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Identifying Key Prescribing Cascades in the Elderly: A Transnational Initiative on Drug Safety

Project acronym : iKASCADE Consortium

Speaker: Dr. Paula Rochon

Final Dissemination Conference

February 13-14th 2023

What is a Prescribing Cascade?

DRUG A
(diuretic)

New Medical Condition
(Hyperuricemia)

DRUG B
(Gout medication)

Prescribing cascades:
When drugs are used to treat the side effects of other drugs.

Economic repercussions on the health system

Prescribing Cascade Concept

- Many prescribing cascades documented worldwide
- Used to inform de-prescribing efforts

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Sex and gender: modifiers of health, disease, and medicine

Franck Mauvais-Jarvis, Noel Bairey Merz, Peter J Barnes, Roberta D Brinton, Juan-Jesus Carrero, Dawn L DeMeo, Geert J De Vries, C Neill Epperson, Ramaswamy Govindan, Sabra L Klein, Amedeo Lonardo, Pauline M Maki, Louise D McCullough, Vera Regitz-Zagrosek, Judith G Regensteiner, Joshua B Rubin, Kathryn Sandberg, Ayako Suzuki

> **Proper sex or gender consideration to evaluate disparities in drug safety and efficacy is largely absent from clinical trials.**

> **An inclusion of sex or gender consideration should be incorporated in an international guideline.**

Mauvais-Jarvis, F., Bairey Merz, N., Barnes, P. J., Brinton, R. D., Carrero, J. J., DeMeo, D. L., De Vries, G. J., Epperson, C. N., Govindan, R., Klein, S. L., Lonardo, A., Maki, P. M., McCullough, L. D., Regitz-Zagrosek, V., Regensteiner, J. G., Rubin, J. B., Sandberg, K., & Suzuki, A. (2020). Sex and gender: modifiers of health, disease, and medicine. *Lancet (London, England)*, *396*(10250), 565–582. https://doi.org/10.1016/S0140-6736(20)31561-0

The team: diversity, gender expertise and gender equality measures

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Accettazione geriatrica e Centro di ricercar per l'invecchiamento IRCCS INRCA

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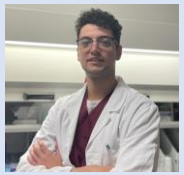
Barbara Carrieri

Dr. Graziano Onder
Associate Professor of Geriatrics
Istituto Superiore di Sanità

Sara Santini



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Dept of Geriatric Medicine
Maccabi Healthcare Services

Dr. Donna Zwas

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Senior Lecturer/
Physician in Geriatric Medicine
University College Cork

Dr. Kieran Dalton

Project objectives

Building an international collaboration

Bringing together experts from 6 countries to:

Objective 1

Create a comprehensive inventory of prescribing cascades affecting older women and men through an international modified Delphi process

Objective 2

Examine and compare the frequency of prescribing cascades by sex and country in three key settings of care (hospital, long-term care home, and community) using clinical and administrative data

Objective 3

Explore how sex and gender are associated with the development and impact of prescribing cascades (using both quantitative and qualitative data)

1. Creating an International Prescribing Cascades Inventory

ORIGINAL RESEARCH ARTICLE

ThinkCascades: A Tool for Identifying Clinically Important Prescribing Cascades Affecting Older People

Lisa M. McCarthy[1,2,3] · Rachel Savage[4,5] · Kieran Dalton[6] · Robin Mason[4,7] · Joyce Li[4] · Andrea Lawson[4] · Wei Wu[4] · Shelley A. Sternberg[8] · Stephen Byrne[6] · Mirko Petrovic[9] · Graziano Onder[10] · Antonio Cherubini[11] · Denis O'Mahony[12] · Jerry H. Gurwitz[13] · Francesco Pegreffi[14] · Paula A. Rochon[4,5,15,16]

