# Recerca disruptiva en salut i canvi climàtic: cap a un enfocament integrat de la ciència amb la política sanitària

## Café de la Innovació Xiscat
## Quan curar també contamina. Sostenibilitat als centres sanitaris

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Gobierno de España · Ministerio de Sanidad
Generalitat de Catalunya
Universitat de Barcelona
Càtedra Salut i Canvi Climàtic
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## First Climate Action Plan

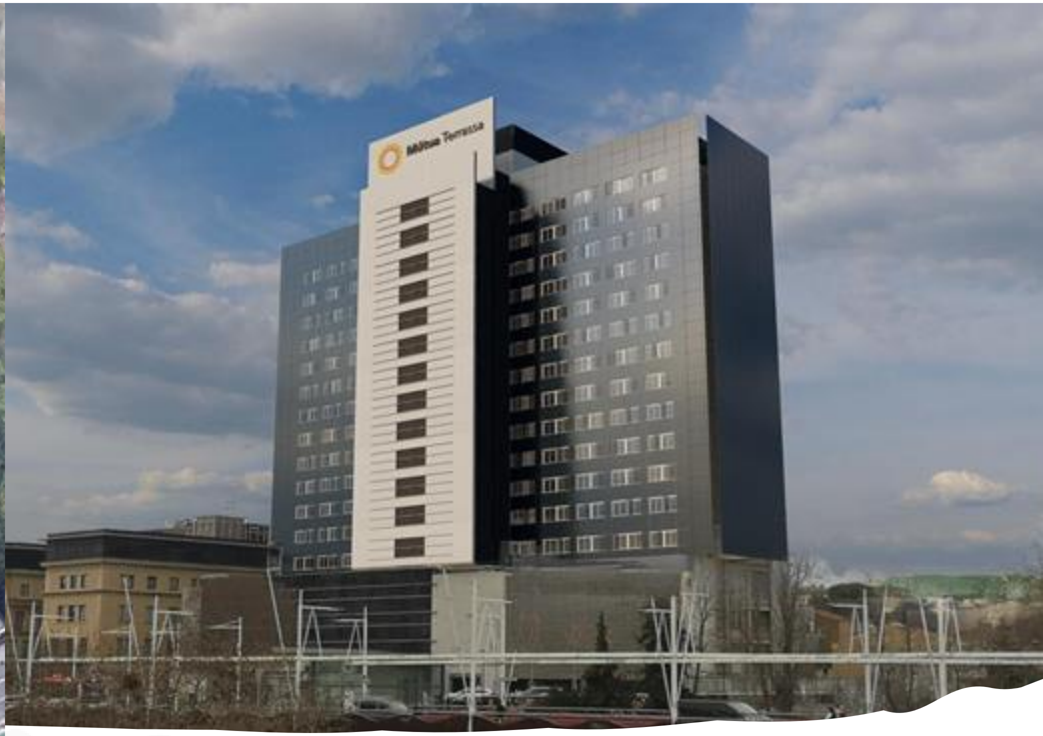
**MITIGATON STRATEGIES**

1. Energetic transition
2. Circular Economy
3. Sustainble mobility

**ADAPTATION STRATEGIES**

4. Research in health and climate change

# *Specific Actions*



## Energetic transition

Energetic efficiency and photovoltaic façade

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# *Specific Actions*

MútuaTerrassa reduced more than

**330.000 kg**

of $CO_2$ eq. emissions

Reducing our carbon footprint generated by waste generation

# *Specific Actions*

AXIOMA

Solucions Integrals
i Serveis de Suport Sanitari

**Bata reutilitzable**

**1**
bata
reutilitzable
estèril

**75 bates** d'un sol ús

**Pijama reutilitzable**

**1**
pijama
quirúrgic
reutilitzable

**300 pijames** d'un sol ús

**Cobertura reutilitzable**

**1**
llençol
reutilitzable
estèril

**75 llençols** d'un sol ús

# Climate Change and Vulnerable Populations

**Climate-sensitive health risks are disproportionately felt by the most vulnerable and disadvantaged**, including women, children, ethnic minorities, poor communities, migrants or displaced persons, older populations, and those with underlying chronic health conditions.

