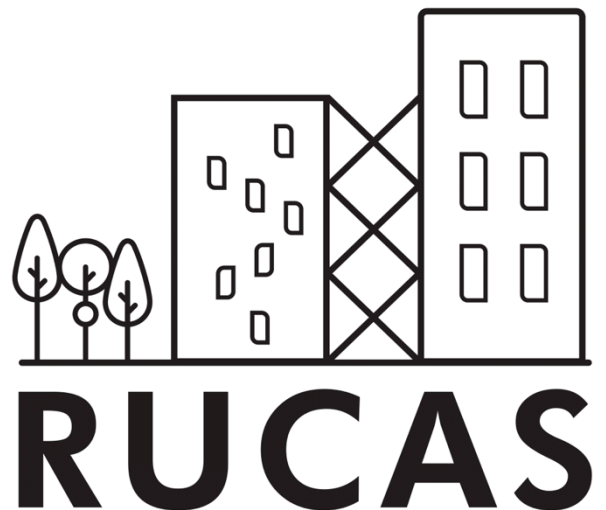


March 2021

# THE RUCAS PROJECT

Regeneración Urbana, Calidad de vida y Salud



# Introduction

During the 1980s Chile faced a historical quantitative housing crisis with the massive construction of social housing, which in time proved incapable of satisfying minimum habitability and urban standards. Today, unlike most LAC countries, Chile is addressing a new type of crisis, qualitative housing crisis, with a large number of precarized social housing neighborhoods. One government initiative in response to this is the *Programa de Regeneración de Conjuntos Habitacionales* (Social Housing Neighborhoods Regeneration Program) conducted by the Ministry of Housing and Urban Development (MINVU). If timely studied, Chile could provide evidence of the health impact of these type of programs, lending support for scaling them, and also inspiring other Latin American countries that will eventually face similar problems.

RUCAS (*Regeneración Urbana, Calidad de Vida y Salud*) is an interdisciplinary research project that aims to contribute to this challenge. Our guiding research question is whether improvements in housing habitability and the neighborhood's built environment in urban social housing benefit the health and wellbeing of their inhabitants. The project is defined as a natural experiment, conducted in two neighborhoods intervened by the MINVU program: Marta Brunet (Puente Alto) and Brisas del Mar-Nuevo Horizonte II (Viña del Mar).

RUCAS is an ancillary study of SALURBAL (*Salud Urbana en América Latina*), an international research project based at the Urban Health Collaborative at Dornsife School of Public Health.

This document summarizes the fundamental aspects of the RUCAS project so that the data produced can be used by researchers interested in collaborating with RUCAS and using the data collected.

## Contents:

1. *Programa de Regeneración de Conjuntos Habitacionales* (MINVU)
2. SALURBAL: *Salud Urbana en América Latina*
3. RUCAS: *Regeneración Urbana, calidad de vida y salud*
  - Research team
  - Purpose, background
  - Study design
  - Instruments and measurement timeline
  - Analytical assumptions
  - Main dimensions
4. COVID19 in the context of vulnerable populations. Social and health impact in the RUCAS cohort.
5. *Conditions* for collaboration and use of RUCAS data.



# Programa de Regeneración de Conjuntos Habitacionales

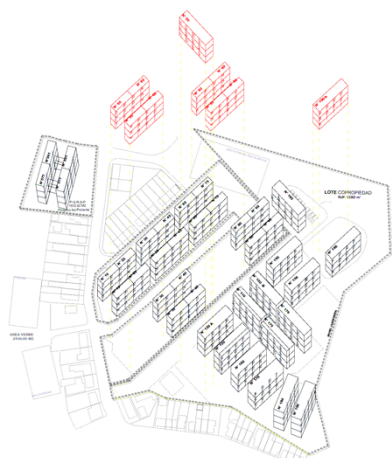
The *Programa de Regeneración de Conjuntos Habitacionales* is a participatory program which aims to **regenerate social housing neighborhoods** whose urban / residential configuration has **insufficient or deteriorated** accessibility, roads, green areas and facilities, weakened community organizations and deficient surface and habitability.

