



HEART HEALTHY HOODS



Universidad
de Alcalá

PRBB Seminars May 23rd 2016

URBAN ENVIRONMENTS AND CARDIOVASCULAR PREVENTION: THE HEART HEALTHY HOODS PROJECT



Manuel Franco MD, PhD
for the HHH investigators



Opportunities in Urban Health Research



1. By 2050: 66% of the world population will live in cities
2. Challenge of aging and chronic diseases already in our cities
3. Social determinants as working conditions, unemployment and poverty are clearly patent in our cities
4. Segregation patterns and health inequalities are social phenomena measurable in our cities
5. Cities, municipalities, districts, offer great **(structural)**¹ opportunities to improve **population health**
6. New sources and types of health and urban data, along with novel methodologies and interdisciplinary teams offer great opportunities
- 7. Urban health research is directly linked to action**



Healthier cities, more equal cities



Segregacion y Esperanza de Vida en Baltimore

ANÁLISIS

Baltimore, ejemplo de la desigualdad

Baltimore retrata décadas de desigualdad en Estados Unidos

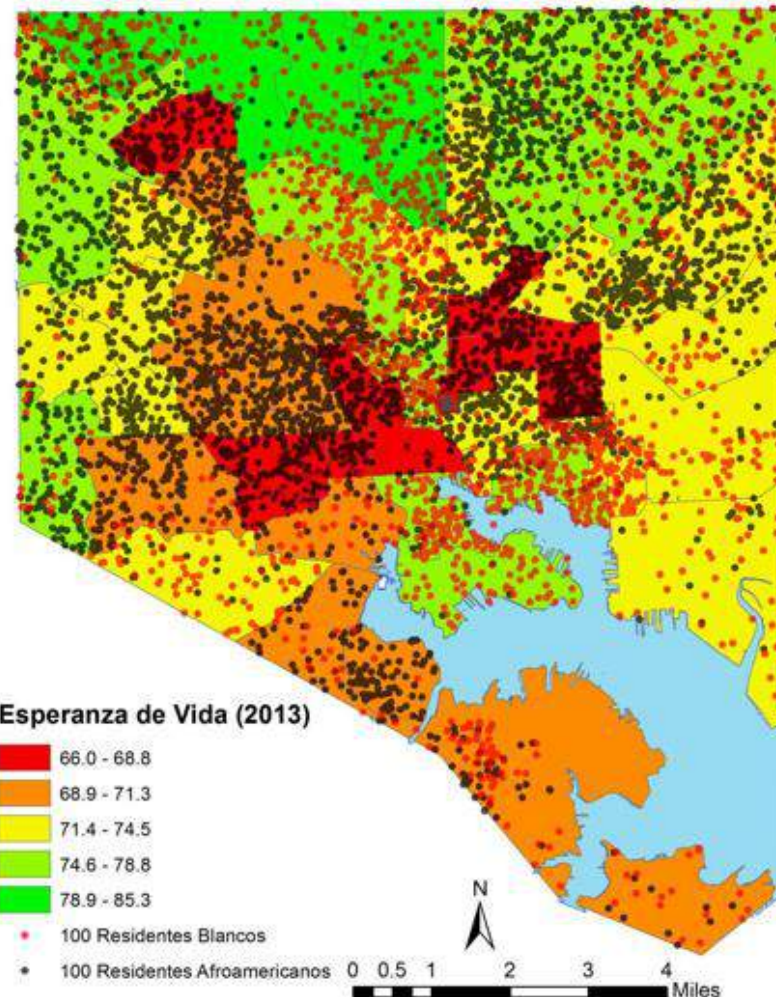
Tu barrio puede perjudicar seriamente la salud

MANUEL FRANCO, USAMA BILAL Y RICHARD COOPER | 4 MAY 2015 - 17:40 CEST

Life expectancy in high income neighborhood: 85 years

Life expectancy in low income neighborhood: 66 years

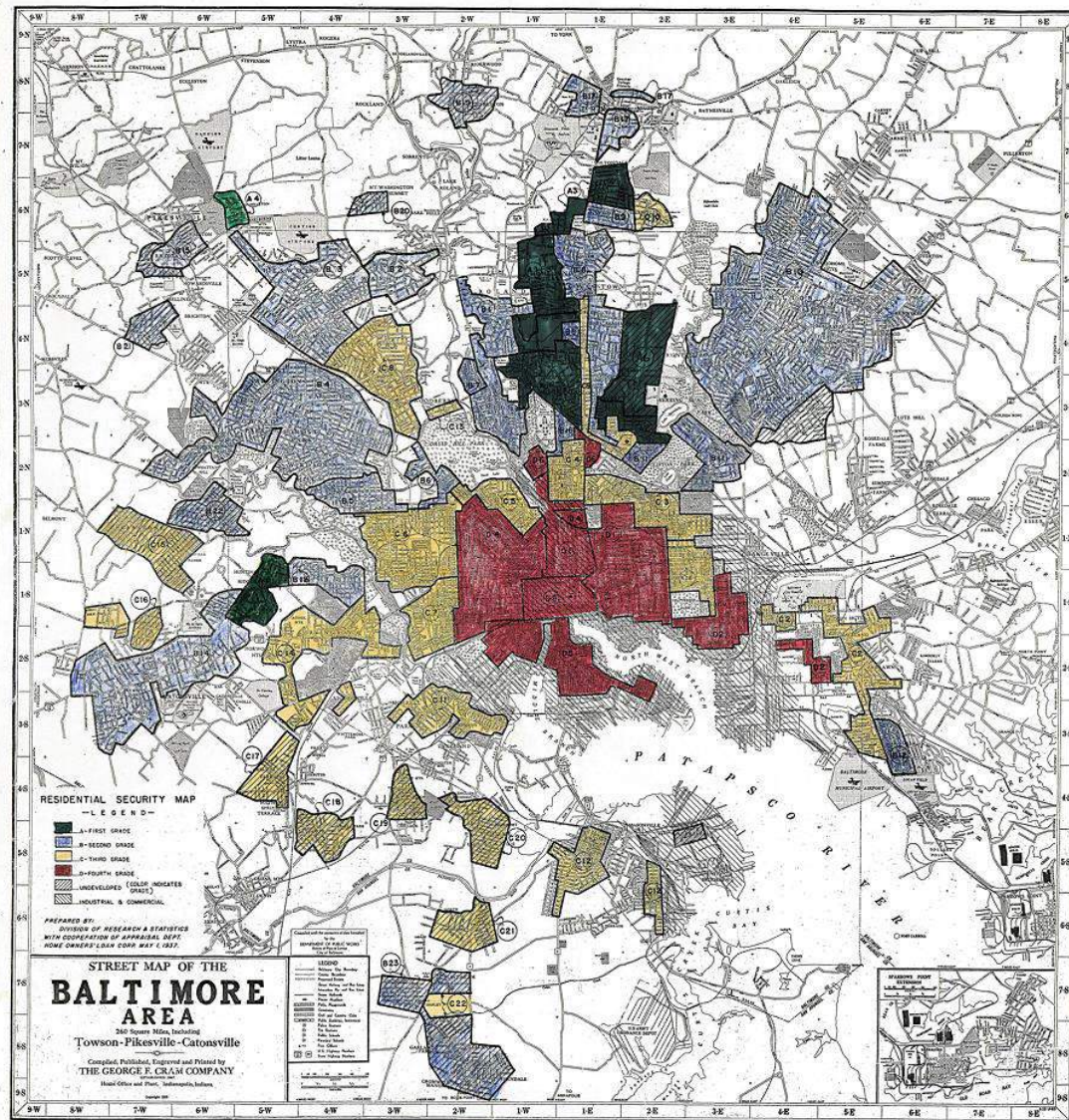
Baltimore life expectancy gap by neighborhoods: 18 years



Elaboracion propia. Fuente: Baltimore Neighborhoods Indicator Alliance (BNIA)



Healthier cities, more equal cities



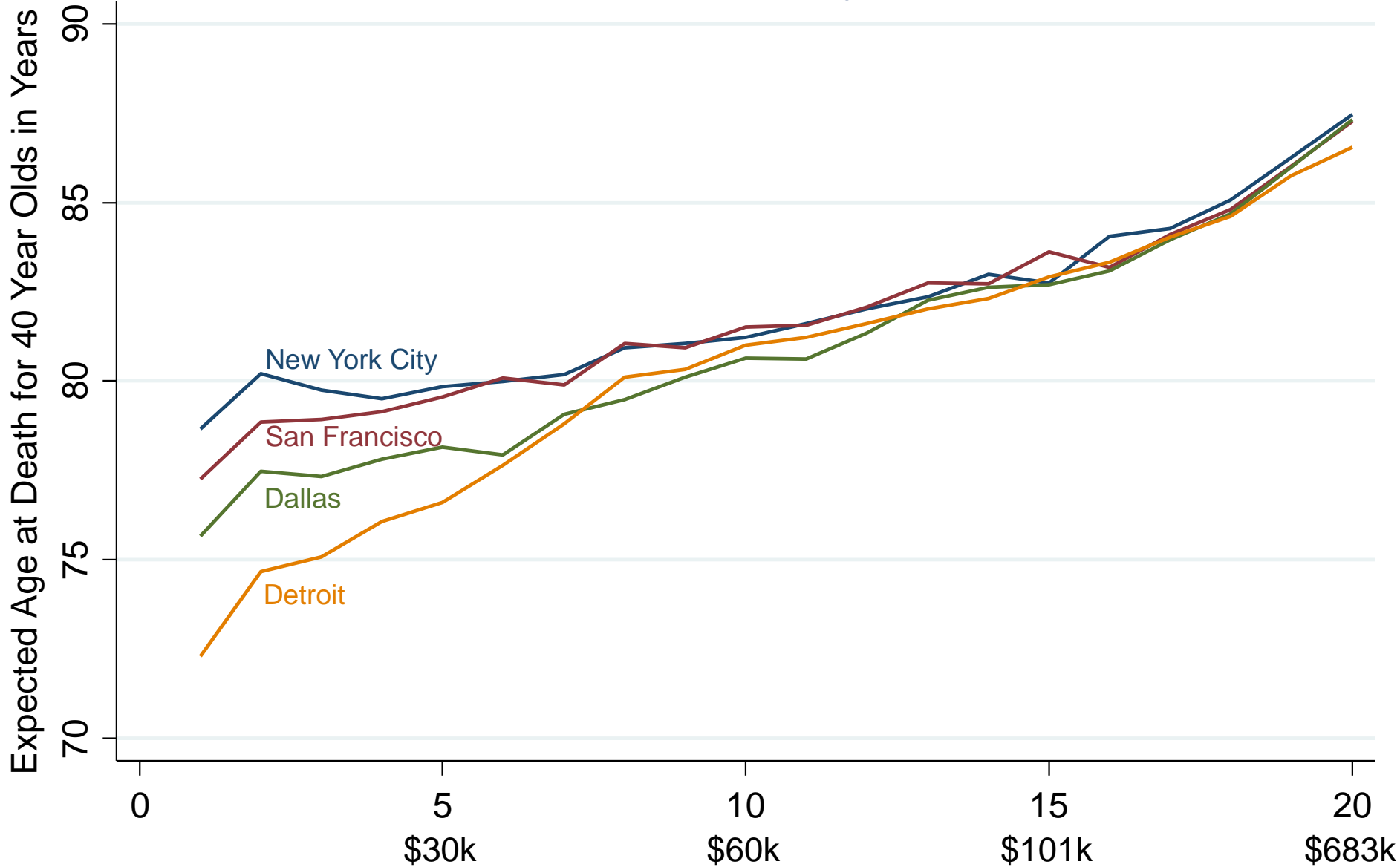


As in the case of Baltimore, is of paramount relevance understanding the processes that lead to our current (city) situations.

