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# Future Study of GP120 Inhibitors as Potential Immunomodulators in Clinical Care

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Associate Professor, Dept of Clinical Medicine, TCD  
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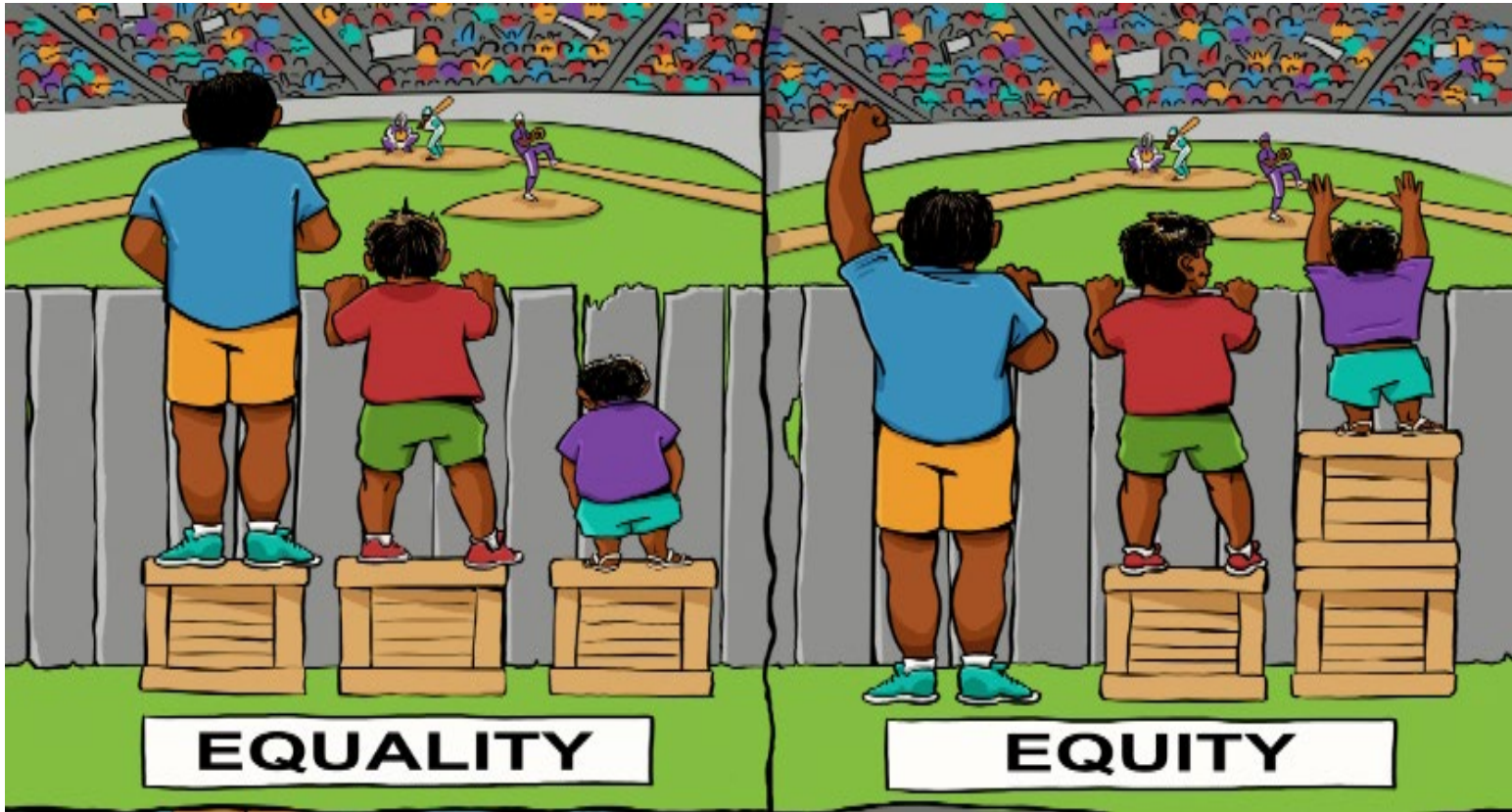
**ST. JAMES'S  
HOSPITAL**  
DUBLIN . IRELAND





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# Social Determinants of Health



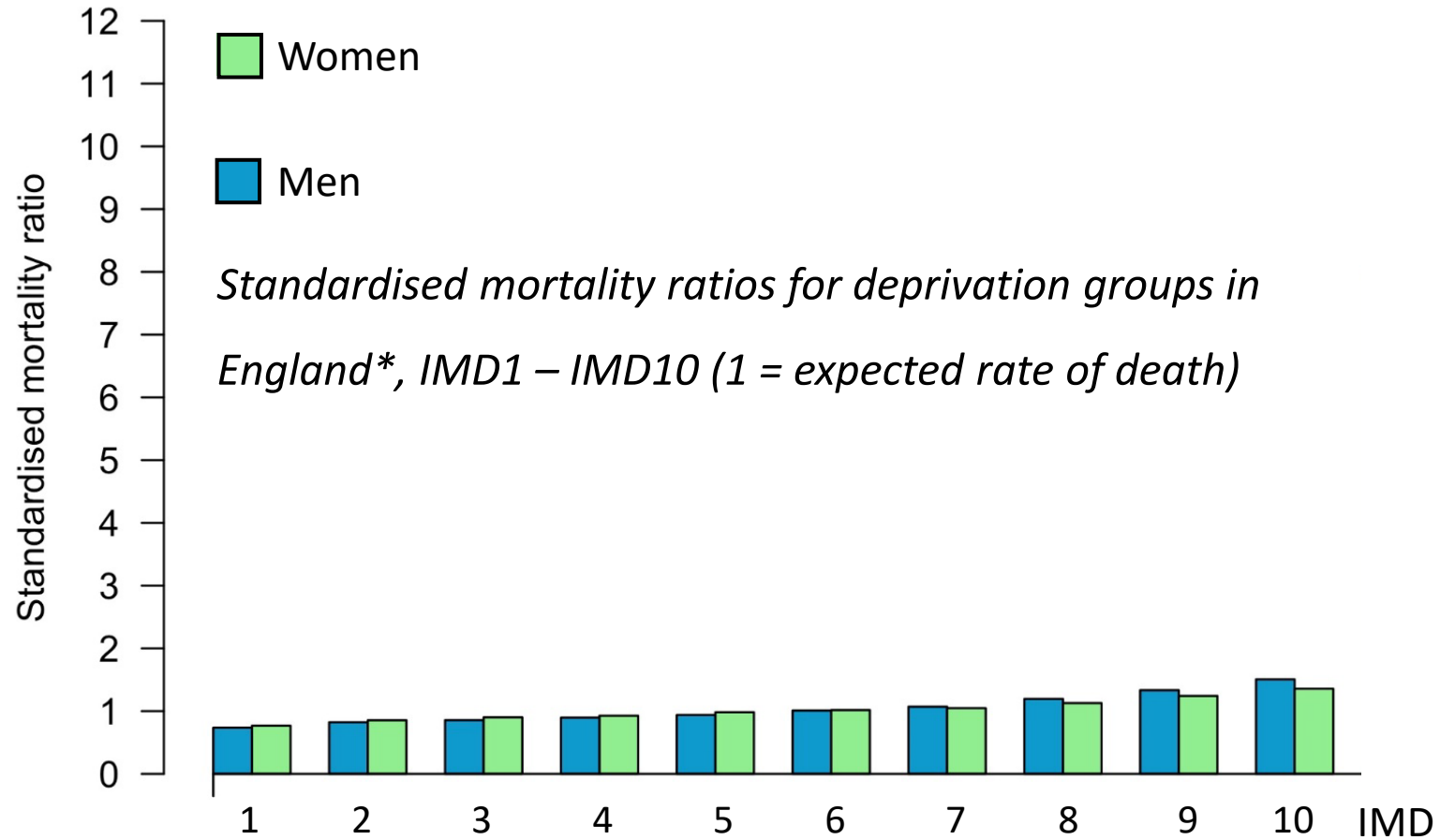
**EQUALITY**

**EQUITY**




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Key Concept: The Cliff Of Health Inequity



*\*Deaths by underlying cause, deprivation decile areas, 5 year age groups and sex, England and Wales, 1981 to 2015  
 Populations by deprivation decile areas, 5 year age groups and sex, England and Wales, 2001 to 2015*

A black and white photograph of a coastal cliffside. The cliff face is composed of layered rock formations. A red line is drawn across the lower part of the cliff, starting from the base on the left and extending upwards to the right, illustrating a slope measurement. The sky is overcast with clouds, and the ocean is visible in the background.