## Estimating the qualitative housing deficit

(Programa de Regeneración de Conjuntos Habitacionales, 2017)

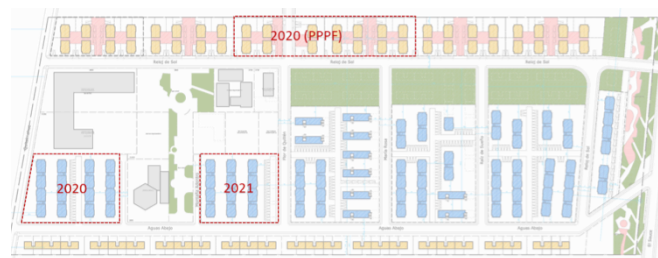
	Requiere intervención	To be intervened	RUCAS Study
Neighborhoods (n)	172	9	2
Dwellings (n)	76,580	8,385	1,640
Inhabitants (n)	297,000	32,500	4,665

Brisas del Mar intervention's masterplan.



Source: "Plan Maestro de Intervención. Condominio Social Brisas del Mar y Nuevo Horizonte II. Glorias Navales" (2015) SEREMI de Vivienda y Urbanismo Región de Valparaíso.

Marta Brunet intervention's masterplan.



Source: "Programa Intervención 2019-2029. Conjunto Marta Brunet" (2019), Equipo de Regeneración Urbana. SERVIU Región Metropolitana.

The intervention involves:

- Expansion (from 42 to 55-84 m<sup>2</sup>) and remodeling of dwellings (thermal and acoustic insulation, improvement of roofs and upgrading or renewal of sanitary and electrical utilities)
- Demolition of selected building blocks
- New recreational public spaces (green areas, parks) and sport facilities (sport courts, playgrounds)
- Construction and improvement of neighborhood equipment (community centers, sidewalks, lighting)
- Relocation of some families inside or outside the neighborhood (subsidies) according to family preferences (via purchase of their apartments)

# Salud Urbana en América Latina

## Learning from Latin America's Cities for a Healthier Future

(From [SALURBAL Factsheet](#))

Starting in April of 2017, the Dornsife School of Public Health at Drexel University and partners throughout Latin America and in the United States will work together to study how urban environments and urban policies impact the health of city residents throughout Latin America. Their findings will inform policies and interventions to create healthier, more equitable, and more sustainable cities world-wide. The five-year project, called SALURBAL or "Salud Urbana en America Latina" (Urban Health in Latin America) is funded by the Wellcome Trust as part of its Our Planet, Our Health initiative, which focuses on research examining the connections between the environment and human health.

### Aims:

Based at the Urban Health Collaborative at the Dornsife School of Public Health, the project brings together an interdisciplinary team including 11 institutions in Latin America, 3 institutions in the United States and several international organizations. This international team will collaborate to achieve the four overarching aims:

1

- To quantify the contributions of city and neighborhood-level factors to differences in levels of health and health inequalities among and within cities.

2

- To evaluate the health and environmental impact of city and neighborhood-level policies and interventions by capitalizing on natural experiments.

3

- To employ systems thinking and formal systems simulation models to better understand the dynamic relations between the urban environment, health and environmental sustainability and identify the plausible impacts of selected policies.

4

- To engage with the scientific community, the public, and policy makers to disseminate findings and translate them into policies and interventions.

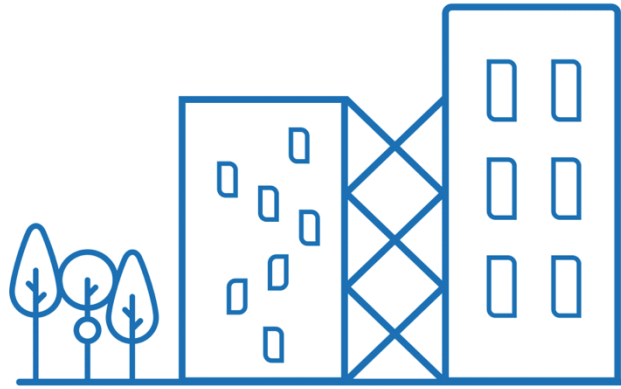


Learn more about SALURBAL in [lacurbanhealth.org](http://lacurbanhealth.org).



LAC-URBAN HEALTH  
Urban Health Network for Latin America and the Caribbean





# RUCAS

REGENERACIÓN  
URBANA, CALIDAD DE  
VIDA Y SALUD

# Research team

We are an interdisciplinary team:



Alejandra Vives, MD, Epidemiology. Principal Investigator.

Roxana Valdebenito, Sociologist, MSc Public Policy (c). Coordinator.

Francisca González, Statistician, MSc Statistics. Data Management.

Laura Orlando, Sociologist, MSc Urban Planning (c). Retention and qualitative study.

Ignacio Díaz, Sociologist, MSc Sociology (c). Research Assistant.

Natalia Díaz, Sociologist. Outreach.

