

# Infection Prevention in Residential Care Homes for the Elderly: Challenges and Opportunities



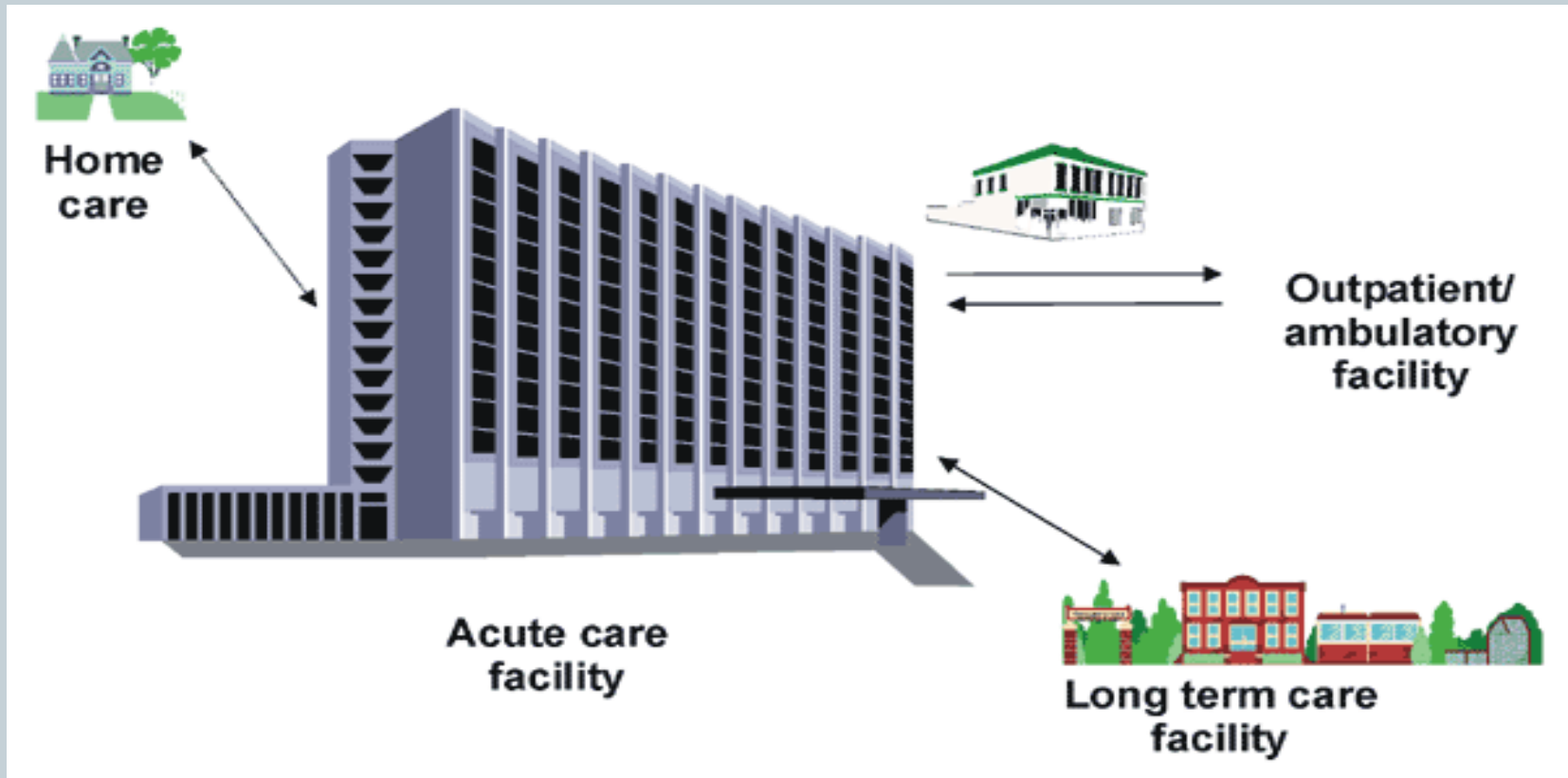
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# Outline



- **Challenges: Merging of cultures**
- ‘Culture change’ in Nursing homes (NH)
  - Resident centered focus; Deinstitutionalizing services; Individualizing care; more involvement of residents and front line staff
  - Models of ‘Culture Change’ in NH: Eden alternatives, Green house, Wellspring models etc
- ‘Culture and practice change’ in Infection Prevention
  - Leadership engagement: ‘top down’
  - Frontline engagement: ‘bottom up’
  - ‘Targeting zero’: HAIs
  - ‘Search and destroy’: MDROs
  - Public reporting
- Real world implications of merging two ‘cultures’
- **Opportunities: Research initiatives**