Wrong public policies have created two extremely different realities coinciding in time and space, creating neighborhoods where poverty, lack of opportunities and poor health perpetuate.

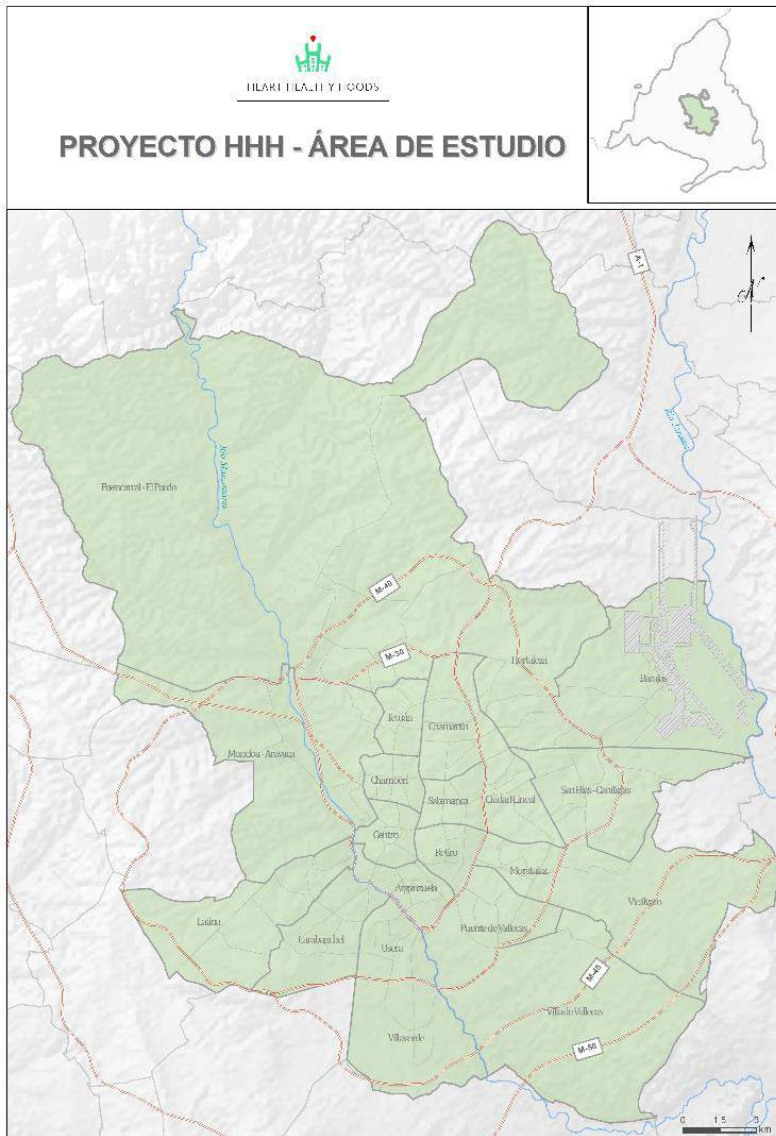
¿Do we have the will to create more fair and equal cities, more cohesive and healthier cities?

Race-Adjusted Expected Age at Death vs. Household Income for Men in Selected Major Cities





Healthier cities, more equal cities





First, some questions



- Let's think first about the place where you live
- Let's think now about the **opportunities maintaining a healthy diet** where you live
- Let's think now about the **social norms regarding food consumption** where you live



Second, an example: healthy eating in Madrid

- **Opportunities / resources** for maintaining a healthy diet in Madrid
- **Social norms** regarding food consumption in Madrid



Food environment in Madrid, HHH study



María, 45 ys, resident of Villaverde. Low-income area.

María and her friends meet twice per week to have a dinner snack at the Dehesa Boyal park, a pinewood and main park in San Cristobal. María lives in Spain for the last 4 years, unemployed for the last 8 months, and she often thinks about coming back to the Dominican Republic where her family lives.



Food environment in Madrid, HHH study



Bar in las Ventas. Middle-income area.
This bar, decorated with bull fighting paraphernalia, is a prototypical bar in Madrid; well attended and serving people every age. Madrid residents love to spend time in bars where they can chat, drink and eat with friends and family. “I can cross Madrid with my friends for good bars with great food and beer. In this bar you get an incredible short beer with a great snack for 1,20€ !”



Food environment in Madrid, HHH study



Fruit and vegetables store
in the Salamanca area.
High-income area

Hilario, the owner, takes great pride; “We aim for the best client relationship. We know most of them by name, we bring only best quality produce, air conditioning, best freezers...” Prices in this store can be up to 4 times higher than in a low-income area.

ERC Starting Grants

FUNDING	1.5 million € for 5 years
OBJECTIVE	To encourage independent careers of excellent investigators providing enough support in the critical moment (starting to develop their own team).
ELEGIBILITY	PI must have a PhD degree in the last 2 to 7 years. <u>Available to non-EU researchers.</u>
REQUISITES	At least one relevant publication without his/her thesis advisor At least 50% effort
PROFILE	High potential, project with potential social Impact in Europe.



Social and Physical Urban Environment and CV Health: The Much Needed Population Approach



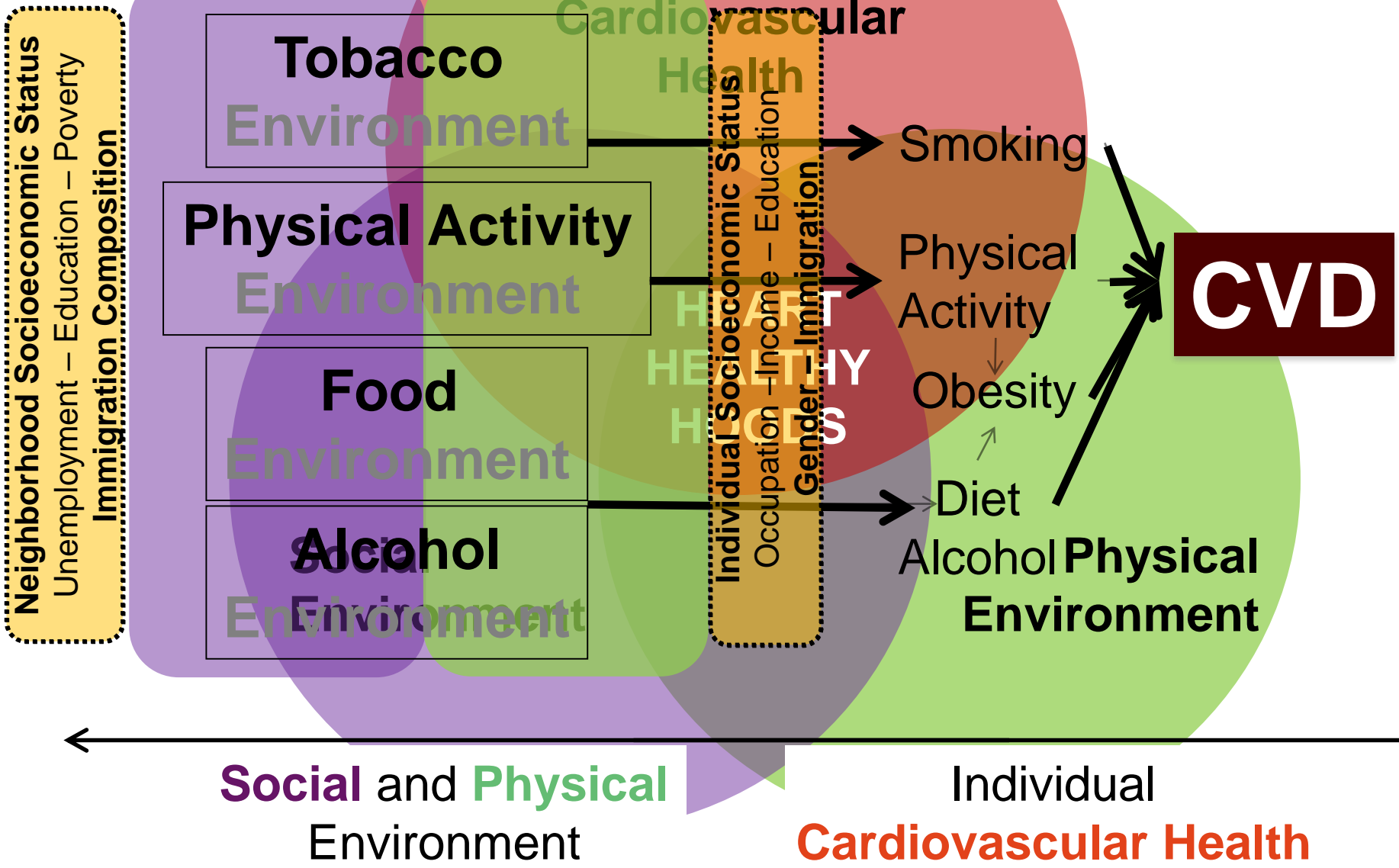
Manuel Franco MD, PhD

Starting Grant 2013

Start Date April 1st 2014

Heart Healthy Hoods Study

Main Goal





Heart Healthy Hoods Overall Objectives



To study the impact of the
social and ***physical environment*** in terms of
tobacco, alcohol, food and physical activity
on residents **cardiovascular health**