## Slope Index of Inequality (SII)

# Morbidity and mortality in homeless individuals, prisoners, sex workers, and individuals with substance use disorders in high-income countries: a systematic review and meta-analysis

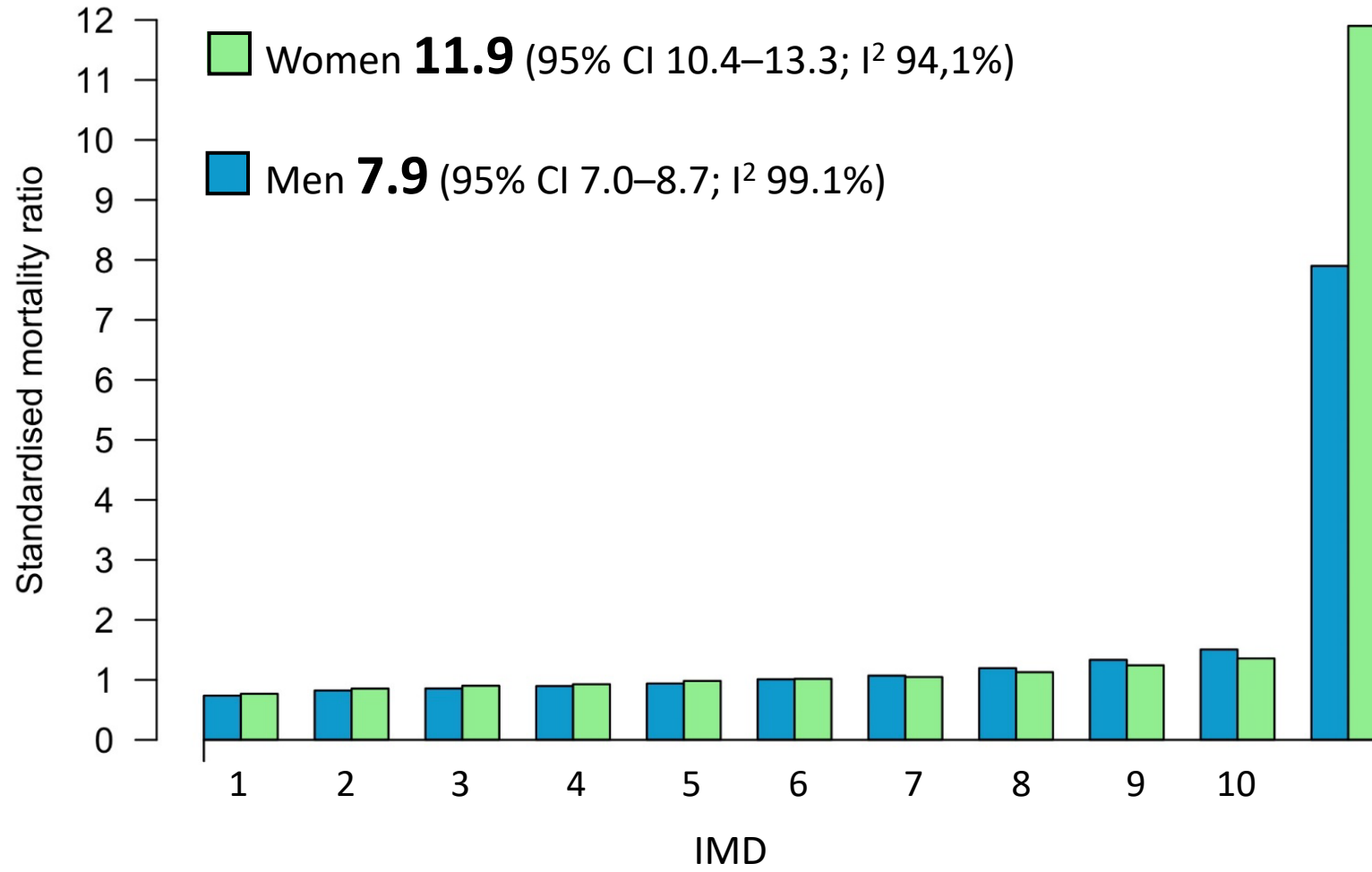
Robert W Aldridge, Alistair Story, Stephen W Hwang, Merete Nordentoft, Serena A Luchenski, Greg Hartwell, Emily J Tweed, Dan Lewer, Srinivasa Vittal Katikireddi, Andrew C Hayward

## Summary

**Background** Inclusion health focuses on people in extremely poor health due to poverty, marginalisation, and multimorbidity. We aimed to review morbidity and mortality data on four overlapping populations who experience considerable social exclusion: homeless populations, individuals with substance use disorders, sex workers, and imprisoned individuals.



Published Online  
November 11, 2017  
[http://dx.doi.org/10.1016/S0140-6736\(17\)31869-X](http://dx.doi.org/10.1016/S0140-6736(17)31869-X)  
See Online/Comment





Cliff edge of inequality





GUIDE Clinic

D.F.B.  
The Book Point  
150

←

3W41  
59



# Socially excluded PLWHIV have lower CD4 counts/worse outcomes

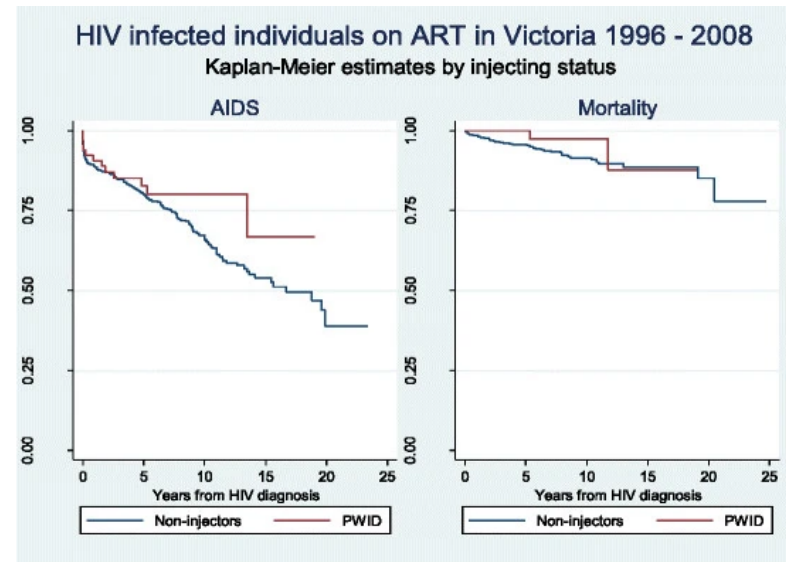
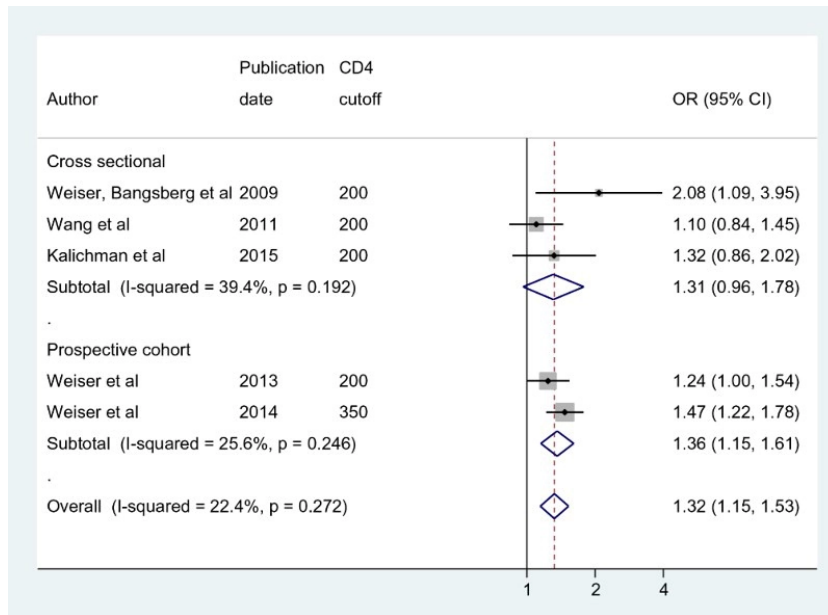
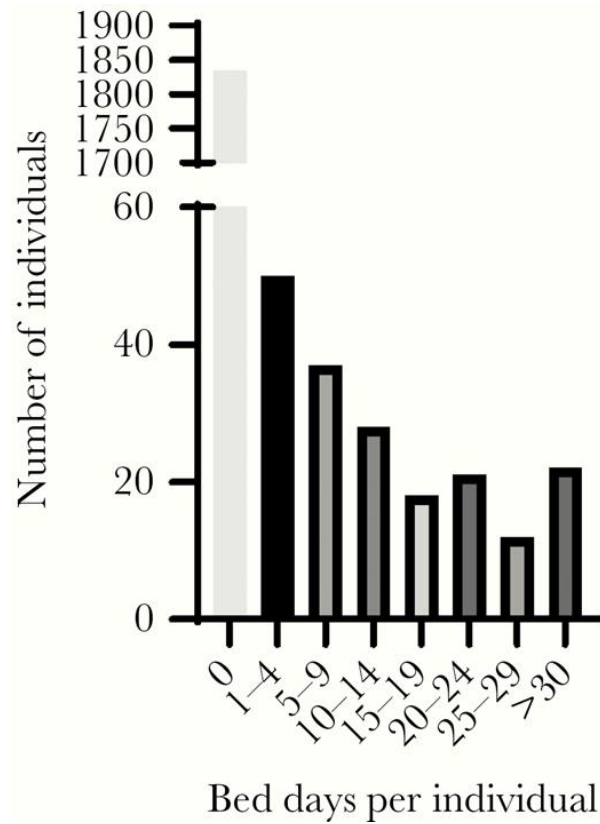


Table 2 of 2  
Table 2. Multivariate logistic regression models for factors affecting CD4 counts among PLWH in Guangxi, N = 1198.