Pablo Campos, Sociologist, MSc Public Policy (c). Research Assistant.

Fernando Baeza, Sociology, PhD Geography (c). Associate researcher.

## Collaborators:

Alejandra Rasse, Sociologist, CEDEUS, Escuela de Trabajo Social, PUC

Francisco Chateau, Architect, Escuela de Arquitectura, PUC

Waldo Bustamante, Engineer, CEDEUS, Escuela de Arquitectura, PUC

Gilles Flamant, Engineer, CEDEUS, Escuela de Ingeniería, PUC



# Purpose

The project's purpose is to study the relationship between the habitability conditions of the dwelling and its social and built environment with the health and well-being of the inhabitants of social housing, and the impact of the *Programa de Regeneración de Conjuntos Habitacionales* on the quality of life of its inhabitants.

# Background

The literature has shown an association of **health and wellbeing with dwelling and neighborhood** conditions (UN-Habitat, 2010; Borrell et al, 2012; Diez Roux, 2016).

How **improvements in dwelling and neighborhood conditions may potentially yield health benefits** has been a key research question addressed in studies conducted abroad, especially in Europe.

Capitalizing **urban regeneration as natural experiments**, several studies have shown specific increases in satisfaction with housing, improvements in the perceived quality of life, reduction of violence and mental health benefits (Egan et al, 2010; Cerdá et al, 2012; de Lima Friche et al, 2015; Ruijsbroek et al, 2017; Mohan, Longo and Kee, 2017).

However, research designs are **generally cross-sectional and fail to support definitive conclusions** regarding the impact of urban regeneration on health (Northridge, Sclar and Biswas, 2003; Bond, 2013; Matthews, 2014).

As far as we know, **there are no longitudinal studies** that assess the impact of **urban regeneration of formal social housing neighborhoods** on health and quality of life in Latin America, where programs have focused on moving residents from slums to formal settlements.



Source: Photos taken by the RUCAS team in Marta Brunet, 2018.

# Study sites

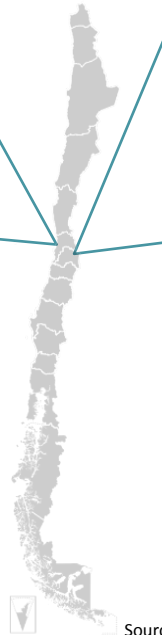
## Brisas del Mar & Nuevo Horizonte II

## Marta Brunet

Región de Valparaíso



Región Metropolitana



Source: Viña del Mar, Santiago, MAPS Google. Brisas del Mar ([MINVU](#)), Marta Bruet, ERU (Urban Rehabilitation Equipment).

1992	Year of construction	1996
25'	Travel time to the city downtown by public transport	70'
831	Inhabitants (census 2017)	3.834
384	N° of dwellings at the beginning of the intervention	1.256



# Study design

RUCAS is a multimethods longitudinal study that considers collecting primary data in several waves before and after interventions, combining quantitative and qualitative methods and 5 different instruments. These instruments are:

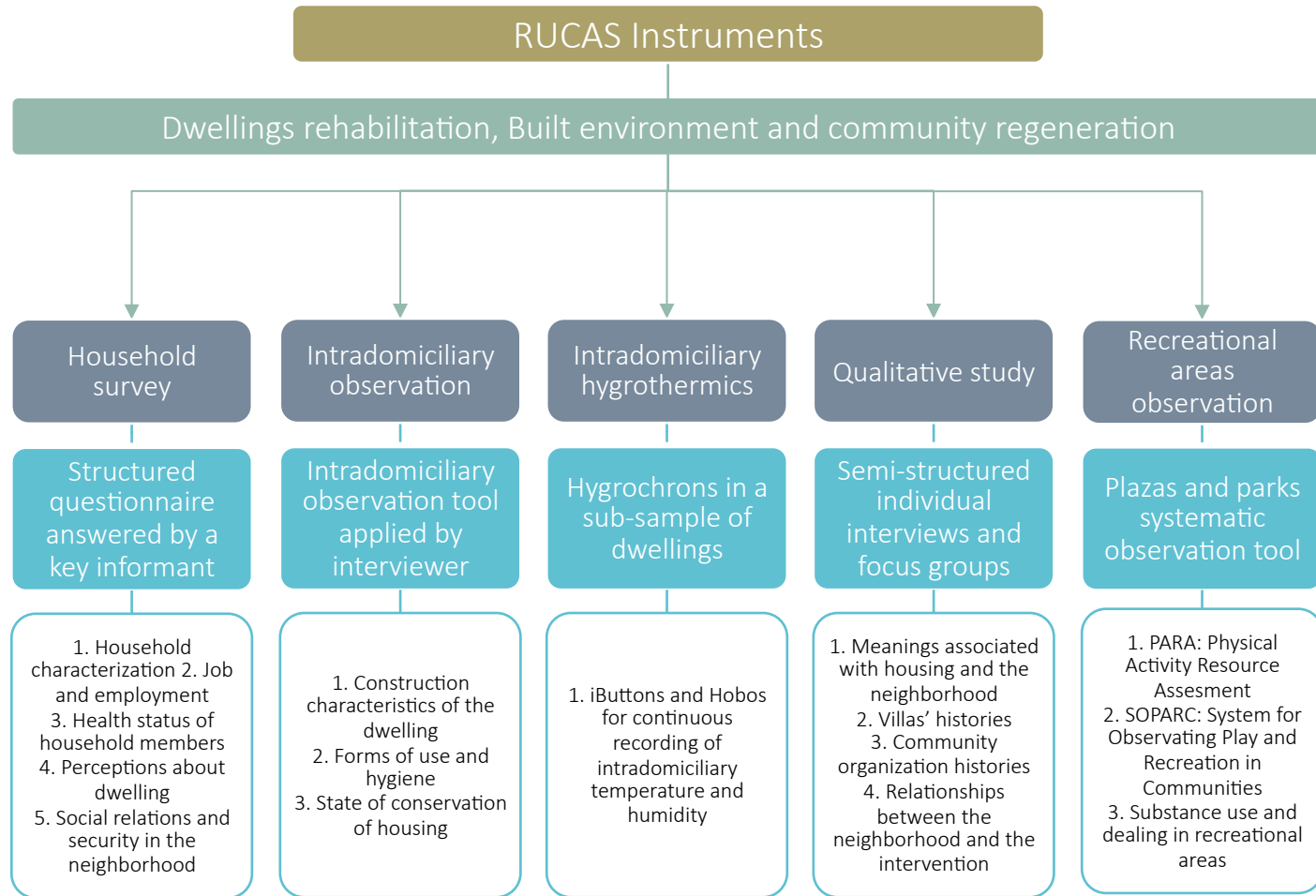
- Household survey: is applied face-to-face by trained interviewers to one household key informant (short and long version), contains information on all habitants of the dwelling. The survey is applied in winter and summer.
- Intra-domiciliary observation instrument: structured instrument applied by an trained external observer.
- Intradomiciliary hygrothermics (Hygrochrons): small standalone devices that measure and record temperature and moisture in a protected memory unit. Installed in a strategic sample of houses.
- Qualitative study: to describe key aspects of the history of the villas, community leadership, participatory processes in the program; and the significances and experiences associated with it.
- Recreational areas observation: System for Observing Play and Recreation in Communities (SOPARC) (McKenzie 2006) and Physical Activity Resource Assessment, PARA (Lee, 2005) will be applied before and after regeneration.

The application of the instruments extends from summer 2018 to winter 2021. It is fundamentally from the questionnaire and the observation guideline that a series of dimensions and indicators available for use by researchers interested in collaborating with RUCAS are derived. The instruments, measure timeline, analytical assumptions and study dimensions are described in more detail below.