Heart Healthy Hoods Secondary Objectives



1. To include **a qualitative approach to understand the context and meanings** of the urban environment in relation to cardiovascular health

1. To develop **measurements to characterize the social and physical urban environments** in a systematic and accurate fashion



Heart Healthy Hoods

Secondary Objectives



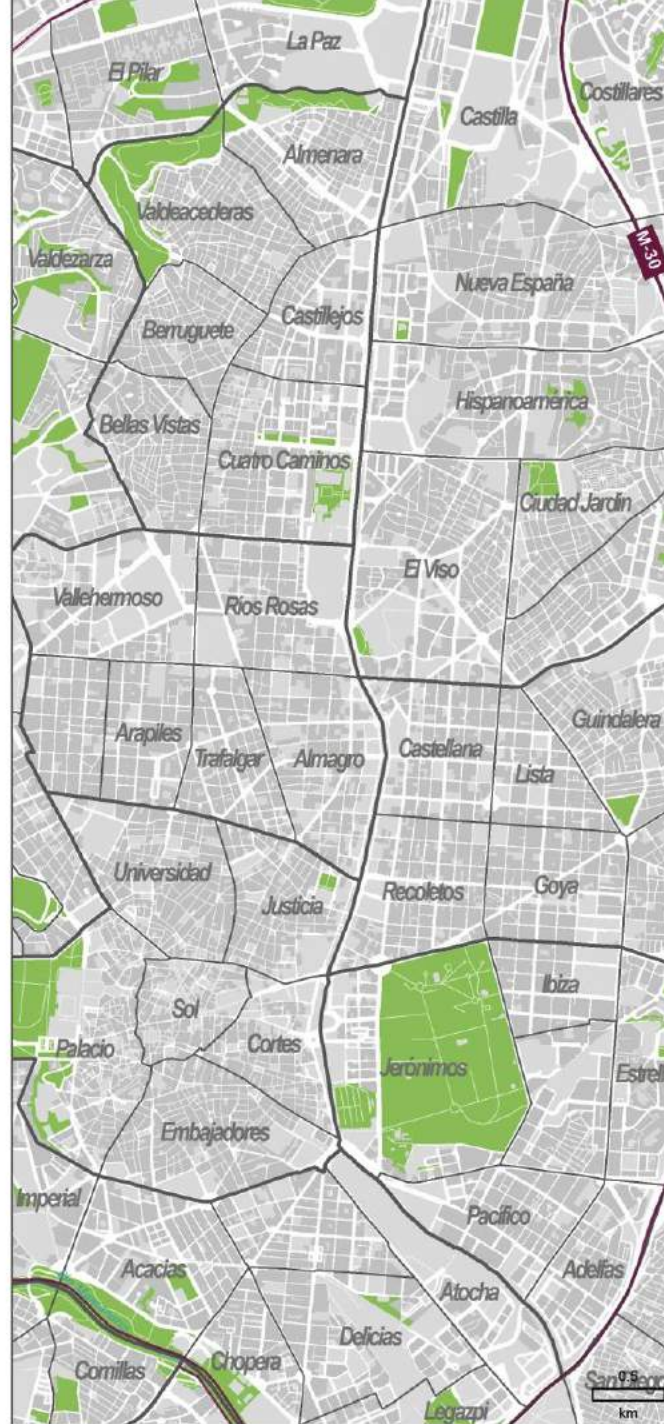
- 3. To compare** the already studied relation between the urban environment and cardiovascular health in the **United States with this relation in Europe**
- 4. To evaluate naturally occurring changes (natural experiments)** such as public policy interventions occurring during the time of the study modifying the food and physical activity environment



HHH overarching objective: Policy and research implications



To provide scientific evidence to **the general population, researchers and policy makers to intervene at the population level to prevent the first cause of death in Europe**



21 Districts

128 Neighborhoods

2412 Census Units

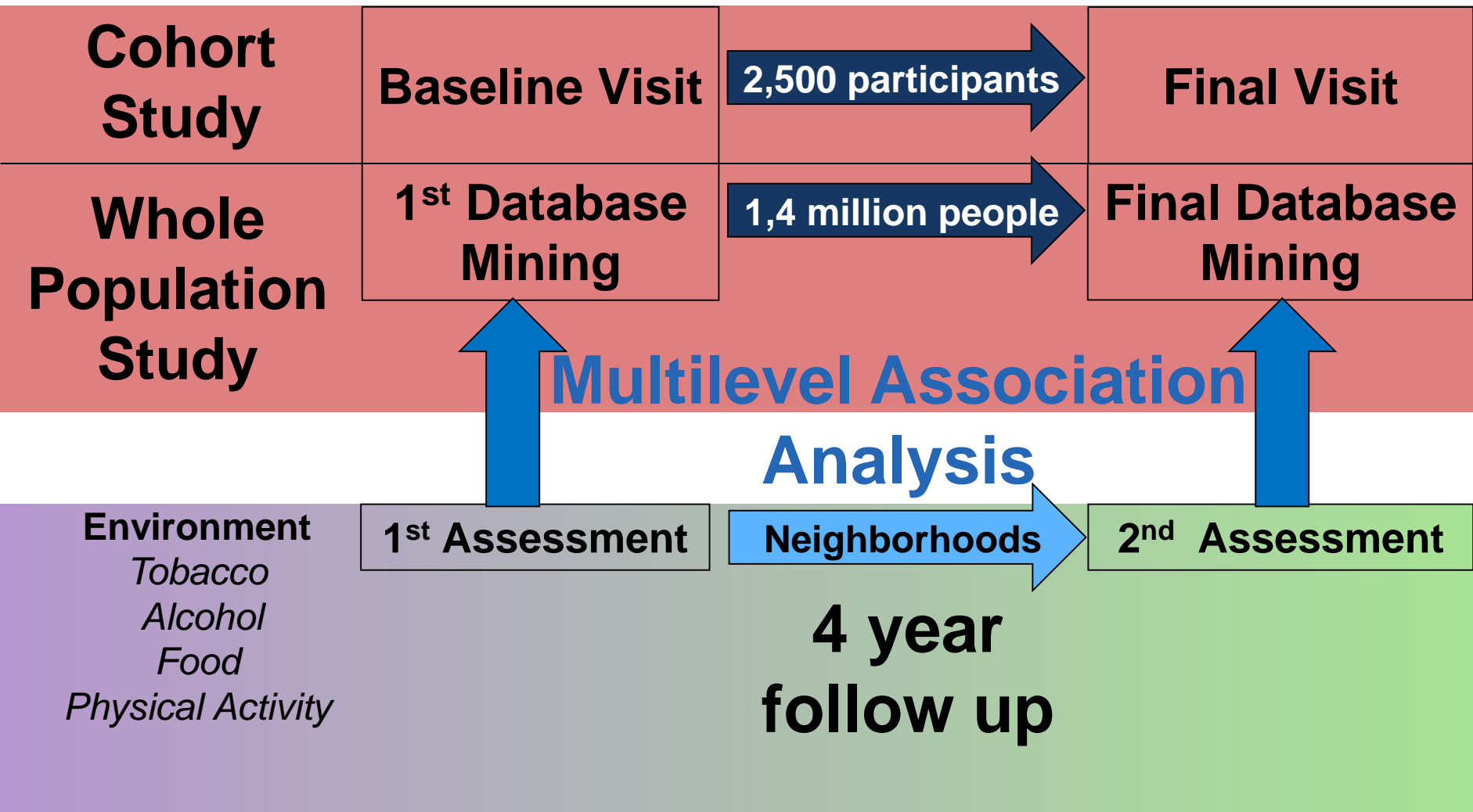
3,2 Mill. Residents

Access to the
Integrated Primary
Care Health System
Database

1,4 million residents
40-75 ys. old



HHH Study Design







Heart Healthy Hoods



in the 13th International Conference of Urban Health (ICUH) San Francisco April 2016



The Heart Healthy Hoods exploratory study



Under review, BMC Medical Research Methodology



Objectives



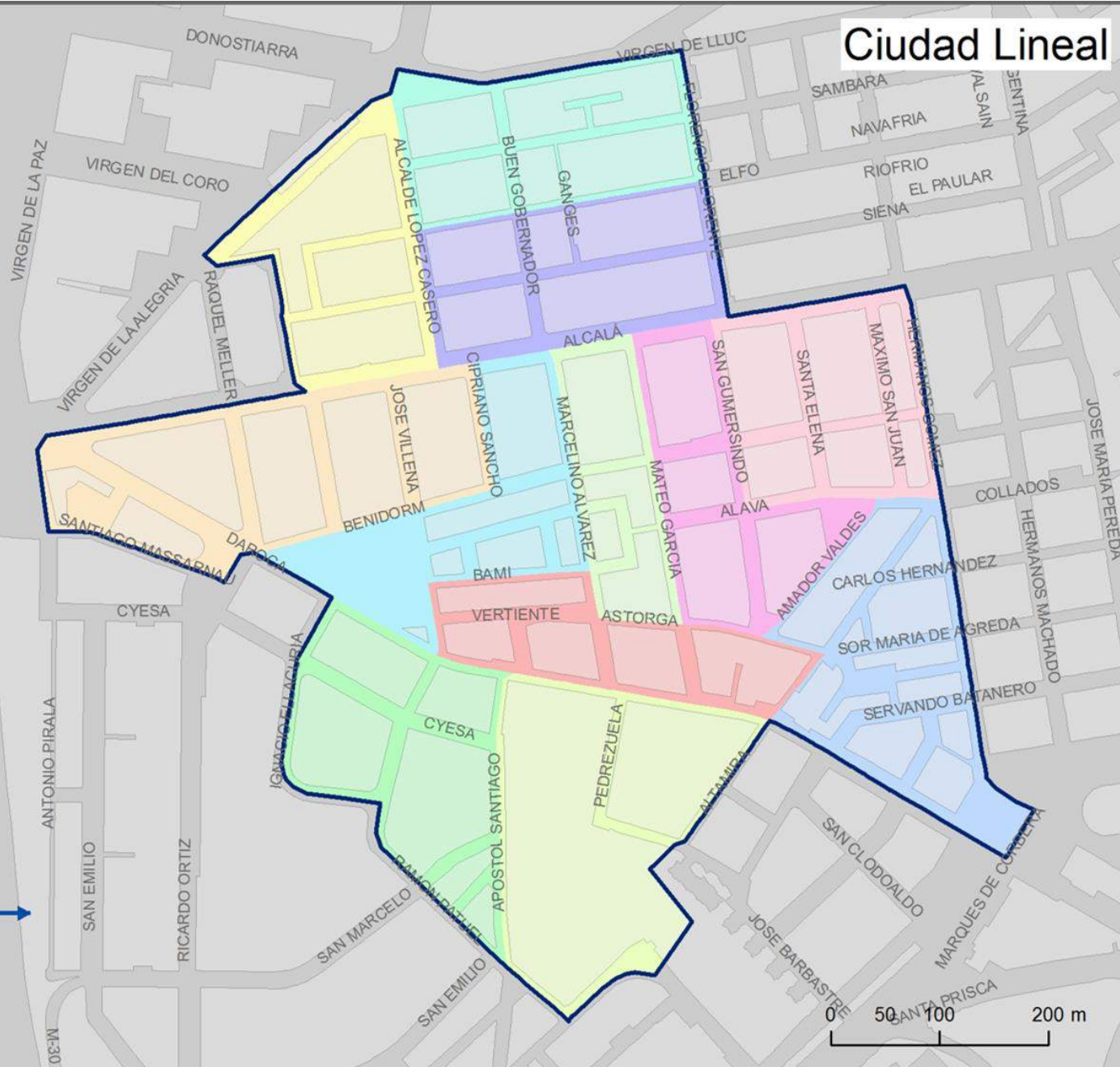
1. To **describe the cardiovascular health profile** of a population over 15,000 residents living in an area, analyzing the Madrid Primary Health Care System electronic health records.
2. To **explore different quantitative and qualitative measurements** to characterize the social and physical urban environment in relation to food, alcohol, tobacco and physical activity.