Accepted: 22 June 2022 / Published online: 15 September 2022
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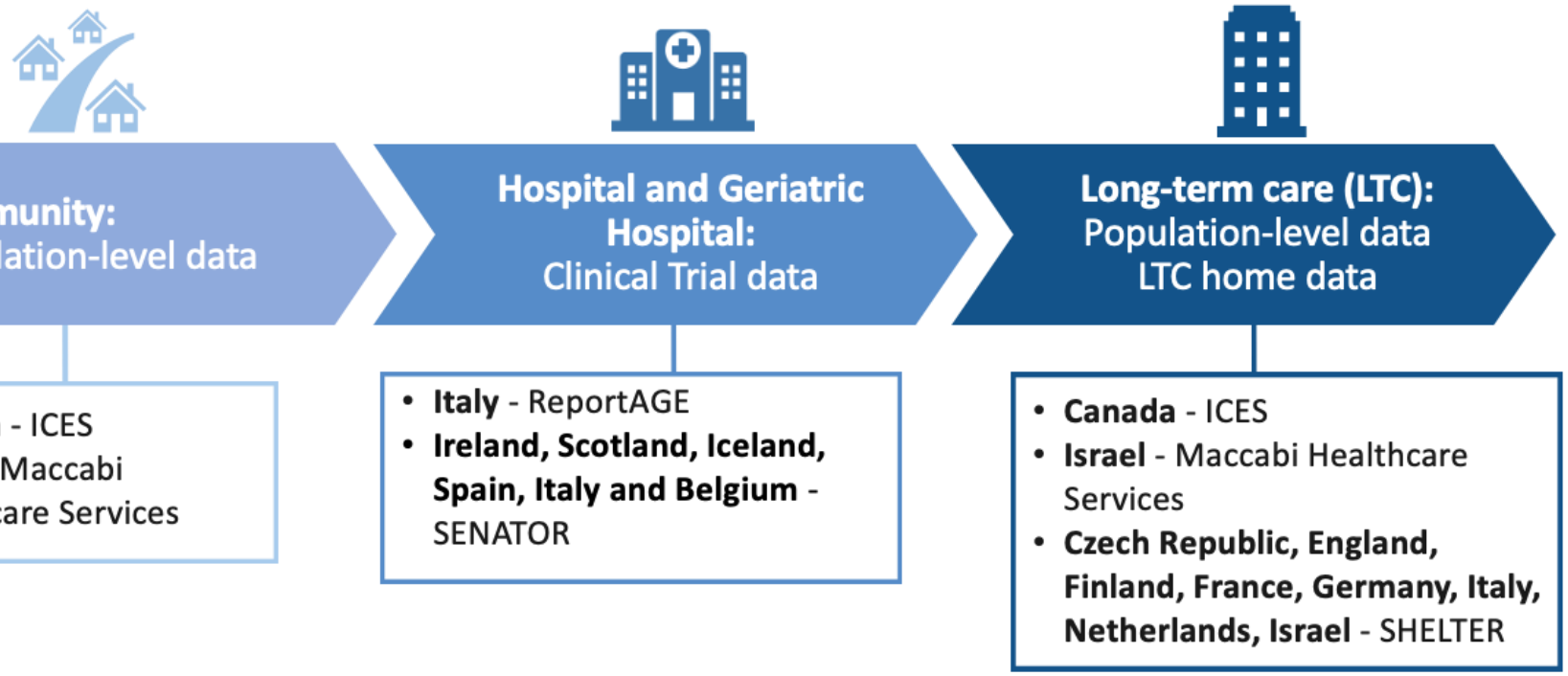
2. Comparing Sex, Gender-related And Age Variables To Explore Their Association With Patterns Of Potentially Inappropriate Prescribing

Settings and corresponding datasets by increasing level of care (frailty)



Patterns of chronic conditions are similar across data sets

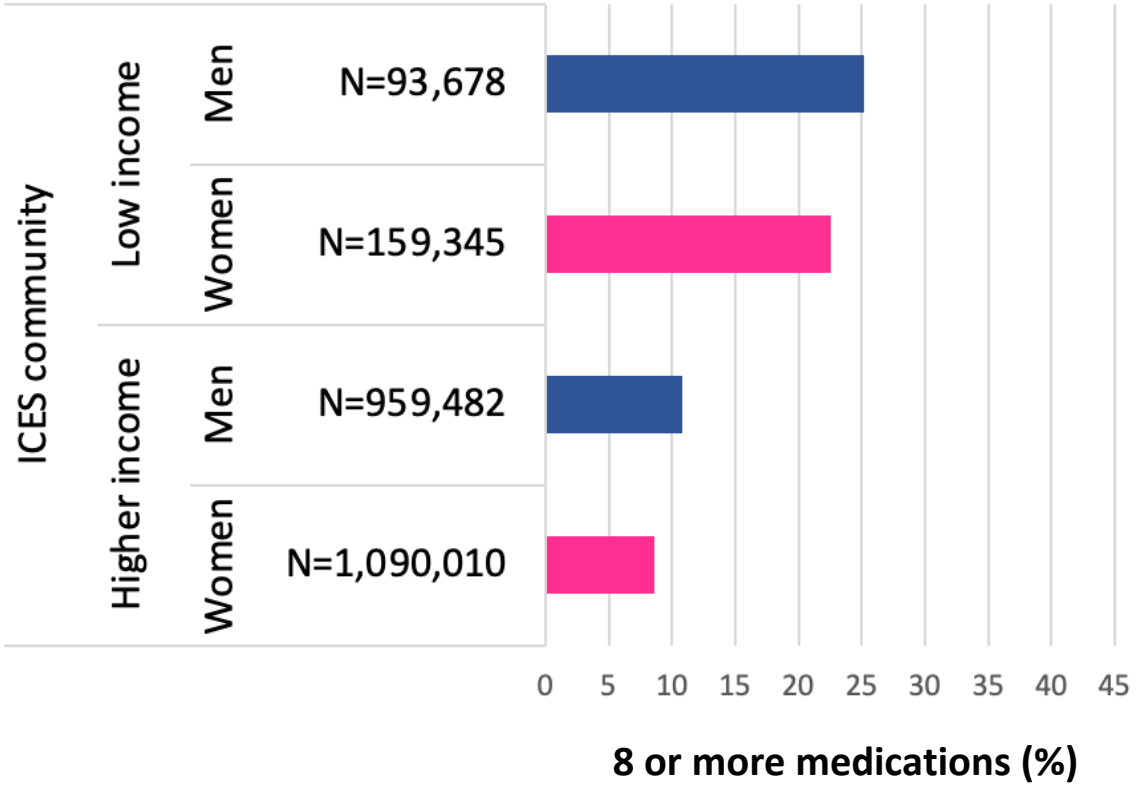
Gender-Related Variables: Income, Education, Marital Status