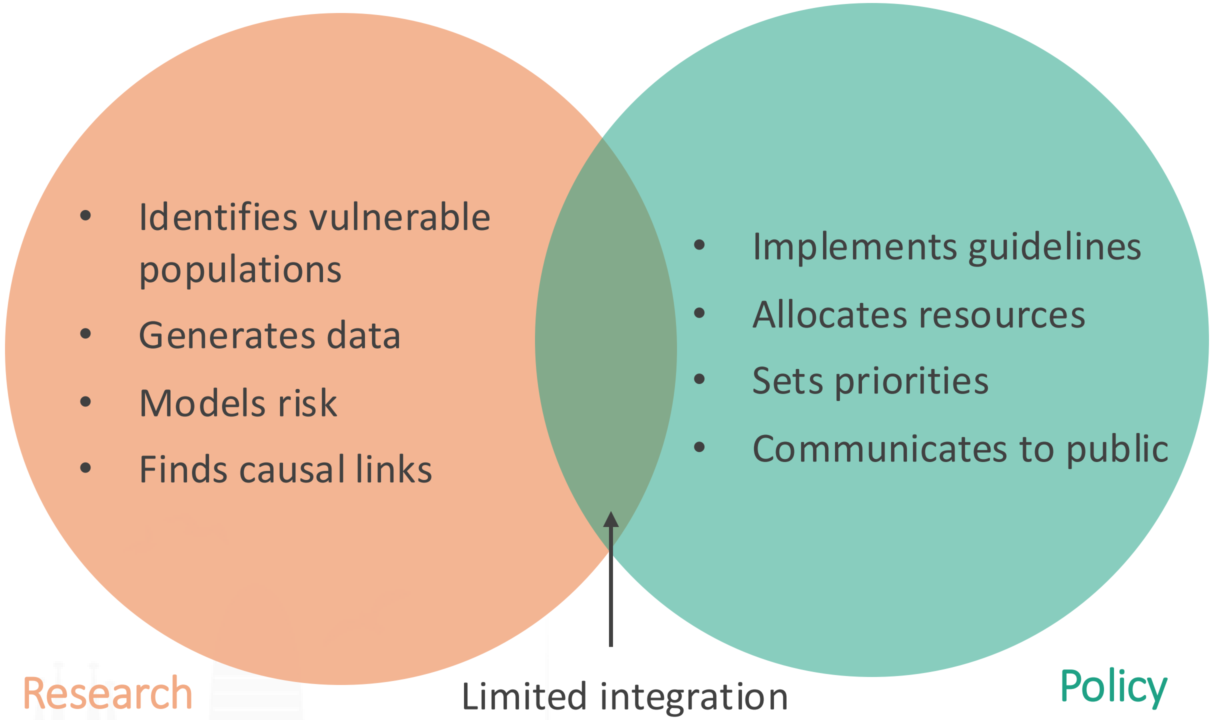
*"Climate change acts as a threat multiplier, especially for those already vulnerable."*

*WHO, 2023 ("Climate change and health: key facts")*

# The Policy–Science Gap

Research-Policy Misalignment in Climate & Health

Health policies often fail to incorporate real-time scientific evidence
or address frontline healthcare experiences.




*"Science is not finished until it is communicated."* – *Sir Mark Walport*

# The Bottom-Up Perspective

*"Good policy is built on good evidence, especially from those closest to the problem"* – BMJ, 2022

# Examples of Disconnect

EXHAUSTION Project (H2020) – Evidence vs Policy Uptake:

- Robust modelling (*Masselot et al. Nature Medicine, 2024*): heat- and cold-related mortality risks in **854 European cities** under climate and demographic scenarios.

  *(Presentation on Friday October 10th: Adaptation: public health – risk assessment and prevention)*
- Highlights **high vulnerability** in certain urban populations *(e.g., elderly with chronic illnesses).*
- **Yet**, evidence **not systematically integrated** into national/local health adaptation strategies.
- **Missing: personalized early warning systems** and **targeted interventions** for at-risk groups.

Lancet Countdown Europe Report (2024):

- Reveals **poor integration of health** into national climate policies.
- Only a **minority of European countries** include **health impacts as a core element of climate plans.**

*"Climate policy is still too carbon-focused and too little person-focused…"*

Santé Publique France – Bilan Canicule 2022 **(https://www.santepubliquefrance.fr)**

IS Global – Urban Health Inequalities in Barcelona (https://www.isglobal.org)

# This disconnection is not a lack of evidence, but of integration...

# HEALTH AND CLIMATE CHANGE Chair UB/MT

To promote knowledge, research, training, teaching, and dissemination of the relation between Climate Change and Health, acting as a catalyst for positive change and contributing to the creation of a healthier and more sustainable world.

