SMART MULTIGENERATIONAL NEIGHBOURHOODS
PILOT 4 USA

Joy Melnikow, Director of the University of California, Davis, Center for Health Policy Research together with **Chrysa Demos**, President and CEO, AKT Development Corporation and Bear River Land Holdings, LLC.

Evidence and Technology to Inform Land Use Planning and Design for Multigenerational Age-friendly Communities

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Center for Healthcare Policy and Research

Joy Melnikow, MD, MPH
Director, CHPR
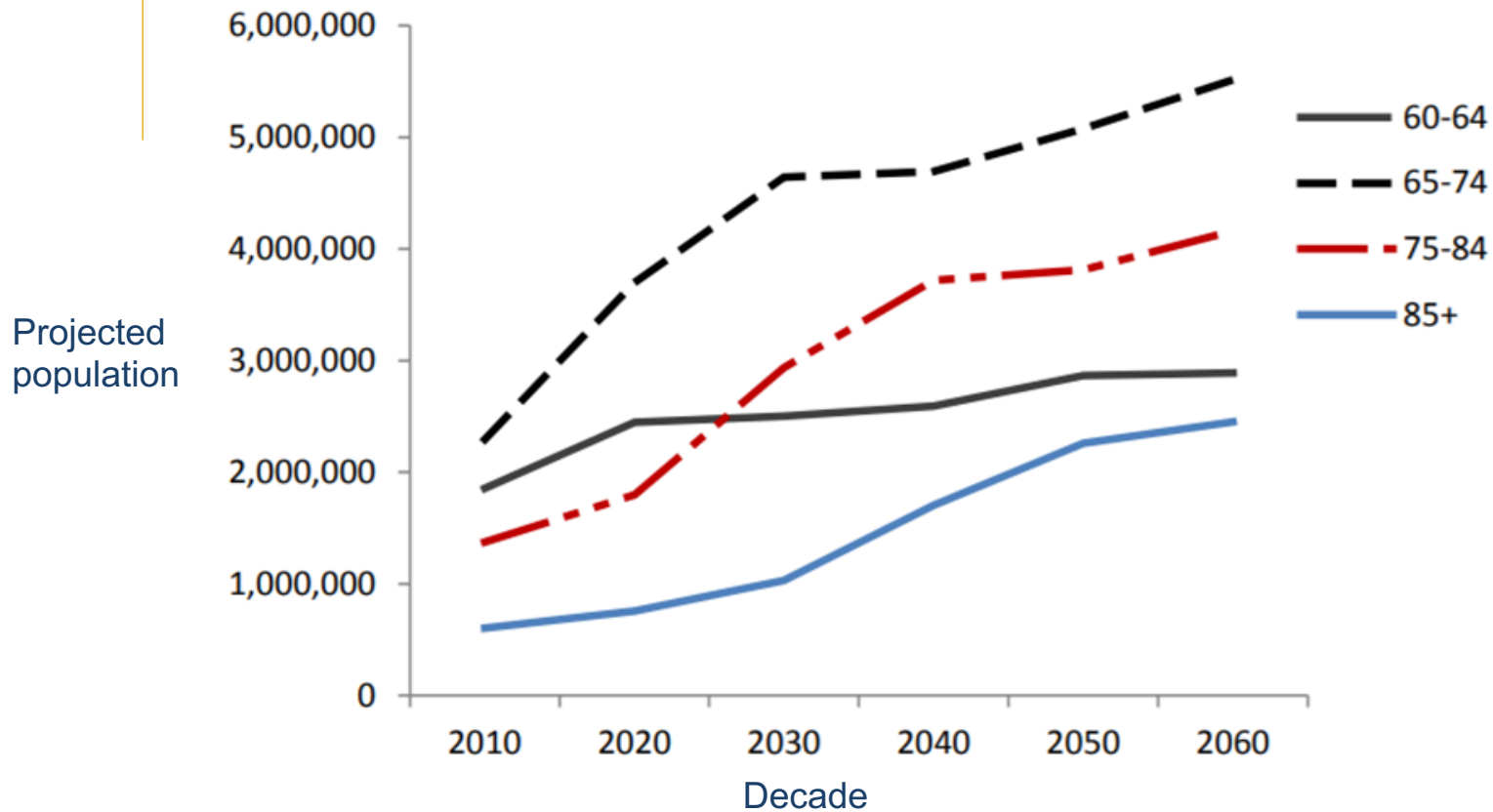Professor, Family
& Community Medicine

