EQUAL
Environment Quality
Assessment for Living:
Resident Room, Nursing Unit
& Overall Facility

Lois J. Cutler & Rosalie A. Kane
School of Public Health
University of Minnesota
November 17, 2007
Goals of EQUAL

- Create resident specific measures & link to resident outcomes
- Examine variation within & across facilities
  - Visual privacy
  - Function-enhancing features
  - Life-enriching features
  - Degree of environmental control
  - Personalization
  - Dining experience
  - Bathing experiment
Definition of Physical Environment

Objective, measurable characteristics of indoor & outdoor spaces including light levels, furnishings, equipment, fixtures, interior decorations, distances, odors, noise, room arrangements and configurations
Instrument Development

- Included items conceptually associated with resident QOL domains
- 3 levels – room & bath, nursing unit, facility
- Observable and clearly defined
- Includes visual, sound, smell, distance
- Excluded backstage areas
- Light meter, fist test, & rolling tape measure
- Does Not include regulatory minimums
Quality of Life Domains

- Autonomy
- Dignity
- Privacy
- Meaningful activity
- Enjoyment
- Relationships
- Comfort
- Security
- Functional competence
- Spiritual well-being
- Individuality
Validity of Items Associated with QOL

- Developed cognitive rating process for coding environmental features as they relate to QOL domains.
- Environmental team (Lawton, Grant, Kane & Cutler) assigned each item to primary & secondary QOL domains.
Room & Bath Checklist
(113 items)

- # of residents, bed arrangement
- Traffic patterns in multiple bed rooms
- Room entrance
- Sleeping space
- Personal space-personalization
- Resident’s toilet room
- Lighting
- Distance to toilet room used by resident
Nursing Unit Checklist (140 items)

- Number of beds, # of private rooms
- Configuration of unit
- Nursing station configuration (distance from farthest bedroom)
- Shower/tub room (location, condition)
- Lounges/dining areas
- Corridors (distance, clutter, lighting)
- Other, outdoor space, noise, smells
Overall Facility Checklist
(134)

- Site, parking spaces, accessibility
- Main entrance-lobby/reception area
- Lounge-social shared spaces
- Public restrooms (resident access)
- Facility wide dining areas
- Corridors (signage, distance, lighting)
- Outdoor access & amenities
- Facility wide amenities (libraries, chapel, gift shops, restaurants, banks)
Difference Between EQUAL & Other Environmental Instruments

- Not specific to dementia SCU’s
- Geared to individual resident for information on their specific space
- Ability to link individual QOL data, MDS & environmental data for individual resident
- Instruments easily transferable to other settings (AL & independent)
Comprehensive Training of Interviewers

- 3 phases of training for 40 research interviewers on room & bath
- 2 days in classroom using slides, floor plans, measuring
  - Pretest practice in nursing home
  - Reliability testing in different facility
    - (90% reliability standard w trainer)
- Cutler completed unit & facility level
Data Collection

- Applied checklist during Wave 1 of CMS Measurement Indicators & Improvement of the QOL in Nursing Homes study
- 1988 resident rooms, 131 units, 21 SCU’s
- 40 facilities in 5 states (CA, FL, MN, NJ, NY)
- Rural, urban, high % of private rooms, exemplary facilities
Inter-rater Reliability

- Performed in 30 nursing facilities in 3 states
- Second assessor applied checklist to 2 randomly chosen rooms in tandem
- Used kappa statistic to measure agreement between paired observers
- Private room-24 pairs of raters- 96% sig. 42% achieved 100% agreement
- Shared room – 36 pairs of raters 87% sig. 32% achieved 100% agreement
- Insignificant items deleted, revised or clarified
Combined Variables Into Higher Order Indices

- Created indices using “ever present” rule-value 1 or 0 – presence or absence
- Room/bath: storage; personalization; life-enriching; function enhance; visual separation; environmental control
- Unit: function enhance; clutter; life enriching; outdoor space; bath; dining
- Facility: amenities; function; enrichment
- Completed Alpha reliability on indices
Findings

Inadequate light levels
3053 light meter readings

<table>
<thead>
<tr>
<th>Room</th>
<th>Range</th>
<th>Mean</th>
</tr>
</thead>
<tbody>
<tr>
<td>Head of bed</td>
<td>95-4FC</td>
<td>37 FC</td>
</tr>
<tr>
<td>Sink</td>
<td>75-1FC</td>
<td>25 FC</td>
</tr>
<tr>
<td>Commode</td>
<td>48-1 FC</td>
<td>13 FC</td>
</tr>
<tr>
<td>Sh/tub room</td>
<td>152-4 FC</td>
<td>46 FC</td>
</tr>
</tbody>
</table>
Functional Competence
(Range 0-10 Items, M=3.5)
Comfort
Dignity
Individuality
Enjoyment
Security
Relationships
Meaningful Activity
Privacy
Autonomy
Spiritual Well-Being
Limitations

- Alpha reliability too low in some indices to use index scale in analysis
- Goal of linking space to specific person not always met (dining, tub/shower)
- Do items actually work (heating & AC controls)
- Checklist may mask extreme variation
Complete Checklists on CMS Web site

- [http://www.cms.hhs.gov/NursingHomeQualityInitiatives/05_NHQIHighlights.asp#TopOfPage](http://www.cms.hhs.gov/NursingHomeQualityInitiatives/05_NHQIHighlights.asp#TopOfPage)
- Click: Quality of Life Volume 2
- Appendices
  - Appendix G - Room & Bath Checklist
  - Appendix H - Nursing Unit Checklist
  - Appendix I - Facility Checklist
Thank you for your interest in EQUAL

Contact
Lois J Cutler
cutle001@umn.edu
Rosalie A Kane
kanex002#@umn.edu