Older Pedestrian Safety and Time Allotted at Signalized Intersections

Dior Hildebrand, B.S.N., R.N., P.H.N.
Physical Activity and Senior Health Programs,
Los Angeles County Department of Public Health

Christopher J. Jarosz, Ph.D., M.S.C.S.
County of Los Angeles, Department of Children and Family Services,
and Faculty at East Los Angeles College

Tony Kuo, M.D., M.S.H.S.
Director, Office of Senior Health
Los Angeles County Department of Public Health

October 28, 2008
Background

- By 2030 the youngest of the Baby Boomer generation will reach retirement age.

- When people age in poor health, they frequently require assistance with activities of daily living (ADL) causing a loss of independence.

- By 2030 expenditures on long-term care will reach $270 billion.

- One potential intervention is to simply delay onset of functional decline for as long as possible.

- Studies have shown a decreased risk for this type of functional decline with physical activity and walking.

- Assessment of local environments questioned the feasibility for seniors to walk for transportation or leisure in the community.
Prevalence of Minimal or No Physical Activity among Adults (18+ years) by Age, LACHS 2002-2007
Why look at utilitarian walking?

- Increasing “exercise” has multiple barriers BUT....
  - If we can increase facilitators for walking in the community, we can get older adults to increase their incidental utilitarian walking – thus decreasing their risk for functional decline.
Research Question

• Do older adults have enough time to cross the street safely?
  – If not, is this perceived as a barrier for walking in the community.
Hazards and Barriers to Walking

• Pedestrian – vehicle crashes remain significant in the U.S., especially among older adults aged 65+ years who live in urban settings.
  – In Los Angeles County, older pedestrians are more likely than younger pedestrians to be struck at intersections (~8% vs. 2% fatalities).

• 82 year old woman given jaywalking ticket for taking too long to cross street.
1. Legal entry only when the green walk is displayed.
2. No standard time duration; can depend on traffic conditions.
3. Can be pre-empted by trains and emergency vehicles.

Vehicle Traffic Signal

- Red
- Green
- Yellow

Crosswalk Signal

- Don’t Walk
- Walk
- Flashing Don’t Walk, Countdown Display
- Don’t Walk

1. The time duration can vary by intersection (often it is 0 seconds).
2. Is not included in minimum transit times for pedestrians.

1. The countdown sequence is based on a standard walking rate (4fps x distance) to cross a street
2. The distance is calculated from the curb landing to midpoint of the last travel lane.
3. A walking speed of 2.8 fps is sometimes used near schools and senior citizen facilities.
Pilot Study

- Examined crosswalk timing at 15 major intersections throughout Los Angeles County.
- Communities with higher percentage of older adults were chosen.
- Intersections were chosen for proximity to destinations frequented by older adults.
Communities Visited

- Arcadia
- Alhambra
- Claremont
- Culver City
- Downey
- Glendale
- Glendora
- L.A. Koreatown
- Northridge
- L.A. Park La Brea
- Santa Monica
- South Pasadena
- L.A. Sunland
- L.A. Van Nuys
- Whittier
Field Visit Summary

• For the entire walk cycle (walk + clearance phase):
  – 20% of the crosswalks could be crossed curb-to-curb at a walking speed of 2.8 fps.

• For the pedestrian clearance phase:
  – 87% would necessitate a walking speed of 3.8 fps or higher to cross before vehicle cross traffic begins.
Focus Groups

• Utilized a multi-categorical design
  – Categories based on functional level of participant
    • Higher functional level - community senior centers
    • Lower functional level – assisted living facilities
      – Study later modified to recruit all participants from community senior centers but continue to base categories on functional levels.

• Participant recruitment criteria:
  – Geographic locations
  – Presumed mobility status of target populations.
Preliminary Focus Group Results

• Majority of participants report:
  – Appreciate the connection between remaining physically active & functional independence
  – Feel they do not have enough time to safely cross streets
  – Walk for leisure
  – Social aspect of walking is important

• Most participants do not walk for utilitarian purposes
  – Appear surprised by line of questioning
  – Unable to identify barriers

• Leads to the question
  – HAVE OUR COMMUNITIES BEEN DESIGNED SO THAT THIS TYPE OF WALKING IS SO UNFEASIBLE THAT IT’S NOT EVEN A CONSIDERATION?
Next Steps

• Walkability audits by participants
  – Active Independent Aging
  – Most common destination
  – Staff will audit some of the common intersections

• Walking diary by participants
  – Seven day
  – When, where, distance, and how long

• Survey older adults requiring assistance with ADLs but still living in the community
  – To get an image of this group and their perceptions and experiences with walking in the community
  – Attempt to delay reaching threshold of functional decline
Next Steps

- Survey Traffic Engineers
  - ITE: Institute of Transportation Engineers
  - Examining the infrastructure and beliefs of local traffic engineers related to structuring intersections in an age friendly manner.
  - Los Angeles, San Bernardino, and Riverside Counties
Anticipated Deliverables

• Descriptive briefs with recommendations
  – Personal, local, and policy
  – Policy and program development

• Recommended standards for traffic engineers as to when and where to extend crosswalk signal timing

• Make available to traffic engineers of GIS maps of locations or destinations frequented by older adults or are in communities with higher percentage of older adults