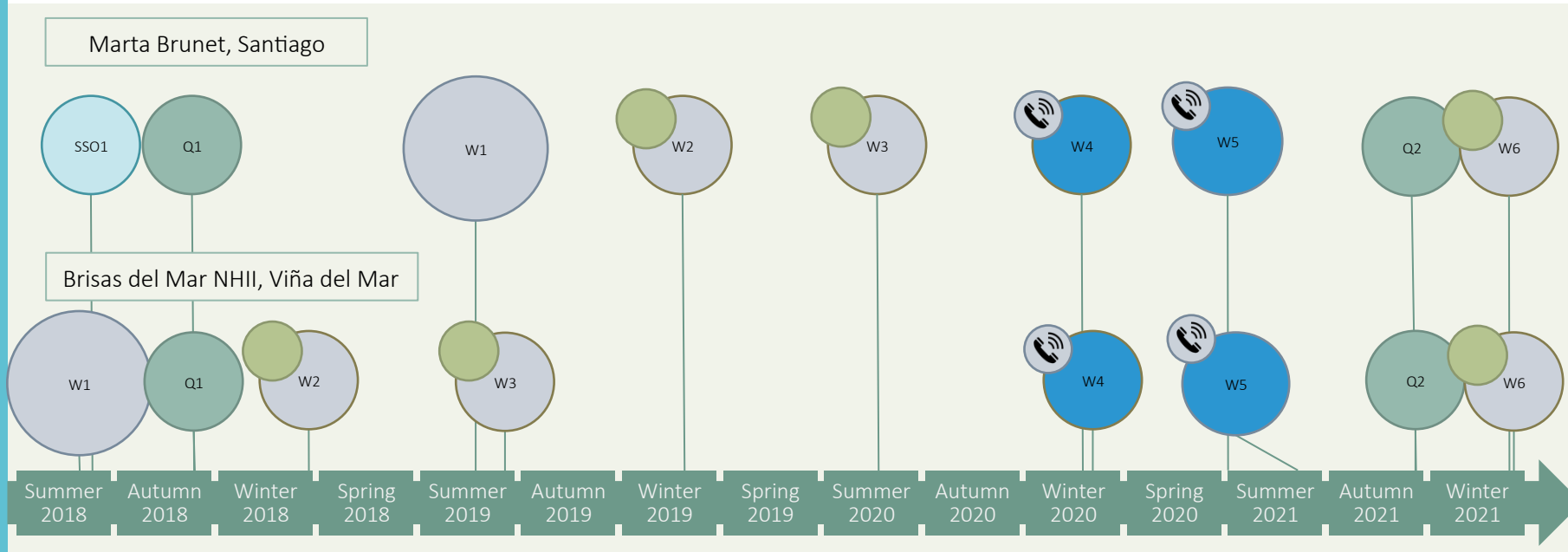


Source: photo taken by the RUCAS Team during the training of village leaders

# Instruments



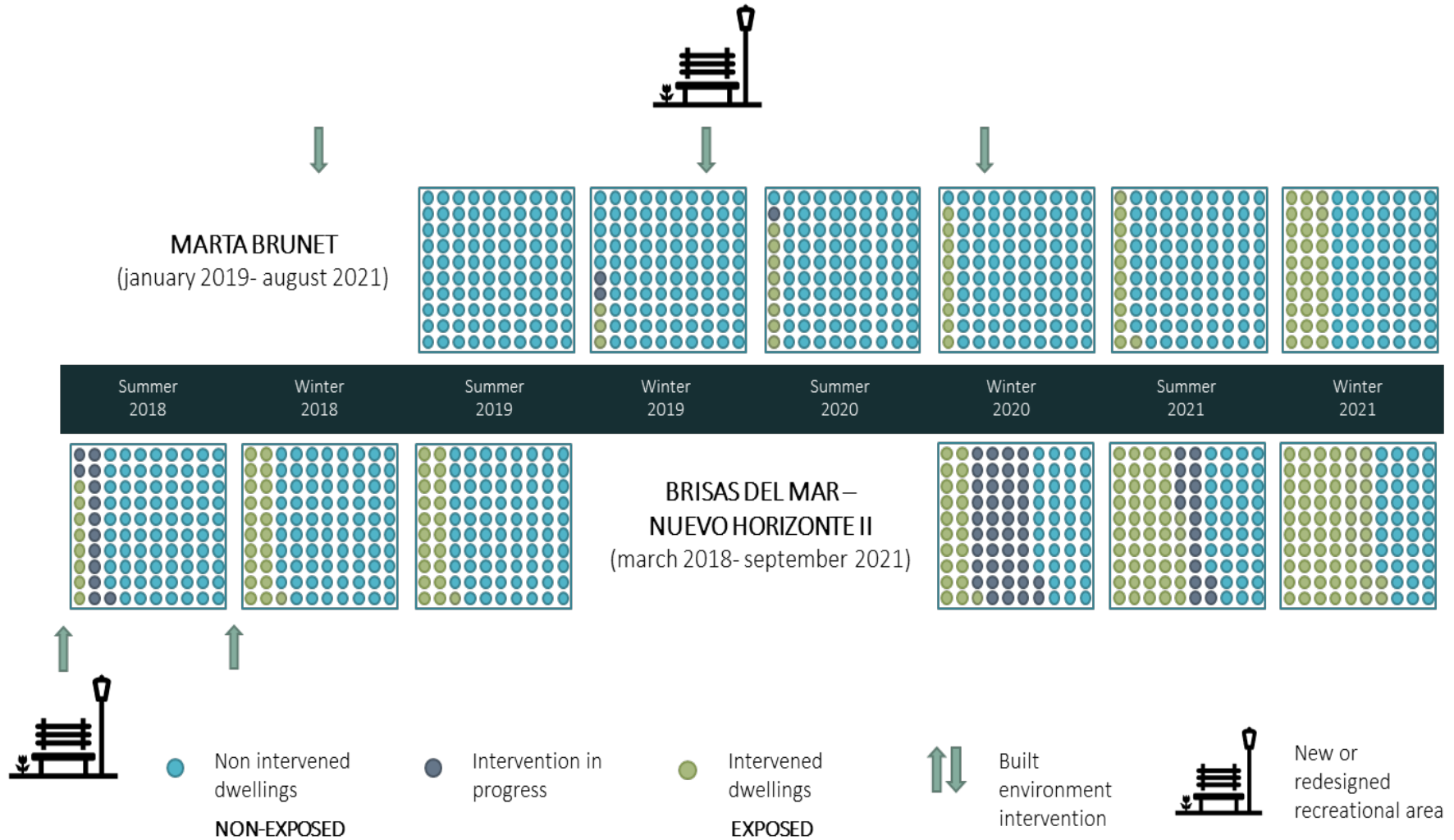
# Survey Measurement timeline



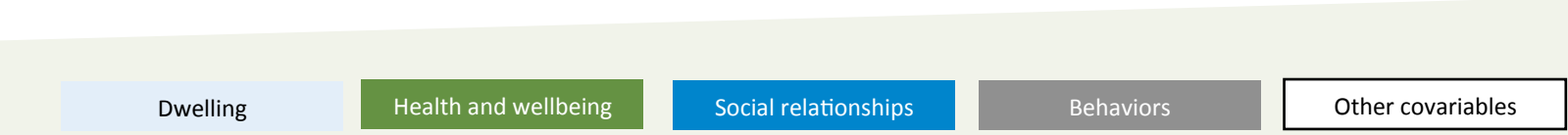
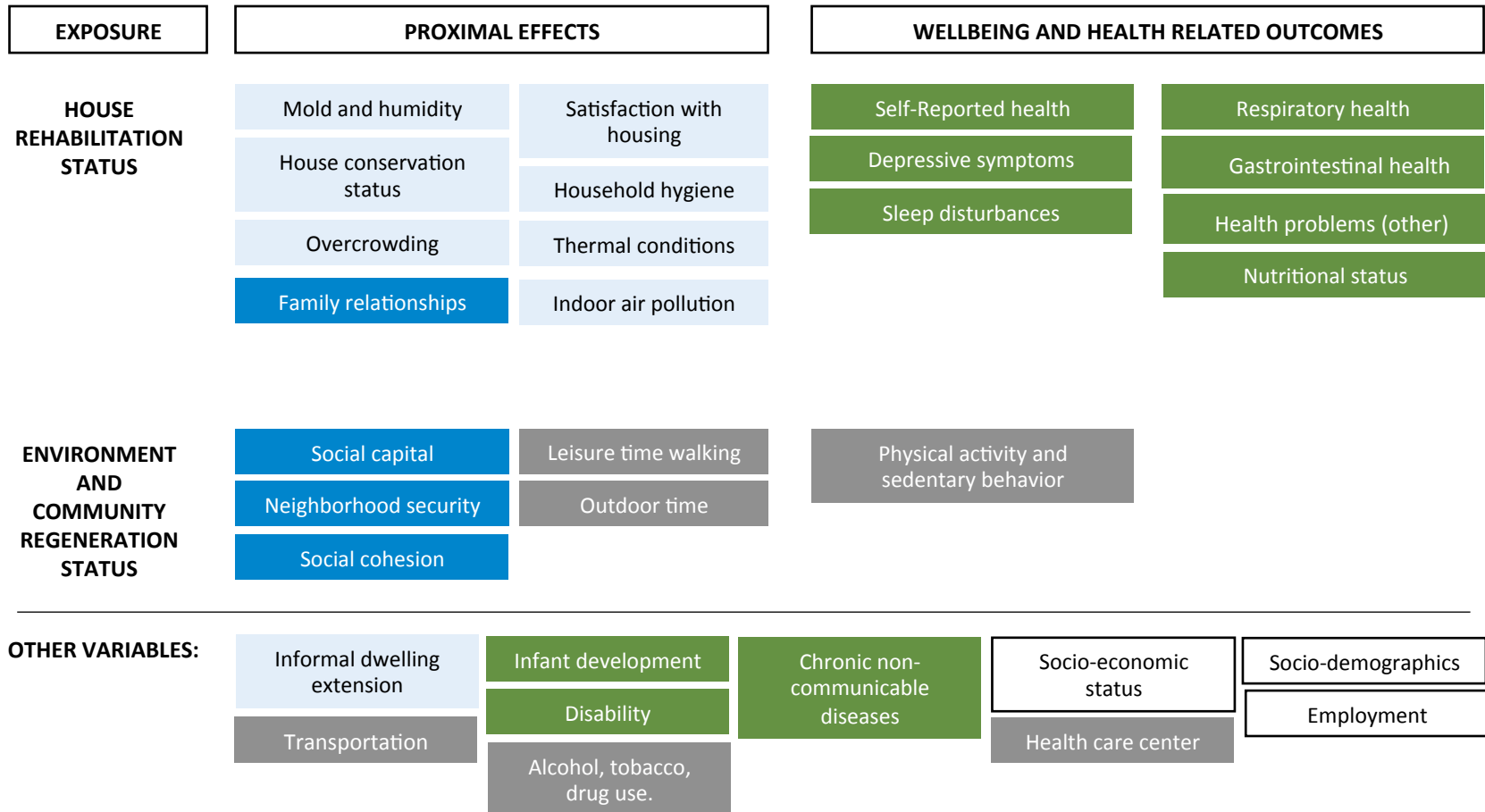
- Household survey and intradomiciliary observation (full version)
- Household survey and intradomiciliary observation (brief version)
- Household survey including COVID19-related variables
- Phone survey (no intradomiciliary observation)
- Hygrochrons measurement (hygrothermal conditions)
- Qualitative study
- Recreative areas social systematic observation