Setting



1. Average area in 4 variables (Median Neighborhood Index)
 - Aging: % > 65 years of age or above
 - Immigration (marker for segregation): % foreign-born
 - Education (marker for SES): % with primary education or below
 - Density: population/km²
2. Looked for clusters of areas of ~15,000 people with a low value in the index (-> non-extreme areas)





Methods (quantitative)



- Cardiovascular Disease:
 - Whole population (>99%) EHR through universal health system.
 - Validated (1) data on physician-diagnosed: diabetes, hypertension, dyslipidemia, smoking and obesity.
- Urban environment
 - Food: location and type of food stores and food services, directly measured healthy food availability (brief NEMS-S)
 - Physical activity: SPACES audit tool for walkability and bikeability, SOPARC audit tool for open spaces.
 - Alcohol and tobacco: location and type of retailers

References: (1) de Burgos Lunar et al, BMC Med Res Methodol, 2013.



Methods (qualitative)



- 11 semi-structured interviews with key informants: 4 long-term residents, 2 immigrants, 1 teacher, 1 community activist, 1 health care provider, 1 public health officer, 1 local food store owner
- Questions on health and the environment, focusing on sociodemographics, food, alcohol, tobacco and physical activity.
- Analysis by triangulation incorporating an interpretative phenomenological analysis.



Methods (integration)



- Geographic Information Systems
 - Directly collected data + Secondary administrative data
 - Joined to street sections by relational union or overlaid as administrative boundaries/blocks.
- Mixed Methods Approach: merging approach to combine
 - Provides insights on quantitative findings
 - Quantitative -> qualitative
 - Guides future quantitative data collection (formative)
 - Qualitative -> quantitative.



SaludMadrid

Centro de Salud
Daroca



Comunidad de Madrid

NICOR

WALDO





Exploratory Study Sociodemographic Profile Primary Health Care Records



- Total Pilot Area Population: 15,751
- Population in the Primary Care Health System Geocoded to census section level: 14,857 (95%)
 - ***Possibility of obtaining data for 2 million people***
- Median Age: 44 (Range: 0 to 106)
 - 49% Above 45 years (CVD Health Target Group)
- Sex: 55% Women (65% in >75 years)
- Primary Care Health Centers: 98% in 3 centers
- Education: 50% > primary education
- Immigration: 19% foreign-born



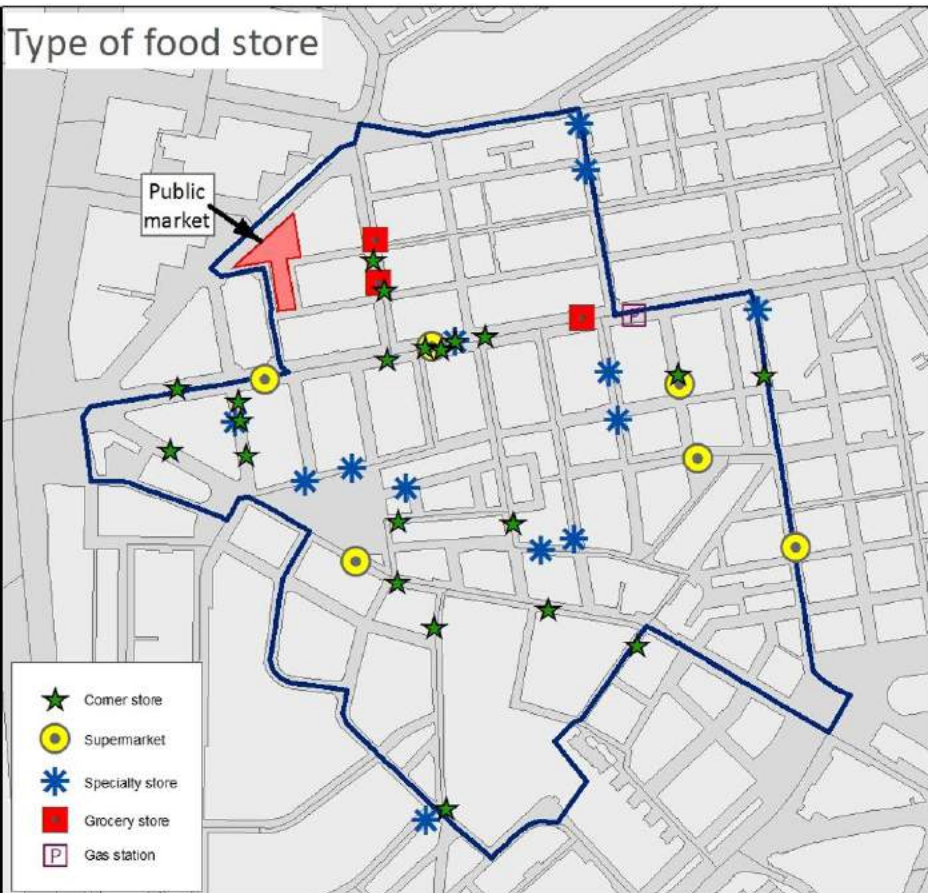
Exploratory Study Cardiovascular Profile Primary Health Care Records



- Population 45-106 ys. old: 7,252
- Sex: 59% Women
- Diabetes Prevalence: 12%
- Diabetes Control (HbA1c<7): 63%
- Hypertension Prevalence: 34%
- Obesity (BMI >30): 20%
- Dyslipidemia, all types: 32%



Results





Results



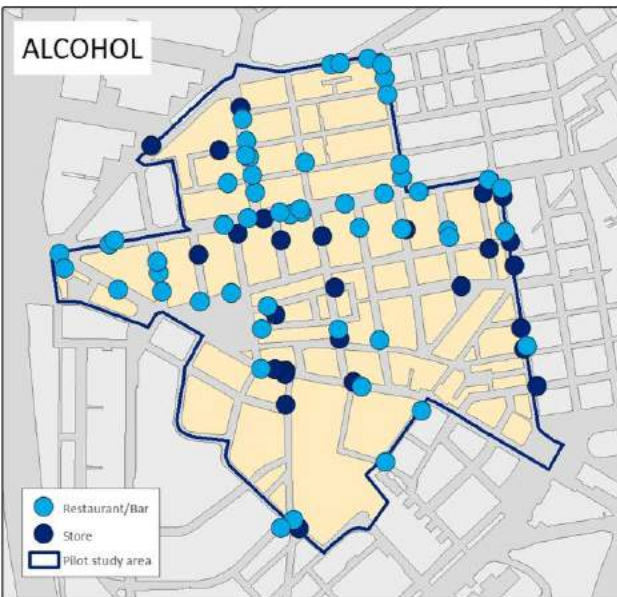


Results



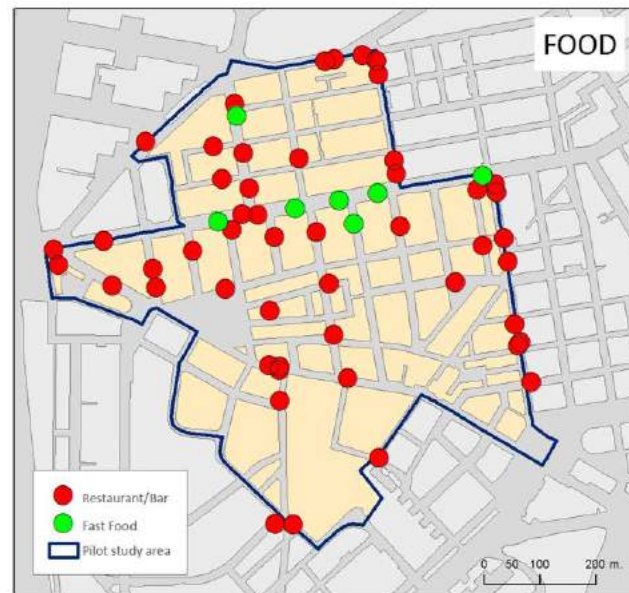
Alcohol

(Restaurants and Liquor Stores)



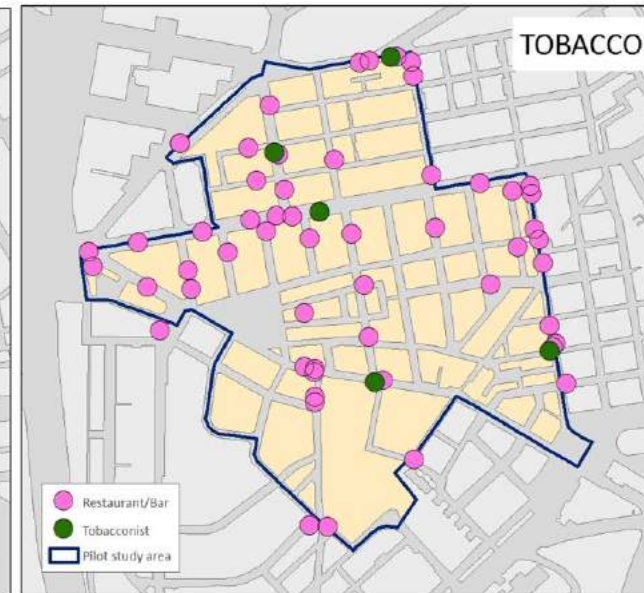
Food Services

(Bars, Restaurants and Fast Food)