# Healthcare system of the past



# Growth of Nursing Homes in the US: 2011



- Increase in elderly population
- Increasing prevalence of chronic illness
- Growth in the need of formal and informal long-term care
- Prevalence of NH residents reduced from 1.6 m in 1999 to 1.5 million in 2004; but absolute nos. using NHs have gone up
  - Growth of post acute care
- NH a crucial part of formal health care
  - Significant Medicare expenditures each year devoted to post acute care
  - Medicaid dollars devoted to traditional long-term care

# Acute Care Hospitals Vs. Nursing Homes (RCHEs)



<b>Characteristic</b>	<b>Hospitals</b>	<b>Nursing Homes</b>
Patient population	Young, old	Predominantly older adults
Setting	High technology	Home like
Goals	Acute disease management	Comfort, support
Length of stay	Days	Months, Years
Physician role	Primary	Secondary, limited
Infection definition	Clinical + laboratory + radiology	Usually clinical
Resources for infection prevention	Broad, usually extensive	Variable, often limited

# Challenges to high-quality of Care



- Long history of efforts to improve quality of care
- 1987 Omnibus Budget Reconciliation Act (OBRA) created a minimum standard of care
- Challenges to high-quality care
  - Chronic staff shortages
  - Inadequate reimbursement
  - Dynamic changes in case-mix
  - Acuity of care increasing in NHs (RCHE), yet infection prevention and control seems to be lagging behind
- 90% of US NHs (RCHE) now provide both long-term care and short-term post-acute care

# Culture Change: What does it mean in NHs (RCHE)



- To achieve resident-directed care
- Aims to transform both NH physical environments and organizational structure
- Goal is de-institutionalize services and individualize care
- Encourage residents and frontline staff to be more involved in decisions that eventually affect them

# Culture Change: What does it mean in NHs



- **Six culture change constructs:**
  - Care and all resident-related activities are directed by residents
  - A living environment designed to be home rather than an institution
  - Close relationships between residents, family members, staff and community
  - Work organized to support and empower all staff to respond to residents' needs and desires
  - Management enables collaborative and decentralized decision making
  - Systematic processes that are comprehensive and measurement-based and that are used for continuous quality improvement



# Emerging Models of Long-term care



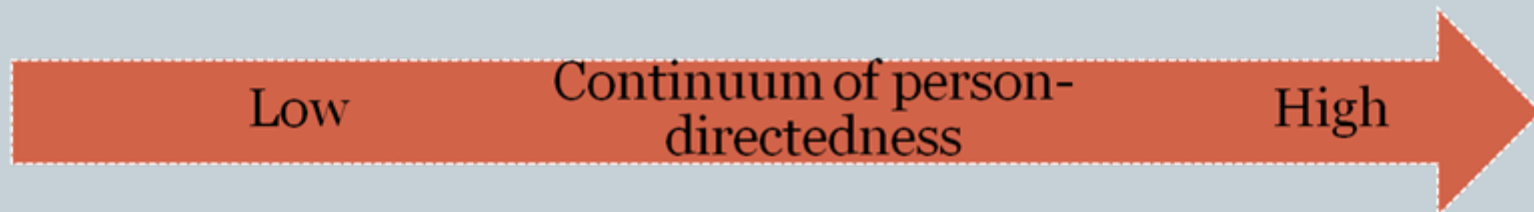
- **Pioneer network**
- **Eden alternative**
- **Green House**
- **Wellspring models**

# Pioneer Network: Continuum of person-directed culture

[www.pioneernetwork.net](http://www.pioneernetwork.net)



<b>Provider directed</b>	<b>Staff Centered</b>	<b>Person Centered</b>	<b>Person Directed</b>
Management makes most decisions with little consideration of staff or residents	Staff consult the residents or put themselves in residents' place while making decisions	Elder preferences or past preferences form basis of decision making of some routines	Elders make every decision about their routines. When not able to articulate, staff observe prior preferences and life-long habits
Residents expected to follow existing routines	Residents accommodate staff for much of the time- but have some choices within the existing routines	Staff begin to organize their routine to incorporate some resident preferences- articulated or observed	Staff organize their hours, patterns and assignments to meet resident preferences