Items	CD4 counts (cells/mm <sup>3</sup> ) N (%)		cOR (95% CI)	aOR (95% CI)
	≤500	>500		
N * (%)	459 (55.0)	339 (45.0)		
<b>Socioeconomic status</b>				
Low SES	469 (59.7)	329 (44.3)	1	1
High SES	178 (49.5)	189 (51.2)	1.53 (1.18, 1.94)**	1.44 (1.08, 1.91)**
<b>Socio-demographics</b>				

Food insecurity and low CD4 count among HIV-infected people: a systematic review and meta-analysis [Aibibula et al](#)

HIV treatment outcomes among people who inject drugs in Victoria, Australia, Walsh et al



## High-Cost, High-Need Users of Acute Unscheduled HIV Care: A Cross-Sectional Study

Conor Grant, Colm Bergin, Sarah O'Connell, John Cotter, Clíona Ní Cheallaigh 

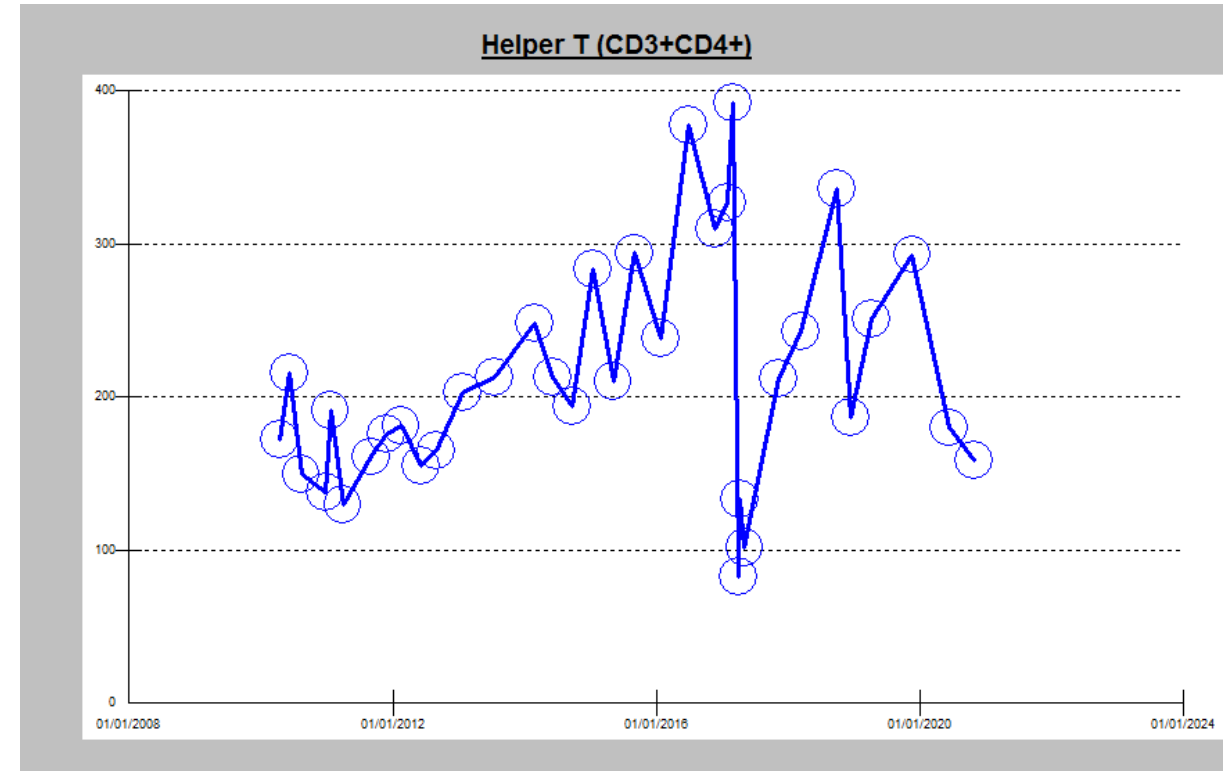
*Open Forum Infectious Diseases*, Volume 7, Issue 2, February 2020, ofaa037,

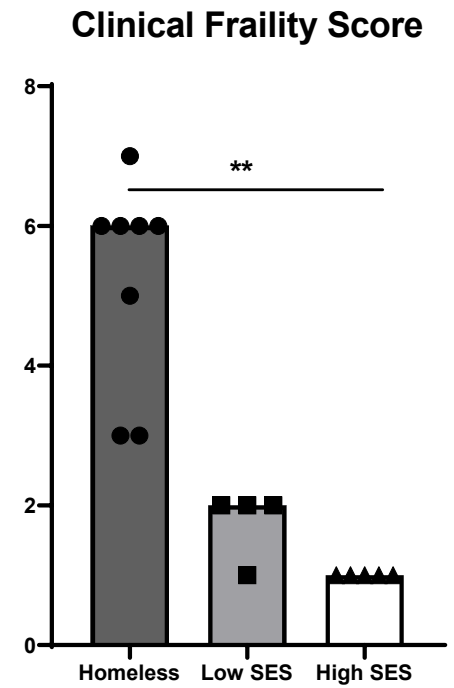
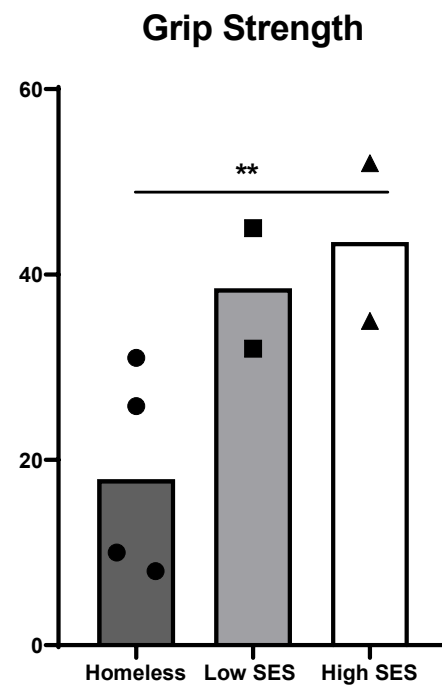
<https://doi.org/10.1093/ofid/ofaa037>