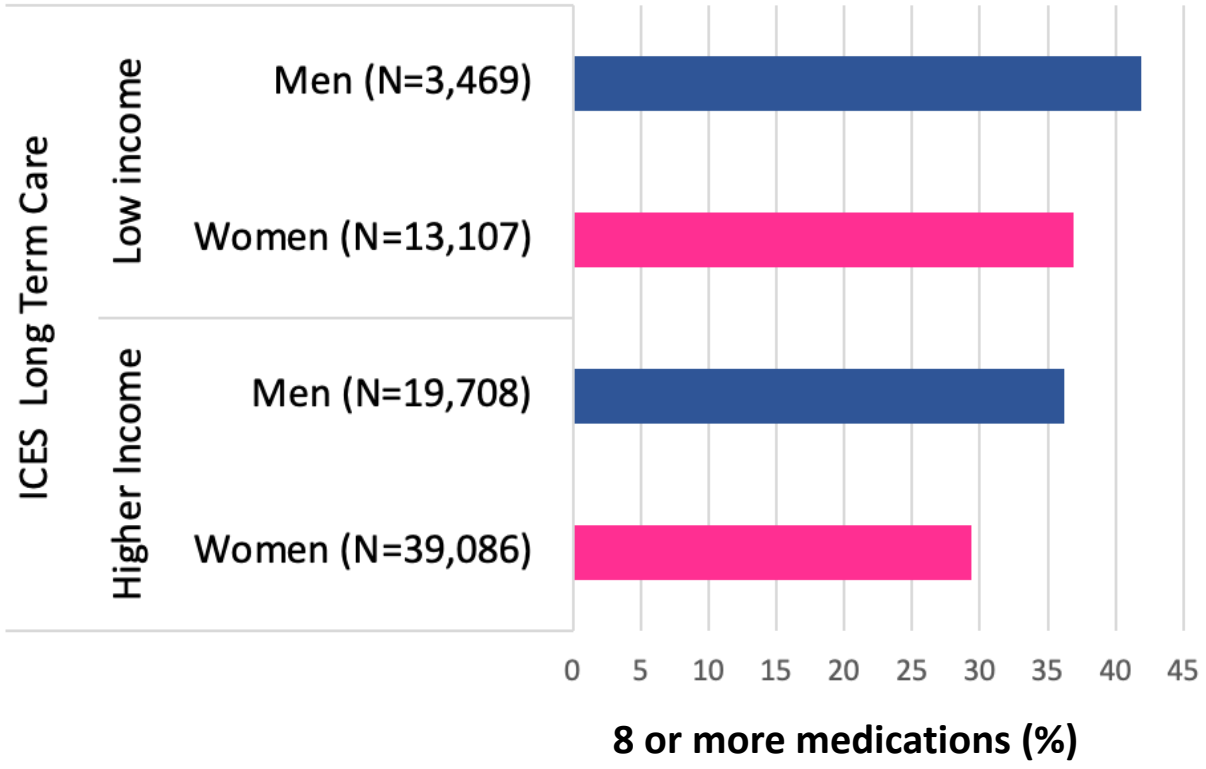
Women are more likely to have **low-income**