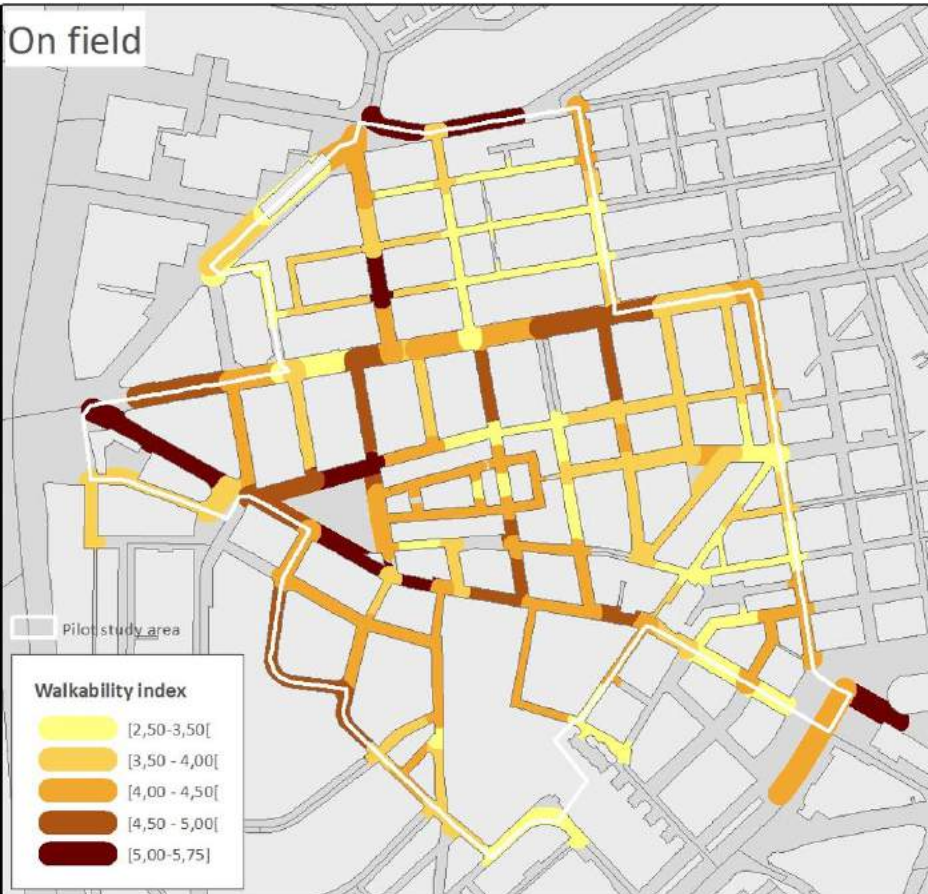
Tobacco

(Vending Machines & Stores)





Physical Activity Results



Pedro Gullón et al. September 2015 Journal of Urban Health



Physical Activity Results



Use of parks (SOPARC tool) was diverse, with levels of activity varying from sedentary (sitting), walking and vigorous (sports)



Photos by Victor Carreño and Franco M, Gullon P, Carreño V. Studying city life, improving population health. Int J Epidemiol 2015



HHH Pilot Study Qualitative Study



Food Environment: *“I have my children and many years, so I know what is good and what is bad...what one can afford is different” (woman, >65 years)*





HHH Pilot Study Qualitative Study



Physical Activity Environment: *“ When we are older, because I’m on a wheelchair in the street ... If I had benches there, I would not need the wheelchair, because walking 20 meters is fine, but maybe 25 meters isn’t.” (Woman, > 65 years)*





HHH Pilot Study Qualitative Study



Alcohol Environment: *“Social drinking customs are disappearing, we used to go on Sundays to have a vermouth with your neighbors and your friends. Nowadays, people are doing it less, because of the economic crisis” (Food store owner).*





Pilot Qualitative Study

Emergent categories



The role of immigration in shaping behavior patterns related to the use of open spaces *"... In the past other people would go there [park], but now the Romanians are there..." (men, < 65 years)*



Photos by Victor Carreño and Franco M, Gullon P, Carreño V. Studying city life, improving population health. Int J Epidemiol 2015



Pilot Qualitative Study

Emergent categories



The current economic crisis shaping the neighbor's behaviors *"... Nowadays there are a lot of grandparents taking care of the family.... Many unemployed descendants. So there is little time for healthy habits like exercise..."* (health care provider, woman)





Pilot Qualitative Study

Emergent categories



The role of social networks shaping health behavior patterns in residents *"I'm happy with people in my neighborhood. Since my husband died, ... adults and kids alike, boys like my sons, 50 years-old, [have told me] 'hey, I work on this, if I can help you... I will help you with stuff if you ask me' "* (woman, > 65 years)







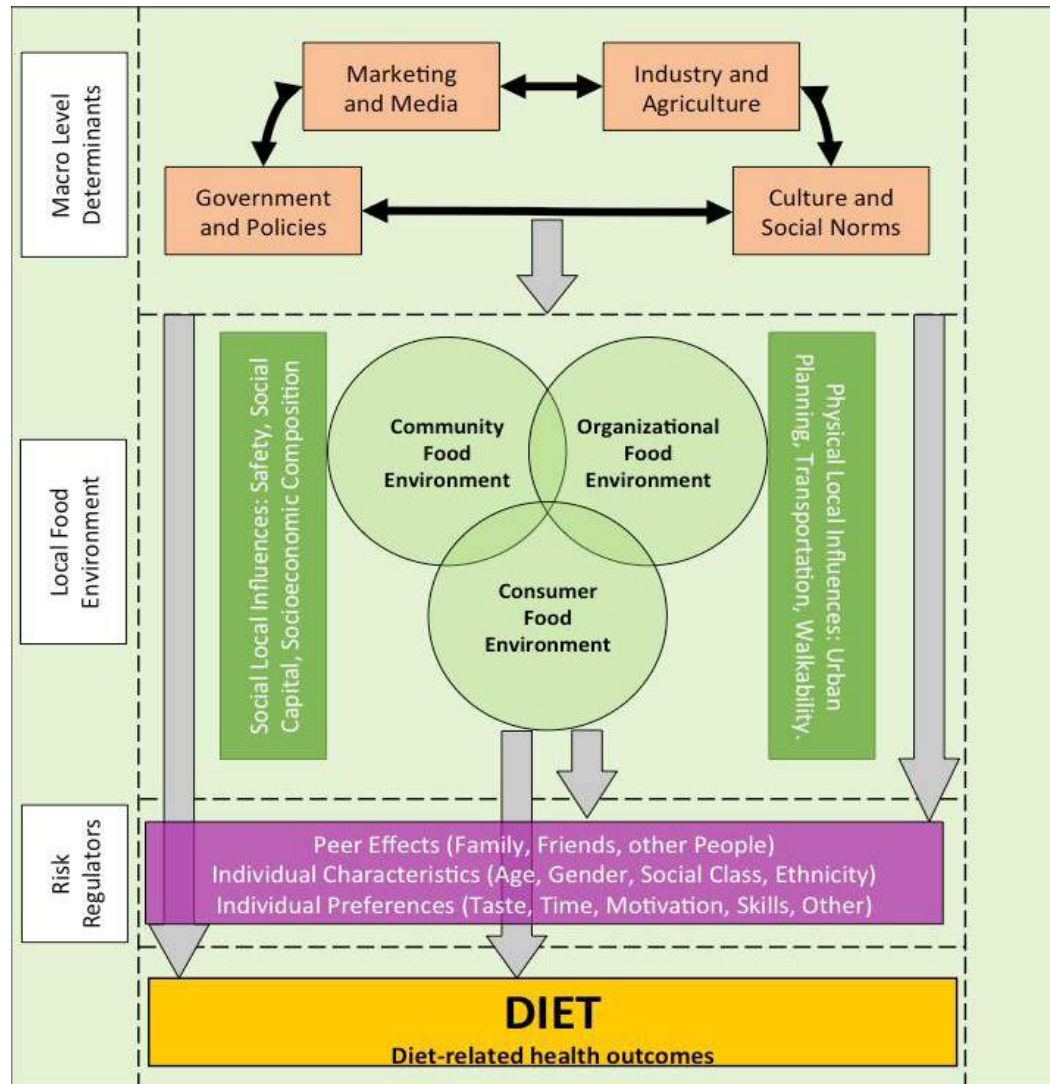
*Understanding differences in the
local food environment across
countries: A case study in Madrid
(Spain) and Baltimore (USA)*

Julia Díez, Usama Bilal, Alba Cebrecos, Amanda Buczynski,
Robert Lawrence, Thomas Glass, Joel Gittelsohn, Francisco
Escobar and Manuel Franco

Under review, Preventive Medicine



Food environment and diet



Franco M., Bilal. U., Diez J (2016). Food Environment. The Encyclopedia of Food and Health. B. Caballero, Finglas, P., and Toldrá, F. . Oxford: Academic Press, Oxford: Academic Press. 3: 22-26.



Objective



To understand cross-national differences in the local food environment between Madrid and Baltimore by comparing an average neighborhood in each city in terms of food store types, availability, and accessibility to healthy foods.

