

# 10 years of organ procurement in Chile explain with maths

F González C, F Vera C, M Dirac, L Force, R  
Wolff, F González F

University of Washington, Universidad de Chile,  
Chile's Ministry of Health  
Seattle, Santiago

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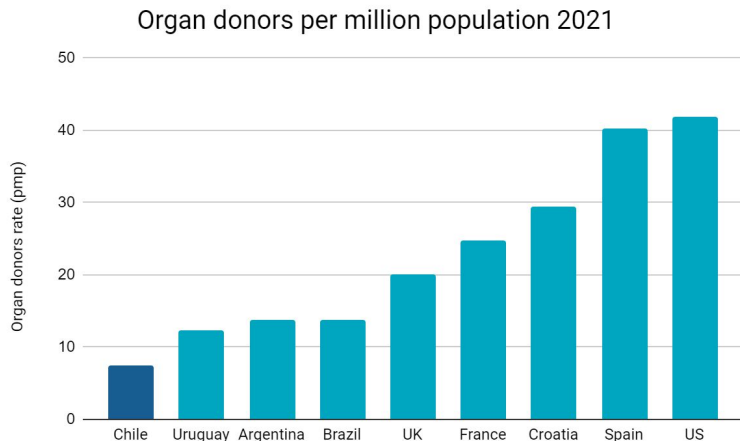
Contact:  
[felipe.vera@wic.uchile.cl](mailto:felipe.vera@wic.uchile.cl)

# Introduction

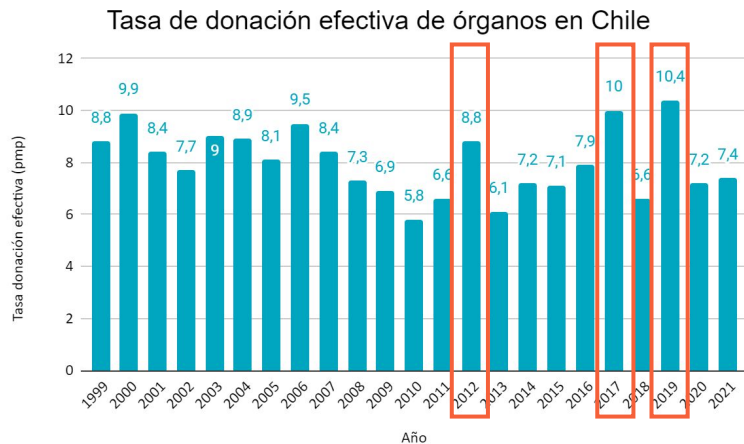
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Common news in Chile say: "The country increases organ donation by 20% this year"

But...



Chile has a very low organ donation rate



Medium- and long-run analysis only shows local maximums...

What's the real trend then?

# Methods

## Objective

Studying the evolution of the organ donation indicators in the last 10 years in Chile

## Material

National Organ Procurement and Transplant Coordination Database  
2013 - 2022

## Method

Linear regressions



Possible donors  
Effective organ donors  
Familial refusals  
Contraindications  
Discards