Women are more likely to have **less education**

Women are more likely to be **widowed**

Men And Women With Low-incomes Prescribed More Medications





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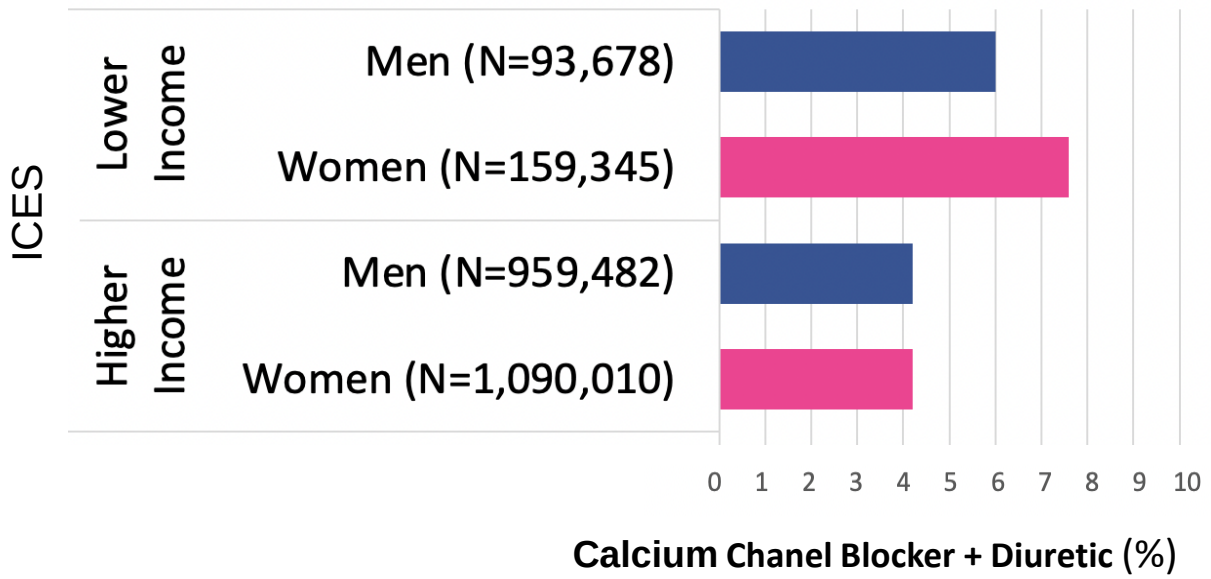
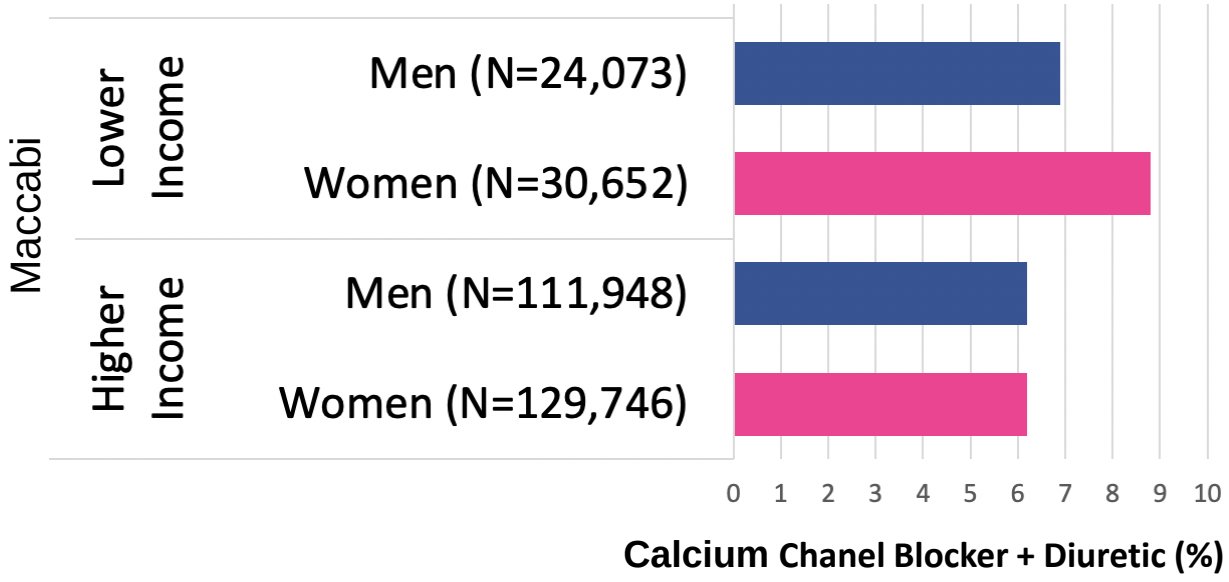
A Common Prescribing Cascade Is More Likely To Occur Among Women With Low-income In The Community





