

The Mental Health Atlas Project:

A context analysis using a systems thinking approach

Prof. Luis Salvador-Carulla

Centre for Mental Health Research

Australian National University (Canberra, Australia)

luis.salvador-carulla@anu.edu.au

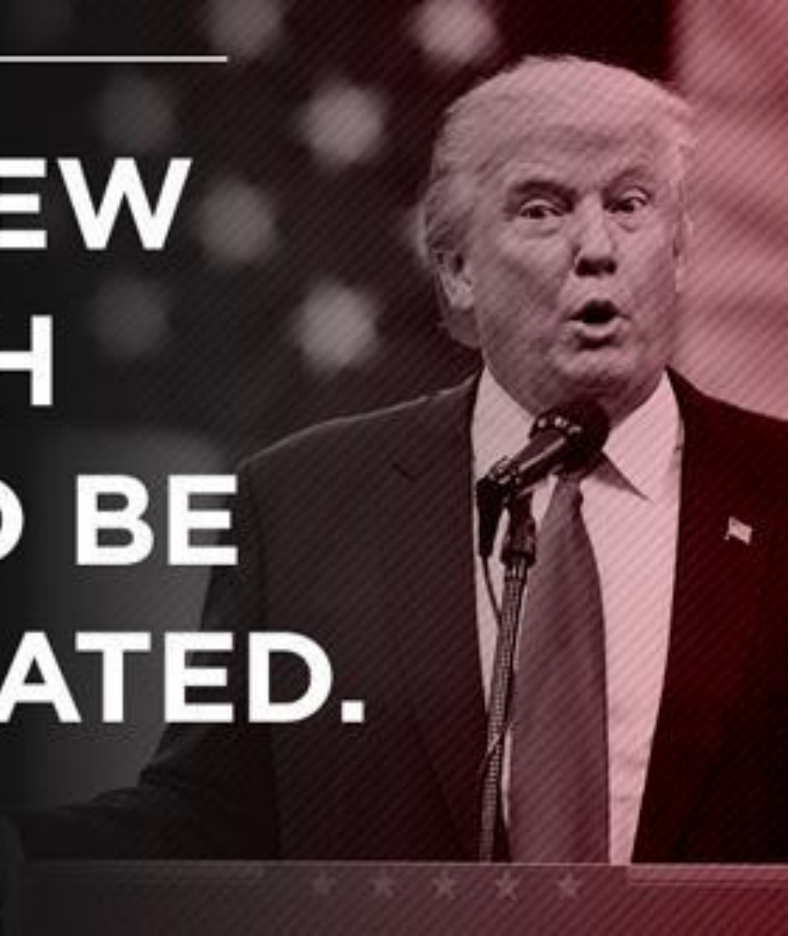
<http://cmhr.anu.edu.au/research/projects/atlas-mental-health-care>



“

**NOBODY KNEW
THAT HEALTH
CARE COULD BE
SO COMPLICATED.**

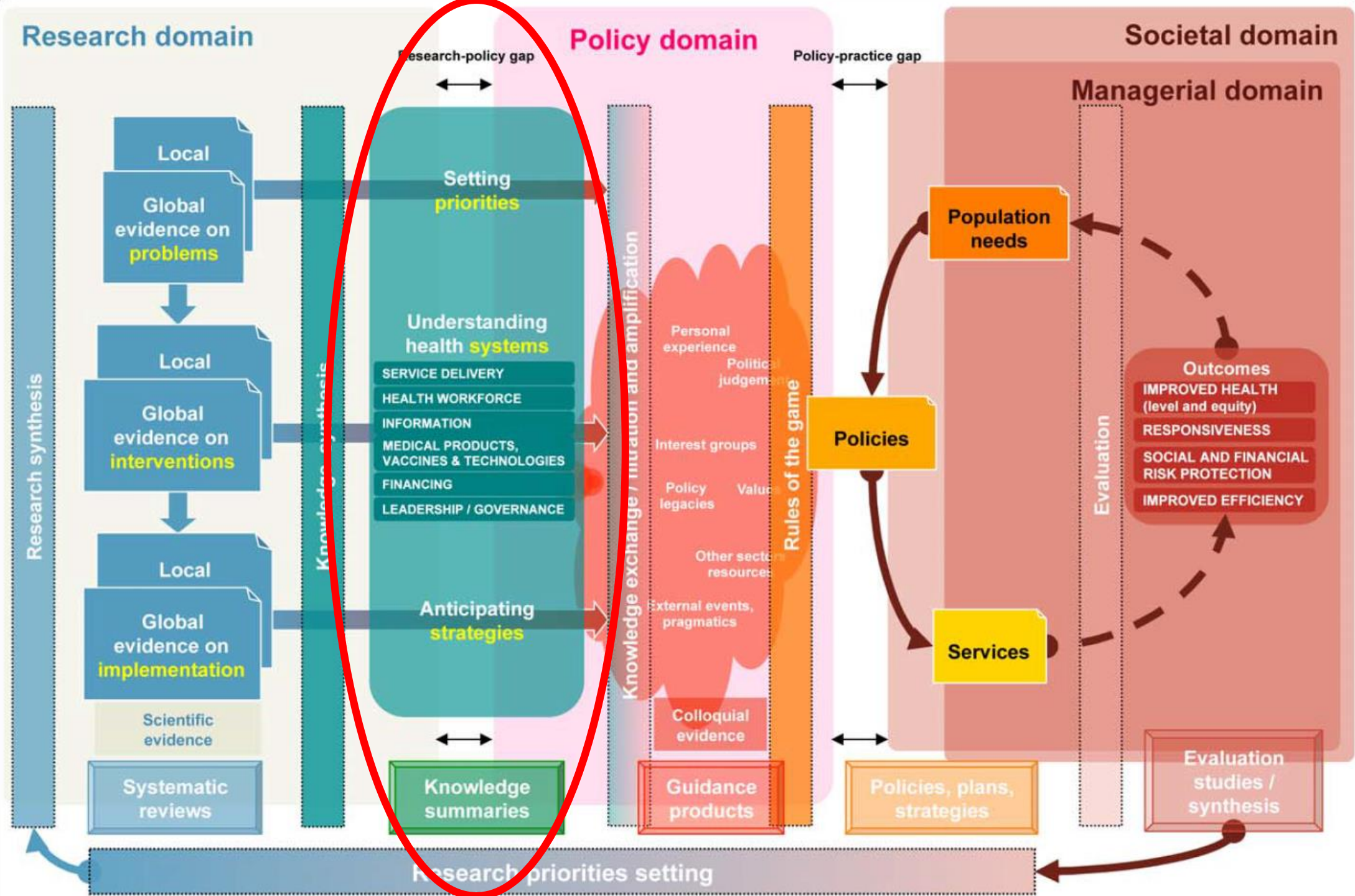
— PRESIDENT DONALD TRUMP



Complex-Systems Dynamics Approach

Evidence-Informed Policies about Health systems

Bosch-Capblanch
PLOS Med
9 (3), 2012



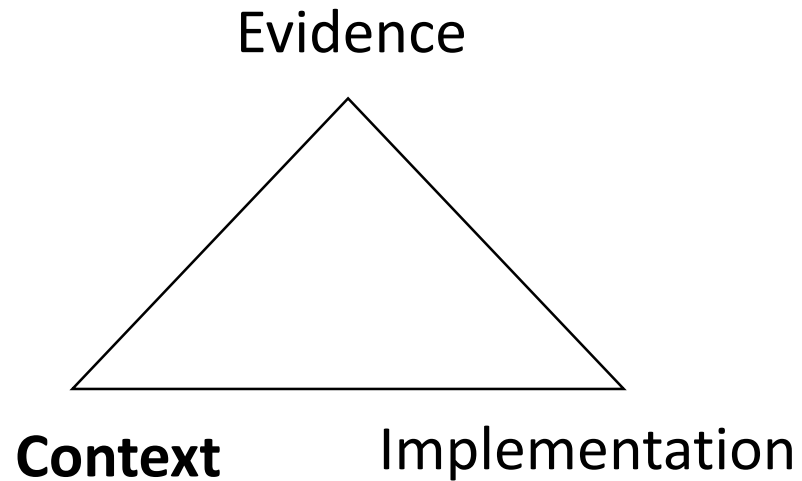
Perspectives on context

A selection of essays considering the role of context in successful quality improvement



Original research
March 2014

Context Analysis



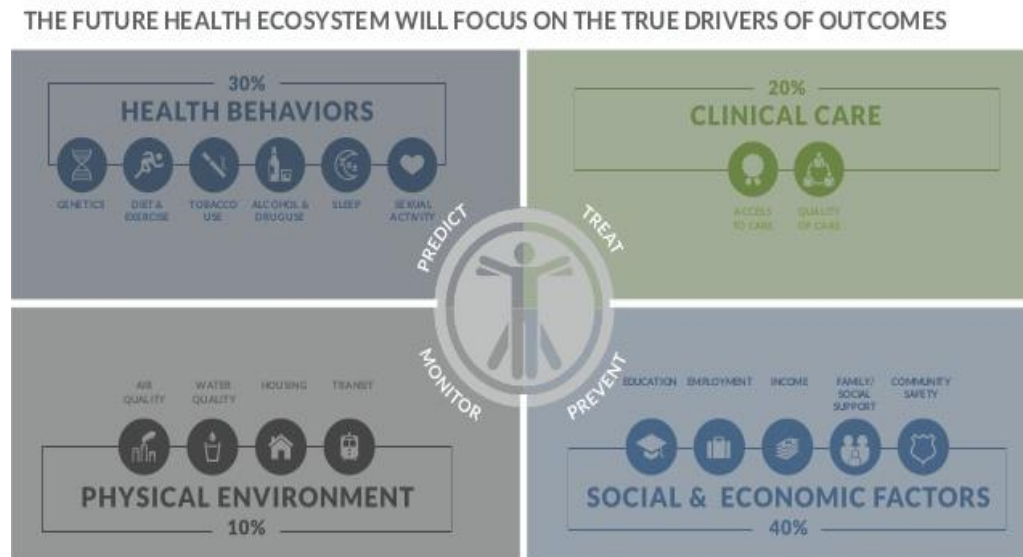
Expert Knowledge

Challenges, solutions and future directions in the evaluation of service innovations in health care and public health

Rosalind Raine, Ray Fitzpatrick, Helen Barratt, Gwyn Bevan, Nick Black, Ruth Boaden, Peter Bower, Marion Campbell, Jean-Louis Denis, Kelly Devers, Mary Dixon-Woods, Lesley Fallowfield, Julien Forder, Robbie Foy, Nick Freemantle, Naomi J Fulop, Elizabeth Gibbons, Clare Gillies, Lucy Goulding, Richard Grieve, Jeremy Grimshaw, Emma Howarth, Richard J Lilford, Ruth McDonald, Graham Moore, Laurence Moore, Robin Newhouse, Alicia O’Cathain, Zeynep Or, Chrysanthi Papoutsis, Stephanie Prady, Jo Rycroft-Malone, Jasjeet Sekhon, Simon Turner, Samuel I Watson and Merrick Zwarenstein

Context

Context refers to the totality of circumstances that comprise the milieu of a given phenomenon



3 | @chasedave Source: RWJF UNITE

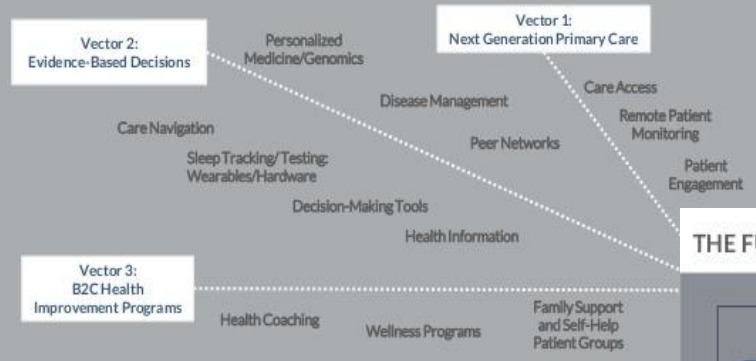
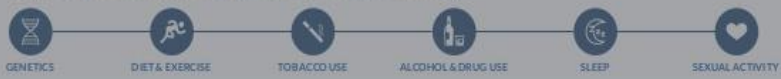
CASCADIA
CAPITAL LLC

- In health care it includes all sources of evidence of the local system: geography, social and demographic factors, other environmental factors, service availability, capacity, use and costs. It also includes legislation and expertise on the milieu (e.g., the historical account current state of the art)

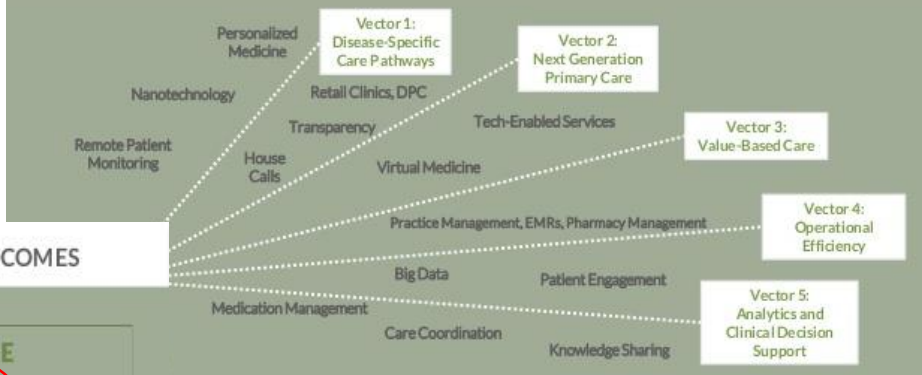
HEALTH ECOSYSTEMS

(Nimo et al, Cascadia, 2016)

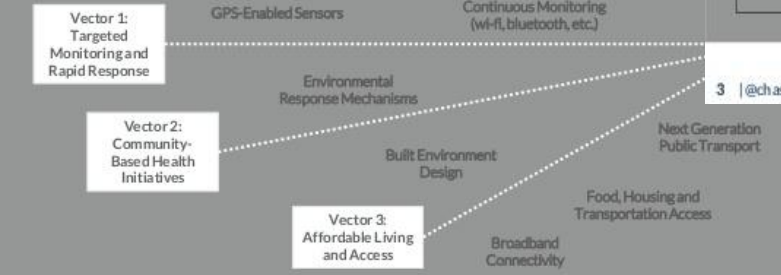
HEALTH BEHAVIORS (30% OF OUTCOMES)



CLINICAL CARE (20% OF OUTCOMES)

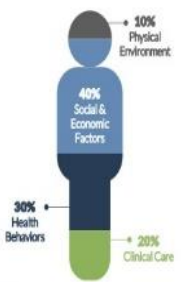


THE FUTURE HEALTH ECOSYSTEM WILL FOCUS ON THE TRUE DRIVERS OF OUTCOMES

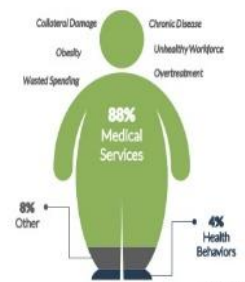


A STARK IMBALANCE WITH DRAMATIC REPERCUSSIONS

What Drives Outcomes?