## Missions

- Contribute to the understanding of the complex relationships between environmental changes and public health.
- Empower people and communities with the knowledge and skills necessary to tackle the health challenges posed by climate change.

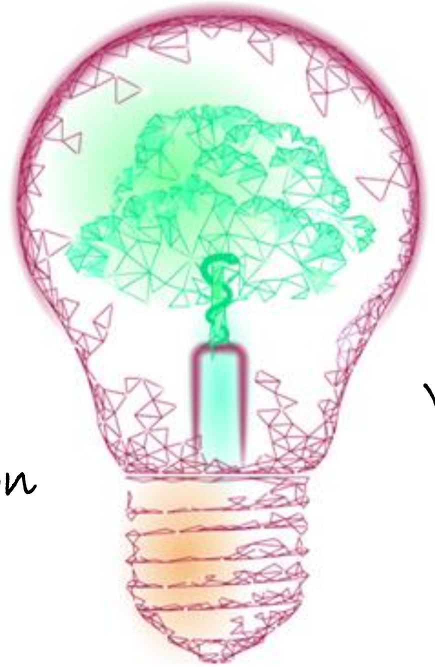
Singularity

One health

Holistic vision

Visibility

Service vocation



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# Consortium

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Mútua Terrassa

Fundació Docència i Recerca Mútua Terrassa

Universitat Politècnica de Catalunya BarcelonaTech

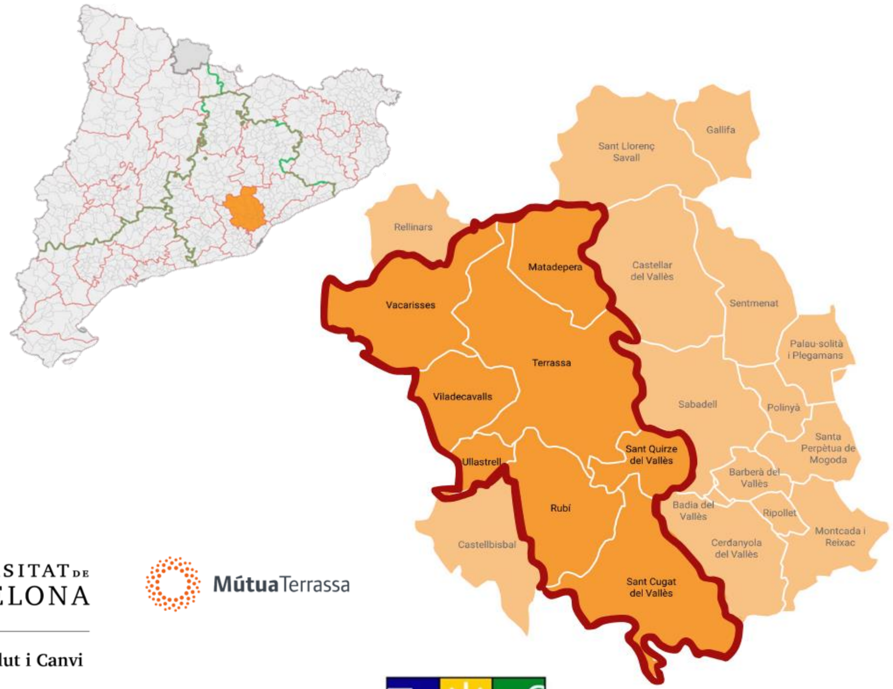
meteo.cat
Servei Meteorològic de Catalunya

