

Infection Control in Elderly Care Facilities – Where Should We Go?

Prof. Andreas Voss, Radboud University, The Netherlands
A Webber Training Teleclass

“Infection control in elderly care facilities - where should we go?”

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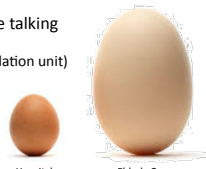


Hosted by Paul Webber
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www.webbertraining.com December 15, 2016

IPC in different settings

- The differences between various countries and their way to do infection control in hospitals is large – the difference for elderly care settings are gigantic.
- Which type of elderly care setting are we talking about?
 - nursing home (not home care – not ventilation unit)
- What is the background of audience
 - training and profession
 - in setting possibilities




Hospital Elderly Care

IPC nursing home versus hospital

- Structure
 - e.g. Presence of single- and isolation-rooms, bed-pan washers, PPE, ...
- Basic IPC practices not (fully) implemented
 - e.g. handhygiene, PPE-use, isolation not fitting with “home image”
- Surveillance
 - no (inter-)national definitions, routinely done?
- Guidelines
 - Who has a full set of IPC nursing home guidelines including MDRO, ...
- Training/Education
 - basic training nurses/helpers, elderly-care MDs*, IPC-contact-nurses

Nursing homes & infection control practices



HHS Public Access
Author manuscript
Infect Control Hosp Epidemiol. Author manuscript; available in PMC 2016 July 01.
Published in final edited form as:
Infect Control Hosp Epidemiol. 2015 July ; 30(7): 759–766. doi:10.1017/ice.2015.59.

Healthcare-Associated Pathogens and Nursing Home Policies and Practices: Results from a National Survey

Zhiqiu Ye, BS¹, Dana B. Mukamel, PhD¹, Susan S. Huang, MD, MPH¹, Yue Li, PhD¹, and Helena Tenen-Greenze, PhD¹
¹Cheng Ye, BS, M.S., PhD Student, Department of Public Health Sciences, University of Rochester Medical Center, 265 Critchfield Blvd, CL420644, Rochester, NY, 14642, Zhiqiu_Ye@URMC.Rochester.edu

Zhiqiu et al. Infect Control Hosp Epidemiol 2015;36:759 (Rochester, USA)

Nursing homes & infection control practices (n=1002 surveys)



Sounds familiar?

NHs tend to follow voluntary infection control guidelines only if doing so does not require substantial financial investment in new/dedicated staff or infrastructure

Zhiqiu et al. Infect Control Hosp Epidemiol 2015;36:759 (Rochester, USA)

Just as in the hospitals ...

... it's all about implementing the



BASICS

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Implementing the **BASICS**

- Surveillance of AMR and HAI
- Antimicrobial stewardship
- Guidelines
- Training/Education
- Audits
- Handhygiene
- Isolation measures including PPE-use
- What do the “customers” want?

IPC nursing home versus hospital

- Structure
- All presence of single and isolation rooms
- Basic IPC practices not fully implemented
- All staff/visitors, PPE use, isolation not fitting with “home image”
- Surveillance
- Antimicrobial stewardship, not fully done!
- Guidelines
- Guidelines for IPC nursing home guidelines including MDRL...
- Training/Education
- Basic training/nurses/physicians, infection control, IPC control issues

The difference between NH and H, and the list of “basics” are nearly identical:
→ Basic IPC missing in NH


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Implementing the **BASICS**

- Surveillance of AMR and HAI
- Antimicrobial stewardship
- Guidelines
- Training/Education
- Audits
- Handhygiene
- Isolation measures including PPE-use
- What do the “customers” want?

8

YOU CAN'T MANAGE WHAT YOU DON'T MEASURE



- PETER DRUCKER -

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CR-Acinetobacter in LTC

Infect Control Hosp Epidemiol. 2016 Aug;37(8):983-4. doi: 10.1017/S0950268816000416. Epub 2016 Apr 25.
Emergence of Carbapenem-Resistant Acinetobacter baumannii in Nursing Homes With High Background Rates of MRSA Colonization.
Cheng VC¹, Chen JH¹, Ng WC², Wong JY², Chow DM³, Lam TC⁴, So SY¹, Wong SC¹, Chan TC², Chan EP², Ho PK¹, Yuen KY¹.