# Analytical assumptions

Exposed and non exposed dwellings at each wave (according to interventions masterplan)



# Study dimensions



# Study dimensions

## HOUSEHOLD HEALTH AND DWELLING CONDITIONS

Dimension	Description
Depressive symptoms	Depressive symptoms in the informant using the General Health Questionnaire-12 (GHQ-12) and other adults in the household using Patient Health Questionnaire (PHQ-2)
Family relationships	Conflicts between household members regarding living space
Gastrointestinal health	Acute gastrointestinal symptoms (vomiting, diarrhea), emergency department visits and hospitalizations
Health problems (Other)	Includes symptoms, emergency department visits and hospitalizations not related to gastrointestinal nor respiratory health
House maintainance	Leaks in roofs, floors and/or walls and general conservation status (windows, walls, electricity cables and plugs)
Household hygiene	Includes presence of garbage, animals and pests
Indoor air pollution	Type of fuel used for cooking and heating, perceived indoor air quality and frequency of ventilation
Mold and humidity	Magnitude of visible humidity and/or mold and/or odor in the dwelling's different living areas. Presence of damp clothing
Nutritional status	BMI calculated based on weight and height of each household member as reported by the household key informant and perceived body image of each household member as reported by the household key informant based on a figural drawing scale
Overcrowding	Number of persons per bedroom
Respiratory health	Symptoms or diagnoses of acute respiratory conditions, inhaler (MDIs) requirement, emergency department visits and hospitalizations
Satisfaction with housing	Key informant's satisfaction with general housing conditions, space, acoustic insulation and natural light
Self-Reported health	Self-perceived health assessed with a five-point Likert scale question
Sleep disturbances	Difficulty falling asleep, staying asleep, and daily sleepiness
Thermal conditions	Key informant's satisfaction with temperature in the house and thermal comfort.

## ENVIRONMENT AND COMMUNITY REGENERATION STATUS

Dimension	Description
Leisure time walking	Frequency of walking for leisure outdoors in the neighborhood
Neighborhood security	Key informant's perceived security and assessment of the presence neighborhood disorders.
Outdoor time	Weekly visits to the neighborhood's plazas and multipurpose courts
Physical activity and sedentary behavior	Self-reported time spent on light, moderate and vigorous physical activity (Global Physical Activity Questionnaire-GPAQ), self-reported time spent sitting or reclining (sedentary behavior question – GPAQ) and self-reported screen time.
Social capital	Key informant's participation and social support in the neighborhood
Social cohesion	Key informant's neighborhood sense of belonging, conflicts between neighbors, among others

# Study dimensions

## COVID19 RELATED VARIABLES\*

Dimension	Description
Incidence and diagnosis Access	Covid19 symptoms in the household, diagnosis given by health personnel, PCR Test.
Preventive actions compliance	Sick leave, isolation, difficulties with quarantine compliance
Access to state benefits	Money support, food boxes, early withdrawal of 10% of pension funds, sufficiency of benefits
Social issues related to COVID19 crisis	Related to mental health, income and access to resources, employment and working conditions, education, mobility, sedentarism, postponement of medical care, energy poverty, and others