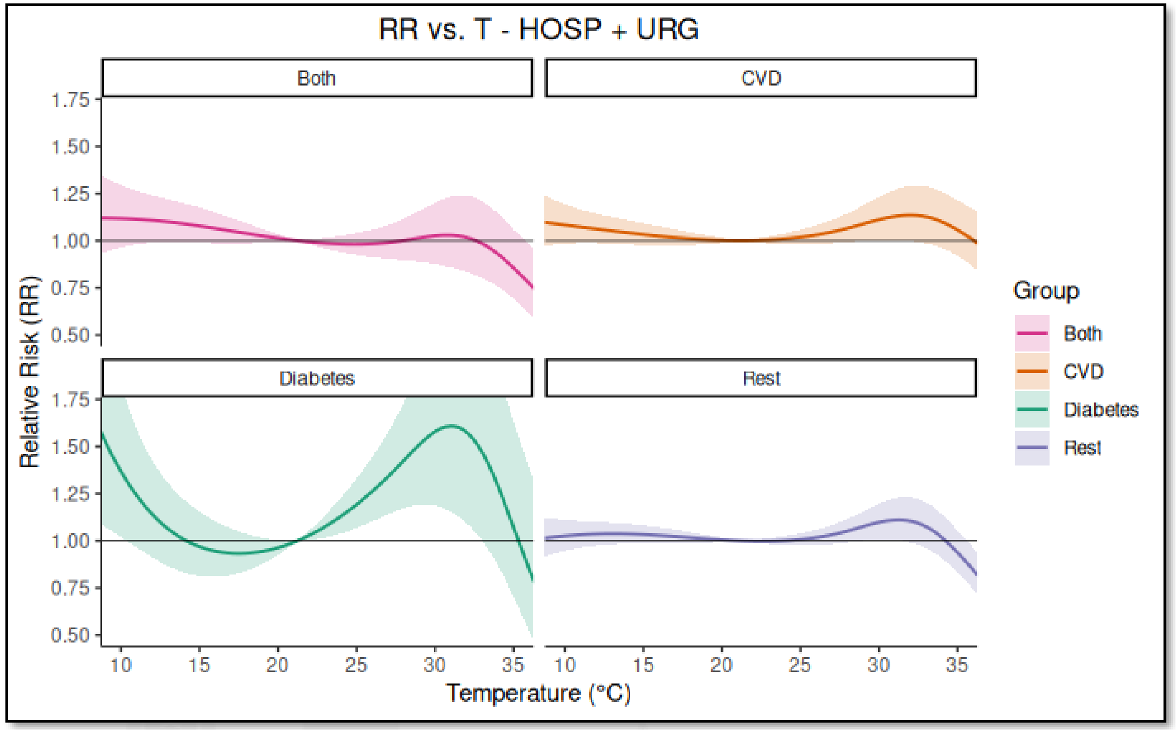
Universitat Rovira i Virgili

Generalitat de Catalunya
Departament de Territori i Sostenibilitat
**Direcció General de Qualitat Ambiental i Canvi Climàtic**

# Study from 2015 to 2022
# Population coverage: 227.807

# Does the effect of extreme temperature phenomena depend on people's comorbidities?

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*A. Perera (Presentation on Friday October 10th: Adaptation: Health system organization)*

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# cliMA Project: Seasonal and climate change effects on DNA methylation and their implications in the progression from amnestic Mild Cognitive Impairment (MCI) to Alzheimer's disease (AD)

## General Objective

To study the effects of **climate change on DNA methylation** and to assess its impact on the progression of **amnestic mild cognitive impairment (MCI)** in patients with a positive **Alzheimer's** biomarker profile to develop **adaptive strategies and climate comfort measures** for patients with MCI.

- Grants for Young and Emerging Research Projects 2024
- **PI**: Natàlia Cullell (Fundació Docència i Recerca MutuaTerrassa)
- **Budget:** €90K
- **Materials:**
    - CSF biomarkers
    - Neurocognitive tests (CDR, MMSE)
    - Epigenetics (EWAS)
    - Genomics (GWAS)
    - Temperature/humidity sensor
    - Outdoor temperature