- 28 nursing homes in Hong-Kong
- Nasal, axillary and rectal swabs tested for CRAB, CRE, MRSA, and VRE

Cheng et al. ICHE 2016-37-983-4 (Hong-Kong)

CR-Acinetobacter in LTC

- Overall MDRO colonization 35.1%
- MRSA 32.2%
- CRAB 6.5%
- CRE only 1 isolate, no VRE

Cheng et al. ICHE 2016-37-983-4 (Hong-Kong)

Risk-factors in residents with CRAB and MRSA

	CRAB (OR)	MRSA (OR)
Bed-bound	2.70*	2.50*
Incontinence (diaper)	5.01*	1.78*
Nasogastric tube	2.98*	2.64*
Chron cerebral condition	ns	1.55*
Beta-lactam inhibitors	ns	2.34*

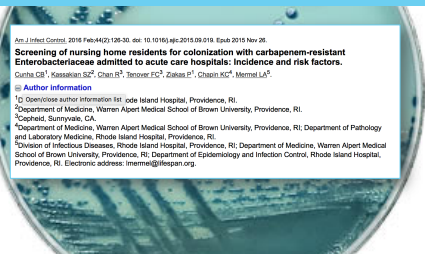
Cheng et al. ICHE 2016-37-983-4 (Hong-Kong)

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CRE at hospital admission



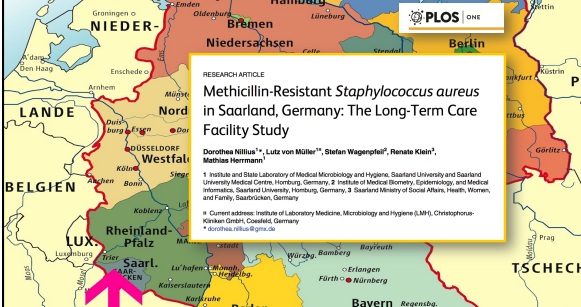
Am J Infect Control. 2016 Feb;41(2):126-30. doi: 10.1016/j.ajic.2015.09.019. Epub 2016 Nov 26.
Screening of nursing home residents for colonization with carbapenem-resistant Enterobacteriaceae admitted to acute care hospitals: Incidence and risk factors.
Cunha CB¹, Gaslamian JZ², Chan JF³, Weaver JSC⁴, Zavascki EP⁵, Osman S⁶, Himmelfarb J⁷
 1) Open/close author information list, Rhode Island Hospital, Providence, RI;
 2) Department of Medicine, Warren Alpert Medical School of Brown University, Providence, RI;
 3) Ochsner, Shreveport, LA;
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 5) Division of Infectious Diseases, Rhode Island Hospital, Providence, RI; Department of Medicine, Warren Alpert Medical School of Brown University, Providence, RI; Department of Epidemiology and Infection Control, Rhode Island Hospital, Providence, RI. Electronic address: imhmm@lifespan.org

||preven|| Cunha et al. AIC 2016;44:126 13

CRE at hospital admission

- Point prevalence survey to detect fecal carriage of CRE among 500 consecutive admissions from local nursing homes to 2 hospitals in Providence, Rhode Island.
- We performed a case-control study to identify risk factors associated with carriage of CRE.
- CRE was found in 23 (4.6%) of the 500 hospital admissions
- Use of a gastrostomy tube was associated with CRE carriage (P = .04).

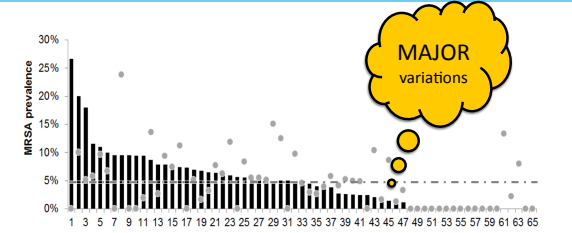
||preven|| Cunha et al. AIC 2016;44:126 14



RESEARCH ARTICLE
Methicillin-Resistant *Staphylococcus aureus* in Saarland, Germany: The Long-Term Care Facility Study
Dorothea Nillius^{1*}, Lutz von Mille^{2*}, Stefan Wagerpfeil³, Renate Klein⁴, Mathias Herrmann^{5*}
 1 Institute and State Laboratory of Medical Microbiology and Hygiene, Saarland University and Saarland University Medical Centre, Homburg, Germany; 2 Institute of Medical Biometry, Epidemiology, and Medical Informatics, Saarland University, Homburg, Germany; 3 Saarland Ministry of Social Affairs, Health, Women, and Family, Saarbrücken, Germany
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 * dorothea.nillius@lmg.de

||preven|| Nillius et al. PLoSOne 2016;April 16

MRSA in German LTCF



||preven|| Nillius et al. PLoSOne 2016;April 16

Multivariate analysis of risk factors associated with MRSA

Risk factor	OR (95% CI); p-value
ulcer / deep soft tissue infection	6.61 (1.14–38.37); 0.035*
urinary tract catheter (UTC)	5.21 (1.84–14.76); 0.002**
multiple MRSA decolonisation cycles	2.79 (1.02–7.64); 0.046*