# Green House: Warm, smart, green



- Designed to be home for six to ten elders.
- Blends with neighboring homes, includes vibrant outdoor space
- Each elder has a private room or unit with private bathroom
- Elders receive high levels of sunlight
- Open kitchen and dining area
- Warm: warmth is created by the floor plan, décor, furnishings, people
- Smart: use of cost-effective, smart technology-computers, wireless pagers, electronic ceiling lifts, adaptive devices
- Green: Sunlight, plants and access to outdoor spaces

# Eden Alternative: Principles



Three plagues of loneliness, helplessness, boredom account for the bulk of suffering among our elders

An elder-centered community commits to creating a human habitat where life revolves around close and continuing contact with plants, animals and children.

Loving relationship is the antidote to loneliness. Elders deserve easy access to human and animal companionship.

An elder-centered community creates opportunity to give as well as receive care. This is the antidote to helplessness

An elder-centered community imbues daily life with variety and spontaneity by creating an environment in which unexpected and unpredictable interactions and happenings can take place. This is an antidote to boredom

Medical treatment should be the servant of genuine human caring, never its master

The community honors its Elders by de-emphasizing top-down bureaucratic authority, seeking instead to place the maximum possible authority to elders and those close to them

Wise leadership is the lifeblood of any struggle. For it there can be no substitute.

# Well-spring models



- **Conceptual Underpinnings:**
  - Improve quality of clinical care for residents and prompt culture change
  - Explicit emphasis to focus on both clinical quality and environmental culture simultaneously and interactively
- **Practical applications:**
  - Clinical care quality improvement through ongoing training modules and systematic transfer of this knowledge to each facility and unit within the home
  - Culture change within the facility and across facilities: increased recognition of the importance of the contributions and input of floor staff, particularly those with direct resident contact; shift from a more hierarchical to lateral management structure
  - Collaborative stance with other facilities: Share outcome data, identify specific clinical and organizational problems within their respective facility

# Evolving culture and practice: Infection Prevention



- **Leadership engagement: ‘top down’**
- **Frontline approach: ‘bottom up’**
- **‘Targeting zero’: HAIs**
- **‘Search and destroy’: MDROs**
- **Public reporting**

# Engaging the leaders: Top down approach



- Achieving behavior change difficult
- Behavioral interventions often have limited effect
- Changing organization culture and expectations crucial
- Joint Commission:
  - ‘Leaders create and maintain a culture of safety and quality throughout the hospital. Since preventing infections in one of the key strategies for promoting safe, high-quality care for patients or residents, in both the inpatient and out patient settings, it is important for leadership and Infection prevention and control program to collaborate to establish this culture and safe environment’
  - ‘The organization uses data and information to guide decisions and to understand variation in the performance of processes supporting quality and safety’
  - ‘The hospital communicates information related to safety and quality to those who need it, including staff, licensed independent practitioners, patients, families and external interested parties’ i.e. have a communications strategy

# Top down approach: Nursing Homes



- Demands of NH administration evolving
- ‘Crisis Management’ style leadership
  - E.g. F Tag 441 leads to multiple educational in-services
- Driven by multiple licensure requirements and intense regulatory structure
- Quality and performance measures often viewed narrowly to achieve minimum standards set by regulations
- Other unique leadership issues in NH
  - Workforce issues; staff shortages; staff with less professional education
  - Need for compassionate perspective
  - High interaction with people
  - Frequent changes in leadership



# Example: U of M TIP study



<b>Mechanism</b>	<b>Explanation</b>	<b>Examples from TIP field work</b>
Attention	Leaders communicate their values and concerns by their choices of comments, praise or criticism	Participation in quality improvement and research projects Samples of hand hygiene products distributed to employees
Reaction to crisis	Leaders can reinforce values and desired behaviors	Prompt response to any State /CMS survey deficiencies; delegation of power
Role modeling	Leaders communicate values and expectations by their own actions	Leaders attend in-services, reinforce educational points made by guest speakers and their practical application in the facility
Allocation of awards	Leaders communicate organization's values by selection of individuals for formal recognition	Infection prevention practices for hand hygiene and device care encouraged and rewarded
Criteria for selection and dismissal	Leaders make explicit the behaviors expected of all employees by selecting candidates who possess those characteristics and dismissing those who do not show desired values/behaviors	Infection control and hand hygiene in-services to all new hires; hand hygiene monitoring with some negative consequences to those with poor compliance