Where Do We Spend Money?



CASCADIA CAPITAL LLC



Complex health systems: TOOLS & ANALYTICAL TECH.

Health ecosystems

Systems, subsystems,
nested systems
Boundaries and
Population determinants

LOCAL ATLAS OF CARE

Jurisdictions
Context analysis
GIS

Epidemiology
Provision
Use

DSS

Taxonomies
Logic models
Conceptual maps

Interventions
Strategies
Social Networks

Agents

Consumers
Professionals,
Teams,
Organisations

Frameworks

Models & Drivers

Connections

Networks
interactions

Complex health systems: DECISION SUPPORT SYSTEMS

Context Analysis

MACRO
MESO
MICRO

LOCAL ATLAS OF CARE

Jurisdictions
Context analysis
GIS

Availability
Capacity
Use

New Procedures

Knowledge Discovery from Data (KDD)
Expert-based Collaborative Analysis (EbCA)

DSS

Framing Scientific Knowledge (experts)

Health ontology
Research Synthesis
Conceptual analysis

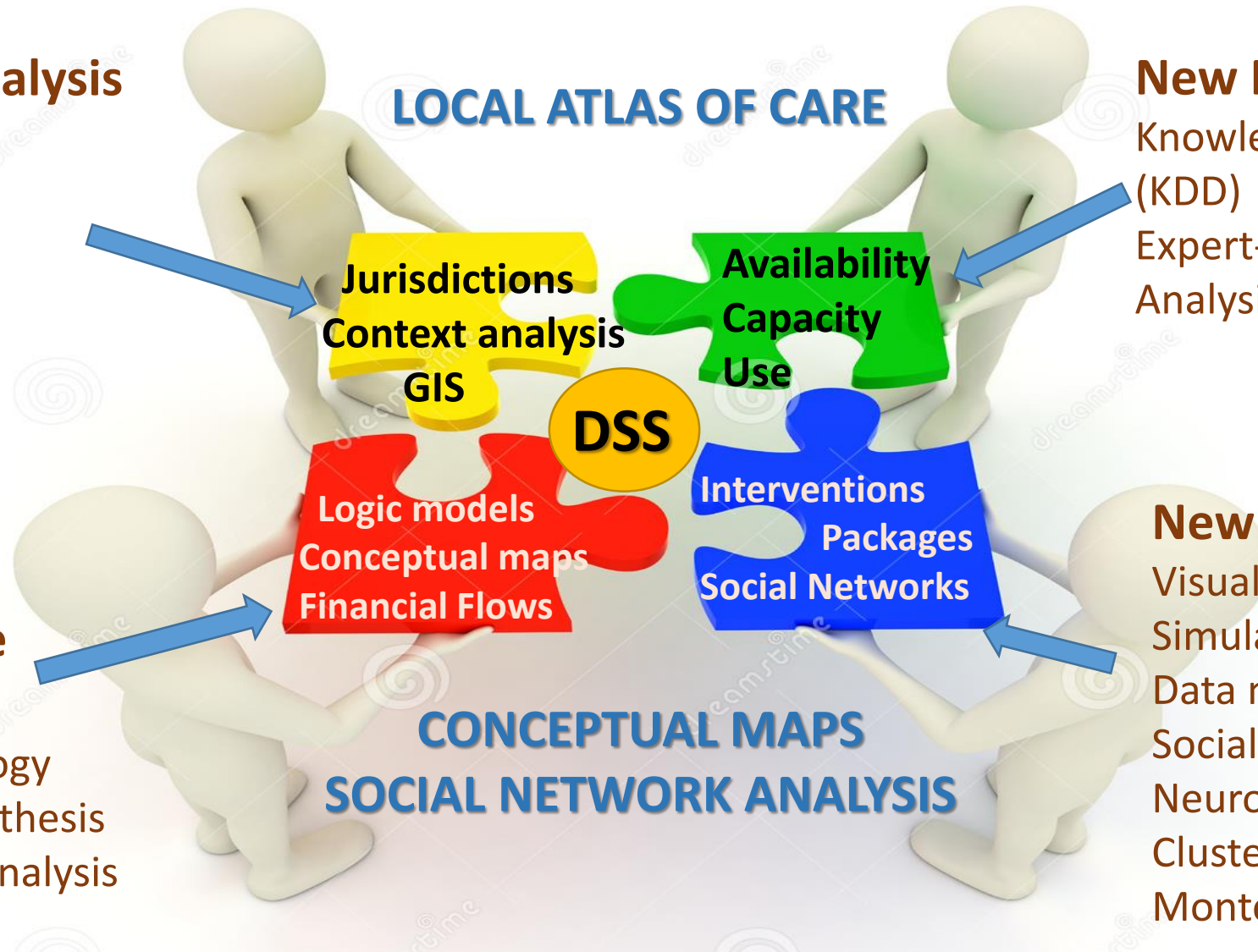
Logic models
Conceptual maps
Financial Flows

Interventions
Packages
Social Networks

New Tools

Visualisation
Simulation Modelling
Data mining
Social Network Analysis
Neuronal Network Analysis
Cluster based on Rules
Monte Carlo DEA

CONCEPTUAL MAPS SOCIAL NETWORK ANALYSIS



EPCAT- MHEEN – DESDE-LTC – REFINEMENT

1994

2000

2008

2012

EPCAT BATTERY

- ESDS: Sociodemographics
- ESMS: Service delivery
- ICMHC: Interventions

MHEEN

- Financing
- Service delivery

REFINEMENT

- REMAST: Mapping delivery
- FINCENTO: Financing
- REPATO: Pathways of care
- REQUALIT: Quality of care



Main Problems when Assessing Services

MH Atlas Solutions



- **Commensurability:** Diff. units of analysis, lack of comparison like with like .
We cannot merge:



- Service Providers
- Clinical teams
- Interventions
- Activities



1st We identify the minimal unit of production or care (Basic Stable inputs of Care- **BSIC**) or **TEAMS**



Transferability and terminological variability:

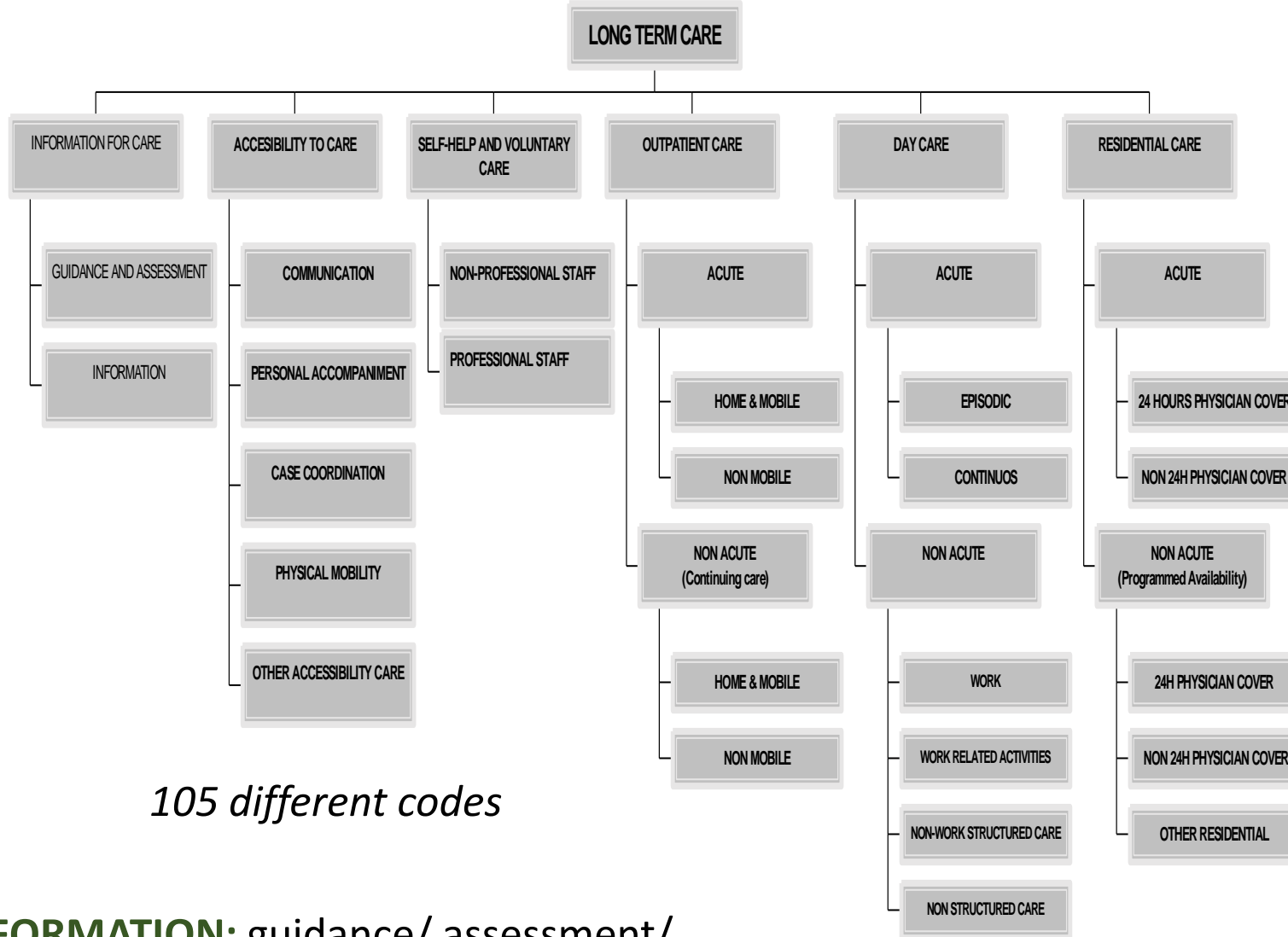


- Names of the services do not always reflect their main activity (Hospital – Outreach services- Crisis houses-medical homes)
- Names of same services vary across jurisdictions (Day care)

2nd We label them according to their Main Type of Care (**MTC**) they provide



ESMS/DESDE Main Type of Care: Tree Taxonomy



105 different codes

INFORMATION: guidance/ assessment/ information without direct care (e.g. information about availability of services)

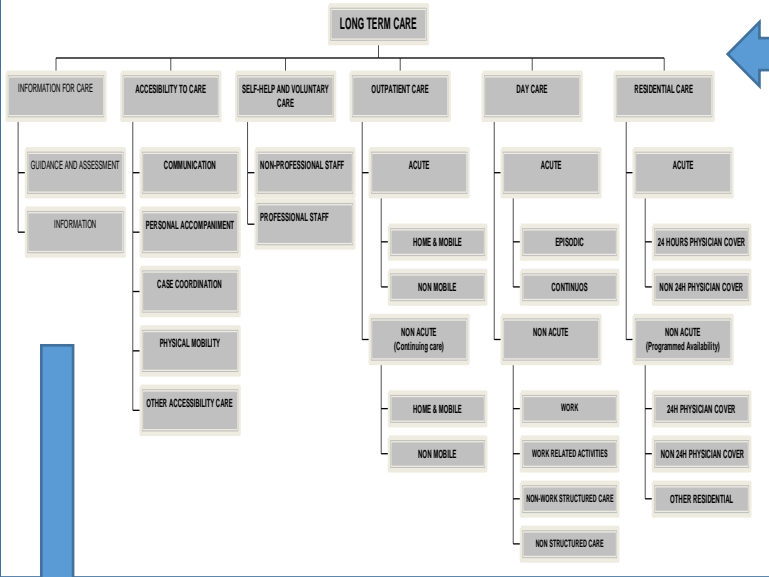
ACCESSIBILITY: access to care WITHOUT direct provision of care related to needs (e.g. access to employment)

OUTPATIENT: contact with the person in a limited period of time (eg. visit with the GP).