## OTHER VARIABLES

Dimension	Description
Alcohol, tobacco, drug use.	Individual tobacco consumption and exposure to secondhand smoke at home, hazardous alcohol use (AUDIT, domain 1) and illegal drug use
Chronic non-communicable diseases	Self-reported medically-diagnosed chronic conditions (respiratory, cardiovascular, others) and multimorbidity
Disability	Household members with disabilities: type and limitations to activities of daily living (ADLs)
Employment	Occupation, employment conditions and precariousness (EPRES) in adults
Health care center	Refers to the health center attended by the study subjects
Infant development	Brief assessment of child development, based on Parent's Evaluation of Developmental Status, PEDS (Glascoe 1997)
Informal dwelling extension	Size, materials and rooms of family-built informal home extensions
Socio-demographics	Includes sex, age, nationality.
Socio-economic status	Educational level, household income, car tenure, housing tenure (home owner or renter)
Transportation	Mode and commuting time to study or work

\*Only waves 4 and 5.

More information about dimensions, variables and databases:

[roxana.valdebenito@uc.cl](mailto:roxana.valdebenito@uc.cl)



# COVID19 in the context of vulnerable populations. Social and health impact in the RUCAS cohort<sup>1</sup>

Following the global outbreak of COVID19, it is proposed to capitalize on the infrastructure of the RUCAS project to evaluate and describe the social and health impact of COVID19 in populations residing in two social housing developments in Chile in the short and medium-term (first winter wave and following summer).

This study aims to estimate, based on informant's report, the incidence of COVID19 in the study subjects and family clusters of COVID19; the association between risk factors and disease incidence; the mental health impact of COVID19 as well as other health consequences (weight gain, loss of health controls); adherence and barriers to confinement and isolation (quarantine); the impact of the pandemic on employment and socioeconomic situation (income loss, food insecurity, indebtedness); the access to state benefits; and online schooling completion.

The RUCAS-COVID project is nested in waves 4 and 5 of the RUCAS survey, introducing a COVID19 module encompassing 29 questions (adapted from surveys applied in Chile, internationally, or newly developed by the RUCAS team) . Given the sanitary conditions, both waves were applied by telephone.



<sup>1</sup> Project COVID1032 financed by the Chilean National Agency for Research and Development (ANID).



# Conditions for collaboration and RUCAS data use.



# Collaborate with us!

The development of research and collaboration with RUCAS involves responding to three elements: I) RUCAS collaboration policy; II) SALURBAL publications and presentations (P&P) policy, and III) Wellcome's Open Access (OA) policy 2021.



## RUCAS collaboration policy

- RUCAS welcomes collaborators to make use of our data. Collaborations will include at least one RUCAS researcher as PI or co-investigator, or as tutor or co-tutor in the case of a thesis.
- RUCAS will provide a fully anonymized dataset, specific to the study requirements, upon presentation of an approved manuscript proposal (see SALURBAL P&P policy).
- New data generated by collaborators will be provided back to RUCAS with the corresponding syntax, definitions and identification codes.
- Collaborators will agree not to attempt to identify any RUCAS participant, not to disclose any confidential data, nor transfer any data to individuals not explicitly authorized by RUCAS.
- Collaborators are expected to publish their findings. Please read Wellcome's OA policy below.



## SALURBAL Publications and presentations (P&P) policy

The goals of the policy are:

- To support and encourage the development and publication of high quality papers related to the aims of the project among all team members.
- To ensure that the project fulfills its top scientific priorities across a range of areas and its deliverables to the funder.
- To ensure that all team members have the opportunity to participate in publications.
- To foster capacity building for the entire team as well as the career development of junior and early stage investigators through their appropriate involvement in the publication process.
- To respect established international criteria for authorship as described in this [link](#), and to recognize all contributions appropriately.

All papers must be based on an approved manuscript proposal. The manuscript proposal must be reviewed and approved by all proposed coauthors prior to submission to the Publications Committee. There is a template that should be used.



## WELLCOME Open Access (OA) policy 2021

- The overarching aim is to make sure that knowledge and discoveries resulting from our funding are shared and used in a way that maximizes their benefit to health. Providing free, online Access to published research will maximize the availability and usability of publications, make sure the research we fund can be built upon.
- You can read the complete document [here](#).

Contact person: [ftgonzal@uc.cl](mailto:ftgonzal@uc.cl)