# Team approach: 'Bottom Up'



- Involvement of leadership not enough
- Any infection prevention intervention needs to be embraced by the frontline staff
  - Nurses' aides
  - Nurses
  - Rehab personnel
  - Respiratory therapists
  - Recreation therapists
  - Dining services
  - Volunteer services
  - Families
- In-line with the facilities' values, culture and mission

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# Healthcare Workers Opinions: Isolation precautions in NHs (RCHEs)



- Few studies have addressed opinions of the staff most affected by isolation practices
- Assess NH (RCHE) HCWs' opinions regarding use of contact isolation precautions to reduce transmission of MRSA and VRE

# Methods



- **Study Design:**
  - Questionnaire study, anonymous, self-administered
- **Participants:**
  - All healthcare workers in 7 community free-standing SNFs (Nurses and Nurses' aides)
  - Eligible participants included all HCWs present at the facility during our visit. Incorporated all shifts
- **Questionnaire included items on:**
  - Respondent characteristics – facility, gender, time at the facility
  - Open ended questions:
    - “Do you think that residents with MRSA should be isolated to their rooms?”
    - “If you knew your patient had MRSA or VRE, would you change any of your infection control practices?”
  - Open-ended questions regarding the potential benefits and harmful effects of contact isolation.
  - Open-ended questions were used to determine the full range of possible responses on a less studied controversial subject from a heterogenous sample of HCWs
- **Incentives:**
  - A small canvas tote bag with infection prevention message

# Themes for Benefits and Harmful Effects of Contact Isolation



<b>Benefits of Contact Isolation</b>	<b>Potential Harmful Consequences of Contact Isolation</b>
Benefits to residents (e.g., prevent transmission of antibiotic-resistant organisms)	Potentially harmful psycho-social consequences (e.g., confusion or depression)
Benefits to the facility (e.g., to pass inspection)	Compromise in patient safety (e.g., neglect of residents by staff)
Benefits to staff (e.g., to protect staff)	Adverse consequences to patients' health (e.g., weight loss, pressure ulcers)

## Respondent/Facility Characteristics (356 enrolled, 441 eligible)

	NH1	NH 2	NH 3	NH 4	NH 5	NH 6	NH 7
Number of HCWs eligible	78	67	91	54	50	74	26
Number of HCWs enrolled	73	51	85	43	15	73	15
Gender F:M	66: 7	48:3	84:1	40:3	13:2	69:4	15:0
Yrs at facility, mean (SD)	8.6 SD=8.8	9.7 SD=8.9	9.2 SD=9.8	7.8 SD=7.9	12.6 SD=8.6	8.9 SD=9.5	8.1 SD=11.4
Facility ownership	Non-Profit	For-Profit	Non-Profit	Non-Profit	For-Profit	Govt.	Non-Profit

# Results



Question	All <sup>€</sup> <i>n</i> (%)	Nurses <sup>€</sup> <i>n</i> (%)	Nurses' Aides <sup>€</sup> <i>n</i> (%)	<i>P</i> -value
Do you think residents with MRSA should be isolated in their rooms?	216 (61)	59 (52)	157 (66)	<.01
Do you think residents with VRE should be isolated in their rooms?	145 (41)	54 (47)	91 (38)	<.01
If you knew your resident had MRSA or VRE, would you change any of your infection control practices?	129 (36)	35 (31)	94 (39)	<.01

<sup>€</sup>N (%) of HCWs with an affirmative response.



# Healthcare worker responses: Benefits of isolation



	Potential Benefits	All <i>n</i> (%)	Nurses <i>n</i> (%)	Nurses' Aides <i>n</i> (%)
MRSA ( <i>n</i> =261)	To prevent/reduce transmission	228 (88)	71 (82)	157 (91)
	To protect the patient	40 (15)	11 (13)	29 (17)
	To pass inspection	7 (3)	2 (2)	5 (3)
	To protect staff/encourage infection control practices	27 (10)	7 (8)	20 (12)
VRE ( <i>n</i> =175)	To prevent/reduce transmission	150(86)	62 (86)	88 (85)
	To protect the patient	23 (13)	10 (1)	13 (3)
	To pass inspection	0 (0)	0 (0)	0 (0)
	To protect staff/encourage infection	14(8)	4 (1)	10 (4)