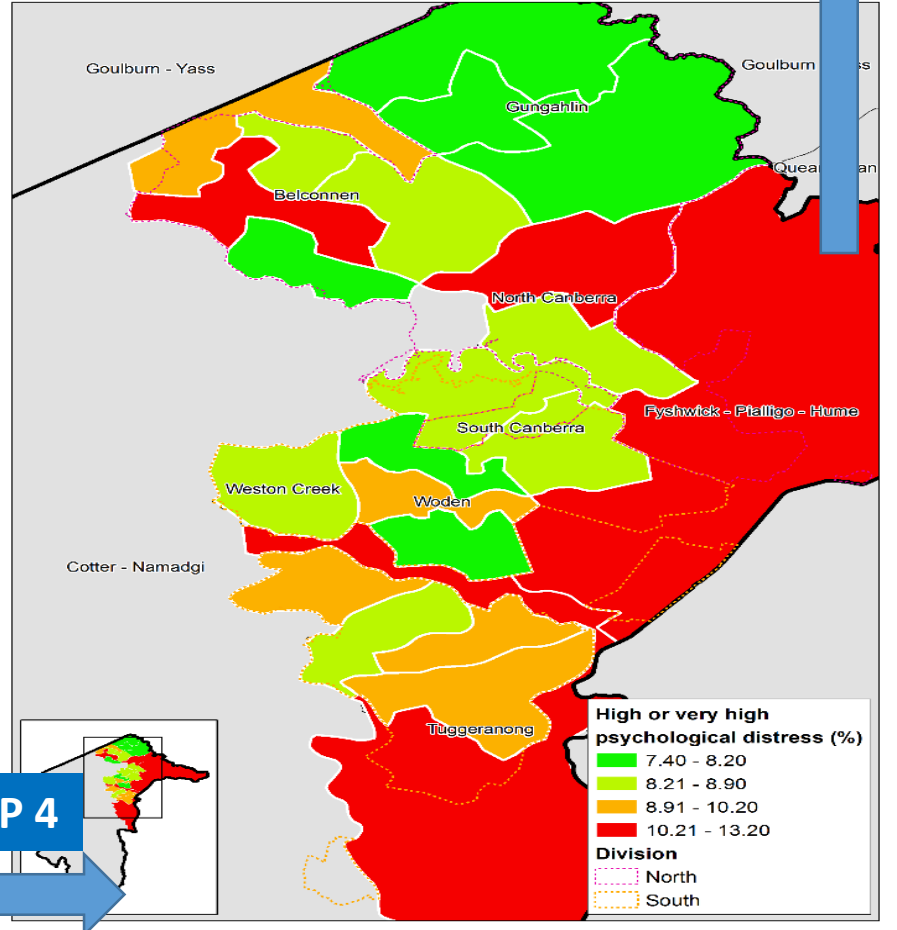
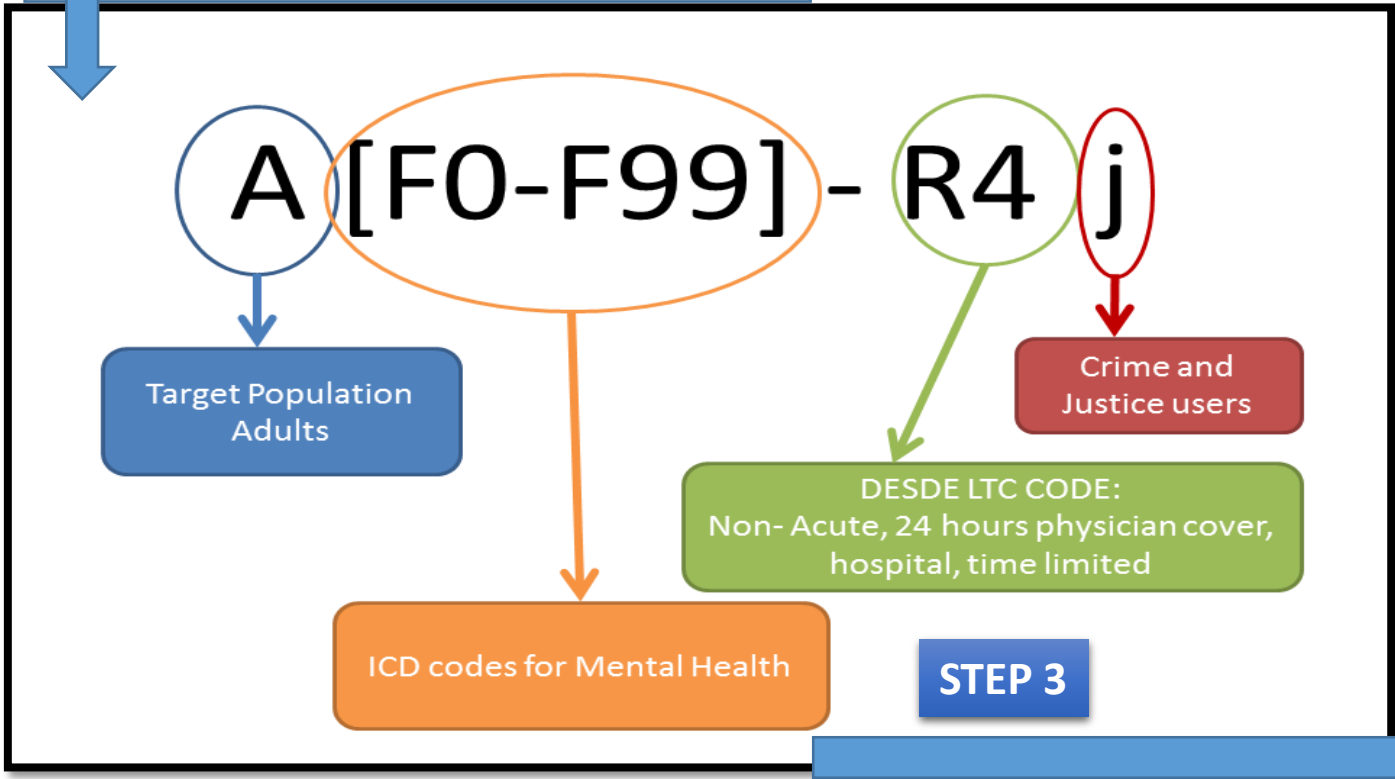
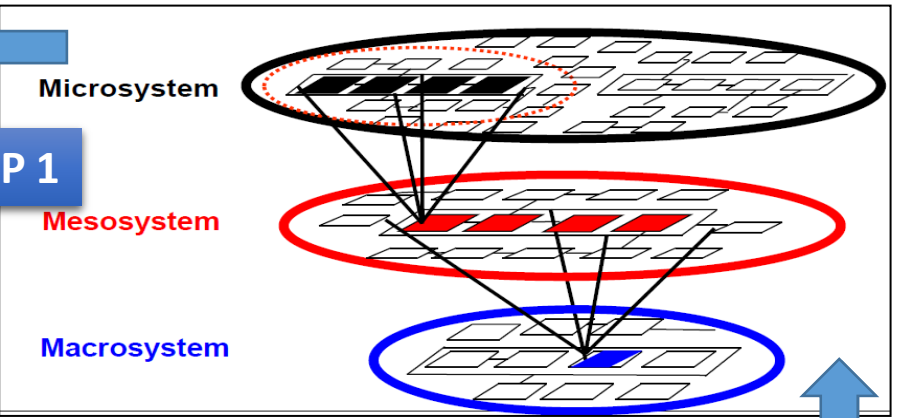
DAY CARE: the person spends the day at the facility (e.g. day hospital or social club)

RESIDENTIAL: the person sleeps at the facility (eg. acute unit -hostel)

SELF CARE/VOLUNTARY: non-paid staff (e.g. Alcoholic anonymous)



STEP 2



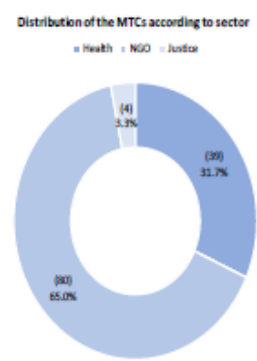
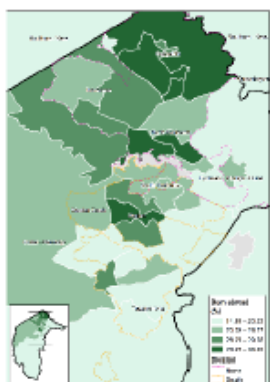
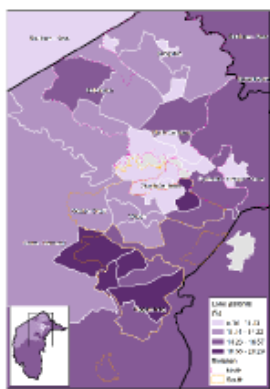


How to read an integrated mental health atlas

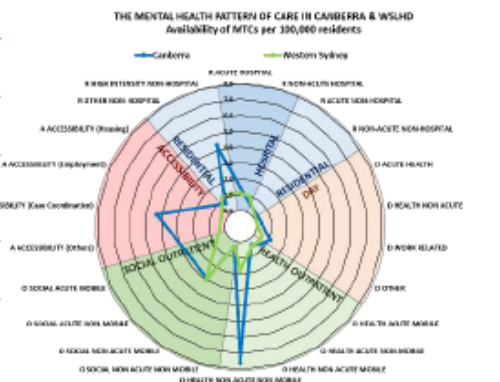


LOCAL ATLAS OF MENTAL HEALTH CARE

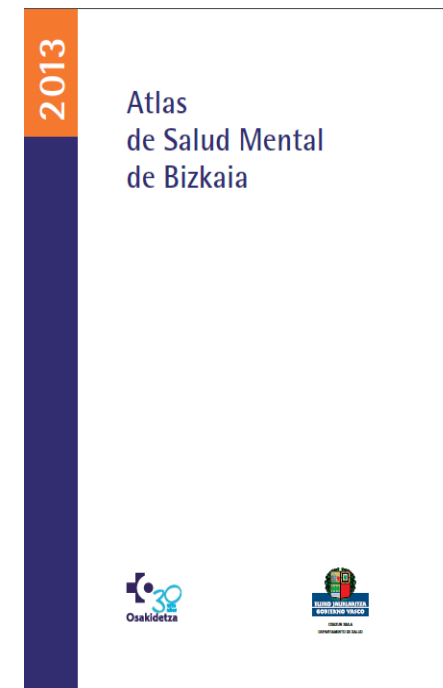
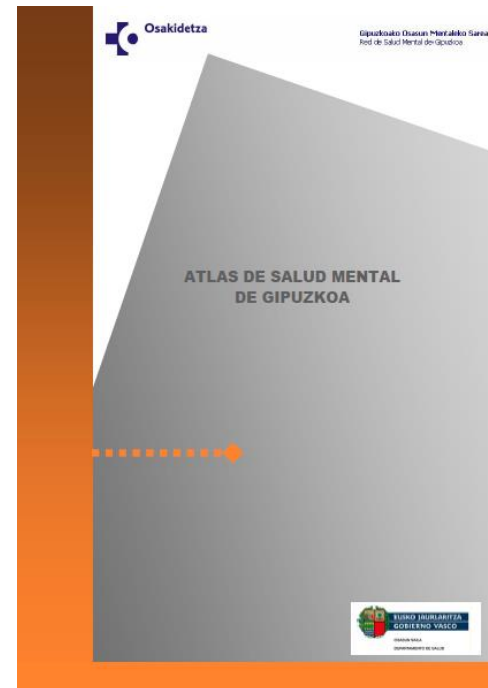
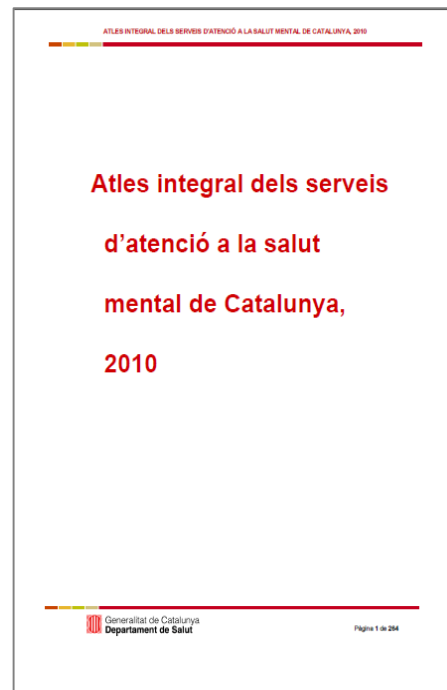
RESULTS: Tables and spider graphs with information on: KEY SOCIAL AND DEMOGRAPHIC INDICATORS, MAPS, CARE AVAILABILITY, BALANCE OF CARE, PLACEMENT CAPACITY, WORKFORCE CAPACITY by target population and care subsystems (General MH, (Child and Adolescent), Older adults, (Drug & Alcohol), Transition, etc.



Provider	Name	Main Desde Code	FT E	Town / Suburb	Area of Coverage
Capital Health Network	PIR-CHN	GX[F00-F99]-A4.2v	12.0	Deakin	0
CatholicCare	PIR	AX[F00-F99]-A4.2.2	3.5	0	0
Northside Community Service	PIR	GX[F00-F99]-A4.2.2v	1.0	Dickson	ACT
Richmond fellowship	ACT	AX[F00-F99]-A4.2v	2.0	Pialligo	ACT
Woden Community Service	PIR	AX[F00-F99]-O6.2v	2.0	Woden	Woden area



INTEGRATED ATLASES OF MENTAL HEALTH CARE

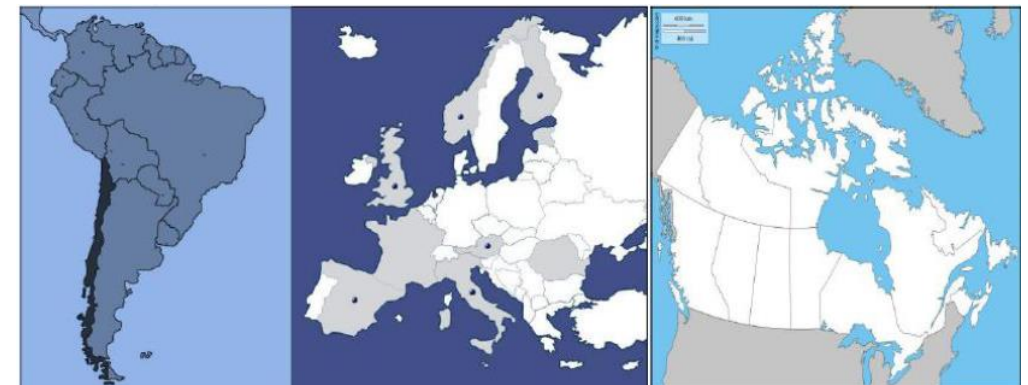


Epidemiology and Psychiatric Sciences, page 1 of 13. © Cambridge University Press 2014
doi:10.1017/S2045796014000511