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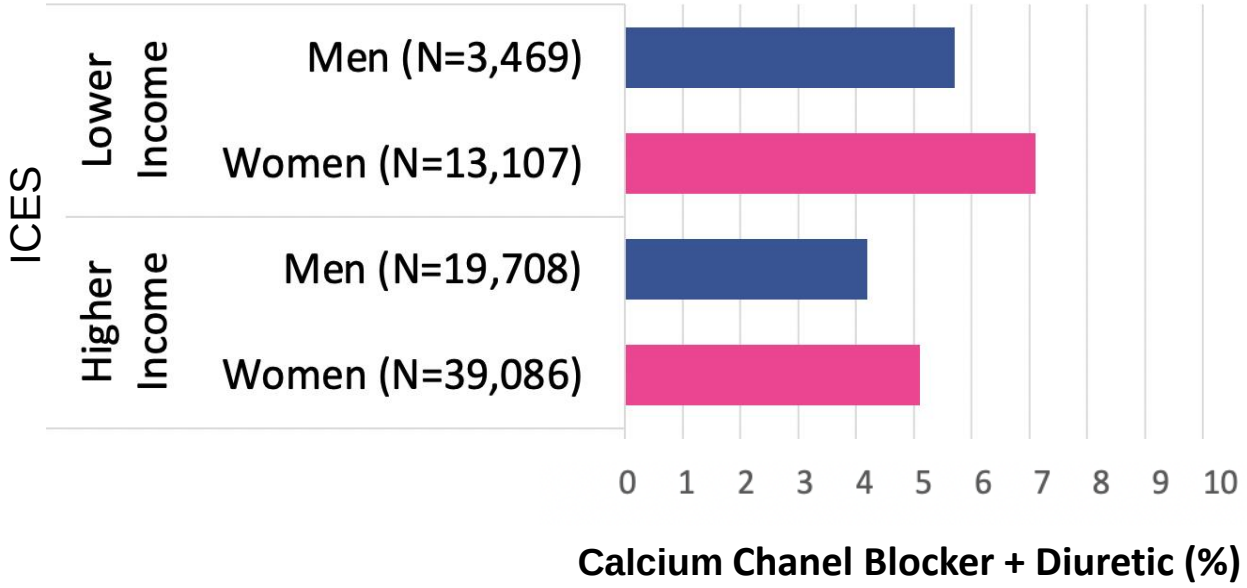
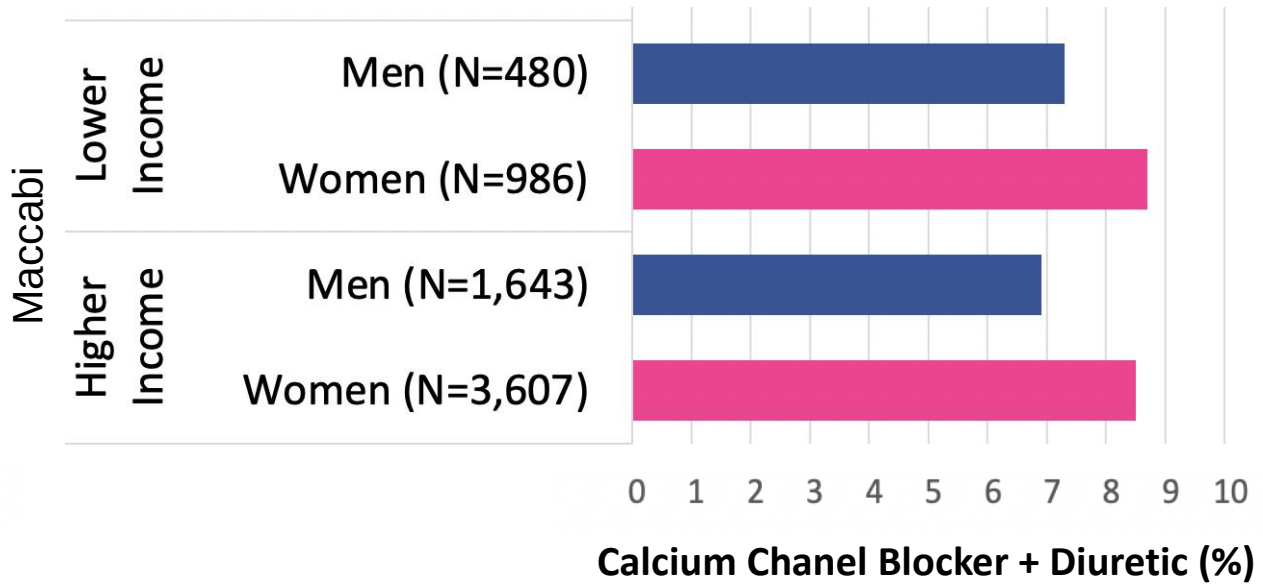
A Common Prescribing Cascade Is More Likely To Occur Among Women In Long-term Care