For multivariate analysis (logistic regression; backward; Wald), all univariate risk factors were used with the exception of 'skin barrier', 'infection', and results of rectal swabs (concomitant intestinal carriage of MDRO). Only significant risk factors depicted (** highly significant with p<0.01, * significant with p<0.05).

||preven|| Nillius et al. PLoSOne 2016;April 17

Current Molecular Epidemiology of Methicillin-Resistant *Staphylococcus aureus* in Elderly French People: Troublesome Clones on the Horizon

Claire Rondeau¹, Guillaume Chevet¹, Dominique S. Blanc¹, Houssein Obaguéli-Haore¹, Marie Decalonne¹, Sandra Dos Santos¹, Roland Quentin¹
Nathalie van der Meer-Marcquet^{1,2} on behalf of the Infection Control Regional Working Group of the Réseau des Hygiénistes du Centre

Rondeau et al. Antonie van Leeuwenhoek 2016;90:1001-1008

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Epidemiology of MRSA in Elderly French

- Worryingly high prevalence of the *qacA/B* gene in MRSA isolates.
 - Antiseptics measures being crucial to prevent healthcare-associated infections, our findings raise questions about the potential risk associated with chlorhexidine use in *qacA/B+* MRSA carriers
- NHs are a weak link in MRSA control.
- NHs to serve as reservoirs of USA300 clone for local HCFs

Prevent | Rondeau et al. Frontiers Microbiol 2016, January | 19

INFECTION CONTROL & HOSPITAL EPIDEMIOLOGY JULY 2016, VOL. 37, NO. 7
ORIGINAL ARTICLE
The Role of Nursing Homes in the Spread of Antimicrobial Resistance Over the Healthcare Network
Carline van den Dool, PhD¹, Anja Haenen², Tjalling Leenstra, MD, PhD¹, Jacco Wallinga, PhD^{1,2}
Van den Dool et al. IJCHE 2016;37:761

Role of NH in the spread of AMR

FIGURE 1. (a) Map of the Netherlands with the locations of hospitals (blue) and nursing homes (red). (b) Example of the yearly simulated patient flow between 4 of the nursing homes (large red dots) and the hospitals (blue).

Prevent | Van den Dool et al. IJCHE 2016;37:761 | 21

Role of NH in the spread of AMR

- Nursing homes are sufficiently connected to the hospital network to drive national epidemics
- Emerging pathogens can, in the absence of control measures, sustain or initiate nationwide outbreaks
- Negative surveillance data, which are often based on clinical infections and usually do not cover the entire healthcare system, should be interpreted with care and should **not** lead us to conclude prematurely that the healthcare network is well protected against outbreaks !

Prevent | Van den Dool et al. IJCHE 2016;37:761 | 22

Surveillance of HAIs in nursing homes

- HAI data as the first step to control
 - At start (2007) no Dutch definitions → first Dutch definitions made
 - Surveillance totally new for the setting
 - No “system” to support collection

Three year prevalence of healthcare-associated infections in Dutch nursing homes. Carline van den Dool, PhD, Anja Haenen, Tjalling Leenstra, MD, PhD, Jacco Wallinga, PhD. Frontiers in Microbiology 2016 | www.frontiersin.org