**Published:** 31 January 2020 **Article history** ▼

# Case: Lisa

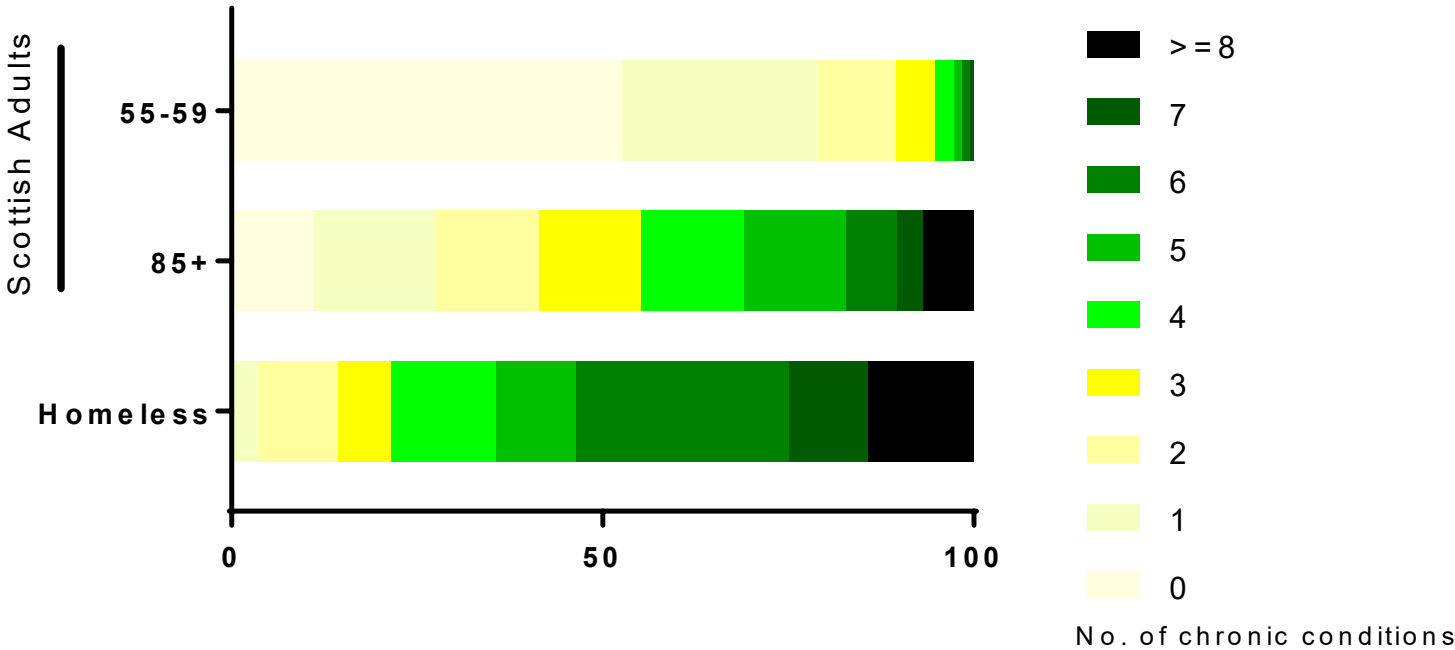
- Stage 1 COPD
  - Cognitive impairment – MOCA 22/30
  - Mobilises with rollator
  - Grip strength reduced
  - Edentulous
  - Urinary incontinence
  - Recurrent falls
- 
- Age: 46





Conor Reddy, unpublished

### Proportion of population by number of morbidities

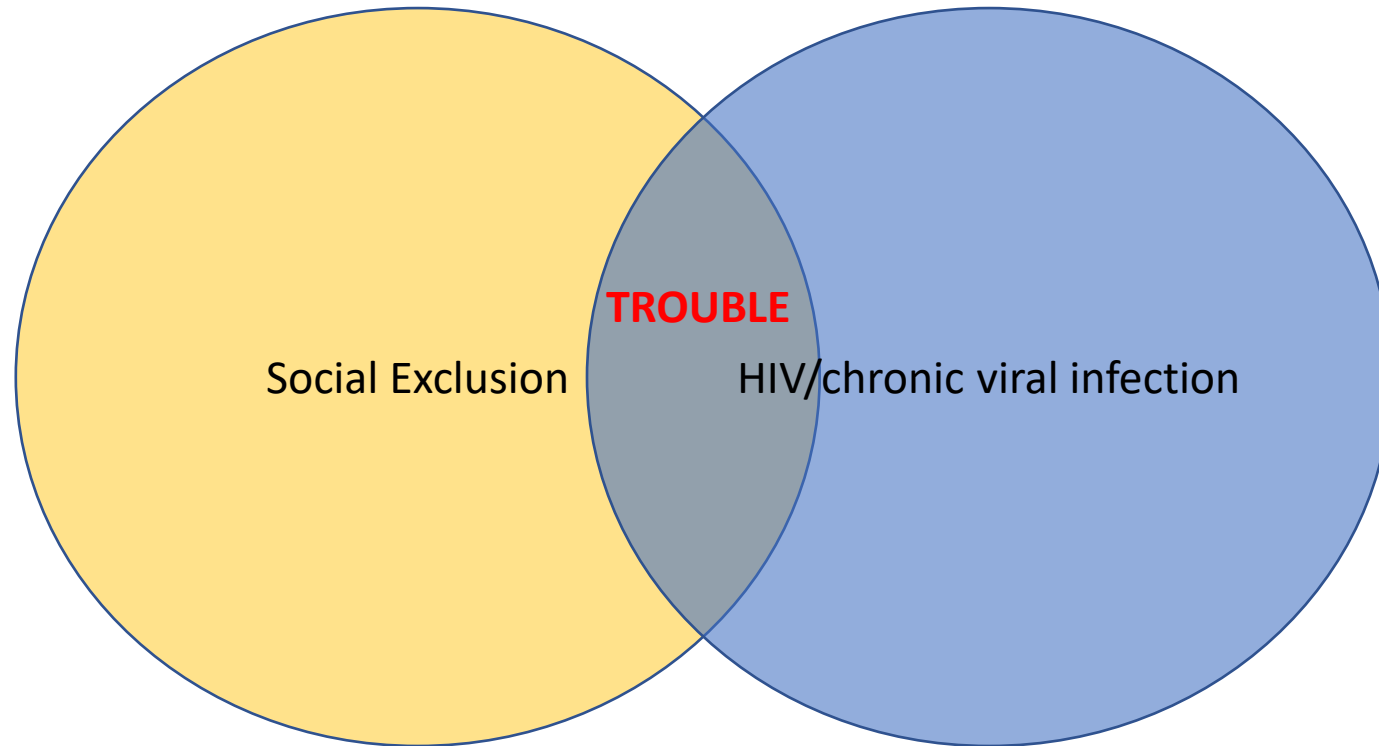






Cliff edge of Illness,  
Accelerated Ageing

# Hypothesis





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# Potential Mechanisms

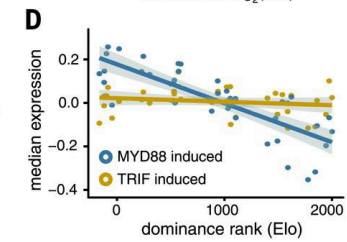
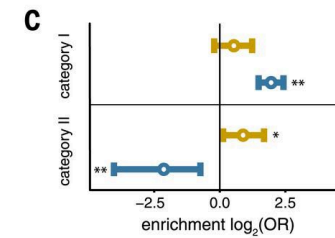
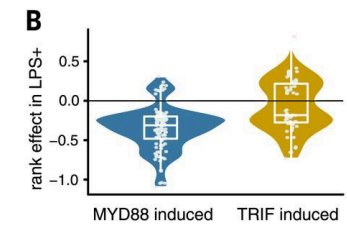
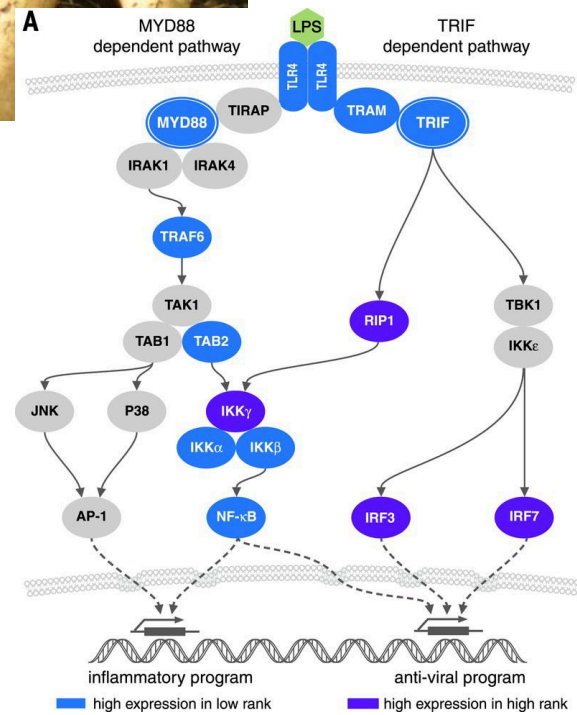


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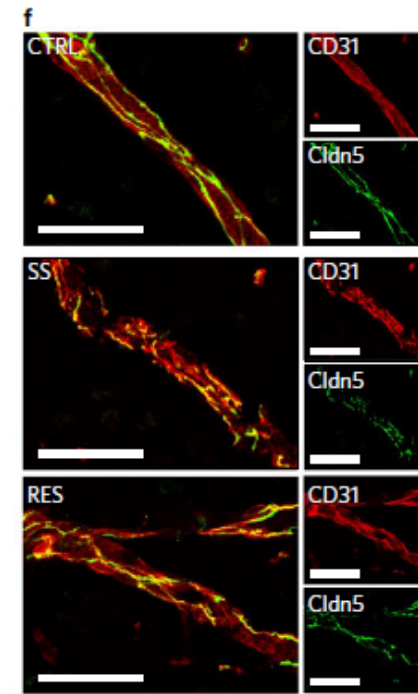
# Social Immunobiology