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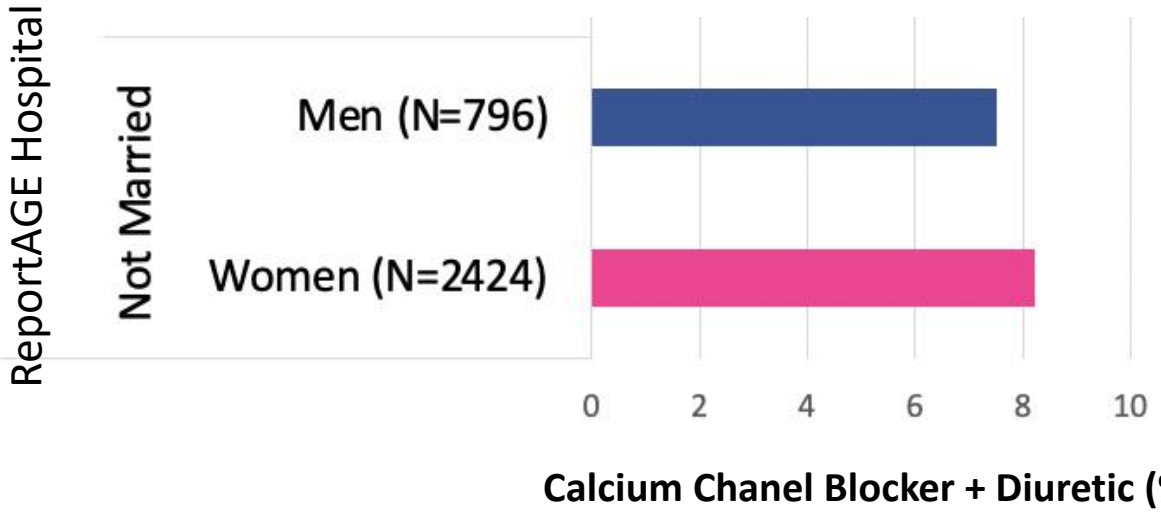
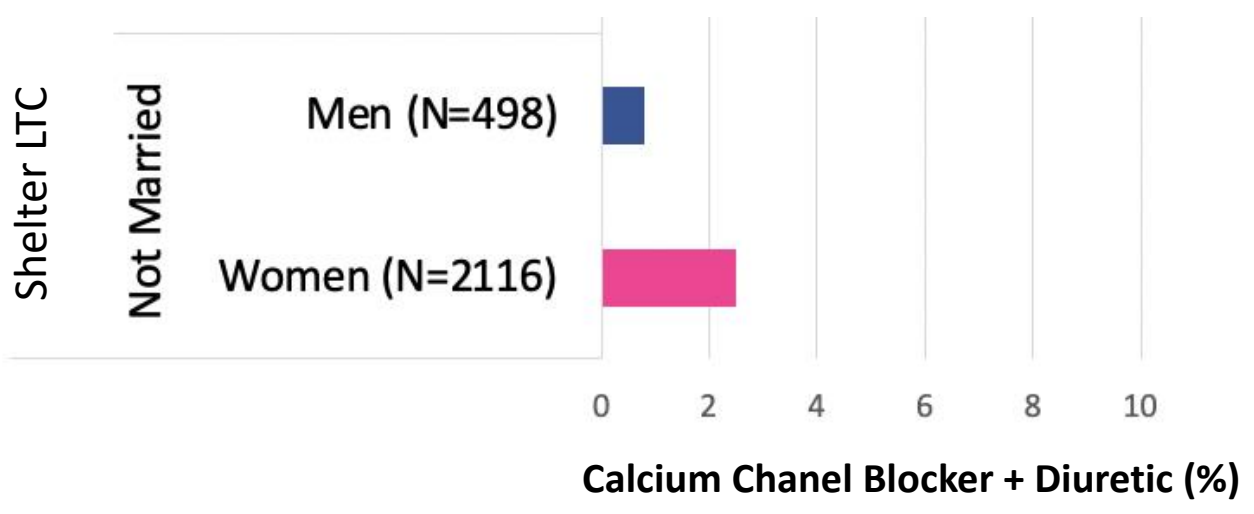
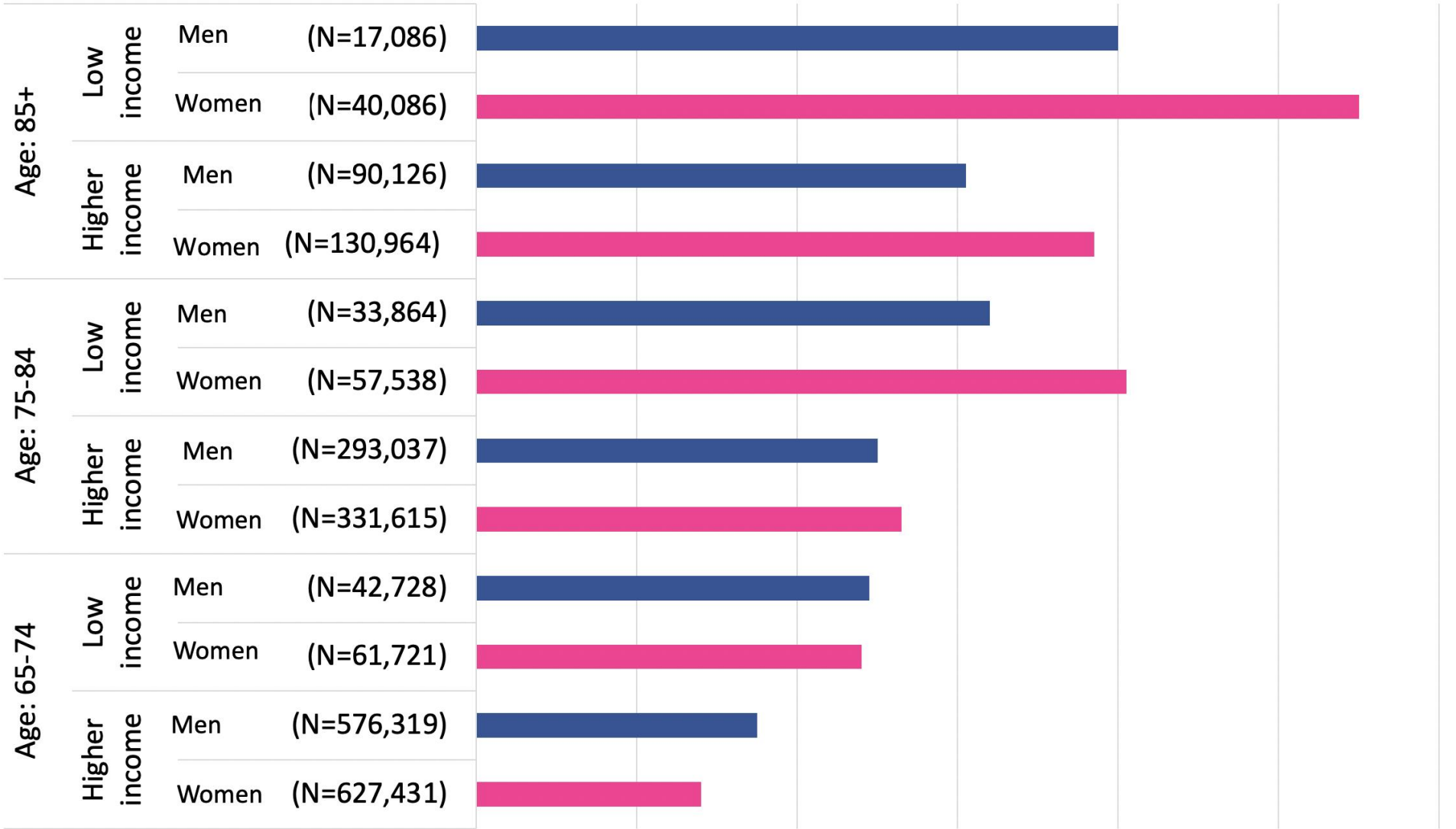
A Common Prescribing Cascade Is More Likely To Occur In Non-married Women In Hospital And Long-term Care