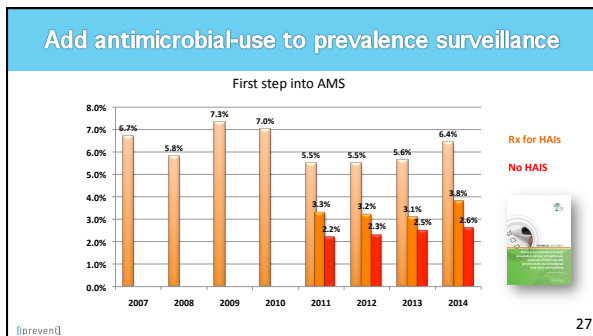
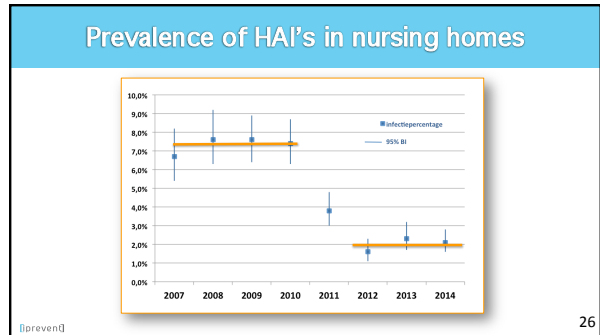
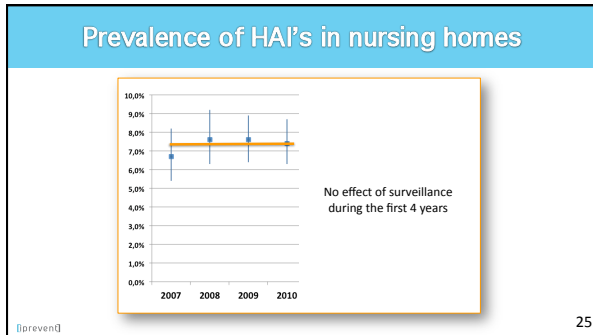
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Prevalence App to support standardized collection

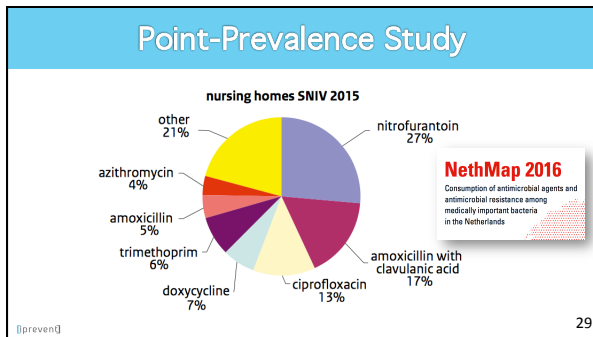
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- ### Implementing the **BASICS**
- 📌 Surveillance of AMR and HAI
 - 📌 **Antimicrobial stewardship**
 - 📌 Guidelines
 - 📌 Training/Education
 - 📌 Audits
 - 📌 Handhygiene
 - 📌 Isolation measures including PPE-use
 - 📌 What do the "customers" want?



Point-Prevalence Study

NethMap 2016

ATC Group*	Therapeutic group	2011	2012	2013	2014
J01AA	Tetracyclines	5.4	6.8	7.2	4.7
J01CA	Penicillins with extended spectrum	4.9	6.6	5.0	5.0
J01CE	Beta-lactamase sensitive penicillins	0.3	0.2	0.4	0.4
J01CF	Beta-lactamase resistant penicillins	2.5	3.7	1.6	1.3
J01CR	Combinations of penicillins, incl. beta-lactamase-inhibitors	18.6	18.1	18.9	17.7
J01DB -DE	Cephalosporins	0.7	1.3	1.1	0.7
J01DF	Monobactams	0.0	0.0	0.0	0.0
J01DH	Carbapenems	0.1	0.0	0.0	0.0
J01EA	Trimethoprim and derivatives	2.3	2.0	2.7	2.2
J01EC	Intermediate-acting sulfonamides	0.1	0.1	0.0	0.0
J01EE	Combinations of sulfonamides and trimethoprim, including derivatives	3.5	2.7	1.3	1.5

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While the Dutch have AMS programs running in their hospitals for years AMS in the nursing home setting is unknown (in the NL)



Clostridium difficile Infection in Long-term Care Facilities: A Call to Action for Antimicrobial Stewardship

Teena Chopra¹ and Ellie J. C. Goldstein^{2,3}

¹Division of Infectious Diseases, Wayne State University, Detroit, Michigan; ²TM Alken Research Laboratory, Santa Monica, California; and ³David Geffen School of Medicine at the University of California, Los Angeles

||preven|| Chopra et al. *Clin Infect Dis* 2015;60:572 (LA, USA) 32

C. difficile in LTC

NEEDED: Bundle approach with a combination of infection control and antimicrobial management strategies

- Antibiotic use in the previous 3 mo
- History of previous *Clostridium difficile* infection
- Fecal incontinence

||preven|| Chopra et al. *Clin Infect Dis* 2015;60:572 (LA, USA) 33

AMS in Long-Term Care

Antimicrobial Stewardship in Rhode Island Long-Term Care Facilities: Current Standings and Future Opportunities.