Snyder-Mackler, Science, 2016



nature  
neuroscience

## ARTICLES

<https://doi.org/10.1038/s41593-017-0010-3>

# Social stress induces neurovascular pathology promoting depression

Caroline Menard<sup>1,8</sup>, Madeline L. Pfau<sup>1</sup>, Georgia E. Hodes<sup>1</sup>, Veronika Kana<sup>2</sup>, Victoria X. Wang<sup>3</sup>, Sylvain Bouchard<sup>1</sup>, Aki Takahashi<sup>1,4</sup>, Meghan E. Flanigan<sup>1</sup>, Hossein Aleyasin<sup>1</sup>, Katherine B. LeClair<sup>1</sup>, William G. Janssen<sup>1</sup>, Benoit Labonté<sup>1</sup>, Eric M. Parise<sup>1</sup>, Zachary S. Lorsch<sup>1</sup>, Sam A. Golden<sup>1</sup>, Mitra Heshmati<sup>1</sup>, Carol Tamminga<sup>5</sup>, Gustavo Turecki<sup>6</sup>, Matthew Campbell<sup>7</sup>, Zahi A. Fayad<sup>3</sup>, Cheuk Ying Tang<sup>3</sup>, Miriam Merad<sup>2</sup> and Scott J. Russo<sup>1\*</sup>

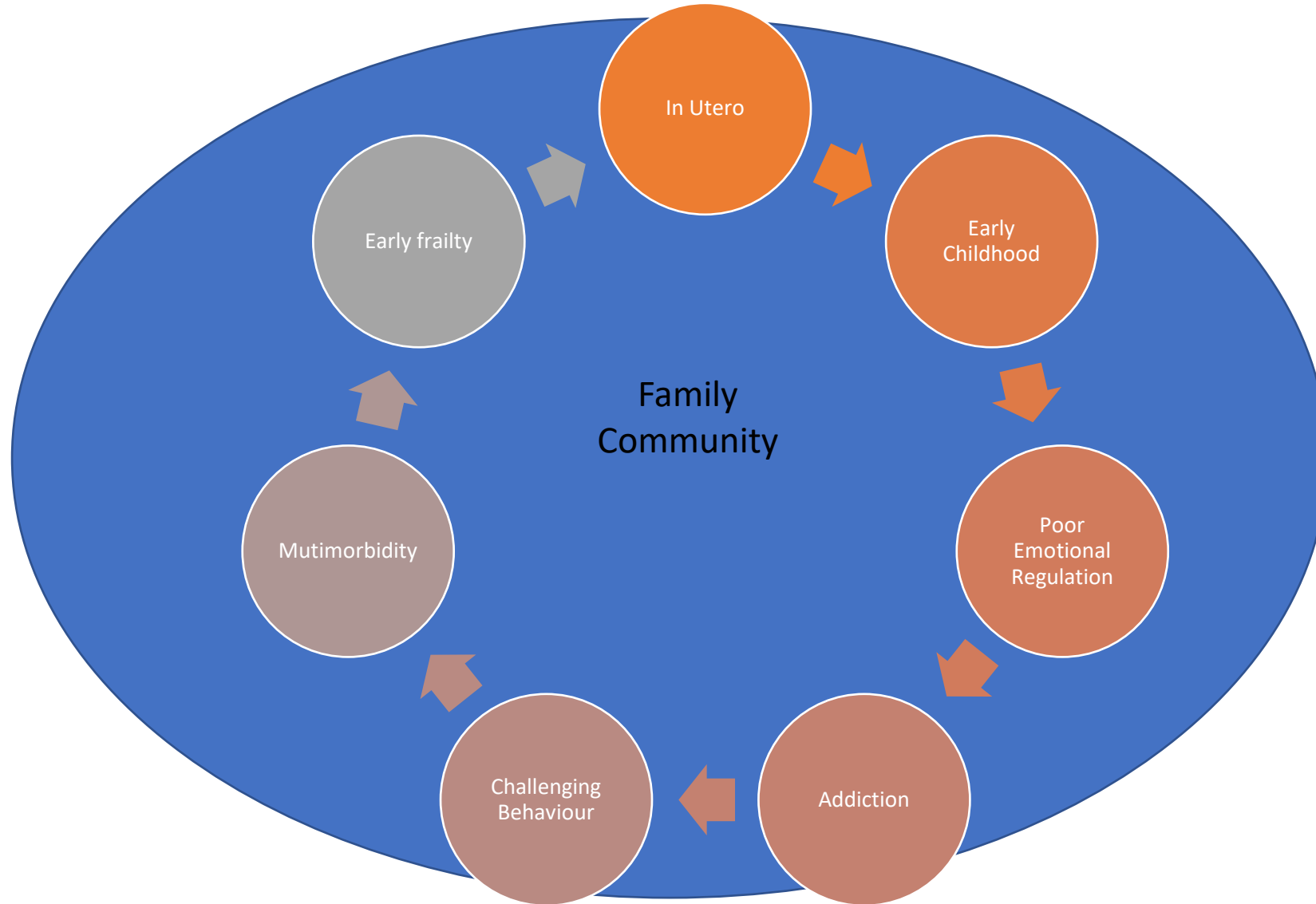




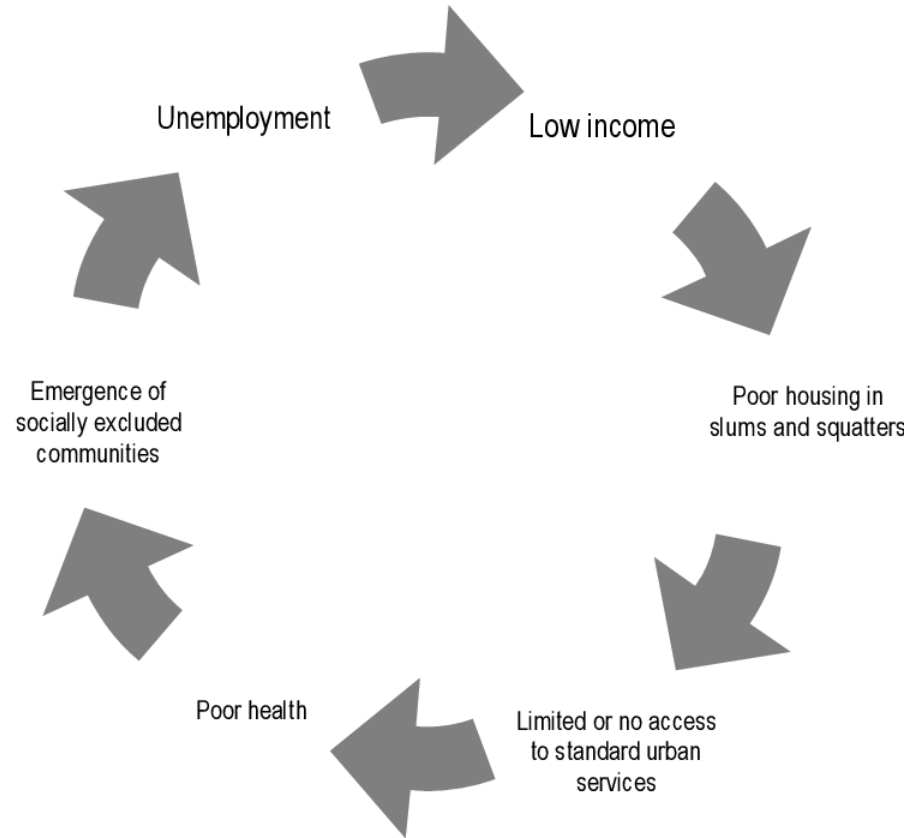
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Adversity, psychosocial stress, SES

# Adversity across the life cycle



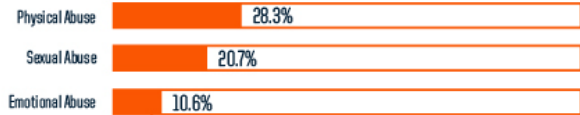
# Adversity in the community



## HOW PREVALENT ARE ACEs?

The ACE study\* revealed the following estimates:

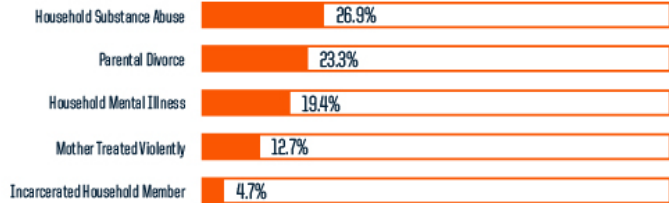
### ABUSE



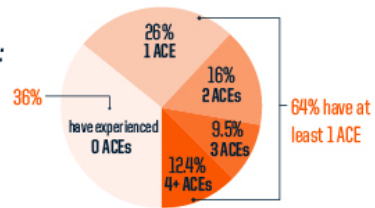
### NEGLECT



### HOUSEHOLD DYSFUNCTION



Of 17,000 ACE study participants:

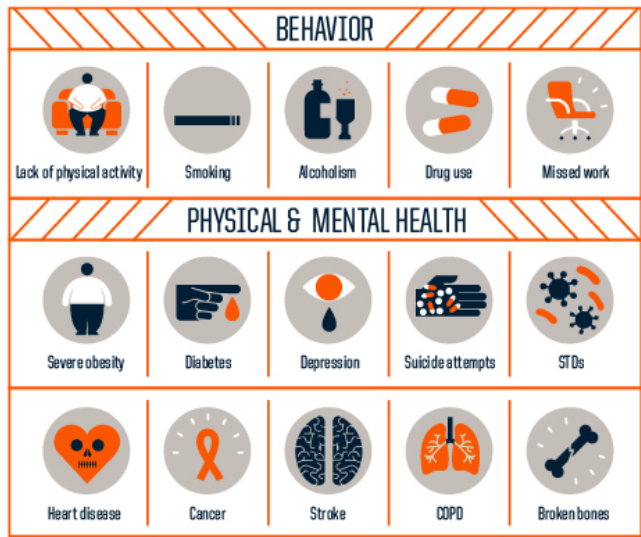


## WHAT IMPACT DO ACEs HAVE?

As the number of ACEs increases, so does the risk for negative health outcomes



Possible Risk Outcomes:



Cliff edge of ACEs

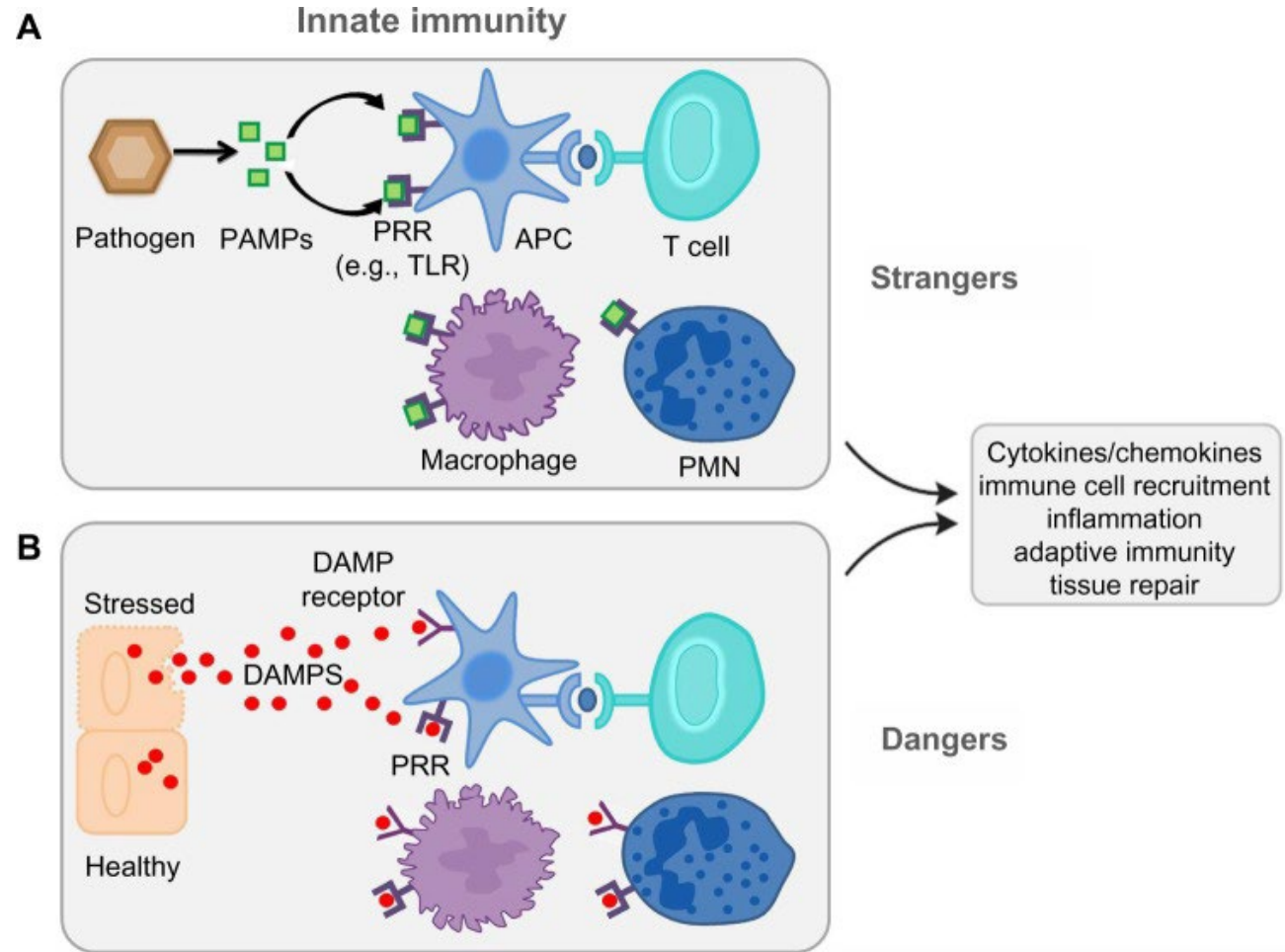


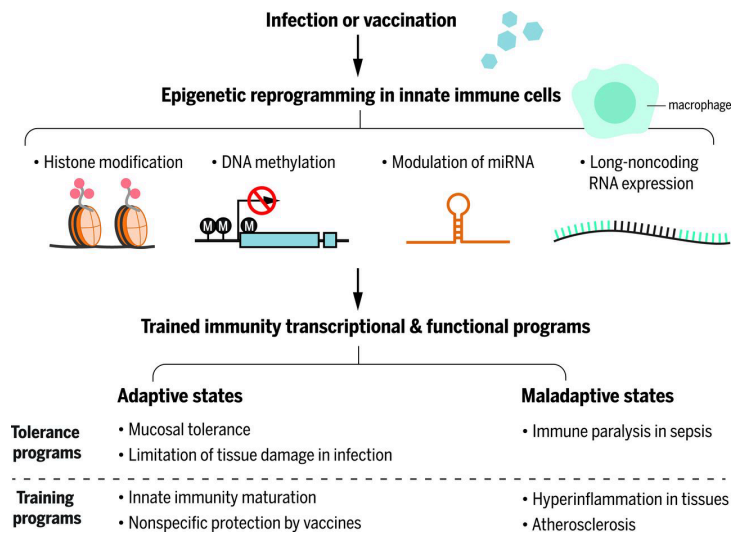


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# Social Immune Training

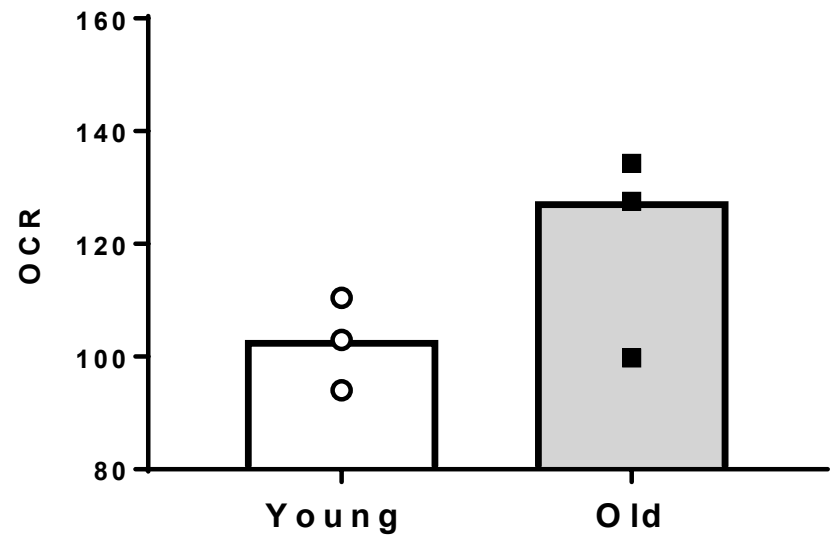
# Inflammation





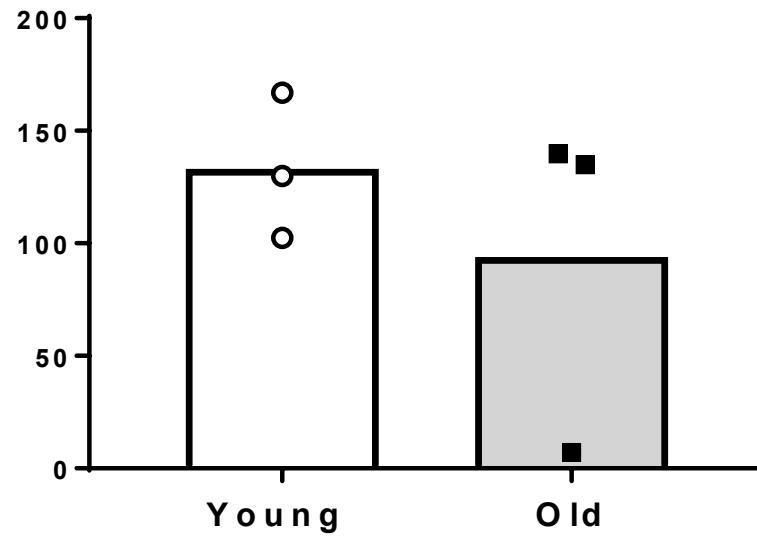


**Basal Oxygen Consumption**



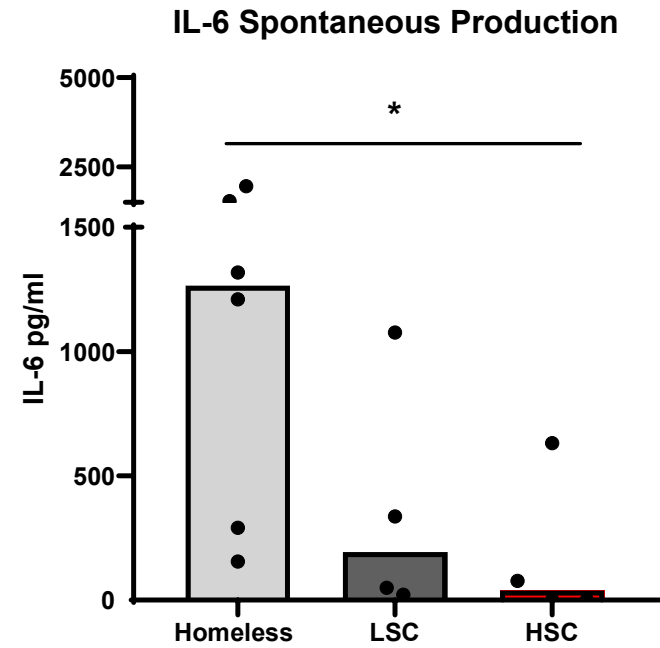
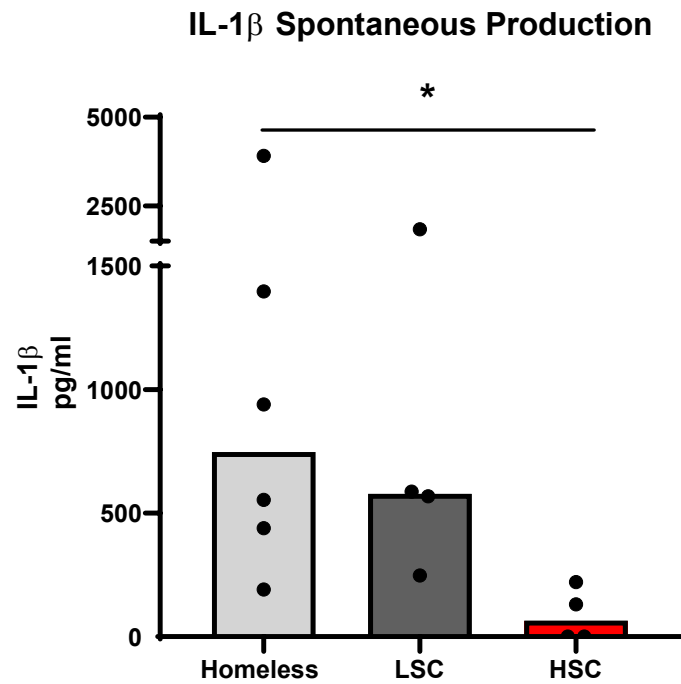
Baseline OCR in young MDMs is 24.3% lower than in old MDMs

**Basal Spare Respiratory Capacity**

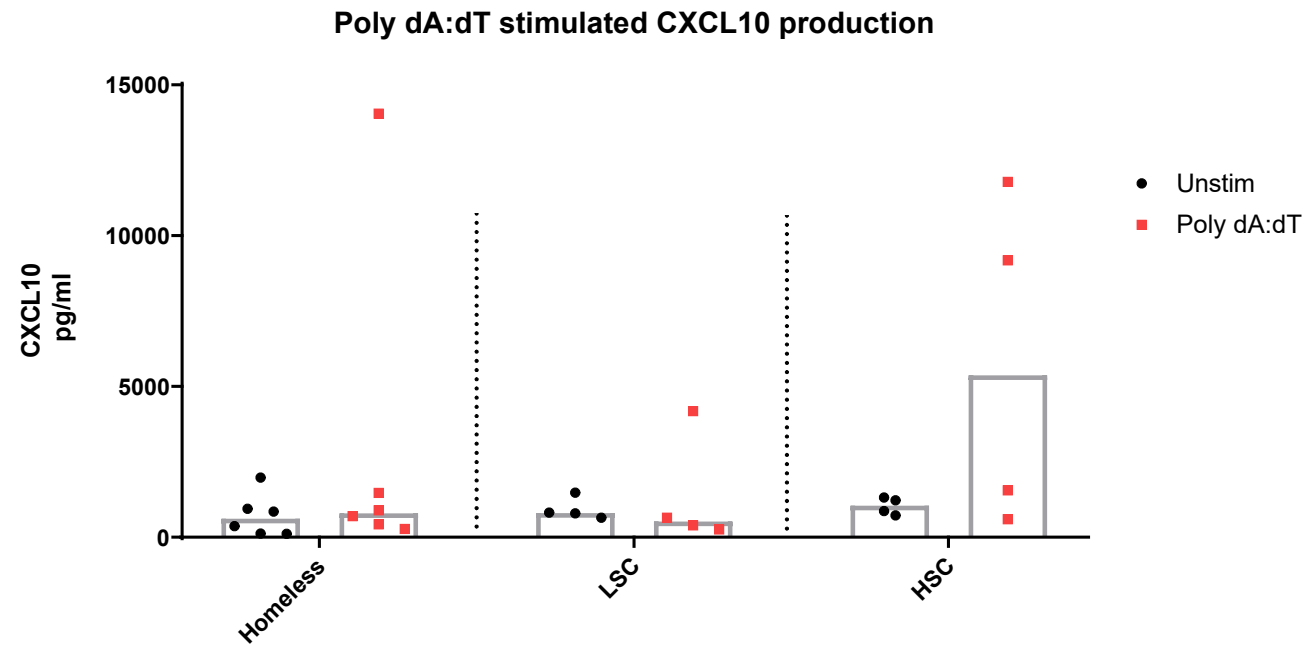


Baseline spare respiratory capacity in young MDMs is 30% higher than old MDMs

# Increase in basal IL-1B and IL-6



# Impaired CXCL-10 responses to PolydA:dT



# Important Notice for Women Over 30

Final Campaign for the Anti-D/Hepatitis C  
National Screening Programme

Please answer these three simple Yes/No questions carefully.

1. Did you have a miscarriage or a baby in Ireland between
  - 1st May 1977 and 31st July 1979 or
  - 1st March 1991 and 18th February 1994?
2. Are you Rhesus negative?
3. Did you receive Anti-D to prevent 'blue baby syndrome' during either of these periods?

If your answers are **'Yes'**, and you **have not** already tested for Hepatitis C, then you need to contact the Irish Blood Transfusion Service (IBTS) to arrange for a **Hepatitis C** blood test with your local GP.

Certain batches of Anti-D that were issued during the above periods were unsafe and caused Hepatitis C infection in some women. As records are not complete, we do not have a full list of everyone who received contaminated Anti-D.

Most women who received Anti-D have already been tested. We are now in the final stages of tracing any remaining women who received Anti-D during these periods and who have not already been tested for Hepatitis C.

We are aware that some women affected by this may be living abroad and we are anxious to make contact with them. If you or someone you know fits this category (for example your sister, mother or friend) please ask them to contact us.

The IBTS will treat all contact in complete confidence and will pay for your GP appointment.