A Common Prescribing Cascade is More Likely To Occur Among Older Women With Low-income



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Disaggregating Data by Sex and Age: A New Online Module

What Gets Counted Counts: Paying Attention to Sex and Age in Health Research

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Initial Learnings

Prescribing cascades are a **well-defined indicator** of potentially inappropriate **prescribing**

Our findings from different **international datasets indicate that prescribing cascades** occur **in a variety of clinical settings**

There are clear male and female differences

- **Women** are more at-risk, and **older** women, **low-income** women, and **widowed** women are particularly vulnerable.

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Why aren't sex and age routinely considered?

How do we look at gender when we do not consistently collect gender-related variables?

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3. Assessing Gender Norms Through Standardized Materials

- **Institutions, laws and policies**
- **Access to assets**
- **Practices and Participation**
- **Beliefs and Perceptions (Jhpiego, 2016)**

Country Portraits

- SIGI Report
- OECD Gender Equality Index
- Site-specific data

Health System

- Health System in Transition (HIT) Report
- Site-specific data
- Qualitative interviews with providers

Physicians' decision-making processes

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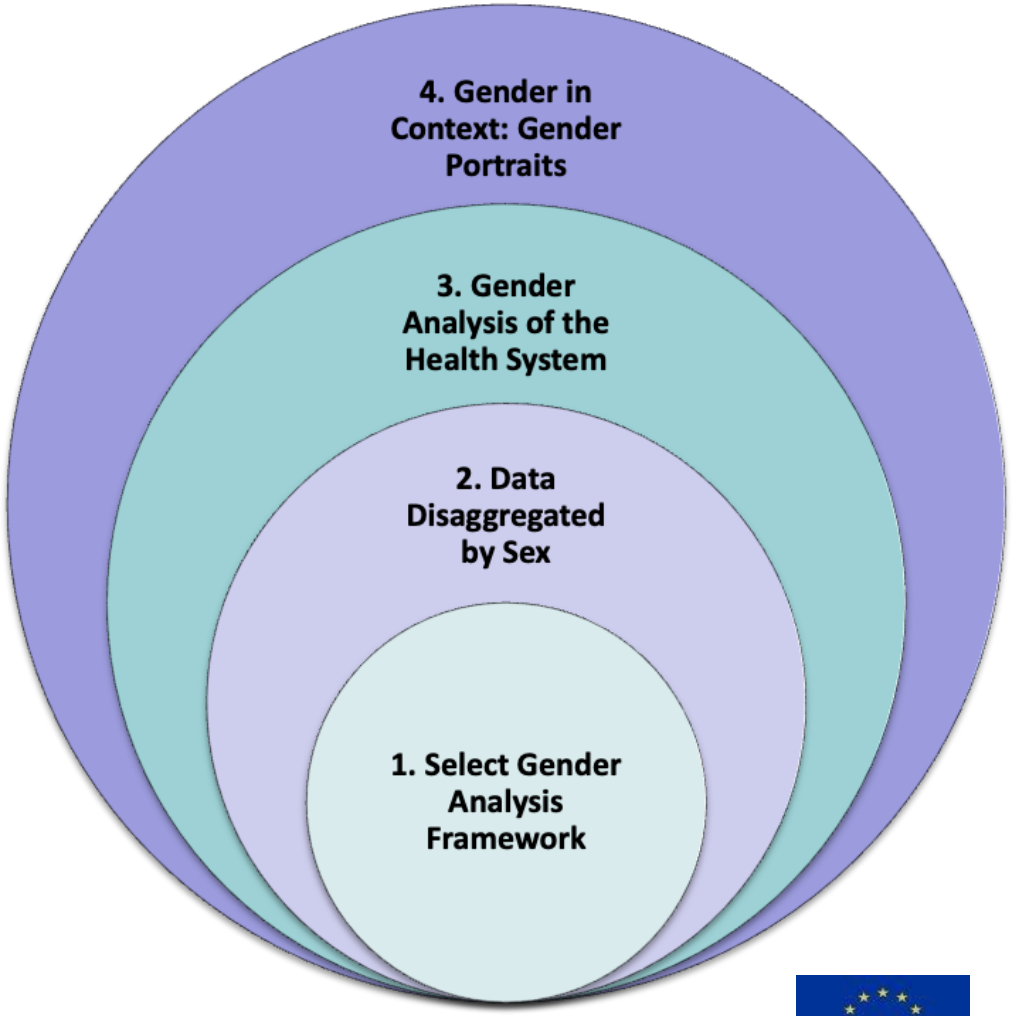
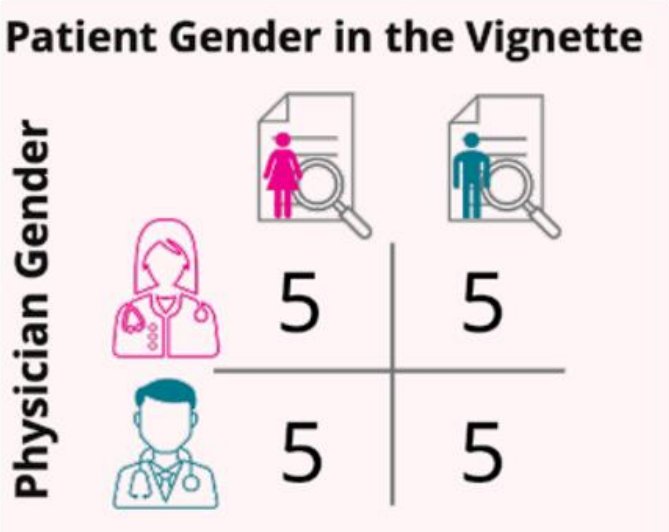