Morrill et al.¹, Mermal LA¹, Baser RR², Alexander-Scott N³, Dosa D⁴, Kavoussi S⁵, Reice J⁶, LaPlante KL¹.

Abstract
Our survey of antimicrobial stewardship practices among Rhode Island long-term care facilities demonstrated opportunities to develop formal programs. Results suggest infection preventionists are largely responsible for ensuring appropriate antibiotic use in long-term care facilities and there is a need for increased interdisciplinary access to individuals with antimicrobial stewardship expertise. *Infect Control Hosp Epidemiol* 2016;37:979-882.

||preven|| Morrill et al. *ICHE* 2016;37-979 (Rhode-Island, USA) 34

AMS in Long-Term Care

- Formal AMS programs: 28%
- Budget support for AMS: 15%
- FTE for infection control: 74%
- FTE for AMS: 26%

	Facility-wide	AMS-specific
Infection preventionist	0.35	0.15
ID physician	0.03	0.02
Pharmacist	0.26	0.06
ID pharmacist	0.01	0.01

||preven|| Morrill et al. *ICHE* 2016;37-979 (Rhode-Island, USA) 35



Antibiotic prescribing in Dutch nursing homes: how appropriate is it?

van Buijl LW¹, Veenhuizen RB², Achterberg WP³, Schellevis FG³, Eessink RT⁴, de Greeff SC⁵, Natsch S⁶, van der Steen JT⁷, Harroop CM¹.

||preven|| van Buijl et al. *J Am Med Dir Assoc* 2015;16:229 (NL) 36

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Antibiotic prescribing in Dutch nursing homes

- Investigate the appropriateness of decisions to prescribe or withhold antibiotics for nursing home residents with infections of the urinary tract, respiratory tract, and skin.
- Prospective study in 10 NH's.
- Physicians completed a registration form for any suspected infection over an 8-month period, including patient characteristics, signs and symptoms, and treatment decisions.
- An algorithm, developed by an expert panel and based on national and international guidelines, was used to evaluate treatment decisions for appropriateness of initiating or withholding antibiotics.

[[preven]] Van Buul et al. J Am Med Dir Assoc. 2015;16:229 (NL) 37

Antibiotic prescribing in Dutch nursing homes

- Of 598 treatment decisions 76% were appropriate.
 - 74% with cases that were prescribed antibiotics
 - 90% with cases in which antibiotics were withheld (p = .003).
- Decisions around UTI were least often appropriate (68%).
- The most common situations in which antibiotic prescribing was considered inappropriate were asymptomatic bacteriuria and viral RTI.
- Antibiotic consumption can be reduced by improving appropriateness of treatment decisions, especially for UTI.

[[preven]] Van Buul et al. J Am Med Dir Assoc. 2015;16:229 (NL) 38

Implementing the **BASICS**

- Surveillance of AMR and HAI
- Antimicrobial stewardship
- Guidelines**
- Training/Education
- Audits
- Handhygiene
- Isolation measures including PPE-use
- What do the “customers” want?

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Guidelines

ADVANTAGES | **DISADVANTAGES**

- Nursing homes can still avoid the mistake of hospitals of having TOO MANY guidelines
- Still many countries miss guidelines for nursing homes
- Guidelines should be setting-specific (over generic hospital & nursing home guidelines) as this will improve acceptance

[[preven]] 40

Dutch MDRO guideline

Tabel 2 Infectiepreventiemaatregelen¹ per BRMO bij incidentale cliënten met een BRMO