Under review, Preventive Medicine

<http://hhhproject.eu>



Variables

- **Availability**
 - Field observations using NEMS-s audit tool
 - “Healthy Food Availability Index” (0-28.5)
 - “Fruit&Vegetables Availability index” (0-10)
- **Accessibility**
 - Pedestrian network analysis
 - Walking distance of 200m, 400m, 800m



Results



Map of the different food stores within the study areas





Results



Healthy Food Availability Index

Madrid

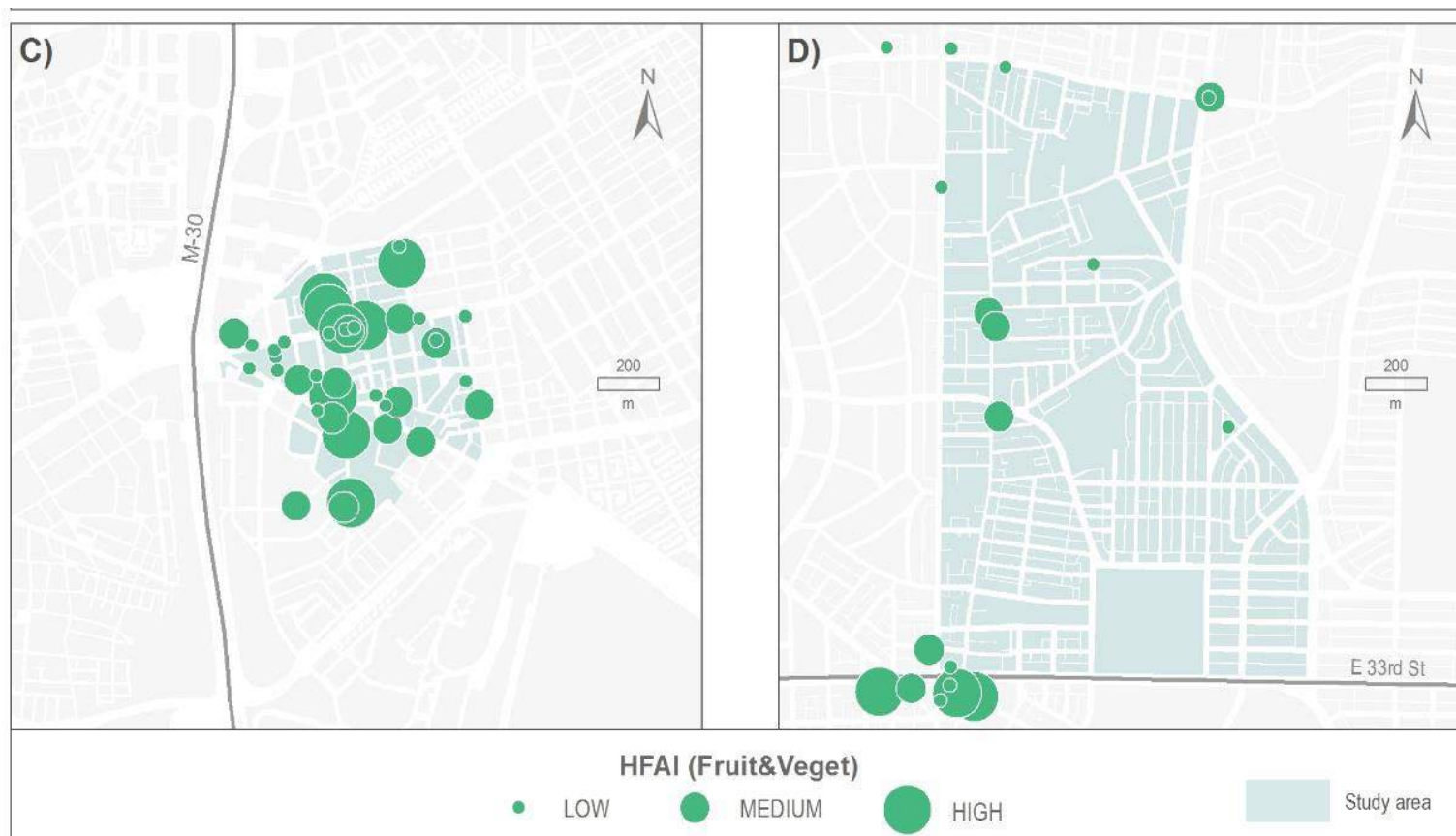
Baltimore





Fruits & Vegetables Availability Index

Madrid





Walking Access to healthy food stores



- 200 m (0.124 mi)
- 400 m (0.249 mi)
- 800 m (0.497 mi)

- ☆ Corner
- ▲ Grocery
- ◇ Supermarket

CATCHMENT AREA (m)	SURFACE COVERED BY Q3 STORES (%)		PEOPLE COVERED BY Q3 STORES (%)	
	MADRID	BALTIMORE	MADRID	BALTIMORE
< 200	79	1	77	1
200 - 400	21	3	23	4
400 - 800	0	13	0	13
>800	0	83	0	82

Under review, Preventive Medicine



Public market in Madrid



Las Ventas Madrid





Farmers' Market in Baltimore



Waverly (Baltimore)



Conclusions



Results help promoting intervention from local city agencies to allocate resources:

1. To improve existing small-sized food stores and public markets
2. To improve walkable urban environments



HEART HEALTHY HOODS



Assessing tobacco retail environment, outdoor smoke-free policies and smoking behavior in Madrid neighborhoods

IP: X. Sureda

Co-investigators: M. Franco, U. Bilal, FJ Escobar, A Navas

Advisor: E. Fernández

Social and Cardiovascular Epidemiology Research Group, Alcalá University and Johns Hopkins Bloomberg School of Public Health

Funding: European Research Council Starting Grant 2013
HeartHealthyHoods Agreement n. 336893 y **Instituto de Salud Carlos III (PI15/02146)**