ORIGINAL ARTICLE

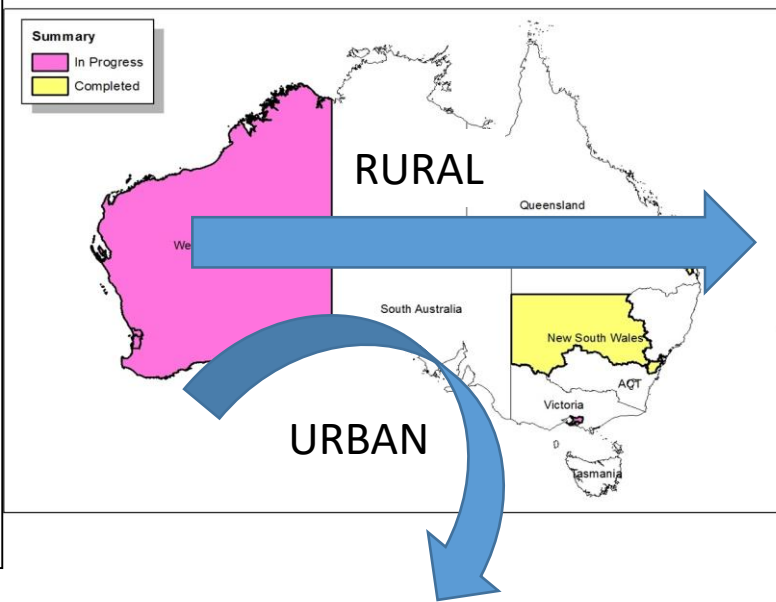
Use of an integrated Atlas of Mental Health Care for evidence informed policy in Catalonia (Spain)

A. Fernandez^{1,2}, J. A. Salinas-Perez³, M. R. Gutierrez-Colosia⁴, B. Prat-Pubill⁵, A Serrano-Blanco², C. Molina⁵, E. Jorda⁵, C. R. Garcia-Alonso³ and L. Salvador-Carulla^{1*}, on behalf of the GEOSCAT-SM group



THE INTEGRATED MENTAL HEALTH ATLAS OF WESTERN SYDNEY

FUNDED BY: **Western Sydney Partners In Recovery**



THE INTEGRATED MENTAL HEALTH ATLAS OF THE FAR WEST

Integrated Atlas of Mental Health and Alcohol and Other Drugs of Western Australia - Volume II Country WA

The Integrated Mental Health Atlas of Western NSW

The Integrated Mental Health Atlas of Brisbane North

DRAFT REPORT FOR COMMENT

A project of Brisbane North Partners in Recovery
 1ST SEPTEMBER 2015

THE INTEGRATED MENTAL HEALTH ATLAS OF SOUTH WESTERN SYDNEY

VERSION FOR PUBLIC COMMENTS: 5TH NOVEMBER 2015

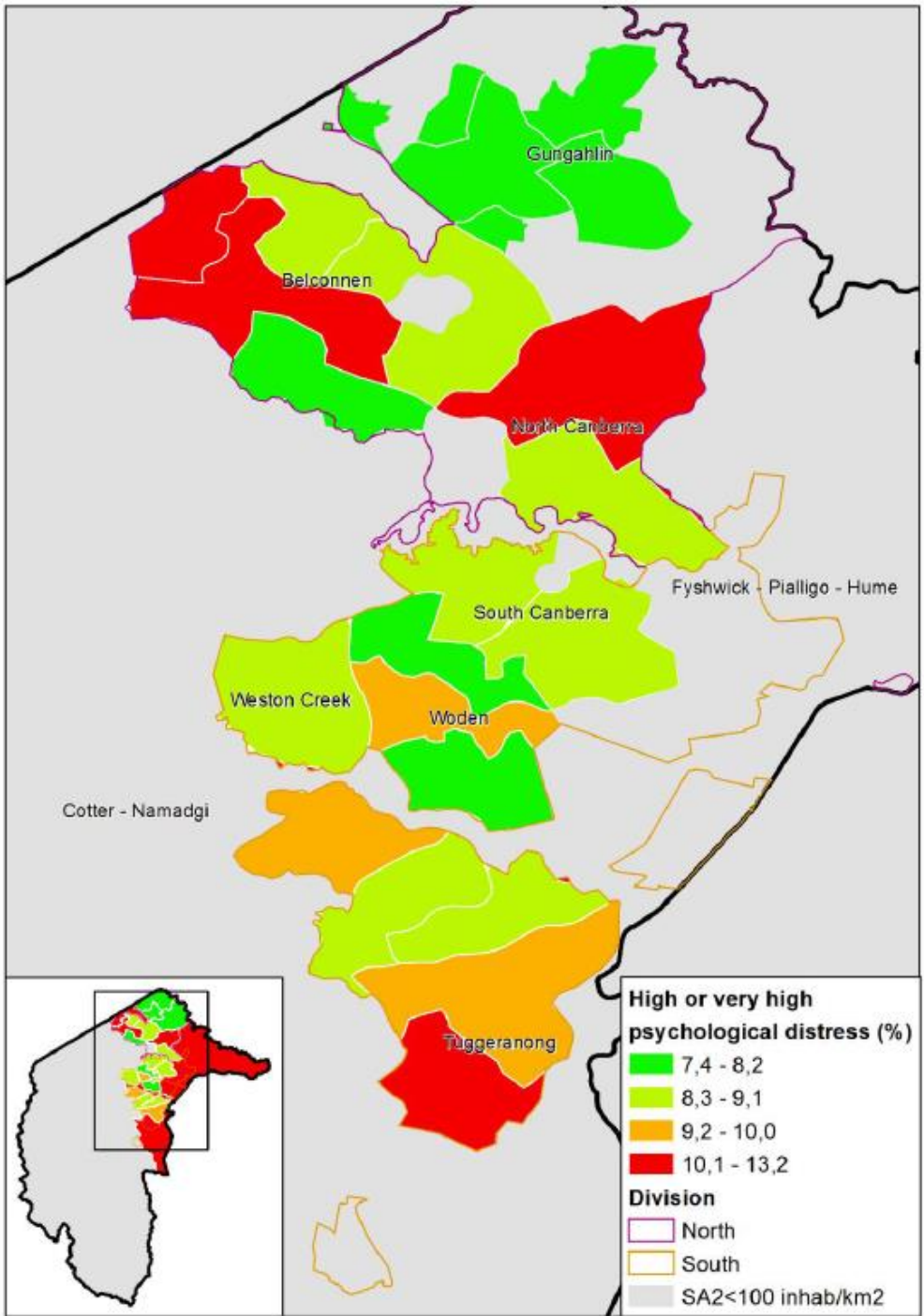
THE INTEGRATED MENTAL HEALTH ATLAS OF THE CENTRAL AND EASTERN SYDNEY PHN REGION

ANNEX 2: THE INTEGRATED MENTAL HEALTH ATLAS OF THE SOUTH EASTERN SYDNEY LOCAL HEALTH DISTRICT

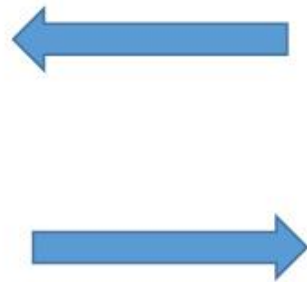
Integrated Atlas of Mental Health and Alcohol and Other Drugs of Western Australia - Volume I Metropolitan Perth

THE INTEGRATED MENTAL HEALTH ATLAS OF THE CAPITAL HEALTH NETWORK

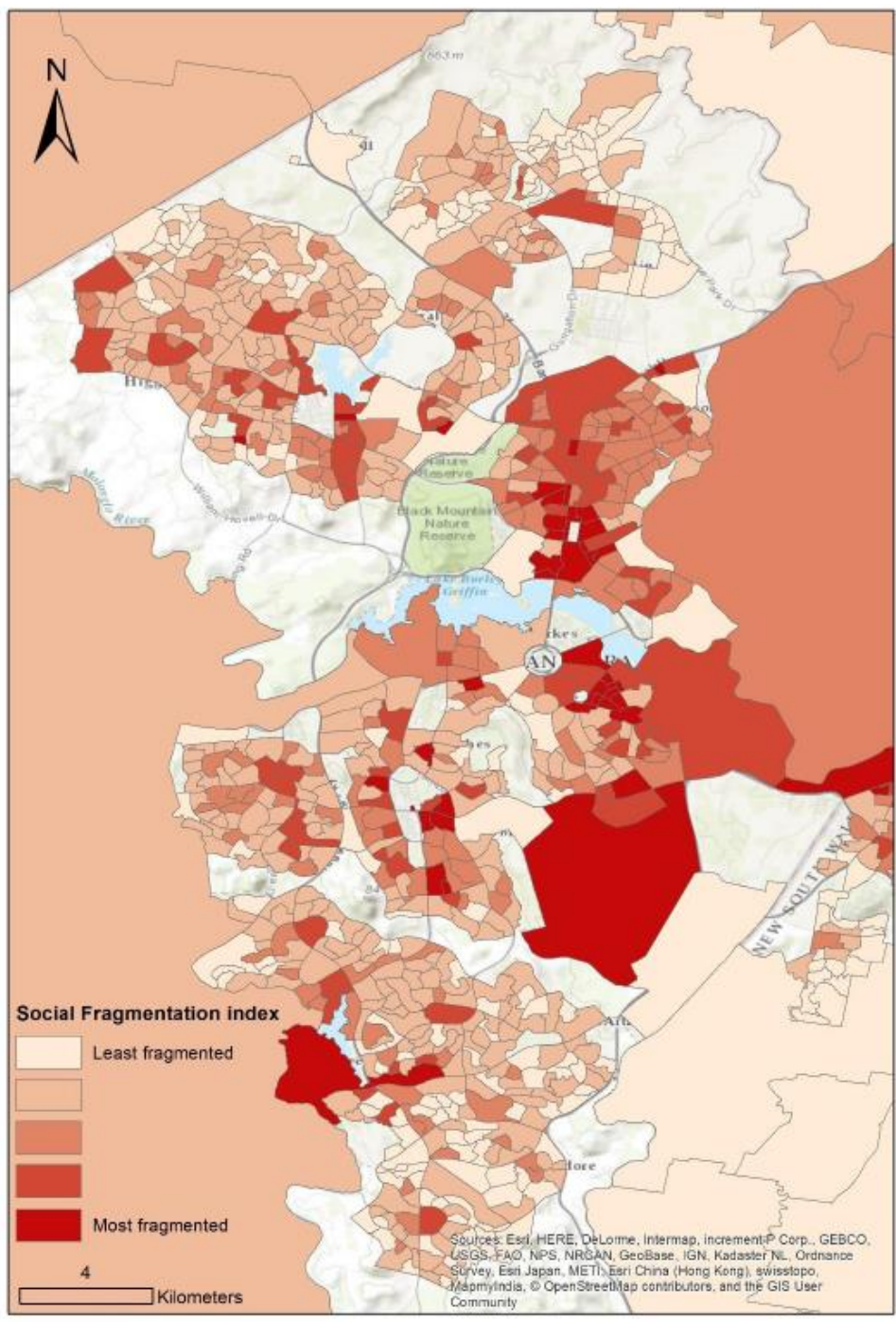
VERSION for comments May 30 2017



Psychological distress:
 age standardized ratio of people with high or very high levels of psychological distress according to the Kessler psychological distress scale (K10) -prior four weeks- in PHA areas (PHIDU database)

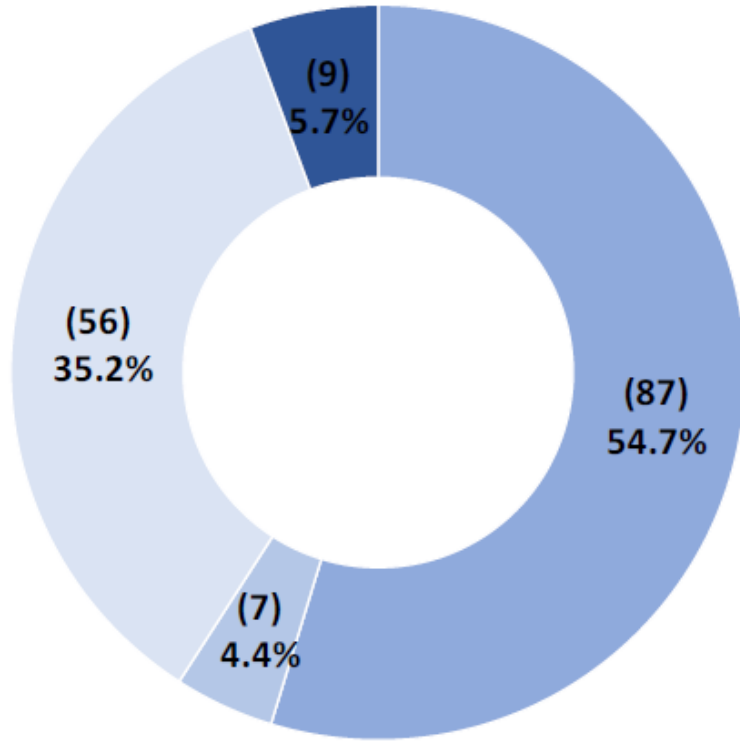


Social Fragmentation Index: an index of social fragmentation developed using principal component analysis technique at statistical area level 1 (SA1) for whole Australia. This index include; percentage of lone people, home ownership, non-family household and school age children in each SA1.