Micro-organisme	Persoonlijke beschermingsmiddelen				1-persoons kamer/ appartement	Sanitair		Bezoek aan gemeenschappelijke verblijfsruimte ²
	NI	Gloves	Gown	Mask		Toilet/poelstoel	Bedkamer	
Enterobacteriaceae (incl. ESBL, excl. CPE)	Ja ²	Ja ²	Ja, halter ²	Nee ⁴	Nee	Clientgebonden	Delen mogelijk ²	Ja ²
CPE	Ja ²	Ja ³	Ja, lange mouw ³	Nee ⁴	Ja ⁷	Clientgebonden	Clientgebonden	Afhankelijk van individuele situatie ³
Acinetobacter species	Ja ²	Ja ³	Ja, lange mouw ³	Nee ⁴	Ja ⁷	Clientgebonden	Clientgebonden	Afhankelijk van individuele situatie ³
Pseudomonas aeruginosa	Ja ²	Ja ³	Ja, halter ³	Nee ⁴	Nee	Clientgebonden	Delen mogelijk ²	Ja ²
Stenotrophomonas maltophilia	Ja ²	Ja ³	Ja, halter ³	Nee ⁴	Ja ¹¹	Clientgebonden	Delen mogelijk ²	Ja, mist ^{4,12}
Streptococcus pneumoniae (PPSP)	Ja ²	Ja ³	Ja, halter ³	Ja, FFP2 ¹⁰	Ja ¹¹	Delen magelijk	Delen mogelijk ²	Ja ²
Enterococcus faecium (URE)	Ja ²	Ja ³	Ja, halter ³	Nee ⁴	Ja, bij voorkeur ⁸	Clientgebonden	Clientgebonden	Ja ²
Overscherming buiten-landse zorginstelling	Ja ²	Ja ³	Ja, lange mouw ³	Nee ^{4,13}	Ja ⁷	Clientgebonden	Clientgebonden	Afhankelijk van individuele situatie ¹²

[[preven]] 41


Infection Control & Hospital Epidemiology

Prevention of *Clostridium difficile* Infection: A Systematic Survey of Clinical Practice Guidelines

Lincoln Lyngby¹, Dominik Metz¹, Behnam Sadeghrad¹, Kasal Alakoz¹, Anna Selva¹, Fabio Alonso-Garcia¹, and Bradley C. Johnston¹

DOI: <http://dx.doi.org/10.1017/ice.2016.104>
Published online: 07 June 2016

Clinical Practice Guidelines (from APIC, SHEA/ IDSA, ESCMID, ...) do not adhere well to AGREE II reporting standards ...




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Survey of *C. difficile* guidelines



... and I thought it's all about that they work

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Implementing the **BASICS**

- ☐ Surveillance of AMR and HAI
- ☐ Antimicrobial stewardship
- ☐ Guidelines
- ☐ **Training/Education**
- ☐ Audits
- ☐ Handhygiene
- ☐ Isolation measures including PPE-use
- ☐ What do the "customers" want?

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IPC Training & Education


- ☐ Far less offers for IPC T&E in nursing homes
- ☐ Many countries have no specially trained IPC-nurses for NH or can't train them on the job
 - ❖ NL only training for IPC-nurses in hospital setting recognized
 - Nurses working in NH should be able to get trained as IPC-nurse
- ☐ As the chance of enough IPC nurses is very low, a network of "IPC link nurses" including T&E should be established
 - ❖ Basic course and yearly booster course
 - ❖ Continuous contact with coordinating ICP-nurse (questions, tasks, ...)

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Implementing the **BASICS**

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- ☐ **Audits**
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Measuring the quality of infection control in Dutch nursing homes using a standardized method: the infection prevention Risk scan (IRIS)

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E-mail: j.khorram-manesh@psst.com




Willemse et al (provisional PDF online, ARIC 2014)

Quality of IC in Dutch Nursing Homes

- A. Availability of local guidelines
- B. Shortcomings in constraints
HH and dress-code compliance, separation clean/dirty, storage sterile materials, needle container, waste containers, PPE, ...
- C. HAIs
- D. Use of medical devices
- E. Environmental contamination
- F. Antimicrobial use
- G. ESBL carriage

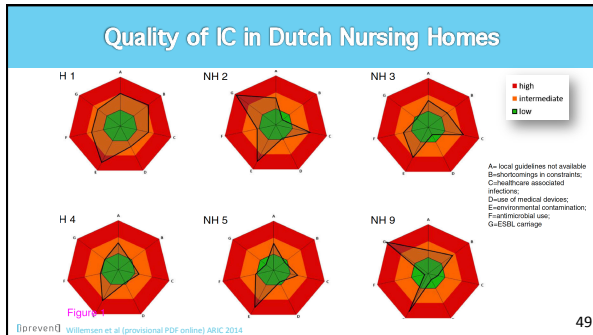
■ high
■ intermediate
■ low



[[prevent]] Willemse et al (provisional PDF online, ARIC 2014) 48

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- ### IPC Certificate
- Presence of Infection Control Committee
 - MUO with Public-health Service
 - Trained Link nurses and/or IPC-nurse present
 - Guidelines
 - MRSA, personal hygiene, hand hygiene, Flu, UTI prevention, Norovirus
 - Prevalence of HAIs
 - Incidence of UTIs
- Per bullet different "checkable" times and points.
 Certificate given at certain amount of points.
 e.g. ICC – code of conduct, meeting minutes, minimum number of meetings

