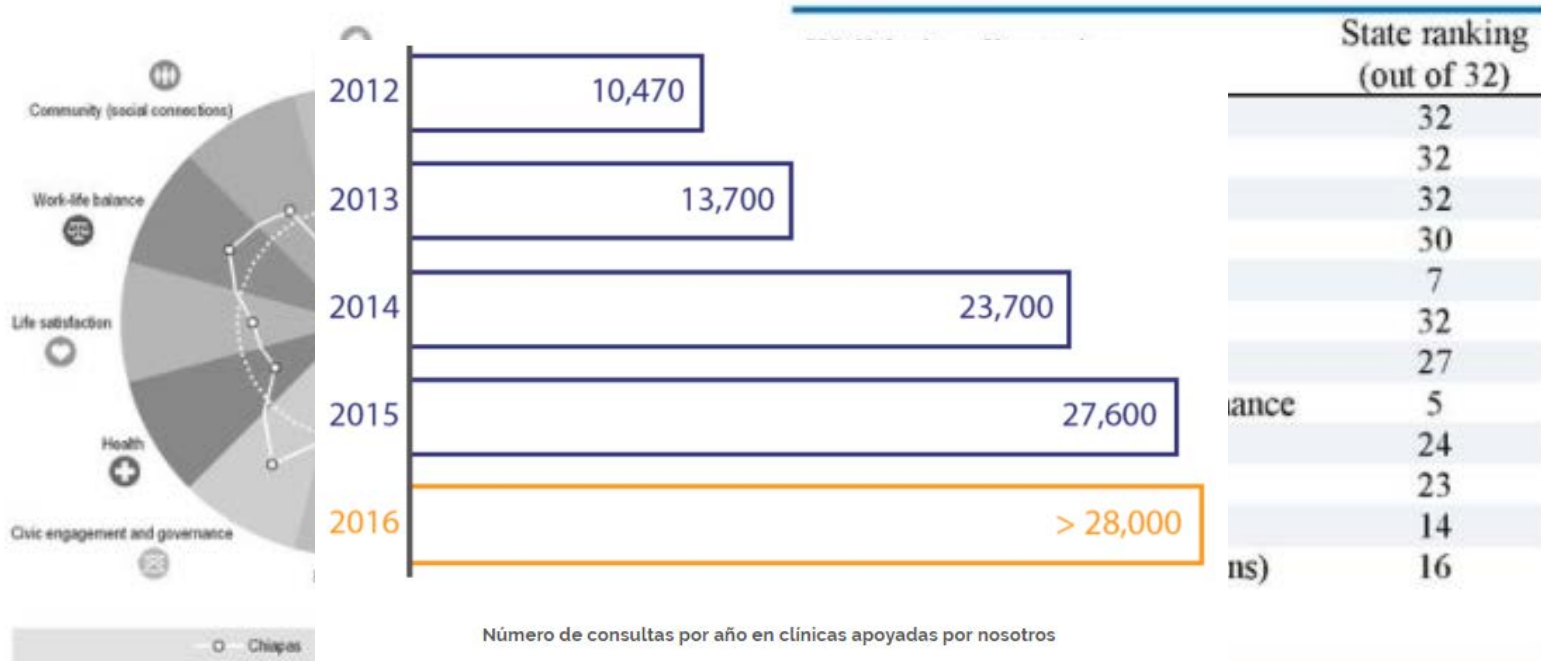
SEGURO POPULAR

# Where we work



# Context

Well-being in Chiapas, 2014 or latest available year



# NCD Model of Care





# Implementation

- Piloted components of CESPEC from 2012-2014
- Rolled out the full CESPEC model to clinics in 2014

# Methods

- Retrospective, population-based analysis
- Data source: CES EHR and government database
- Intervention group: CES clinics with CESPEC (n=9)
- Control group: non-CES government clinics (n=806)

# Methods

- Outcome: rates of disease control (based on government definitions)
  - Diabetes:
    - Hgb A1c <7%,
    - Fasting glucose <7.16 mmol/L (130mg/dL)
  - Hypertension:
    - BP <140/90 mmHg
- Study period: 2014 vs 2016
- Difference-in-differences regression approach
- Adjustment for facility-level differences