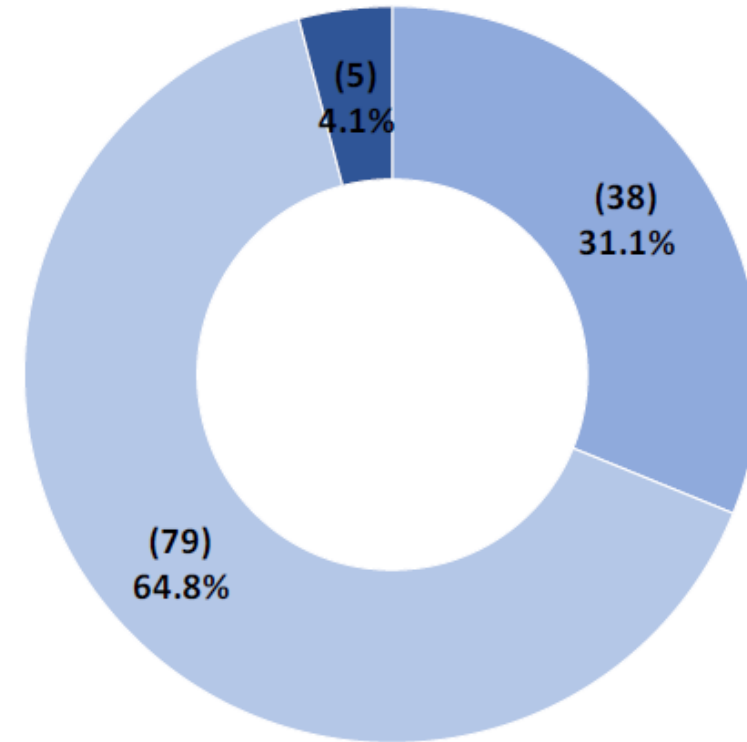
Balance of Care: distribution of the MTCs according to sector

■ Health ■ FACS ■ NGO ■ Justice



**CESP HN
SYDNEY**

■ Health ■ NGO ■ Justice



**CHN
CANBERRA**



eDESDE-LTC

Partners in Recovery

Semantic variability

Provider	Name	Main Desde Code	FTE
Capital Health Network PIR	PIR-CHN	A4.2v	12.0
CatholicCare	PIR	A4.2.2	3.5
Northside Community Service	PIR	A4.2.2v	1.0
Richmond fellowship ACT	PIR	A4.2v	2.0
Woden Community Service	PIR	O6.2v	2.0
Total	5		
Rate per 100,000 residents (>17 years old)	1.8		

PIR ES	A4	Waterloo	4.0
PIR IWS	A4	Marrickville	4.0
PIR IWS	A4	Five Dock	6.6
PIR IWS	A4	Burwood	5.0
PIR IWS	A4	Alexandria	4.0
PIR IWS	O5.2	Alexandria	3.0
PIR ES	O5.2	Randwick	5.0
PIR ES	O5.2	Randwick	6.0
PIR ES	O5.2	Pagewood	10.5
PIR SES	O5.2	Hurstville	5.0
PIR ES	O5.2	Darlinghurst	5.0
PIR IWS	O5.2	Ashfield	4.0
PIR SES	O5.2	Hurstville	4.0
PIR-CALD SES	O5.2	Rockdale	4.0

CANBERRA

SYDNEY

CHN-ACT

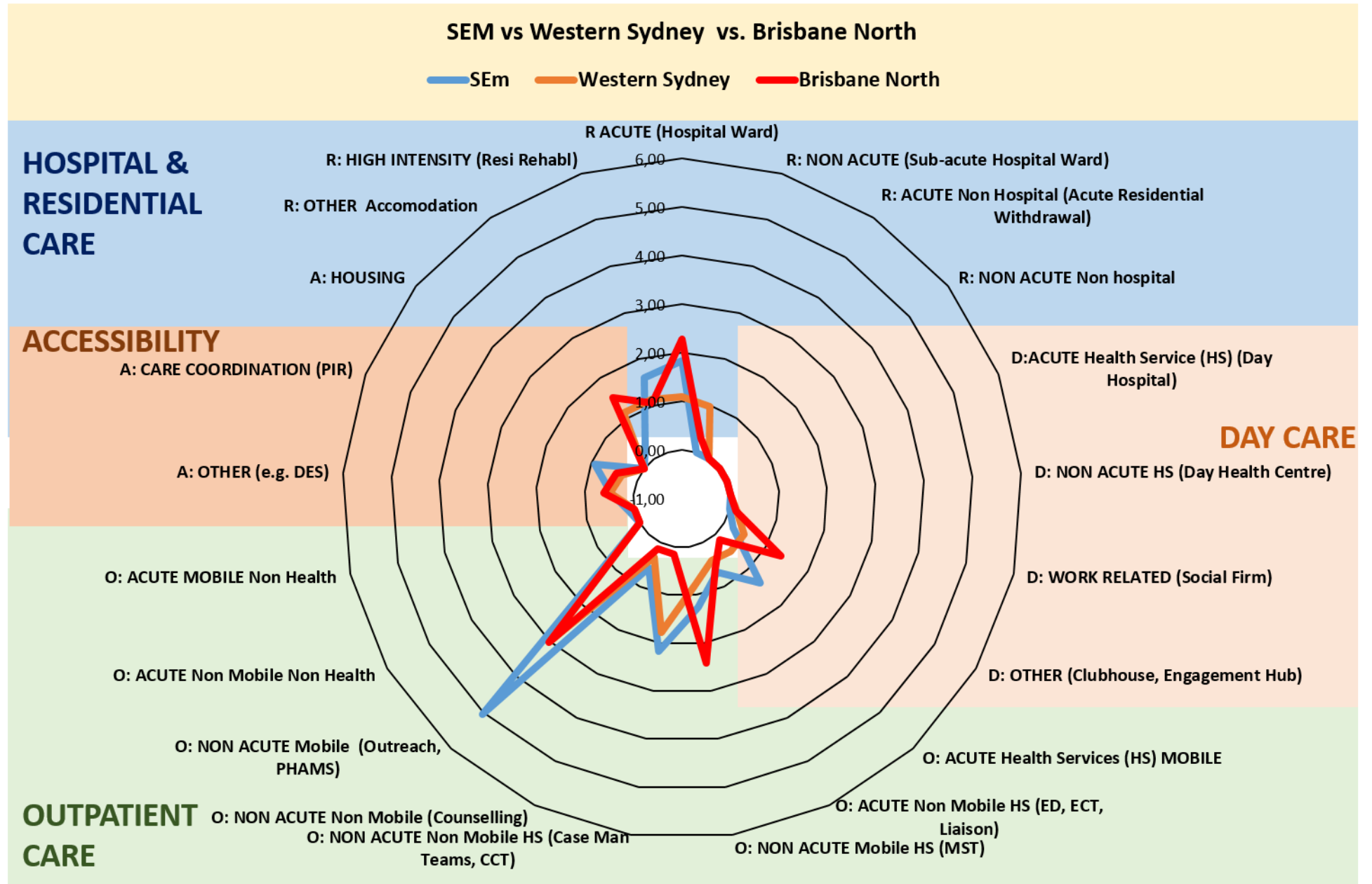
CESPHN NSW



MENTAL HEALTH CARE

Comparison of local MH systems

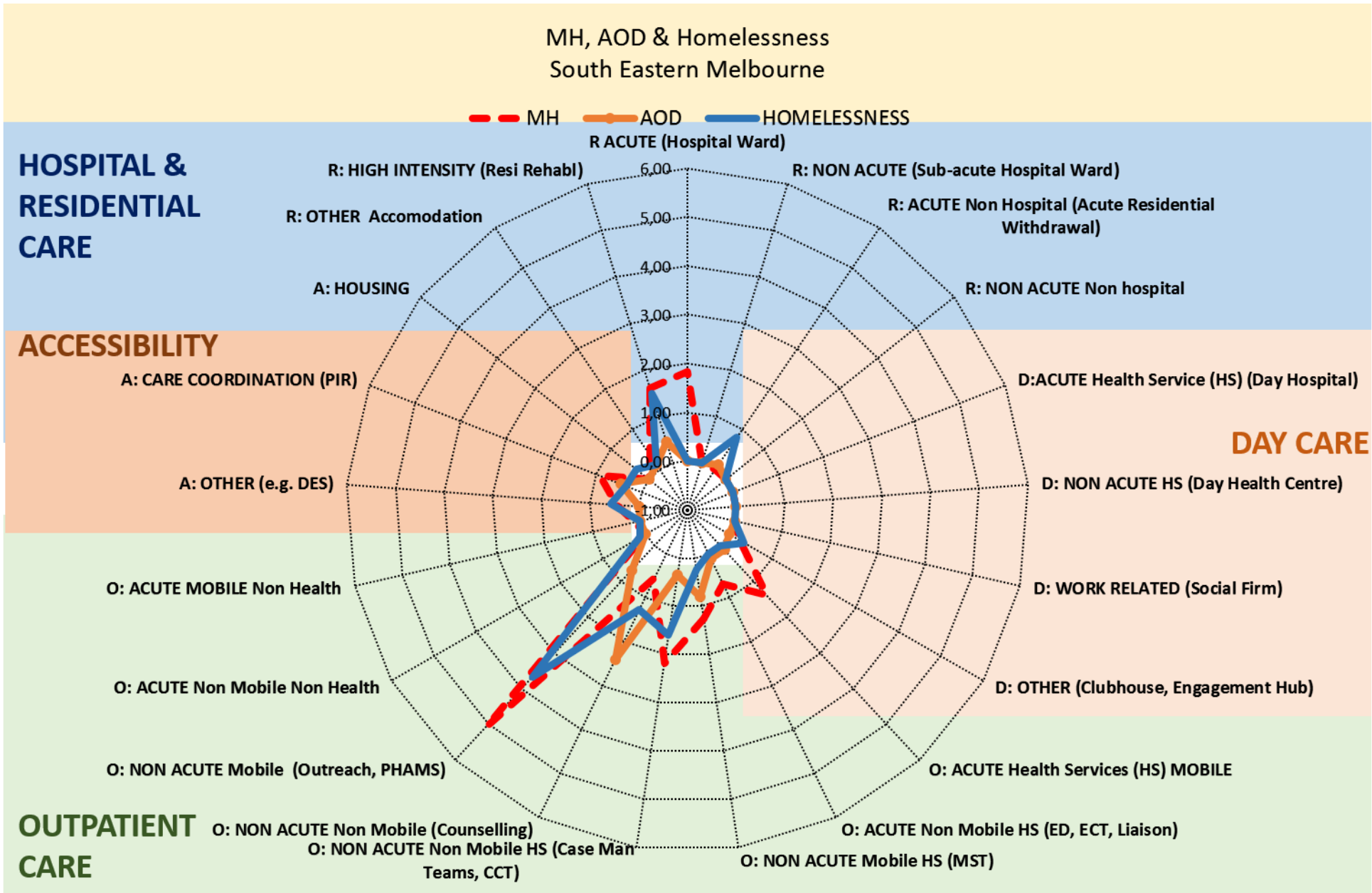
- Availability
- Places
- Workforce



MENTAL HEALTH CARE

Comparisons with other Care systems

- Social care
- Drug and Alcohol
- Chronic care



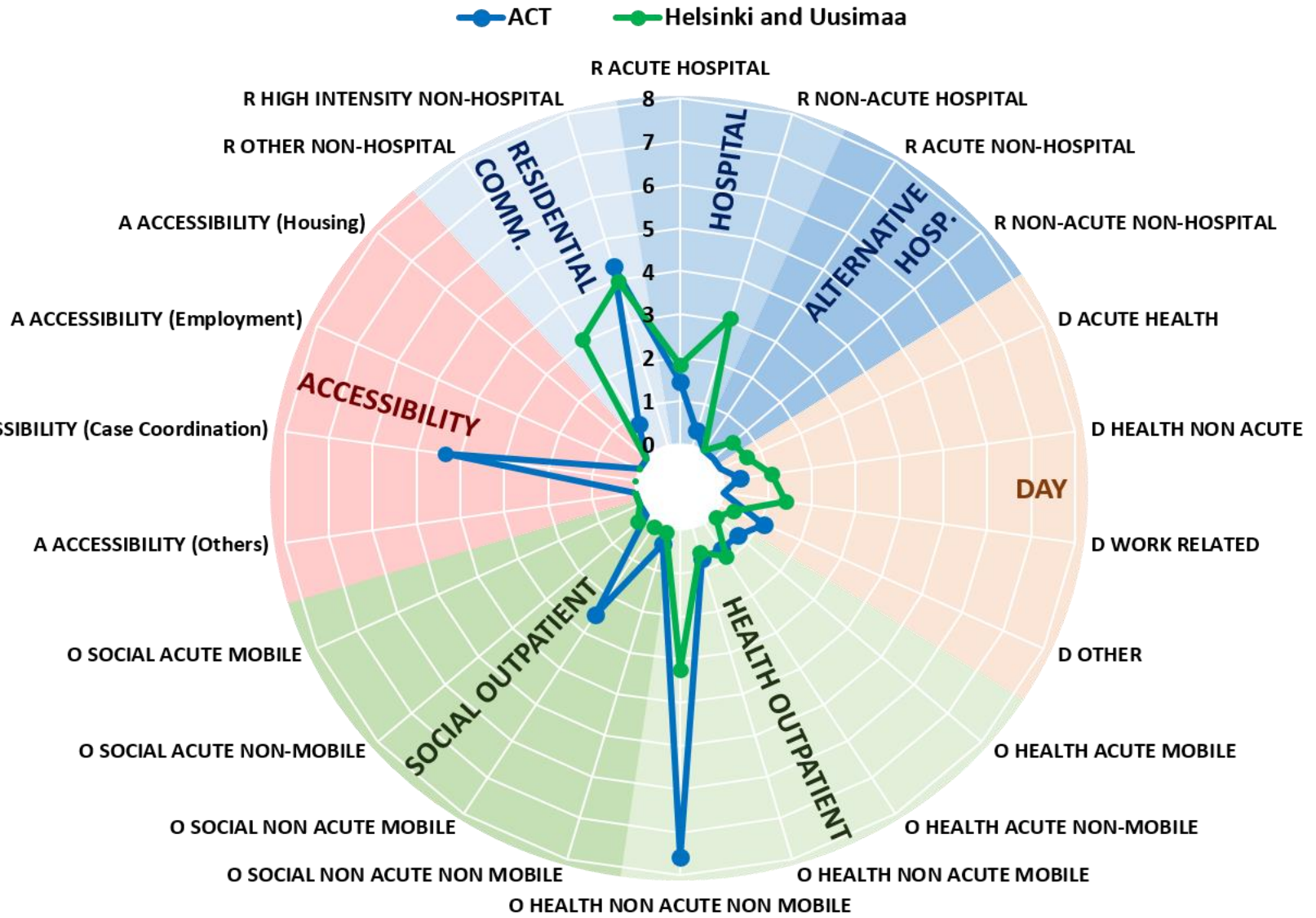
MENTAL HEALTH CARE

COMPARISON OF LOCAL AREAS ACROSS COUNTRIES

Pattern of availability of MTCs for adults > 17 years with lived experience of mental illness. Comparison between Canberra and Helsinki and Uusimaa.