- ### IPC Certificate
- Aim of the certificate was to introduce basic Infection Control into the regional nursing homes
 - The content of the certificate should be agreed on locally (together with MDs from nursing homes)
 - Nursing homes were allowed to go on their own speed and got the certificate when reaching 80% of the goals
 - The idea is to continue step-wise with new certificates, always taking the content of the earlier certificate along

Audits

- Whether it is the "IRIS-scan" or "a Certificate", or any other standardized audit tool, audits allows insights into the standing of an institution and thus motivation and guidance to improve
 - only for internal use and anonymous comparison (no external use)

iAudit
 By NSF International
 Open (Free to buy and download apps)

Description
 iAudit is an application developed to create auditors with scheduling and performing measurements. Checklists and audits are managed and tracked on the cloud device through the application feature in cloud.

What's New in Version 2016.11.2
 Bug fixes, updated user interface with easy navigation and user friendly controls.

- ### Implementing the **BASICS**
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How many moments?

Jouw 5 momenten voor HANDHYGIËNE

Your 4 Moments for Hand Hygiene

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The moments

1 BEFORE DIRECT PATIENT / PATIENT ENVIRONMENT CONTACT

Some examples may be:

- shaking hands, stroking an arm
- helping a resident to move around, get washed, giving a massage
- taking pulse, blood pressure, chest auscultation, abdominal palpation

||preven|| 56

The moments

2 BEFORE ASEPTIC PROCEDURES

Some examples may be:

- oral/dental care, giving eye drops, secretion aspiration
- skin lesion care, wound dressing, subcutaneous injection
- catheter insertion, opening a vascular access system or a draining system
- preparation of medication, dressing sets

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The moments

3 AFTER BODY FLUID EXPOSURE RISK

Some examples may be:

- oral/dental care, giving eye drops, secretion aspiration
- skin lesion care, wound dressing, subcutaneous injection
- drawing and manipulating any fluid sample, opening a draining system, endotracheal tube insertion and removal
- clearing up urine, faeces, vomit, handling waste (bandages, napkin, incontinence pads), cleaning of contaminated and visibly soiled material or areas (bathroom, medical instruments)

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The moments

4 AFTER PATIENT / PATIENT ENVIRONMENT CONTACT

Some examples may be:

- shaking hands, stroking an arm
- helping a resident to move around, get washed, giving a massage
- taking pulse, blood pressure, chest auscultation, abdominal palpation
- changing bed linen
- monitoring alarm
- holding a bed rail
- clearing the bedside table

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HH in NH: a systematic review

Am J Infect Control. 2015 Sep;143(9):e47-52. doi: 10.1016/j.ajic.2015.05.043. Epub 2015 Jul 13.

Impact of hand hygiene on the infectious risk in nursing home residents: A systematic review.

Hooine M¹, Temime L².

Author information

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||preven|| Hooine & Temime AIC 2015;43:e47 (France) 60

Infection Control in Elderly Care Facilities – Where Should We Go?

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A Webber Training Teleclass

HH in NH: a systematic review

- Systematically review of studies on HH in nursing homes.
- 56 studies met the inclusion criteria.
 - Most were outbreak reports (39%), followed by observational studies (23%), controlled trials (23%), and before-after intervention studies (14%).
- 35 studies (63%) reported results in favor of HH on at least one of their outcome measures; in addition, the infection control success rate was higher when at least one HH-related intervention was included (70% vs 30% for no intervention).

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More studies and better methods needed

Interventions to improve patient hand hygiene: a systematic review.

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Patient Hand Hygiene

- Little emphasis on **patient** hand hygiene
- Systematic review
 - 10 studies, uncontrolled, before-after
 - Multi-modal intervention many including HCWs
- Interventions to improve patient hand hygiene may reduce the incidence of HAIs and improve hand hygiene rate, but the quality of evidence is low.