# Results: hypertension

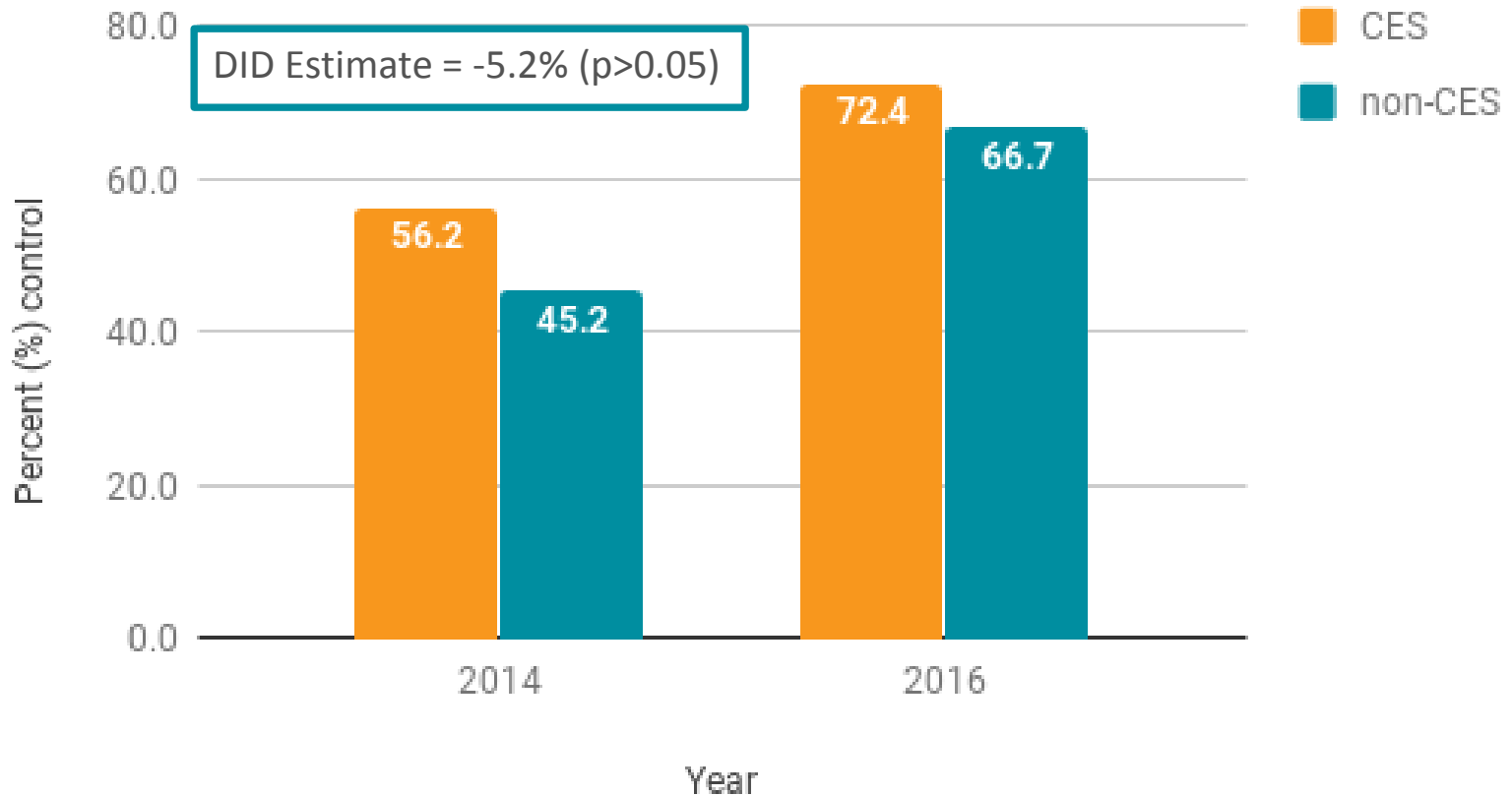
Population	2014			2016		
	CES (N=92)	Non-CES (N=14,272)	p-value	CES (N=196)	Non-CES (N=8,089)	p-value
<i>Female</i>	59.8%	74.0%	P = 0.002	60.1%	77.2%	P < 0.001
<i>Age 60+</i>	52.3%	48.7%	P = 0.50	49.7%	52.0%	P = 0.49
<i>Under Control</i>	56.2%	45.2%	P = 0.03	72.4%	66.7%	P = 0.09

# Results: diabetes

Population	2014			2016		
	CES (N=43)	Non-CES (N=13,010)	p-value	CES (N=134)	Non-CES (N=8,250)	p-value
<i>Female</i>	64.5%	72.0%	P = 0.32	68.3%	77.9%	P = 0.006
<i>Age 60+</i>	22.0%	32.7%	P = 0.10	32.0%	34.5%	P = 0.55
<i>Under Control</i>	41.3%	36.9%	P = 0.50	52.6%	27.7%	P < 0.001