Refinement Project

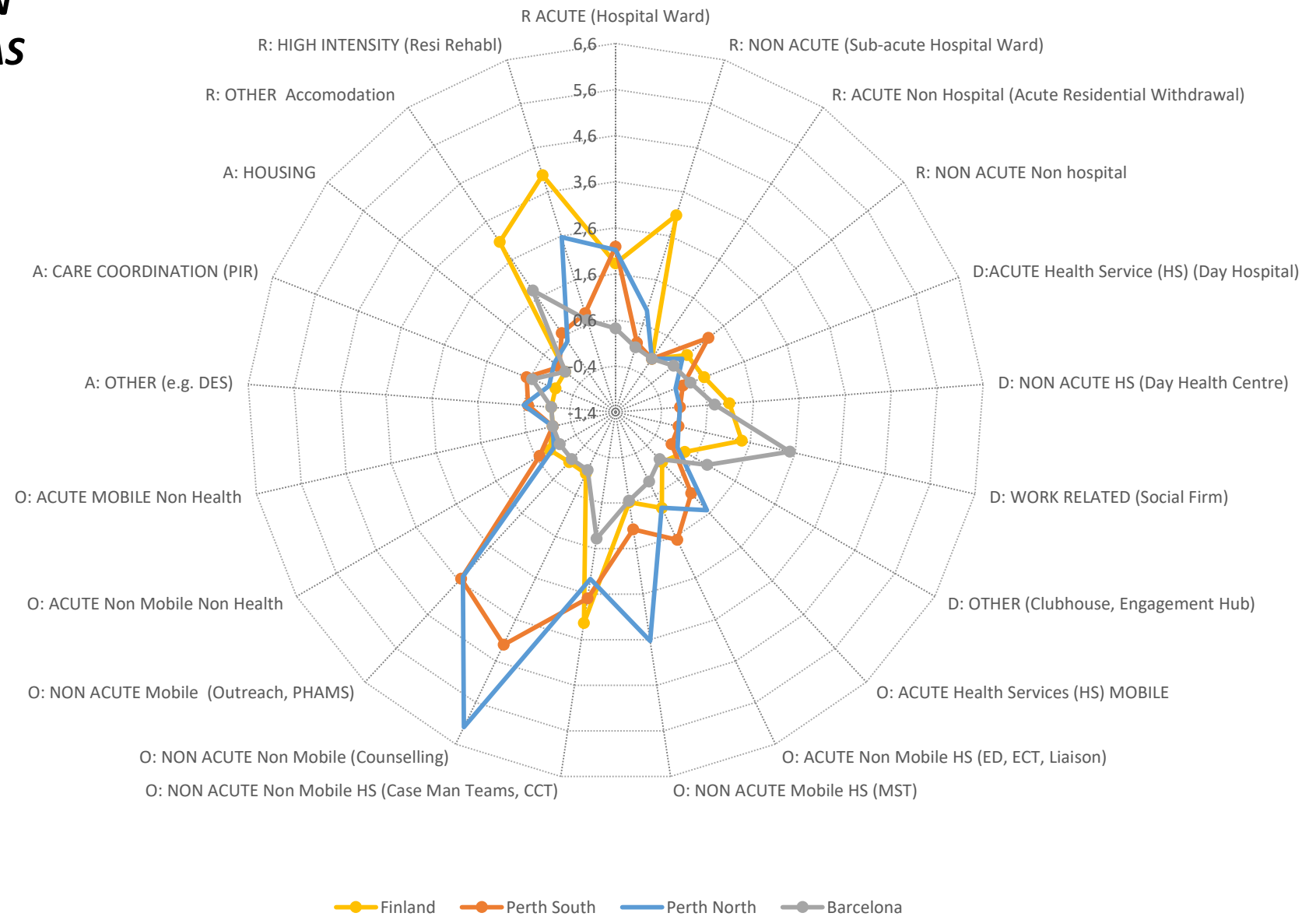


MENTAL HEALTH CARE

INTERNATIONAL COMPARISON ACROSS METROPOLITAN AREAS

Global Urban MH Planning

Pattern of Urban Mental Health Care - Adults Perth Vs. Barcelona Vs. Helsinki

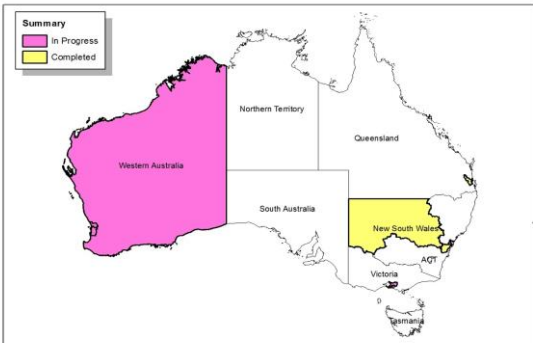
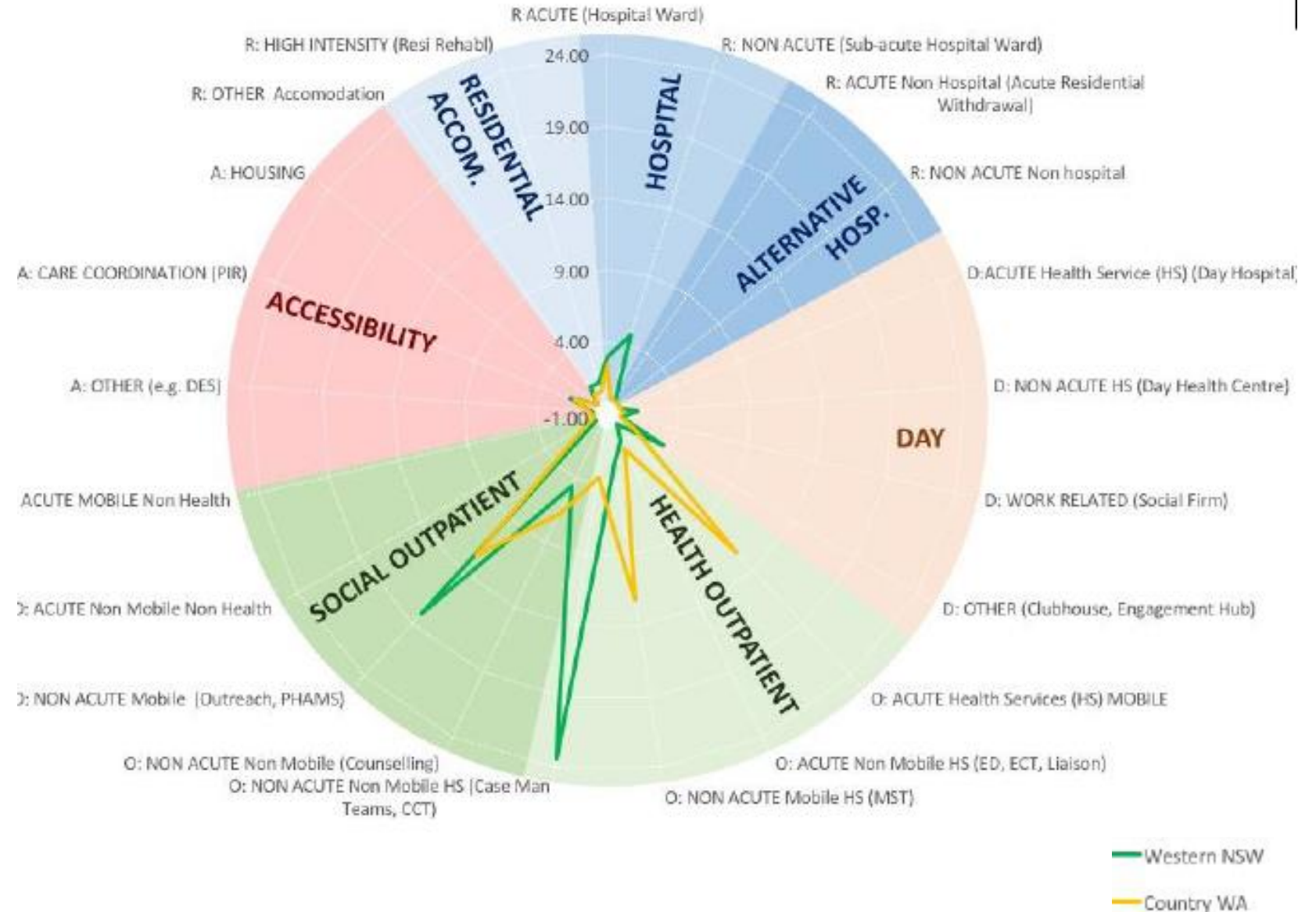


MENTAL HEALTH CARE

COMPARISON ACROSS RURAL AND REMOTE AREAS

Global Rural MH Planning

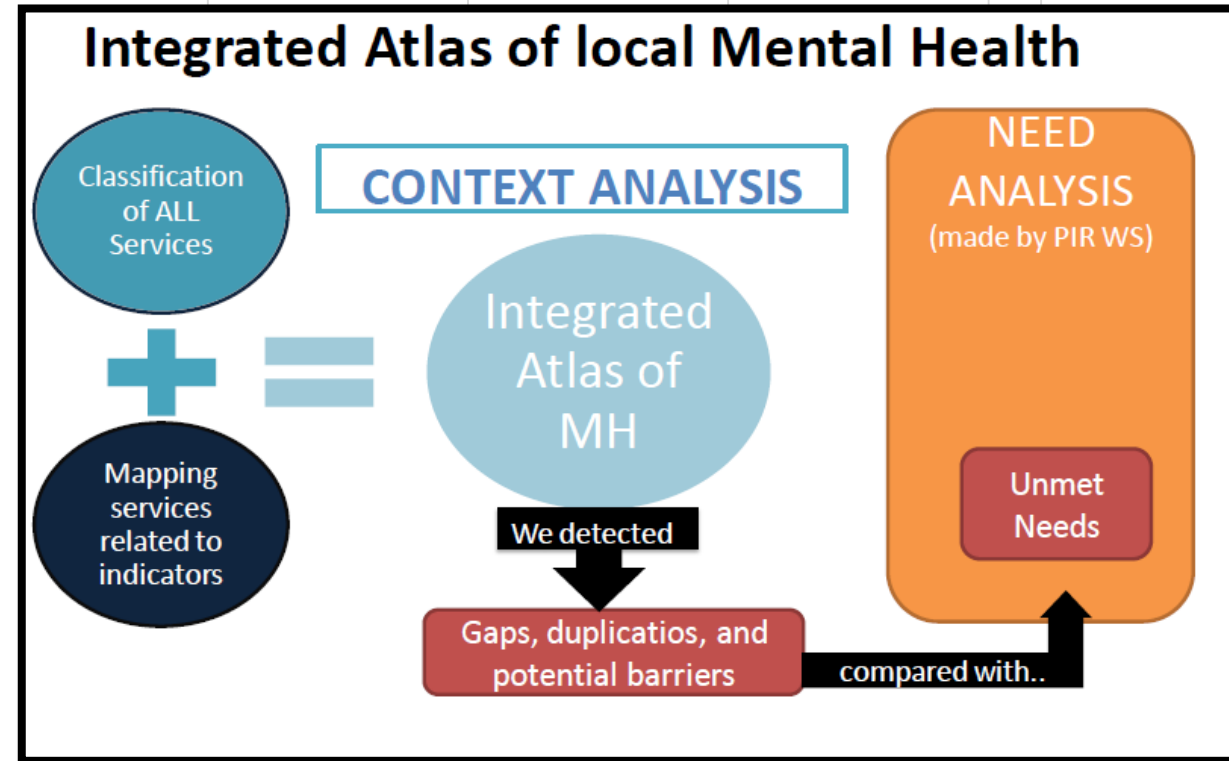
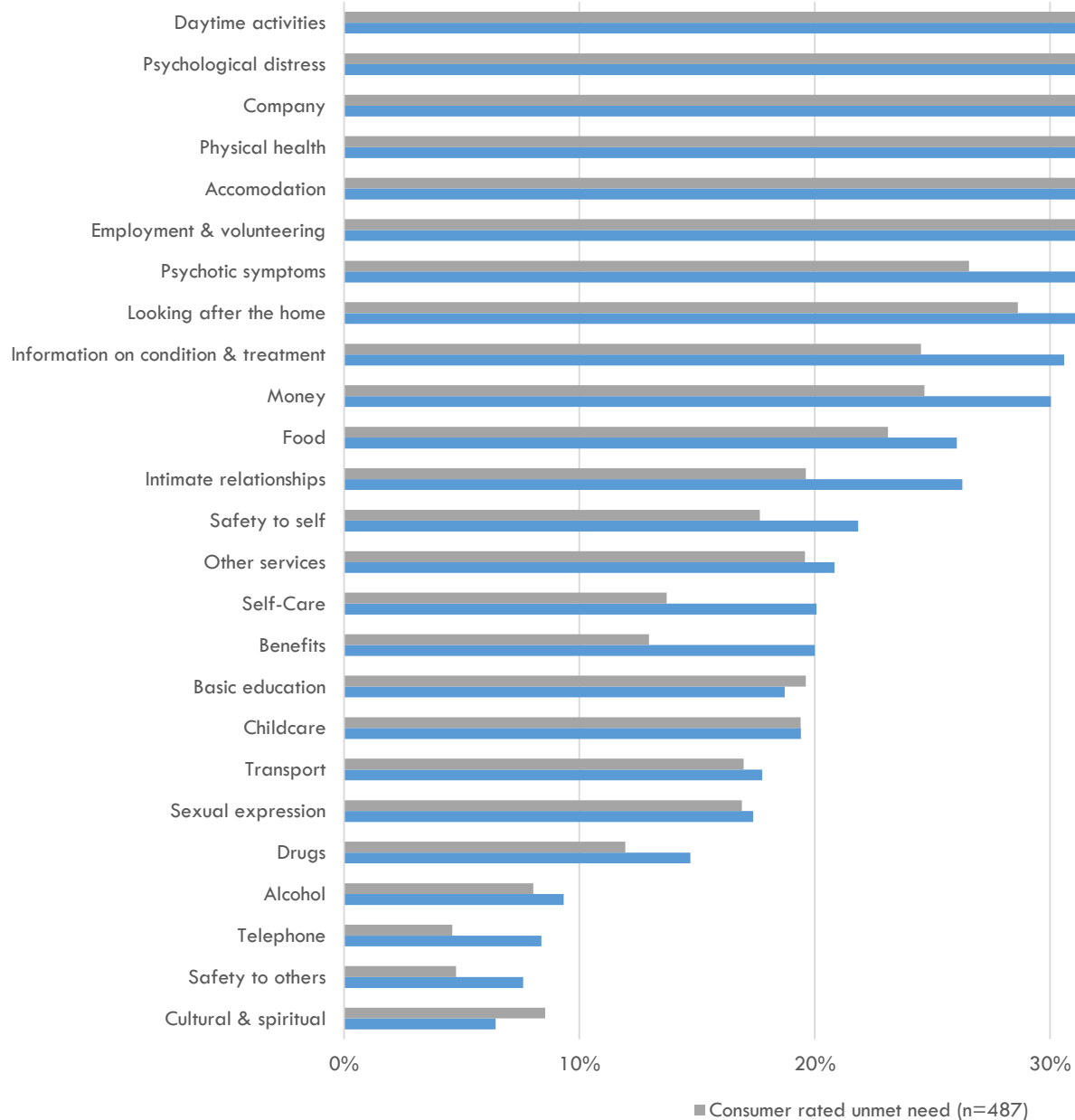
PATTERNS OF RURAL MENTAL HEALTH CARE IN AUSTRALIA: WESTERN NSW & COUNTRY WESTERN AUSTRALIA