## HOW TO CONTACT US

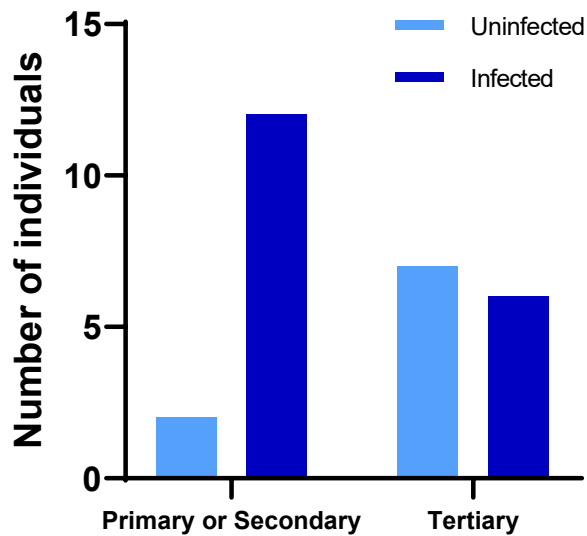
**Freephone Helpline 1800 222 111**

If calling from outside Ireland: Please phone: +353 1 432 2872

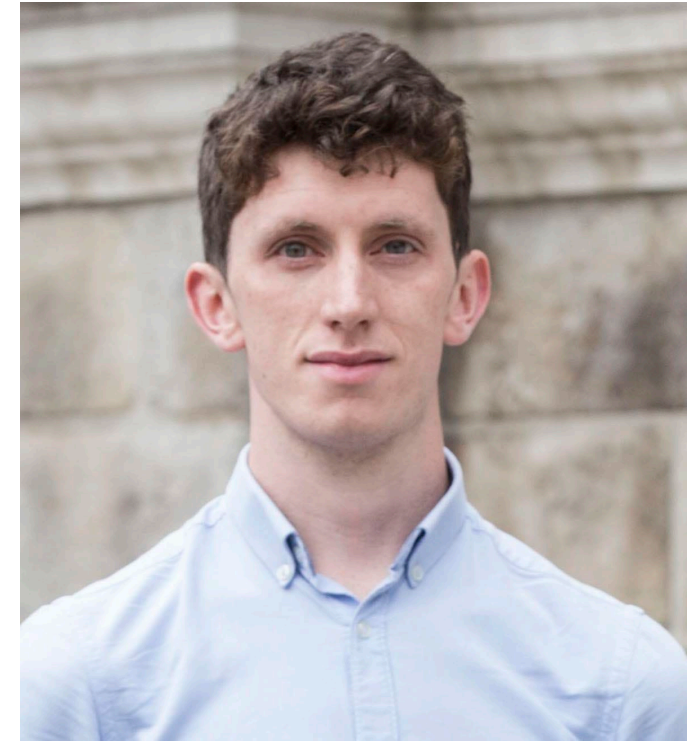
Further information is available on our website

[www.giveblood.ie/Clinical](http://www.giveblood.ie/Clinical)

## Anti-D exposed women

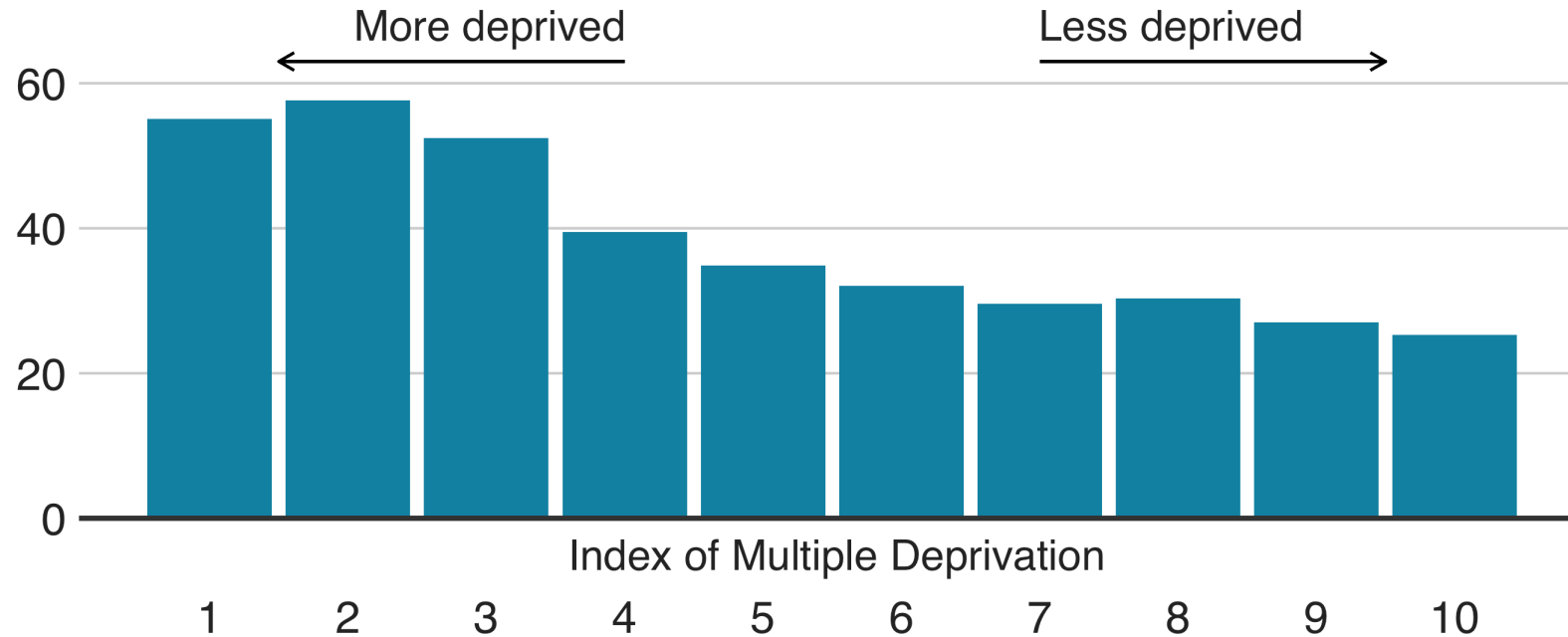


Chi-square,  $p=0.07$



# Coronavirus deaths higher in England's poorest communities

Deaths per 100,000 people



COVID mortality March-June 2020: x2.26 (England ONS)

The Index of Multiple Deprivation ranks English areas from most deprived (1) to least deprived (10)

Source: ONS

# Coronavirus 'disproportionately impacting' Ireland's Roma community

Death of Roma man last week 'created a lot of distress' among community

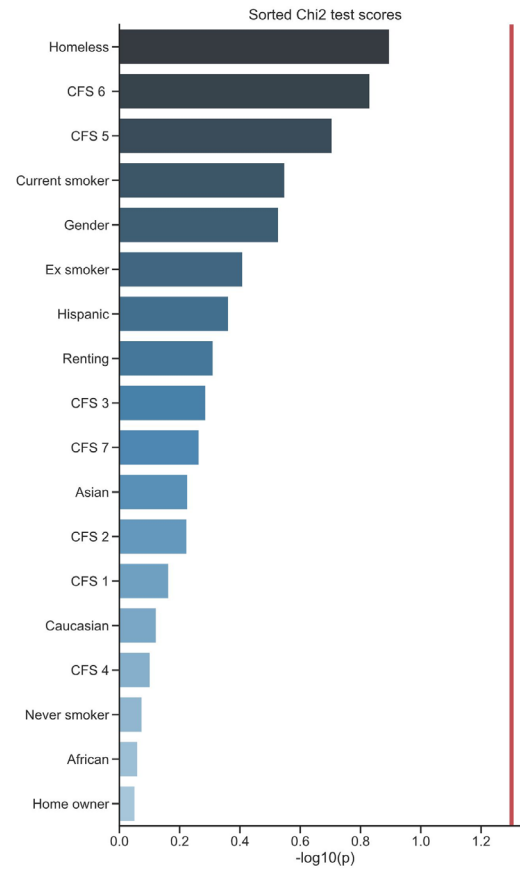
© Mon, Apr 6, 2020, 12:43 | Updated: Mon, Apr 6, 2020, 12:44

Sorcha Pollak



File photograph showing people gathered to mark International Roma and Traveller Day. File photograph: Alan Betson/The Irish Times





Supplemental Figure 3



# Addiction and inflammation: bidirectional?

> [Curr HIV Res.](#) 2005 Jul;3(3):277-88. doi: 10.2174/1570162054368048.

## Morphine exacerbates HIV-1 viral protein gp120 induced modulation of chemokine gene expression in U373 astrocytoma cells

Supriya D Mahajan<sup>1</sup>, Ravikumar Aalinkeel, Jessica L Reynolds, Bindukumar B Nair, Stanley F Fernandez, Stanley A Schwartz, Madhavan P N Nair

Affiliations + expand

PMID: 16022659 DOI: 10.2174/1570162054368048

[Autophagy](#). 2013 Sep;9(9):1395-406. doi: 10.4161/auto.25468. Epub 2013 Jun 20.

**Decreased mitochondrial DNA copy number in the hippocampus and peripheral blood during opiate addiction is mediated by autophagy and can be salvaged by melatonin.**

Feng YM<sup>1</sup>, Jia YF, Su LY, Wang D, Lv L, Xu L, Yao YG.

Review Article

## Maternal Overnutrition Programs Central Inflammation and Addiction-Like Behavior in Offspring

Larisa Montalvo-Martínez,<sup>1</sup> Roger Maldonado-Ruiz,<sup>1</sup> Marcela Cárdenas-Tueme,<sup>2</sup> Diana Reséndez-Pérez,<sup>2</sup> and Alberto Camacho <sup>1,3</sup>





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# Breaking the Cycle

# Adversity across the life cycle