1. Introduction



Relocation of smokers to outdoor settings

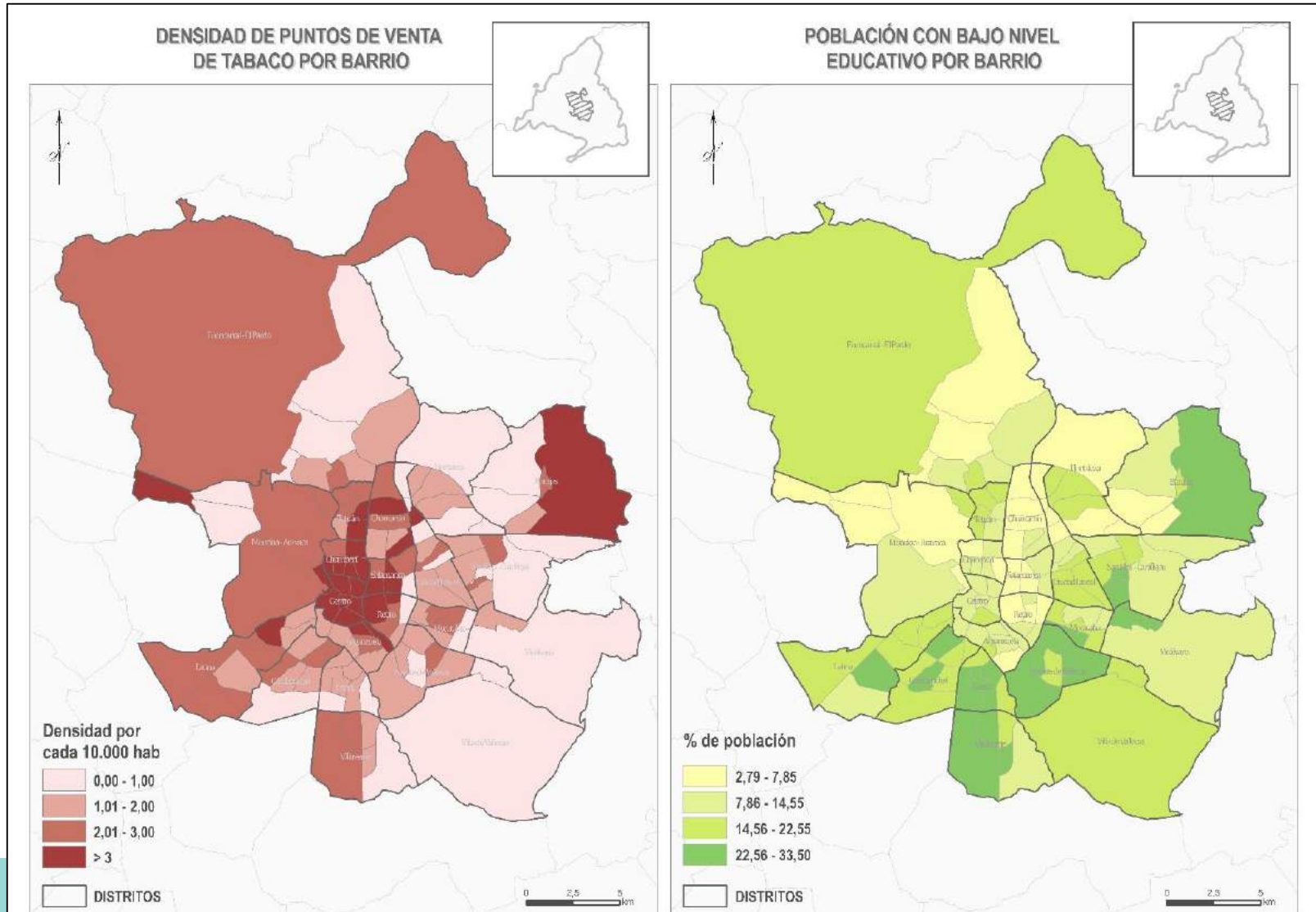




1. Introduction

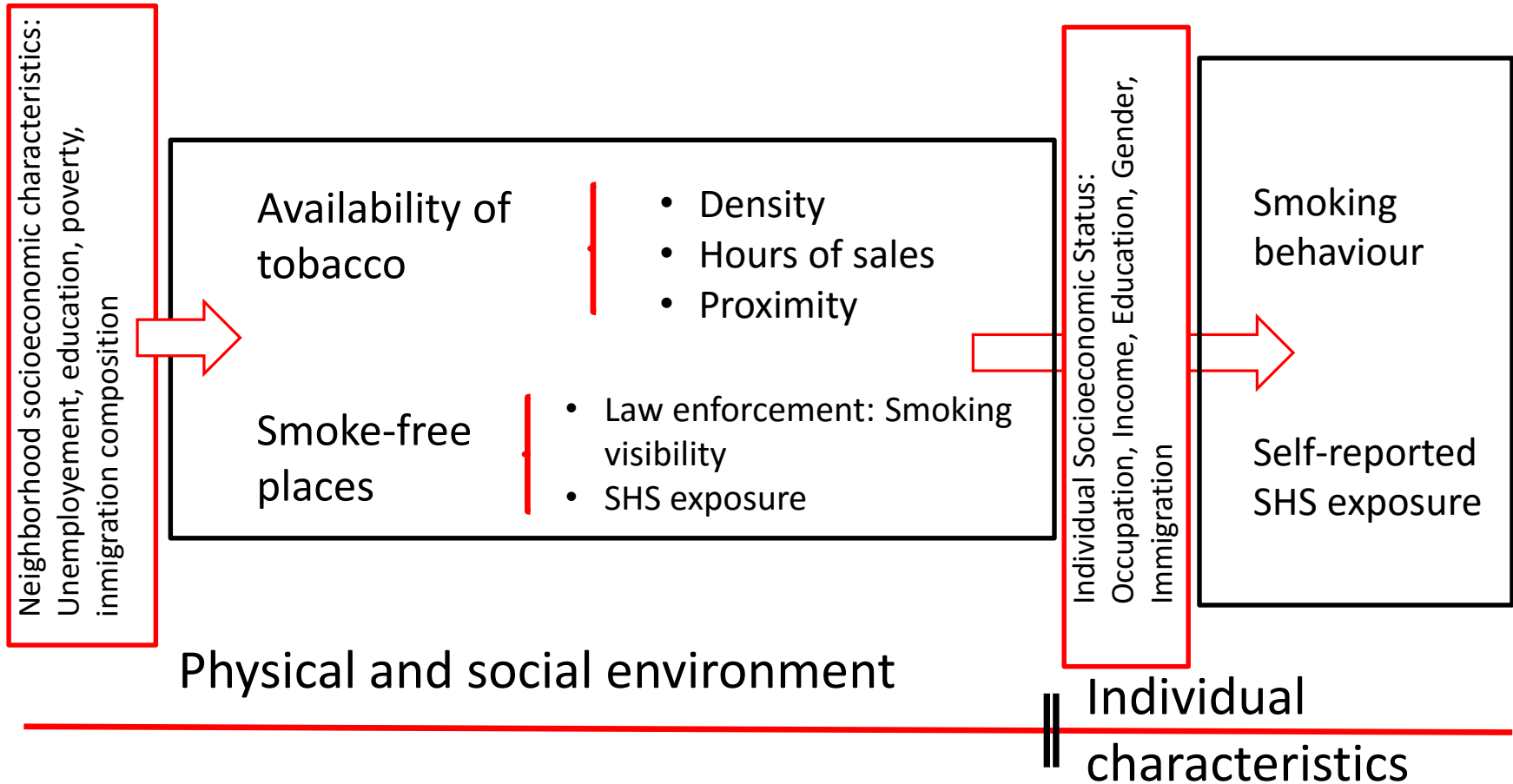


Density of tobacco point of sales and educational level in Madrid





1. Introduction





2. Objectives



1. To describe tobacco environment in neighborhoods in Madrid city:
 - 1.1 To analyze the relation between the socioeconomic environment and tobacco availability.
 - 1.2 To analyze the relation between socioeconomic environment and outdoor smoke-free places.
2. To determine possible differences between tobacco availability and smoking behaviour and self-reported SHS exposure.
3. To determine possible differences between smoking visibility and/or signs of tobacco consumption and self-reported smoking behaviour and SHS smoke exposure.



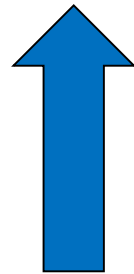
3. Methods



**Cohort
study**

Baseline visit
2500 individuos

Questionnaires
Saliva collection
GIS



**Multilevel Association
Analysis**

**Physical and
social
tobacco
environment**

1st assessment

Systematic social observation
Mesurements of Tobacco
airborne markers
Secondary databases
GIS



3. Methods



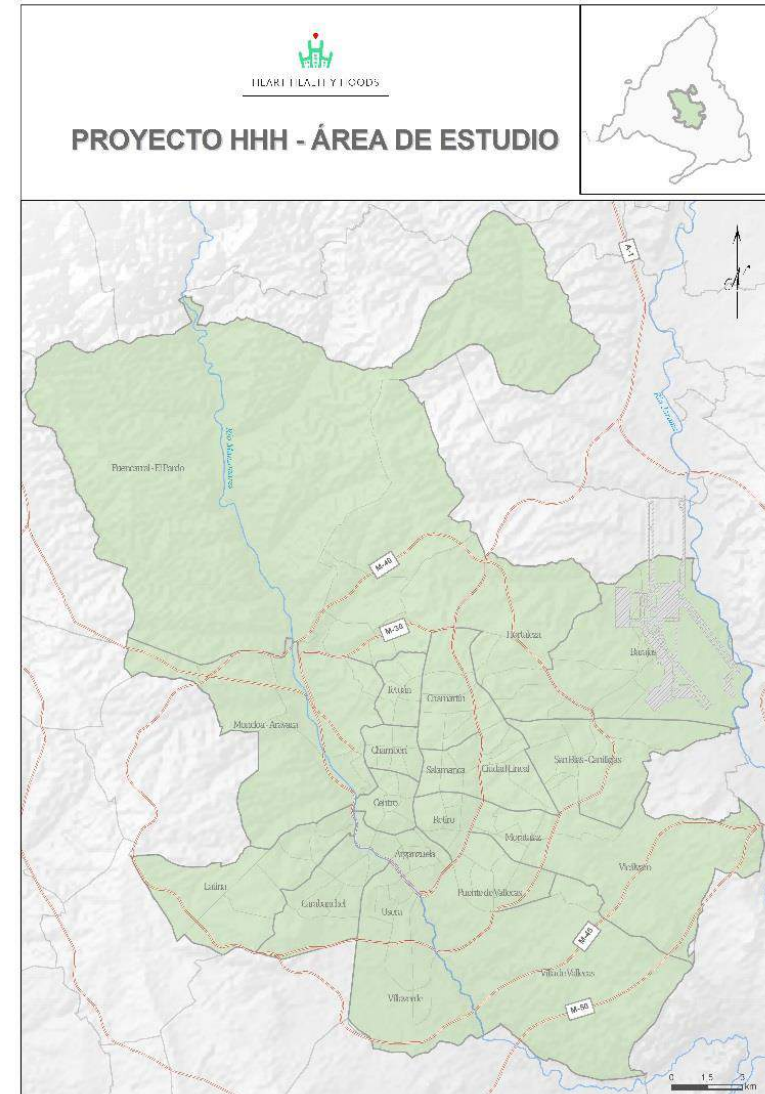
Physical and Social environment assessment: Ecological data

HHH area: Madrid municipality,
including 21 districts and 128
neighborhoods



Neighborhood SE status → Secondary data
bases (Madrid Regional Government open
databases)

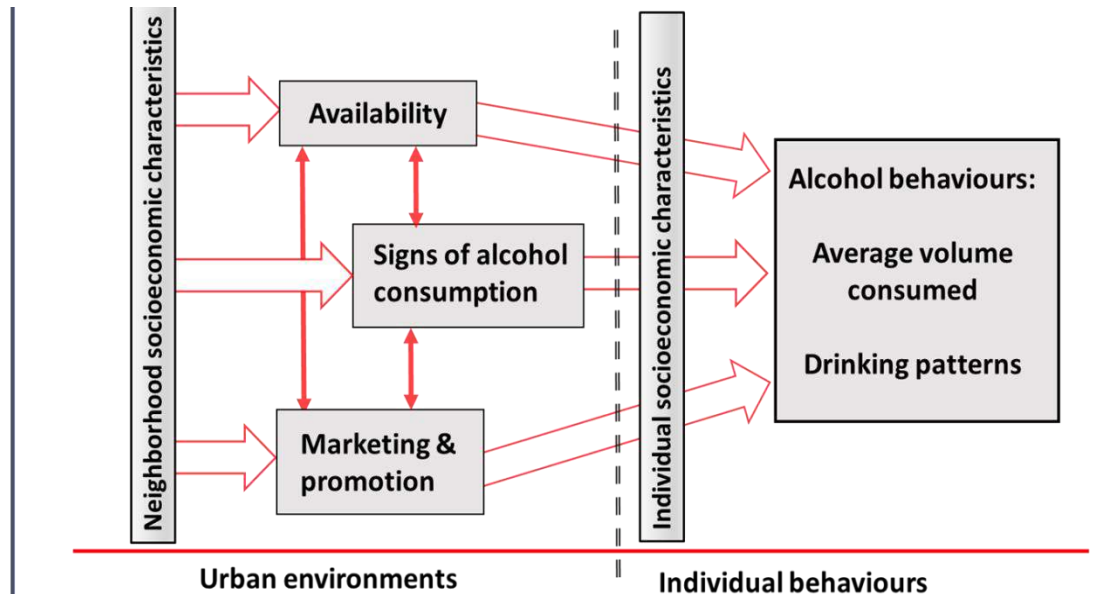
Tobacco point of sales (tobacconist shop) →
Secondary Databases (Comisionado para el
Mercado de Tabaco)



Urban Environment and alcohol consumption

“Living under the influence:
Normalization of alcohol
consumption in our cities”

Under review



- A. Availability of alcohol products in a convenience store, 2015, Madrid
- B. Signs of alcohol consumption in a public square, 2015, Madrid
- C. Promotion of alcohol products in a spanish restaurant chain, 2015, Madrid

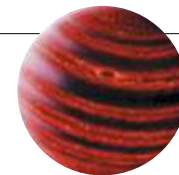


THISWEEK

EDITORIALS

WORLDVIEW Vaccination programme urgently needed to tackle typhoid in Nepal p267

ASTRONOMY Gas giant is lowest-mass exoplanet imaged directly p268



NEUROSCIENCE Dreams spark visual activity in the brain p269

Rise of the citizen scientist

From the oceans to the soil, technology is changing the part that amateurs can play in research. But this greater involvement raises concerns that must be addressed.



European Research Council
Established by the European Commission

ideas

#3
SEPTEMBER 2015



Newsletter of the European Research Council

What's on
All you want to know
about ERC calls

Research in the spotlight
It's time for citizen science

What's new
Impact of Starting
Grants revealed



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Citizen Science



General public engagement in scientific activities

Citizens actively contribute to science with their intellectual effort

Participants create a new scientific culture.

Volunteers acquire new learning and skills, and deeper understanding of the scientific work in an appealing way.

As a result of this open, networked and trans-disciplinary scenario, Society-Science-Policy interactions are improved **leading to a more democratic research** based on evidence-informed decision making.



HEART HEALTHY HOODS



Understanding community food environment through Photovoice: a participatory action research project in Madrid

Julia Díez, Paloma Conde, María Sandín, María Urtasun, Remedios López, Joel Gittelsohn and Manuel Franco

PhotoVoice is a project co-funded by **FUNDACIÓN MAPFRE**



What is Photovoice?



- Photovoice is an innovative participatory-action research method. Caroline C. Wang and Mary Ann Burris (1994, 2000)
- It enables people to identify, capture, and reflect their community's strengths and concerns through photography
- Informs policy makers to promote health-related public policies





Main objective



To conduct a participatory photovoice project with residents of a low-income urban area to understand environmental and social characteristics of the local food environment influencing residents diets.