(Main Types of Care per 100,000)

NEEDS ASSESSMENT IN SMI IN SYDNEY

CANSAS Needs profile of WSPIR participants



HEALTH ECOSYSTEM ANALYSIS: Atlas of MH for DSS

1.- Atlas of Mental Health (context, service delivery)

- Salvador-Carulla, 2002, 2006, 2010; Fernandez et al 2015)

2.- Service utilisation

- Ferrer M, et al, 2015

3.- Cost of Illness

- Salvador-Carulla et al, 2011

4. Financing (Financing of Illness)

- Salvador -Carulla et al, 2010

5.- Spatial analysis (hot and cold-spots)

- Rodero-Cosano ML et al, 2016

6- Smart and relational indicators

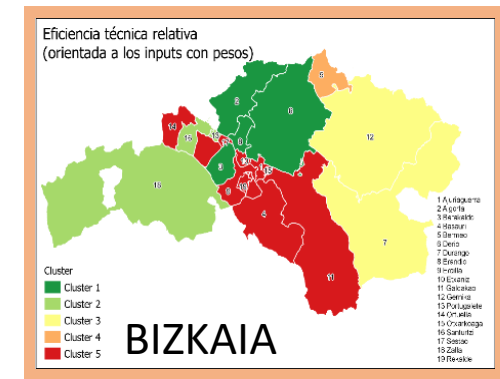
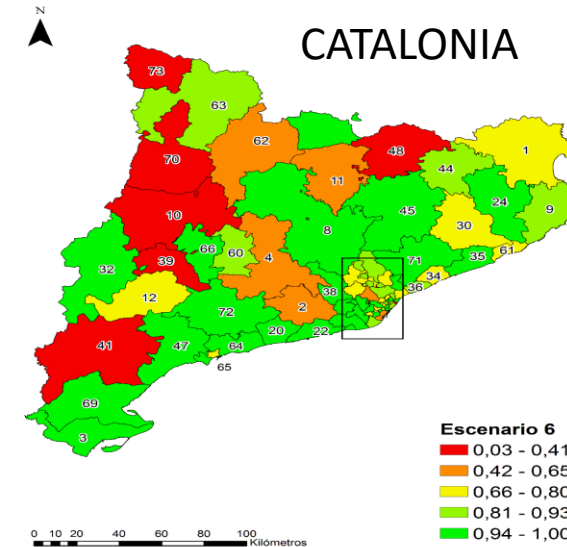
- Salinas-Pérez JA, et al, 2010

7.- Technical efficiency analysis of small health areas

- Torres-Jimenez et al, 2016

8.- Analysis of management interventions

- Garcia-Alonso et al, submitted



DESDE-LTC (Tool for Coding and Mapping): <http://www.edesdeproject.eu/>

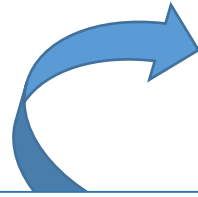
MAPPING OF SERVICES IN EUROPE: <http://www.refinementproject.eu/>

ATLASES OF MH CARE IN AUSTRALIA: <http://cmhr.anu.edu.au/research/projects/atlas-mental-health-care>

ATLASES OF MH Care in Catalonia and Bizkaia

http://canalsalut.gencat.cat/web/.content/home_canal_salut/professionals/temes_de_salut/salut_mental/documents/pdf/memoria_integral_atles_sp.pdf

https://www.osakidetza.euskadi.eus/contenidos/informacion/rsmb_difusion_conocimiento/es_rsmb/Atlas%20Salud%20Mental%20Bizkaia.pdf



Spatial Economic Analysis

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/rsea20>

Applying an Evolutionary Algorithm for the Analysis of Mental Disorders in Macro-urban Areas: The Case of Barcelona

José Alberto Salinas-Pérez, Maria Luisa Rodero-Cosano, Carlos Ramon García-Alonso & Luis Salvador-Carulla
Published online: 11 Aug 2015.

Epidemiology and Psychiatric Sciences

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Use of an integrated Atlas of Mental Health Care for evidence informed policy in Catalonia (Spain)



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Decision Support

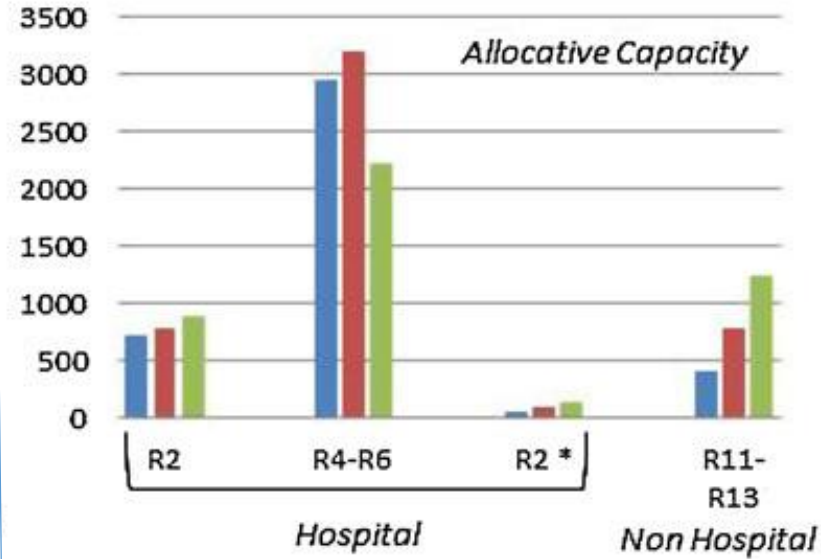
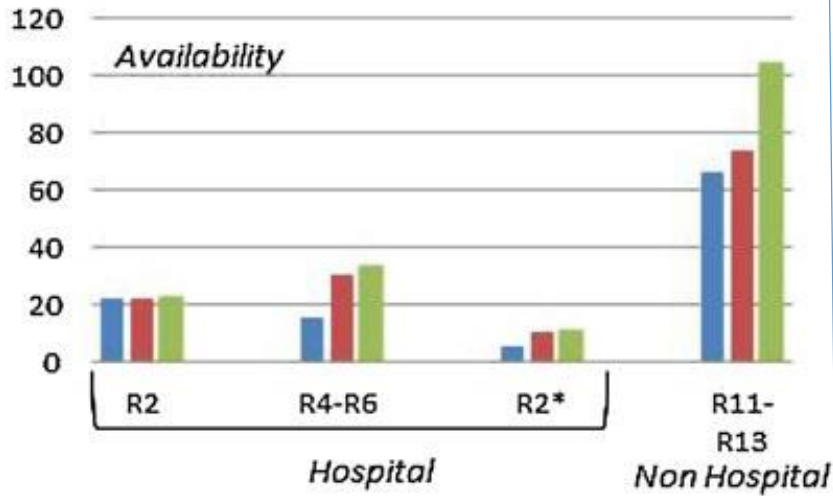
Evaluation of system efficiency using the Monte Carlo DEA: The case of small health areas

Mercedes Torres-Jiménez ^{a,*}, Carlos R. García-Alonso ^b, Luis Salvador-Carulla ^c,
Vicente Fernández-Rodríguez ^d

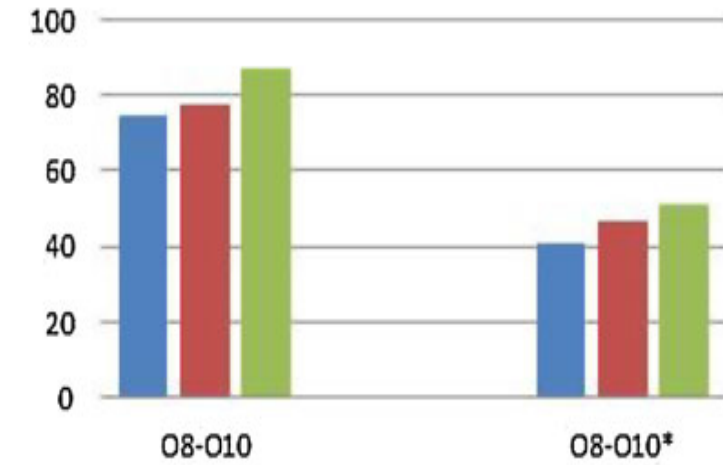


EVOLUTION OF MH CARE DELIVERY IN CATALONIA (2002 – 2006 – 2010 --- 2017)

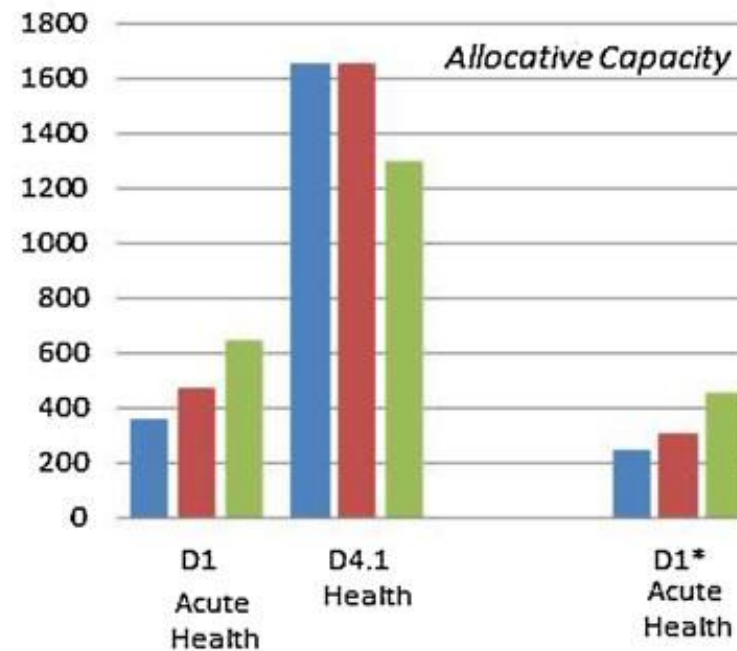
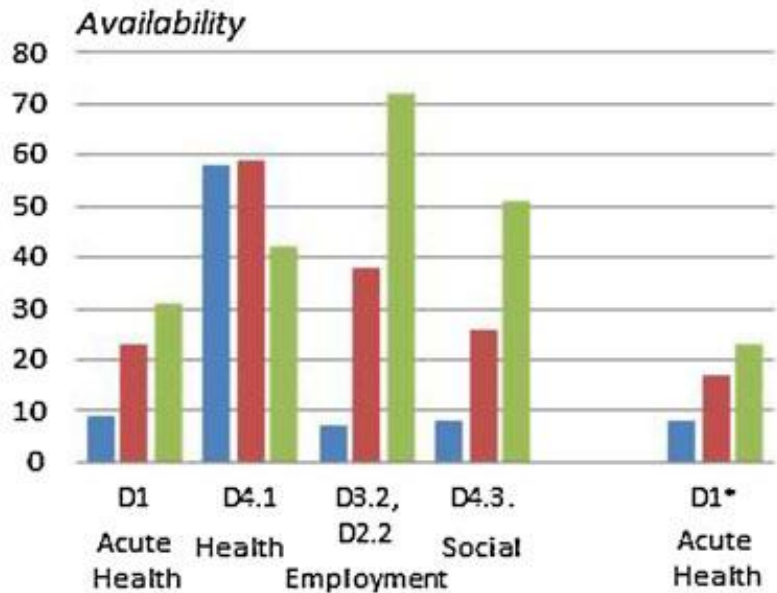
Residential Care