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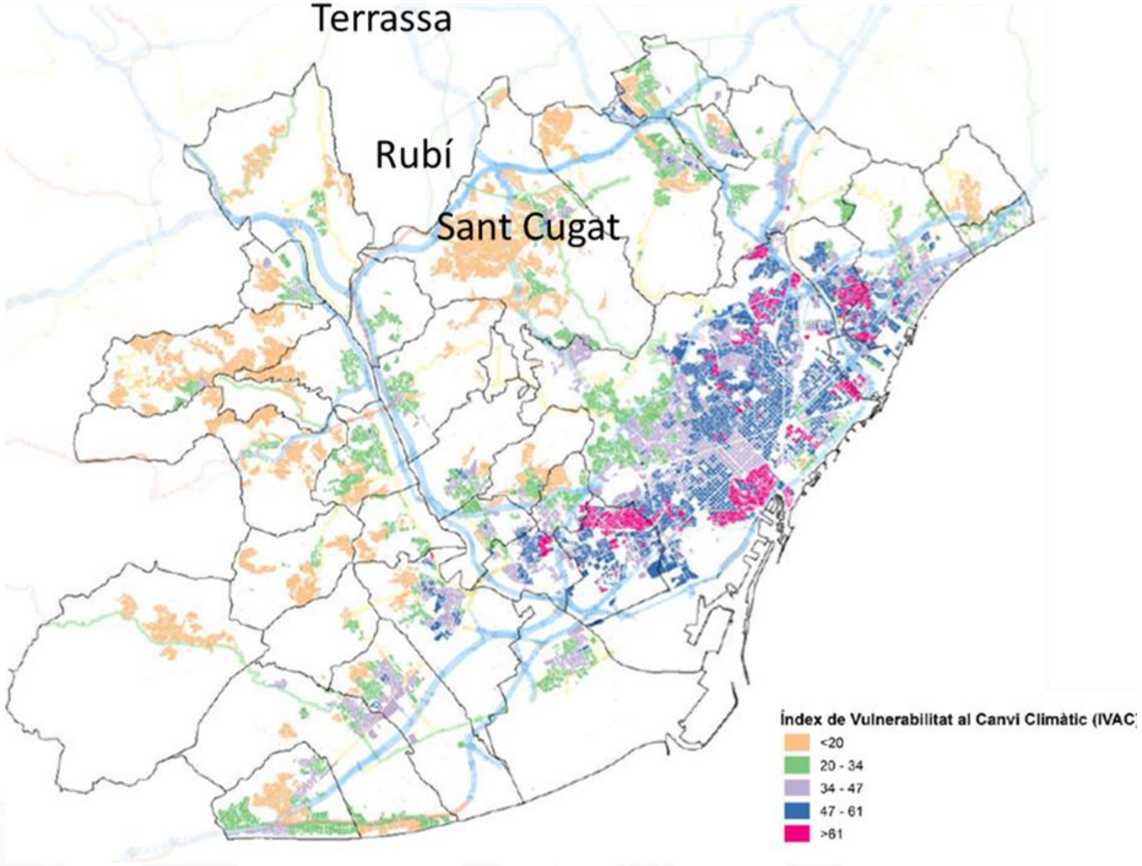
# Climate Comfort and Housing: Impact on the Health of Vulnerable Populations

- Complex chronic patients
  - Age > 75 years
  - Attended at primary health centers linked to Hospital Universitari MútuaTerrassa
  - Located in Rubí, Sant Cugat del Vallès, and Terrassa

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*M. Bosch & R. Abellana. (Presentation on Friday October 10th: Adaptation: public health – risk assessment and prevention)*

# Potential impact of ambient temperature on metabolic trajectories following bariatric surgery

- Warmer conditions at the time of surgery were linked to enhanced early postoperative weight loss.

- Colder anomalies in the subsequent months appeared to favor continued weight reduction during the stabilization phase.

Multivariable logitic regression predicting EPP12m > 75%

| Variable | OR | 95% CI | P-value |
|---|---|---|---|
| Age | 0.96 | 0.94 – 0.99 | 0.004 |
| Sex | 0.75 | 0.46 – 1.22 | 0.254 |
| Baseline BMI | 0.88 | 0.84 – 0.92 | <0.001 |
| Diabetes | 0.76 | 0.62 – 0.94 | 0.010 |
| Warm month (>24ºC) | 2.43 | 1.30 – 4.53 | 0.005 |

*Odds ratios adjusted for variables in the final model plus type of surgery, year of surgery, and mean, minimum, and maximum temperature during the first 30 days post-surgery.*

MJ.Barahona *et al.* Unpublished, in preparation


- **Integrate clinical research** in local climate adaptation plans
- **Fund targeted studies** on chronic disease vulnerability.
- Foster **transdisciplinary dialogue** between scientists and policymakers.
- **Bottom-up approaches** are needed: local professionals, communities, and patients must inform policy.
- **Integrated, evidence-based, and person-centered strategies** are key to climate-resilient healthcare systems.

*"Policy without science is gambling with lives."* – *Maria Neira, WHO*

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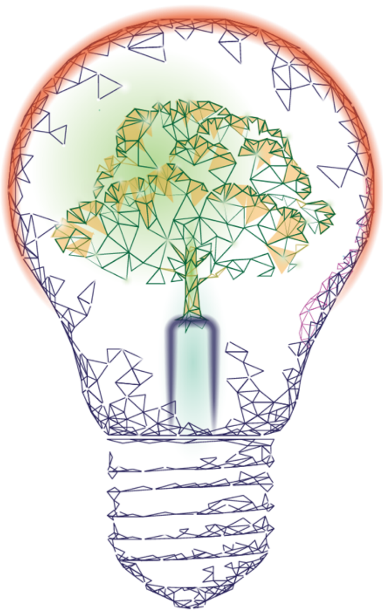

# Thank you

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