3. Assessing Gender Biases through Vignettes

How do **unconscious gender biases** impact primary care physicians' prescribing decisions?

Clinical vignette **"think-aloud"** interviews



- Does a patient's gender affect their risk of experiencing a prescribing cascade?
- Does a physician's gender affect their prescribing decisions?

Initial Learnings

Unconscious **gender biases** and **gender norms** differ by **culture, country and time.**

How can we ensure they are always considered?

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Challenges

- Data on sex and age are available, but not consistently considered
- Data on gender-related sociocultural variables are scarce and vary between countries
- Gender-related variables are not required in drug-related research

Solutions

- Data should be disaggregated, analyzed and reported by sex and age
- Gender-related sociocultural variables need to be included in research
- Require inclusion of sex, age, and gender-related socio-cultural variables in funding for research and drug development

International Collaborations Are Important To Accelerate Knowledge

Different countries have varying levels of development in sex and gender research.

International collaboration provides the opportunity to bring together experts in a similar field, but with varying awareness and knowledge of sex and gender related issues, which can significantly advance the understanding of the topic.

Published Papers

European Geriatric Medicine (2021) 12:475–483
https://doi.org/10.1007/s41999-021-00480-w

RESEARCH PAPER

Identifying key prescribing cascades in older people (iKASCADE): a transnational initiative on drug safety through a sex and gender lens—rationale and design

Shelley A. Sternberg[1] · Mirko Petrovic[2] · Graziano Onder[3] · Antonio Cherubini[4] · Denis O'Mahony[5] · Jerry H. Gurwitz[6] · Francesco Pegreffi[7] · Robin Mason[8,9] · Jennifer Akerman[8] · Lisa McCarthy[8,10] · Andrea Lawson[8] · Joyce Li[8] · Wei Wu[8] · Paula A. Rochon[8,11,12,13]

Age and Ageing 2022; **51:** 1–4
https://doi.org/10.1093/ageing/afac138

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ORIGINAL RESEARCH ARTICLE

ThinkCascades: A Tool for Identifying Clinically Important Prescribing Cascades Affecting Older People

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PRACTICE | FIVE THINGS TO KNOW ABOUT ...

Prescribing cascades in older adults

Shelley A. Sternberg MD, Shiri Guy-Alfandary PharmD, Paula A. Rochon MD

Cite as: *CMAJ* 2021 February 8;193:E215. doi: 10.1503/cmaj.201564

CMAJ Podcasts: author interview at www.cmaj.ca/lookup/doi/10.1503/cmaj.201564/tab-related-content

COMMENTARY

Prescribing cascades: we see only what we look for, we look for only what we know

Denis O'Mahony[1], Paula A. Rochon[2,3]

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European Geriatric Medicine (2021) 12:671–672
https://doi.org/10.1007/s41999-021-00448-w

EDITORIAL

Focusing on medications that increase the risk of falls in older adults

Shelley A. Sternberg[1] · Paula A. Rochon[2,3] · Jerry H. Gurwitz[4]

Published online: 6 May 2021
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Optimising drug treatment for elderly people: the prescribing cascade

Paula A Rochon, Jerry H Gurwitz

Polypharmacy, inappropriate prescribing, and deprescribing in older people: through a sex and gender lens

Paula A Rochon, Mirko Petrovic, Antonio Cherubini, Graziano Onder, Denis O'Mahony, Shelley A Sternberg, Nathan M Stall, Jerry H Gurwitz

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“

The iKASCADE project provided a valuable opportunity to collaborate with colleagues from other countries and from different disciplines. The interdisciplinary work, performed using both quantitative and qualitative research methods, led to remarkable progress in the field of prescribing cascades and of the influence of sex and gender on drug prescription in older patients.

Prof. Antonio Cherubini
Director of Geriatria, Italy

“

Working on iKASCADE has been a very enriching experience. It has opened several new collaborations with excellent colleagues working in a variety of disciplines to a very level. It has resulted in a very significant expansion of knowledge in the areas of prescribing cascades in older people and impact of sex and gender on prescribing in late life. It has also pointed the way towards new avenues of research enquiry.

Prof. Denis O'Mahony
Senior Lecturer/Physician, Ireland

“

I have learned so much from the others on this team; Knowledge that I will carry forward to the benefit of future studies.

Dr. Robin Mason
Scientist, Canada

“

'1+1=3' meaning that by involvement in this international expert network the expertise and experience of each of us has increased which on its turn resulted in a productive collaboration with excellent output.

Prof. Mirko Petrovic
Senior Researcher, Belgium