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Patient Hand Hygiene one of the best of the 10 studies

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Patient Hand Hygiene

Hand sanitizer was provided in 500-mL, wall-mounted and bed-mounted dispensers for use **by staff, patients, and visitors**. Additional bottles of hand sanitizer were available on medication and treatment carts. Portable 100mL bottles also were provided to **nursing staff and doctors** to carry in their pockets.

Best of the 10 studies but is was mainly directed at HCWs and was the change from soap and water to alcohol-based handrub!

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Patient HH participation

Yes, they can (and should)
But the evidence that their HH helps is ZERO !



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Norovirus and Hand Hygiene

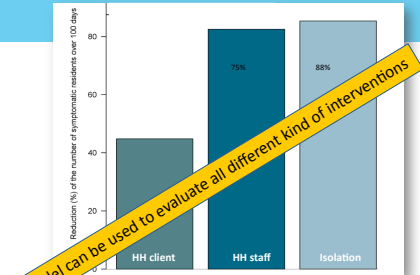


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Norovirus and Hand Hygiene

- Stochastic compartmental model of norovirus transmission based on the residents and staff of a 100-bed NH in France.
- Using this model, we investigated how the size of a 100-day norovirus outbreak changed following three interventions:
 - increasing staff hand hygiene (HH)
 - increasing resident HH
 - isolating symptomatic residents

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Intervention	Reduction (%) of the number of asymptomatic residents over 100 days
HH client	40%
HH staff	75%
Isolation	88%

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Implementing the **BASICS**

- Surveillance of AMR and HAI
- Antimicrobial stewardship
- Guidelines
- Training/Education
- Audits
- Handhygiene
- Isolation measures including PPE-use
- What do the "customers" want?

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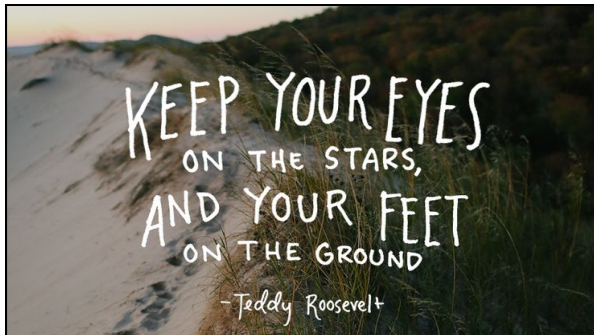
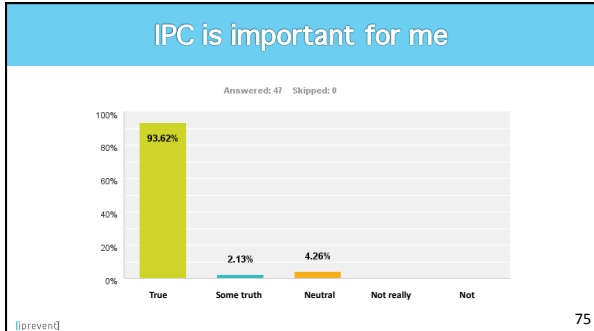
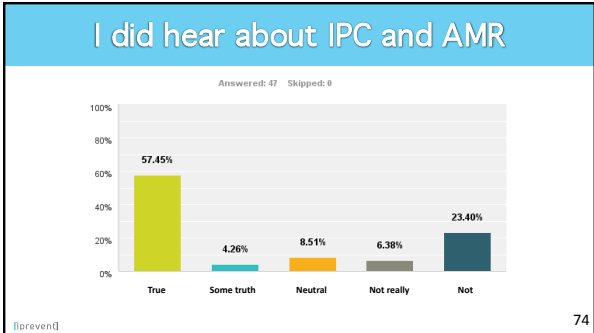
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What do the “customers” want?

- While HCWs in nursing homes have strong opinions about the wishes of their clients
 - pilot study among nursing home clients in Nijmegen region (n=47)

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Coming Soon

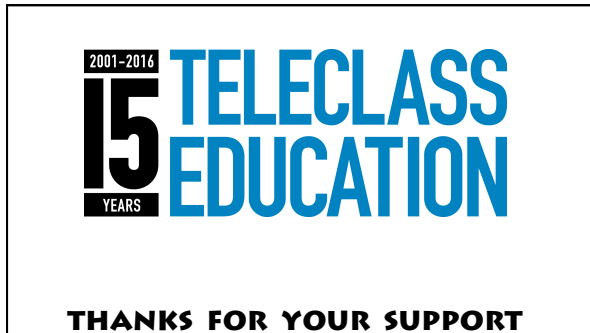
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