AAA IOS

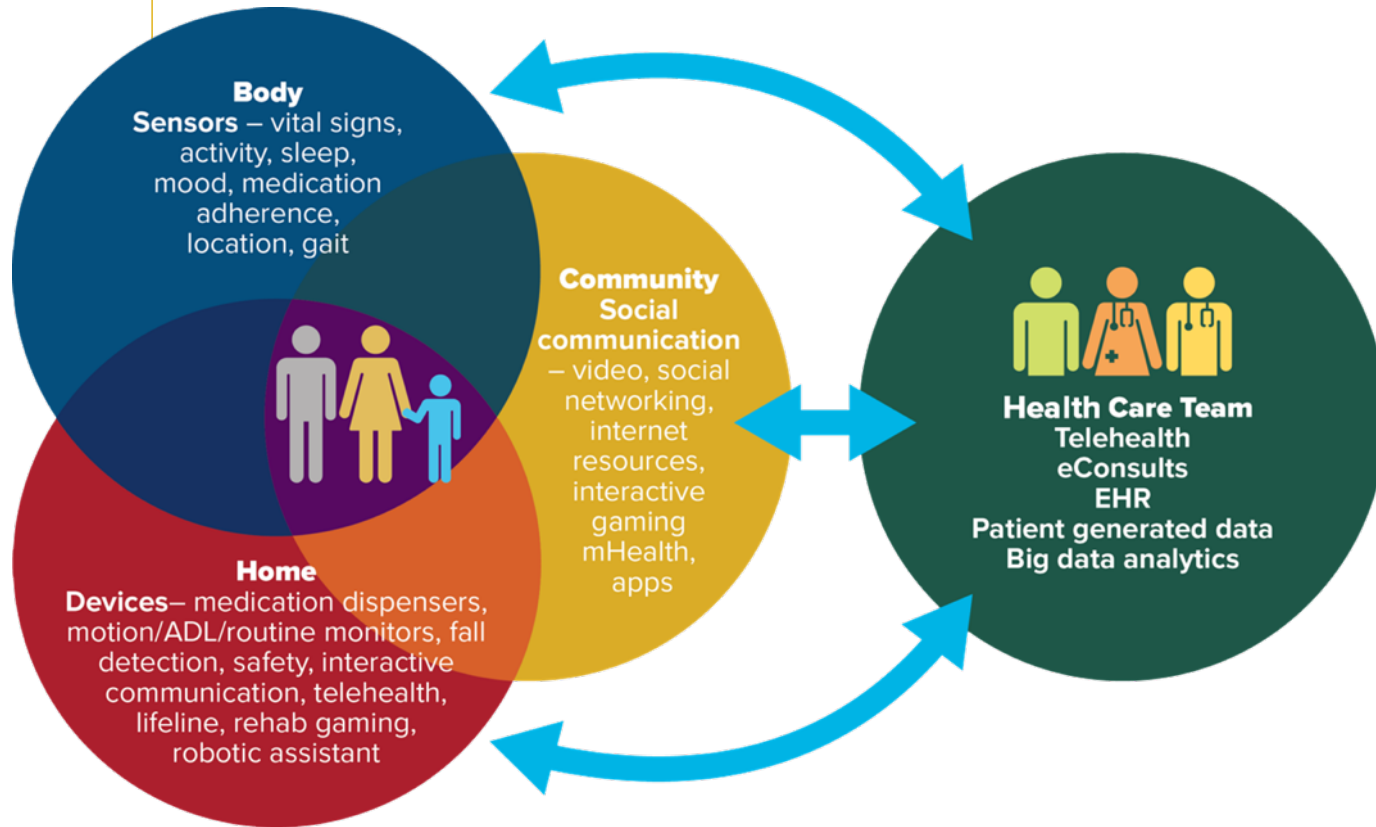**Ageing Societies Leaders Forum**

January 28, 2021

California age group projections: 2010 to 2060

California adults turning 65 between 2015 and 2019 are projected to live another 23.6 years including 4.5 years with one or more limitations in activities of daily living (ADL).

Healthy aging in a digital world…

Body
Sensors – vital signs, activity, sleep, mood, medication adherence, location, gait

Community
Social
communication – video, social networking, internet resources, interactive gaming mHealth, apps

Home
Devices– medication dispensers, motion/ADL/routine monitors, fall detection, safety, interactive communication, telehealth, lifeline, rehab gaming, robotic assistant

Health Care Team
Telehealth
eConsults
EHR
Patient generated data
Big data analytics

…a forward-thinking, transdisciplinary program that is dedicated to the idea that technology, used appropriately, can optimize health and social and physical function as we age.

Technology brings healthcare to the home

- Data empowers residents to engage in preventive health behaviors.

- Sensors track abnormalities – such as falls or missing meals.

- Communication technologies facilitate social connection and telehealth.

- HD cameras and infrared thermometers allow for monitoring and remote care.