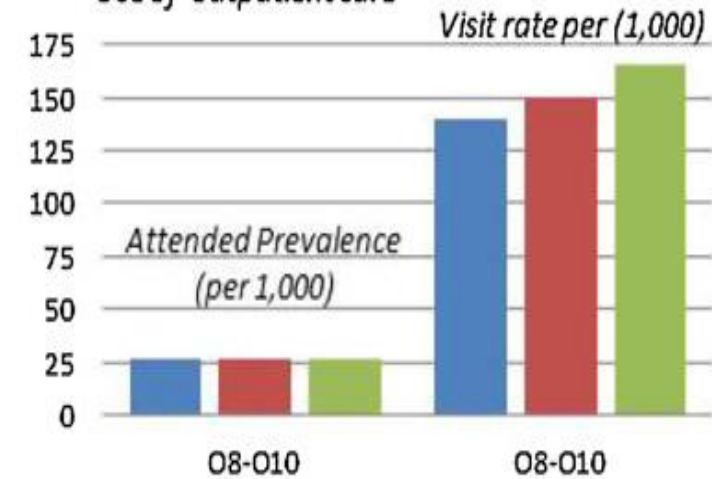
Outpatient Care



Day Care

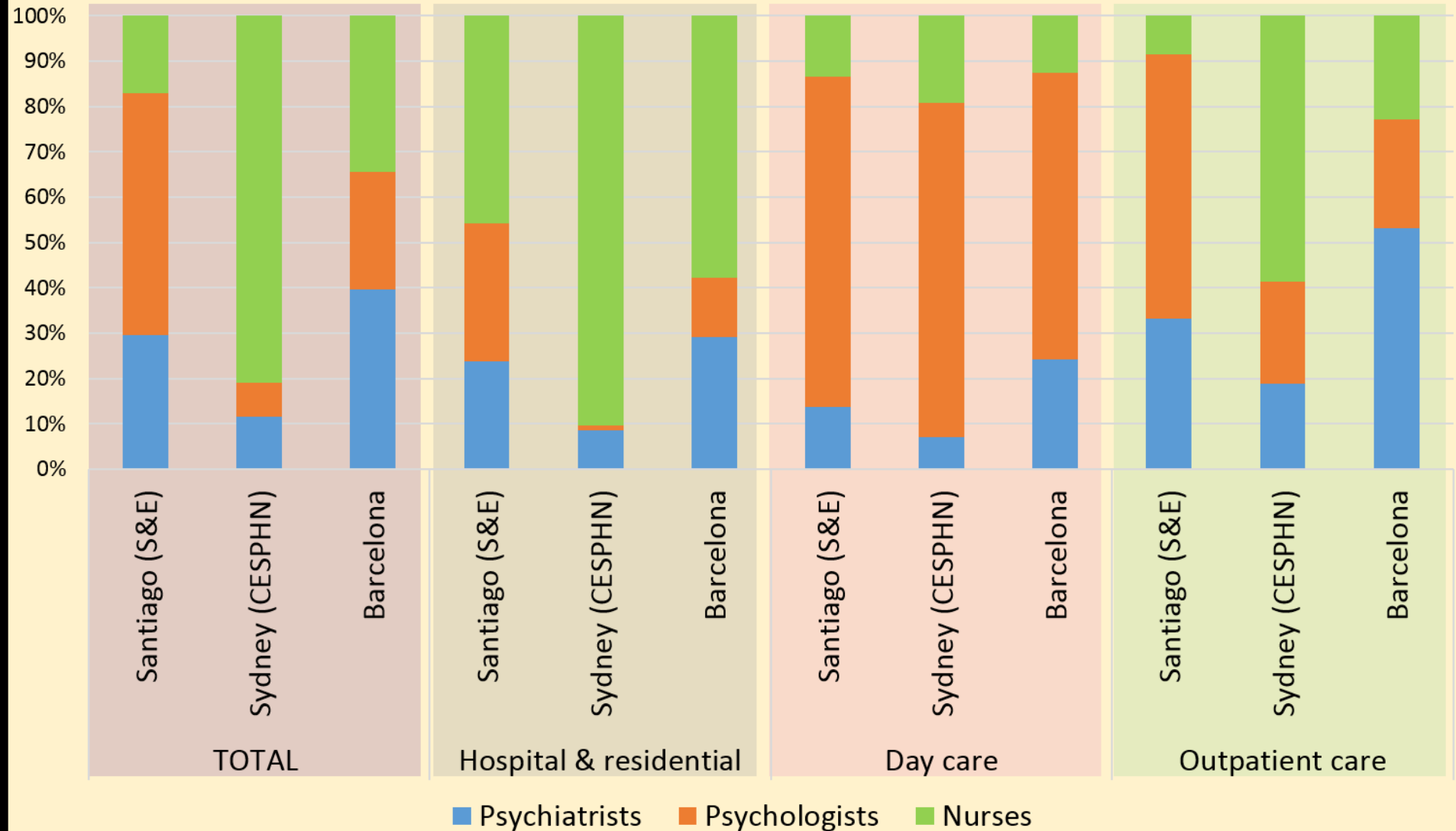


Use of outpatient care**

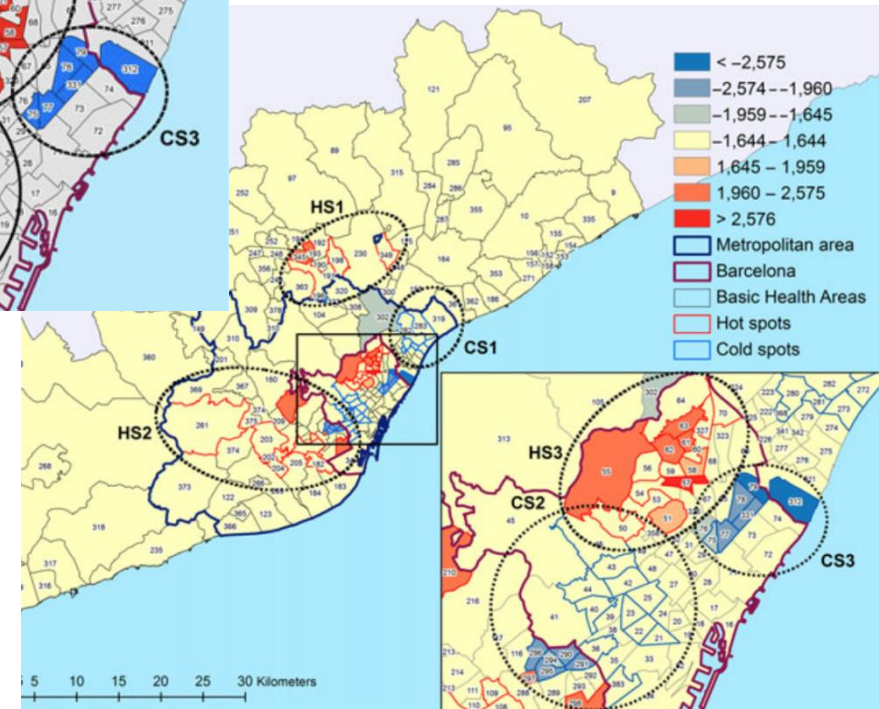
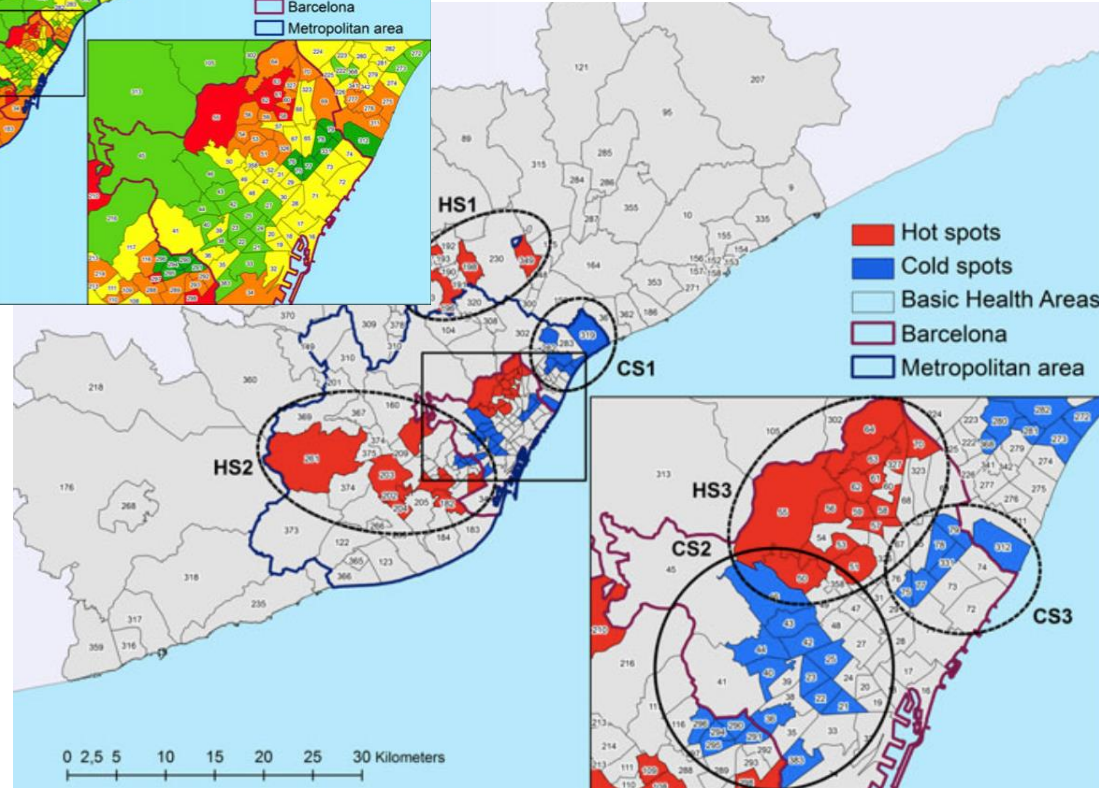
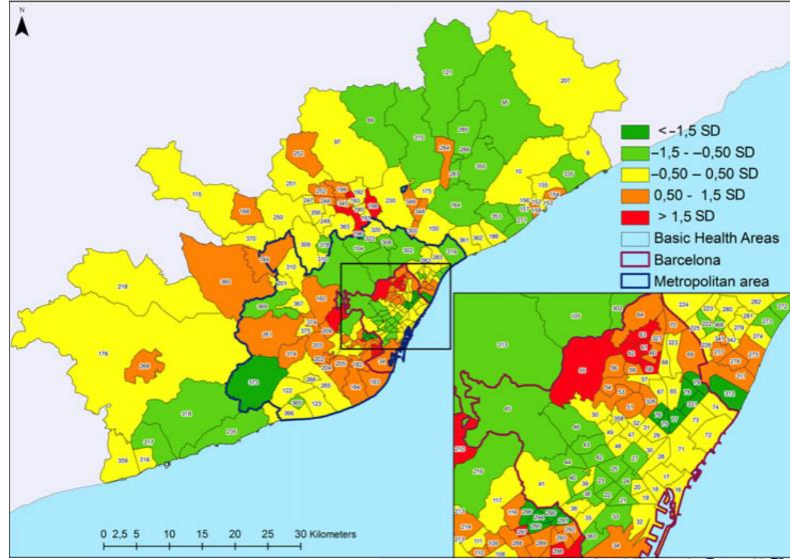


Workforce capacity

Percentage of psychiatrists, psychologists and nurses by total & type of care



Spatial analysis of hot spots and cold spots of administrative prevalence of mental disorders in the Barcelona metropolitan area



Spatial Economic Analysis

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/rsea20>

Applying an Evolutionary Algorithm for the Analysis of Mental Disorders in Macro-urban Areas: The Case of Barcelona

José Alberto Salinas-Pérez, María Luisa Rodero-Cosano, Carlos Ramon García-Alonso & Luis Salvador-Carulla
Published online: 11 Aug 2015.



A) MH Impact of the financial crisis in Portugal and in Spain

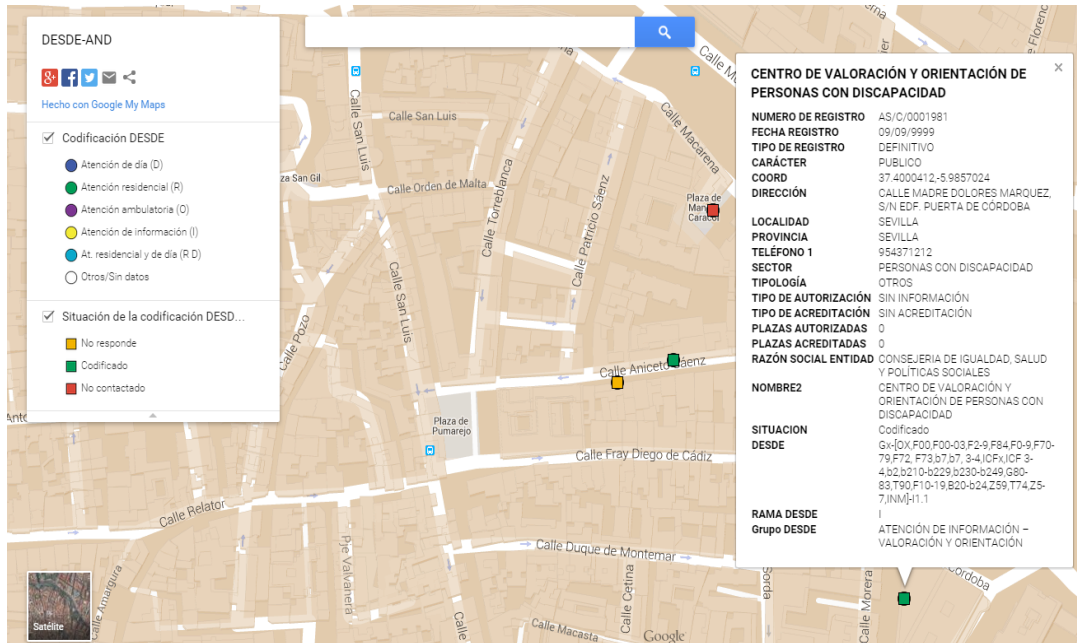
Universidade de Coimbra
Universidade Nova de Lisboa

Universidad Loyola Andalucia
Australian National University

SMAILE
MH Crisis Impact

IMPACT-A Project
REFINEMENT SPAIN

LOCAL ATLAS OF MENTAL HEALTH PROJECT



B) LOCAL CARE NAVIGATION CHART

- Users
- Professionals (case managers)

SOCIAL CARE MAPPING IN ANDALUSIA (DESDE-AND)

INTERNATIONAL COMPARISON OF PATTERNS OF URBAN MENTAL HEALTH CARE



System thinking and context analysis in MH Planning