# Results

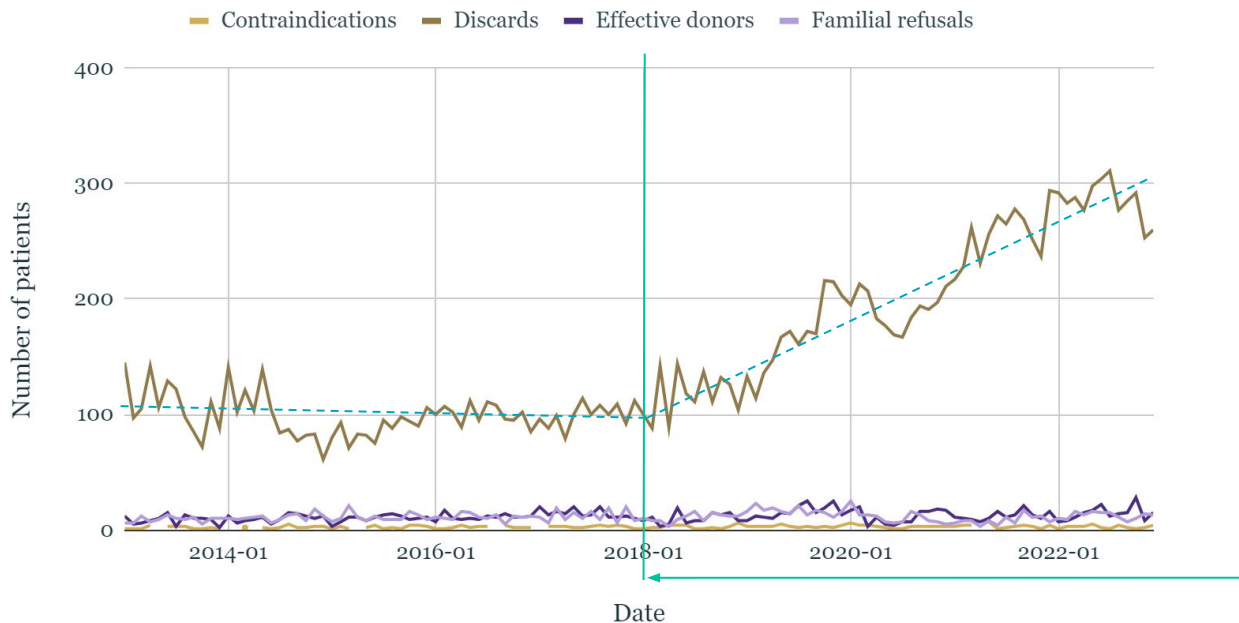
## Description of the database

	N	%
Total Possible Donors	21.192	100%
Effective organ donors	1.418	6,69%
Discards	18.115	85,48%
Contraindications	296	1,40%
Familial refusals	1.363	6,43%



# Results

## Possible donor outcome evolution in time



$$\begin{aligned} &\text{Possible donors} \\ &= \\ &\text{Effective organ donors} \\ &+ \\ &\text{Familial refusals} \\ &+ \\ &\text{Contraindications} \\ &+ \\ &\text{Discards} \end{aligned}$$

We observe 2 relevant time periods:

- 2013 - 2017
- 2018 - 2022

# Results

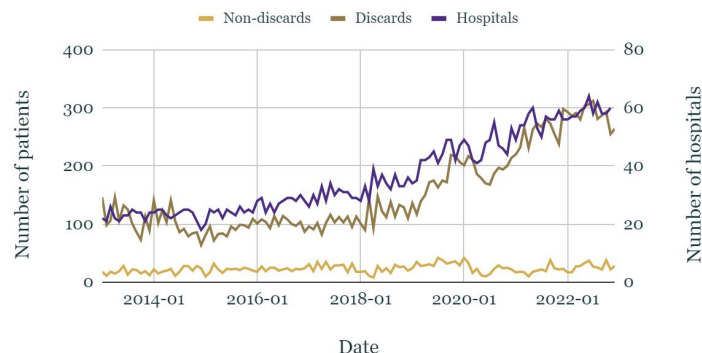
\* = significant at 95% confidence

Indicator	Linear Regression Slope ( $\rho$ -value)		
	2013 - 2022	2013 - 2017	2017 - 2022
TOTAL	1,78	0,002	3,51
PD	(<0,0002*)	(0,99)	(<0,0002*)
Discards	1,71	-0,18	3,49
	(<0,0002*)	(0,168)	(<0,0002*)
Donors	0,05	0,1	0,07
	(0,0003*)	(0,00015*)	(0,105)
Refusals	0,01	0,06	-0,04
	(0,243)	(0,027)	(0,289)
Contraindications	0,01	0,02	0,0006
	(0,0146*)	(0,05)	(0,955)

What if we correlate the number of hospitals to the number of discarded patients? Will that be an explanation for this growth?

2013 - 2022	
Indicator	Correlation with # hospitals
Not discarded	0,28
Discarded	0,95

Evolution in time of discards, non-discards, and hospitals in the procurement system



# Conclusions

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Chile has not increased its organ donors in the last 10 years



Between 2013-2017 we observe a small increase  
Between 2018-2022 no increase observed

Discarded possible donors are the indicator that make overall possible donors to increase



The increase is significant in both periods

Several of possible explanations  
The only measurable one is discarded possible donor correlation with the number of hospitals that have been participating in the procurement activity

It is important to do more than add healthcare institutions to the procurement activity

Primarily



Understand WHY patients are discarded  
Standardize the procurement process  
With the aim of transforming those possible donors in effective donors