- Built-in support for ADLs, rehab, continence care, hydration detection, & management.

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An academic-private industry partnership: Community for Health and Independence (CHI)

GOAL:

Partnership to inform planning and design of an innovative multigenerational, age-friendly community inclusive of persons with intellectual and developmental disabilities.

TO DATE:

1. Initial report identified potential benefits and barriers to academic-developer partnership (2018).

2. Evidence summary will summarize existing evidence and model communities to inform CHI land use planning and design (2021).

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2018 report on Community for Health and Independence

- Summarized important factors for UCD leadership deliberation:
  - Regional demographics and projections
  - Overview of model communities
  - Rapid review of existing research
  - Input from faculty on challenges and opportunities

- How such a partnership could contribute to the UCD mission?
  - Research
  - Education
  - Community engagement
  - Healthcare delivery

Community for Health and Independence

Opportunities for a UC Davis partnership to develop a community for healthy aging in the Sacramento Region

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August 2018

2018 CHI report: community models

Technology	Built Environment	Public-private partnership
• Mirabella(OR) • Carlsbad-by-the-sea • Quayside* • The Villages • Oatfield Estates	• Albert Lea, MN • Lantern • Hogewey	• Mirabella (OR, AZ*) • Wesley Woods Towers • Rolling Oaks • Judson Manor

2018 CHI report: evidence scan results

Smart Home Technology

- Many studies assessed accuracy and acceptance.
- Few studies examined health outcomes or healthcare utilization.
- Limited research indicated technology may help to:
  - sustain aging-in-place
  - reduce caregiver burnout

Built Environment and Design

- Substantial evidence that the built environment and environmental design impact physical activity.
- Common positive interventions:
  - neighborhood walkability
  - pedestrian-friendly features
  - Provide access to destinations, services and recreation

Community-Based Interventions

- Evidence supported that community-based services and programs for the aged:
  - improved functioning and independence.
  - reduced depression and social isolation.

2018 CHI report:
Opportunities and Challenges

Research:

O: Potential foundation for groundbreaking longitudinal research.

C: Need for partnership duration as the development changes ownership; community concerns about privacy.

Community Service

O: Students and faculty could provide needed services to community residents.

O: Development of an evidence-based replicable planned community to support healthy aging provides a model for other communities.

Education

O: Provides health professional training with older populations; Student practicums could support the community while enhancing training experiences.

C: Logistics of training and supervision.

Healthcare Delivery

O: Smart homes with telehealth services would establish connections for care through UC Health or elsewhere.

O: Onsite UC Health Services could deliver care to the community.

C: Resident concerns about privacy; Need for sufficient patient volume to financially sustain onsite health services.

Informing Land Use Planning and Design for Age-Friendly Developments
2020-21

What land use planning and design characteristics, techniques, or features promote age-friendly communities?

Report in process: planned completion 3/31/21

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Review of evidence and best practices

Rapid Literature Review: Identify peer-reviewed and grey literature to address key questions.

Summarize articles selected based on hierarchy of evidence.

Topics include:

- o Transportation infrastructure (street/sidewalk/bike and walking path configurations/public transportation/charging stations)
- o Residential dwellings
- o Additional structures and community layout (retail facilities, community facilities, facilities to promote community interaction and physical activity, spiritual centers)
- o "Third space", green space, gardens, water features
- o Recreational and community facilities
- o Technology infrastructure considerations (fiber optic, other needs to support future technology)

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Key informant interviews and model communities

- *Key informant interviews*: Interviews with subject matter experts (i.e., architects, land use planners, and aging experts) to identify land use best practices and model communities.
  - Blue Zones
  - I/DD Community Features and Considerations
  - Healthy Aging Planned/Intentional Communities

- *Identification and review of model communities*: Profile land use and built environment features of existing age-friendly communities.

- *Technology infrastructure needs*

- *Healthcare facility needs*

- *Research facility needs*

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Research and best practices: gaps

More comparative or observational evaluations of age-friendly communities

1. Innovative, integrated technology – does it improve health outcomes? Caregiver satisfaction?

2. What key features of community design in suburban and rural areas – will improve health outcomes and quality of life for older adults and individuals with disabilities?

3. What infrastructure can be planned to support community, home and personal technology for age-friendly suburban greenfield developments?

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Next steps

- Report completion: 3/31/2021

- Work with developers to inform land use planning process

- Collaboration with AAA R&D team to share evidence and best practices on land use and housing for design of age-friendly communities

- Participate in AAA international network of emerging neighborhood developments to inform creation of the ISO standard for smart multigenerational neighborhoods.

Thoughts? Comments? Questions?

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THANK YOU

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