● Ángel Frías



● Amador Silebo



● Daniel Rafael Mato



● José Luis Carrero



● Christine Funrock



● Esther Ortiz



● Juani Moreno



● Mercedes Bellot



● Isabel Masa



● M^a Soledad Olivo



● Mercedes Rivera



● Zakia El Khamlichi



● Beatriz Criado



● Juana Carulli



● Sagrario Gómez



● Encarnación Franco



● Rosa Arana



● Encarna Dopido



● Javier Rubio



● Florian Gómez



● Julio Ahijado



● Ángel Montiel



● Armando Cáceres



● Pablo Benito



● Manuel Franco



● Paloma Conde



● Roberto Valiente



● Francisco Escobar



● Alba Cebrecos



● Víctor G. Carreño



● María Urtasun



● Julia Díez



● Ana María Olea



● Elena Ojeda



● María Sandín



● César García



● Remedios López



● Juanjo Palomares



● Matilde Pumarino



● Santiago Sancho



● Carmen Ramos



● Maribel de Dios



● Rosa Obesso



● Luisa Ruiz



● Javier Segura



● Reyes García



● Marta Sastre



● Pilar Crespo



Photovoice Food Environment: Methods



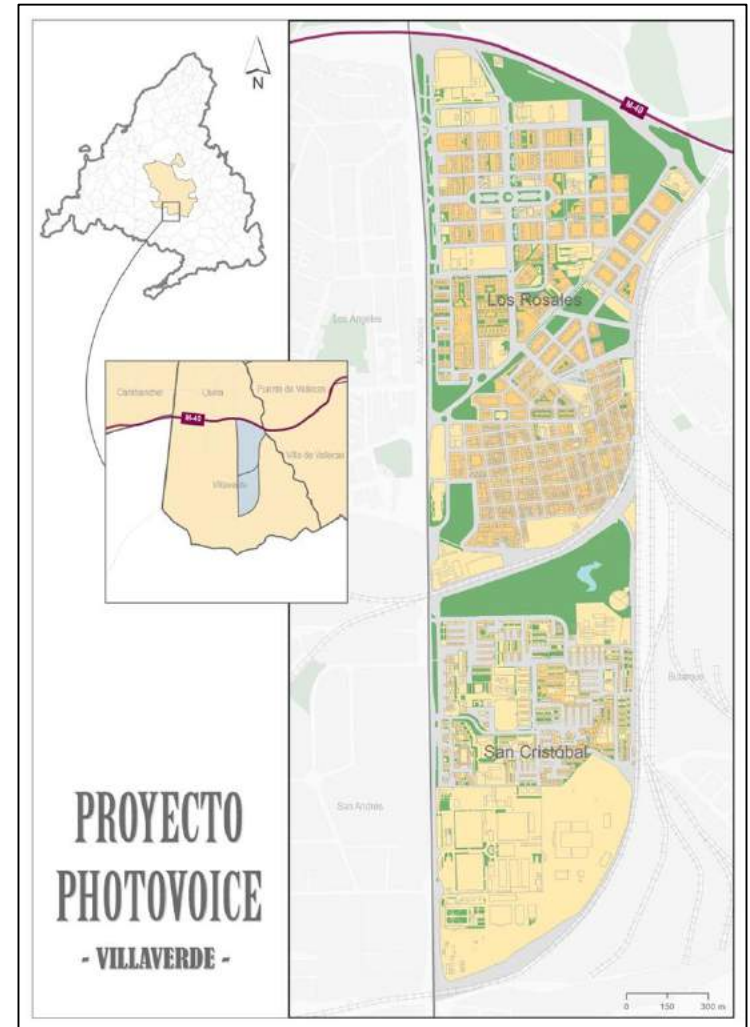
Setting Two neighborhoods of a low-income area in Madrid (Spain).

Participants

- 24 residents (31-72 years old).
- A group of women and another one of men per neighborhood.

Procedure

- A total of 163 pictures of their local food environment
- Groups met at least for 5 sessions two months

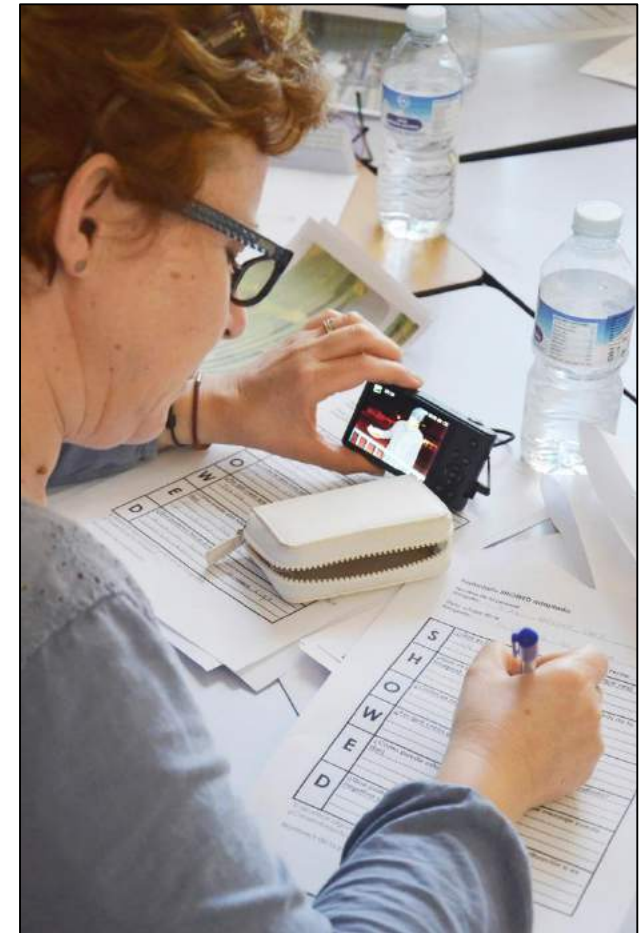




Photovoice Food Environment: Participants' Analysis



- Each one chose their best photograph
- Participants defined the meaning of their photographs and discussed them critically
- Participants identified 31 emerging themes





Photovoice Food Environment: Results



31 final themes of the four groups were finally merged into 5 main themes:

- Eating in moderation
- Cultural diversity
- Food retailers
- Socialization
- Economic crisis and poverty





Theme 1: Eating in moderation



Photo caption: **"Bakery"**

"The tray came just from the oven, with an appealing look and a smell...so tasty!"

"It has a lot of fats because the greater part of this product is produced with saturated fats"

"Just the once will not hurt"

(Female, 36)



Photo caption: **"Saturated fats"**

"We are looking at very appetizing products"

"Awesome for the palate. If abusing, your cholesterol goes through the roof"

"Moderation, lots of moderation"

(Male, 69)



Theme 2: Cultural diversity



Photo caption: **"Spanish omelette"**

"We see a very tempting spanish omelette"

"The omelette has a very healthy nutritious value, with the eggs and the potatoes"

(Male, 70)



Photo caption: **"Melon and cassava"**

"Street markets' stalls reflect the cultural diversity of the neighborhoods"

"Try to encourage people to try and prepare new foods, to diversify their diets"

(Female, 40)



Theme 3: Food retailers



Photo caption: **“San Cristobal street market”**

“A great variety of fruits and vegetables that come on!, so colourful I can't stop having my eyes on it.”

“The foods they sell are healthy”

“This teaches us that we can eat healthy and varied in a low-cost way”

(Female, 46)



Photo caption: **“In the fish shop”**

“The fish merchant is serving his forever customers, the ones doing their grocery shopping always there”

“They keep their customers forever because they have high-quality fresh fish”

“Vegetables, fish, meat and fruits are very healthy”

(Female, 46)



Theme 4: Socialization



Photo caption: **"Friends' terrace"**

"I think that is pretty healthy to have some beers out on the terrace with Friends"

"It's a everyday situation, a way to gather with friends"

"We have to be willing to take time out whenever we can to enjoy with the ones you love, with a drink, etc"

(Female, 51)



Photo caption: **"Sewing"**

"They're eating while gathering with friends, they sew and have a chat"

"Company and friendship improves their self-esteem"

"Promote these workshops for widows feeling lonely. Encourage more women to share these activities"

(Female, 59)



Theme 5: Economic crisis and poverty



Photo caption: **“Caritas´ food bank”**

“Food products they give away for those in need in San Cristobal”

“There is people without own resources, who need to eat”

“People with foods should donate to those in need. Don´t throw them into trash”

(Male, 42)



Photo caption: **“Ash Wednesday”**

“Neighborhood association is sharing sardines with the neighborhood”

“You see much (poverty) and this is a shame”

“More things like this should be done, for avoiding this happening, nobody should go hungry”

(Female, 46)



Research translation into food policy recommendations



Overarching goal:

To translate research findings to foster policy change to improve the food environment of a deprived area of Madrid.

Specific aim:

To translate the findings of a food environment participatory research project into urban food policy recommendations.

Paper in progress, Maria Urtasun



Research translation process



Participants and co-facilitators met twice to translate these findings into policy recommendations aiming to improve the local food environment.



Paper in progress, Maria Urtasun



Research translation process



11 food environment recommendations selected and ranked

Determinants of diet	Recommendations (ranking)
Macro level determinants of diet	<ul style="list-style-type: none">- Offering local leisure time activities to avoid unhealthier options as snacking and drinking alcohol and sodas (1)- Improving nutrition labels (7)- Promoting healthy social networks for older people (10)- Giving street vendors legal status (11)
Organizational food environment	<ul style="list-style-type: none">- Improving food banks management (2)- Reducing food waste (6)- Healthier alternatives to workplace vending machines (8)- Importance of food education in schools (9)
Community food environment and Consumer food environment	<ul style="list-style-type: none">- Reactivating traditional market and small retailers (3)- Improving food hygiene conditions (4)- Promoting the availability of organic and foods for people with special needs (e.g. diabetes and celiac disease) (5)

Paper in progress, Maria Urtasun



Disseminating results and reaching policy makers



- Residents participated in dissemination strategies: Photobook, Videos, Scientific and cultural meetings, Media collaboration
- <https://hhhproject.eu/photovoice/photovoice-publications/>
- Participants co-analyze their data and coauthor papers
- Participants presented policy makers their results twice

Citizen Science Meeting

Photography exhibit





CENTROCENTRO Cibeles

Madrid, April 13th – June 5th



Photovoice Villaverde

Photovoice Villaverde

Un estudio participativo sobre la alimentación a través de la fotografía
A participatory study on food through photography





HHH Team

Thank you very much !