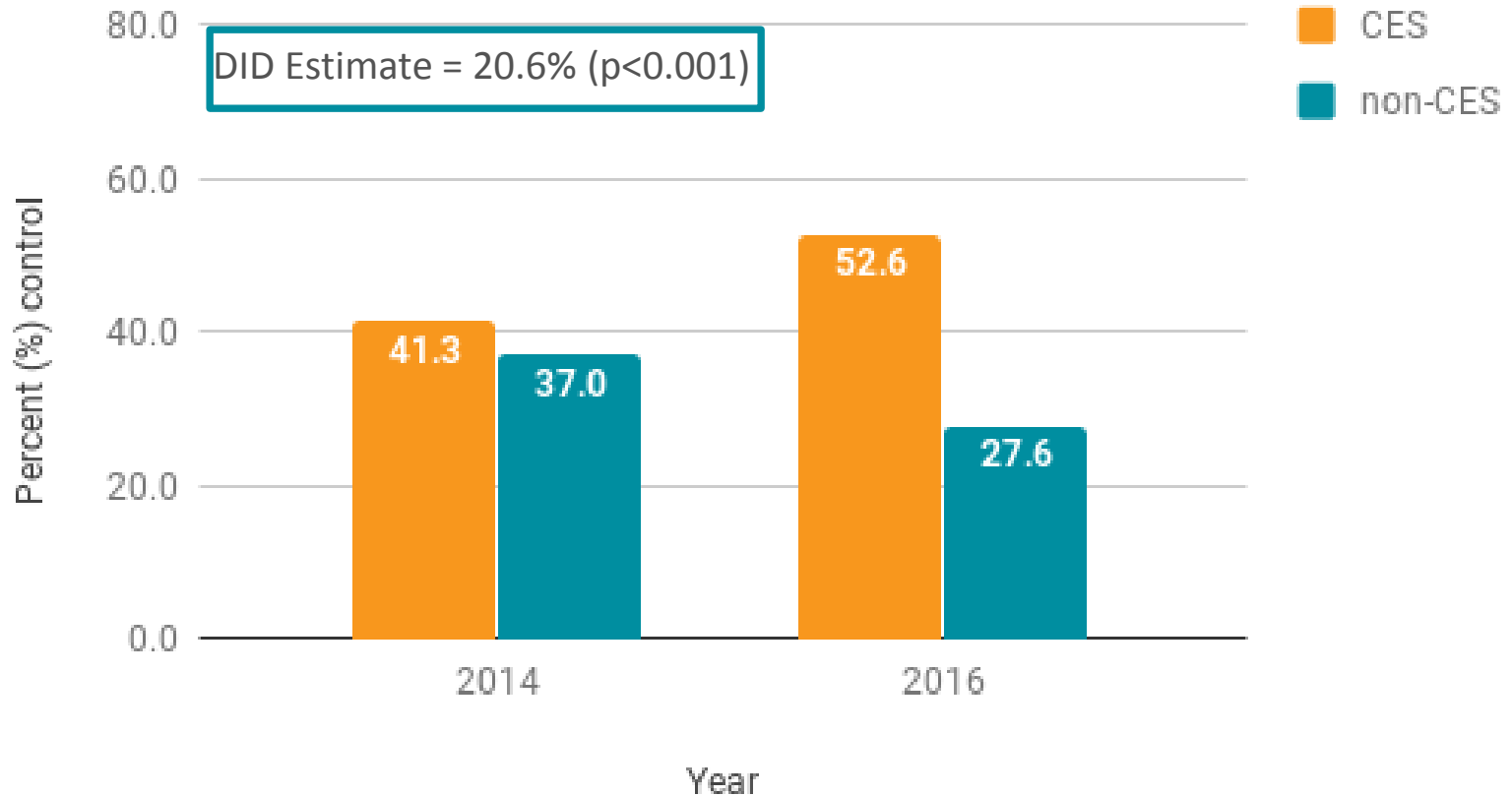
# Results

## Hypertension Control (adjusted for facility-level effects)



# Results

## Diabetes Control (adjusted for facility-level effects)



# Limitations

- Retrospective, quasi-experimental design
- Limited study period
- Clinic-level data only, no patient-level data available
- Large reduction in cases from 2014-2016 in non-CES clinics



# Conclusions

- CESPEC was associated with significantly improved diabetes control compared to care-as-usual, not in hypertension
- A program providing longitudinal, NCD care can be successfully implemented in rural Mexico
- Components of program could be a model for other rural parts of Mexico

# Acknowledgements



- Co-authors: Ryan McBain, Hugo Flores, Gustavo Nigenda, Lindsay Palazuelos, Daniel Palazuelos, Elena Moreno Lázaro, Natán Enríquez Ríos, Patrick Elliott

# Thank you

Questions?