# Responses regarding the potential harms of isolation for MRSA and VRE

Organism	Potential Harms	All, n (%)	Nurses, n (%)	Nurses' Aides, n (%)
MRSA (N=239)	Psychosocial effects (any)	233 (97)	85 (98)	148 (97)
	Confusion	54 (23)	17 (20)	37 (24)
	Depression	206 (86)	76 (87)	130 (86)
	Affects self-esteem	53 (22)	16 (18)	37 (24)
	Patient safety effects (e.g. HCW neglect)	12 (5)	2 (2)	10 (7)
	Adversely affecting health (functional decline, weight loss)	40 (17)	13 (15)	27 (18)
VRE (N=155)	Psychosocial effects (any)	154 (99)	72 (99)	82 (99)
	Confusion	23 (15)	10 (14)	13 (16)
	Depression	144 (92)	68 (93)	76 (92)
	Affects self-esteem	27 (17)	12 (16)	15 (18)
	Patient safety effects (e.g., HCW neglect)	6 (4)	1 (1)	5 (6)

# Active Surveillance Cultures: 'Search & Destroy'



- **At any given time:**
  - 30% colonized with MRSA
  - 10-20% with VRE
  - 35-40% with CIP-R GNB
- **Challenges/Questions to consider**
  - Is it practical to culture 1.5 million residents?
  - Can we define specific high risk groups?
  - Multi-anatomic site cultures? Nares alone may not suffice
  - How often should they be cultured?
    - ✦ **Short-stay: 2-3 months; Long-stay: 3-4 yrs**
  - If positive then...?

# 'Targeting zero'



- **Even one HAI is too many**
  - Leadership, physicians, nurses, pharmacists, respiratory therapists, physical therapists – all have to come together
  - Root cause analyses: documentation crucial
- **Challenges for NH:**
  - Is 'Targeting zero' for our long-stay residents realistic?
    - ✦ Definitions of infections; paucity of signs and symptoms
  - Evaluation of change
  - Staff turnover
  - Sub-optimal documentation
- **Opportunities:**
  - Interdisciplinary team meetings
  - Fewer employees, making changes easier

# Public Reporting



- Nov 2002: CMS publicly report NH quality indicators through its website: *Nursing Home compare*
- Information made public: NH characteristics, staffing information, clinical quality measures, inspection results
- Pre-post studies show:
  - Downward trend in pain, physical restrains and delirium measures (Zinn 2005)
  - Downward trend in pain, physical disability, physical restraints, urinary catheters (Castle 2007)
  - No change in UTIs (Zinn 2005, Castle 2007, Mukamel 2008)
- Accurate definitions and protocols for care planning to prevent infections (bundles) need to be developed

# Key Infection Control Research Questions – Where do we start?



- **Research questions on burden of infections**
  - Incremental risk of infection
  - Fraction of preventable infections
  - Influence of resident factors on burden of infections
  - How are endemic and epidemic infections monitored?
  - What is the cost and morbidity associated with infection and transfer to hospitals?

# Key Infection Control Research Questions – Where do we start?



- **Research questions on burden of infections in NHs (RCHEs)**
  - Incremental risk of infection
  - Fraction of preventable infections
  - Influence of resident factors on burden of infections
  - How can we define infections in older adults?
  - How are endemic and epidemic infections monitored?
  - What is the cost and morbidity associated with infection and transfer to hospitals?

# Key Infection Control Research Questions



- **Research questions for prevention and control of infections in NHs (RCHEs)**
  - Immunizations in residents and healthcare workers
  - Preemptive screening for MRSA, VRE
  - Adoption of guidelines
  - Characteristics of adopters and non-adopters
  - Efficacy of hospital modeled infection control programs?
  - Infection control training



# Other areas for NH (RCHE) research



- **Antimicrobial use in NHs**
  - Role and models of antibiotic stewardship
- **Specific infections**
  - Prevalence, diagnosis, management with/without transfer to acute care, reducing antibiotics towards end of life, prevention
- **Identifying target groups for intensive infection control efforts**
- **---and so on**

# Summary



- **Major Challenges:**

- Practice of infection control in NHs is indeed different from acute care
- Changing culture/perception of NHs (RCHE)
- Paucity of research to answer the most profound and basic questions
- Increasing infections and MDROs with increasing acuity of illness

- **Opportunities:**

- Develop and validate effective models of implementation research
- Develop a research agenda that crosses boundaries

# COUNTERTHINK

