

Effectiveness of enhanced infection control support in improving compliance with infection control practice in care homes in South London



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Background

- There are over 200, 000 elderly residents in care homes with nursing facilities in England and Scotland
- Those requiring nursing support have range of functional disability and disease
- Many of the elderly care-home residents are vulnerable to a variety of infections including healthcare associated infections (HCAI)

Background

- Prevention and control of HCAI in the elderly should include the institution of good infection control practice not only in the hospitals but also in care homes
- Despite the existence of guidelines, many nursing homes have been found to have unsatisfactory infection control support
- This may be responsible for poor infection control practice in nursing homes

Aim and methods (1)

- The aim of this study was to evaluate whether enhanced infection control support has any impact in improving infection control practice in care homes
- Prospective cluster randomized trial: Oct 2005 - Feb 2007.
- 12 care homes in south London were randomized into two groups of six care homes. Matched-pairs randomization was done by number of residents.
- In one group (intervention group), the improved infection control measures described below were introduced. The

Methods (2)

- A dedicated infection control team (ICT) facilitated the implementation of good infection control practice in each of the nursing homes in the intervention group
- ICT provided teaching and training for healthcare workers and other nursing-home staff in the prevention of HCAI
- The ICT also provided training on aspects of environmental cleanliness, hand hygiene and disposal of clinical waste, including sharps.

Methods (3)

- Structured interviews were conducted with the managers of the nursing homes. The questions were based on recommended Scottish Government standards of nursing homes (predated current England guidelines)
- Hand hygiene facilities, environmental audit and compliance with safe disposal of clinical waste audited by independent infection control nurses using previously validated community infection control audit tool
- Care home resident characteristics and facilities recorded

Results

Characteristics of care homes

Characteristic	Control Care Homes		Intervention Care Homes	
	Average (%)	Median (Range)	Average (%)	Median (Range)
Accommodation				
Number of beds	45	32 (21-85)	55	53 (27-88)
Nursing care	34 (76)	32 (21-49)	37 (68)	36 (27-53)
-Elderly Mentally Ill	9 (20)	0 (0-36)	16 (20)	15 (0-34)
Residential care	3 (14)	0 (0-19)	7 (14)	0 (0-27)
Single rooms (SR)	44 (97)	29 (21-85)	53 (97)	52 (21-88)
SR with Attached toilets	16 (68)	4 (6-85)	51 (97)	48 (21-84)
Double rooms	1 (3)	1 (1-3)	2 (3)	1 (6-6)
Residents				
Number of residents	38	27 (19-61)	61	49 (23-81)
-Females	25 (66)	22 (15-39)	31 (60)	33 (12-42)
-Males	16 (41)	15 (5-44)	21 (40)	19 (7-44)
-Residents who are incontinent	12 (30)	5 (1-7)	17 (33)	15 (3-46)
-Residents with urinary catheter	3 (8)	3 (1-7)	3 (6)	3 (6-6)
Staff				
Number of qualified nurses	11	11 (5-29)	12	12 (7-25)
Nurse to resident ratio	4	5 (2-5)	5	5 (4-6)
Number of health care assistants	20	20 (4-41)	41	36 (12-70)
Number of temporary staff	3	1(0-10)	1	1 (1-4)

Infection Control Management: Responses to key questions

Key Structured Interview Questions:	Intervention Group (n=6)		Control Group (n=6)	
	Yes	No	Yes	No
Do you have an infection control (IC) programme present and is it approved by the CEO/owner?	5	1	5	1
Do you have an IC manager?	2	4	5	1
Do you know who is your public health contact?	6	0	5	1
Is there a system in place that ensures where relevant IC advice is sought?	5	1	6	0
What systems are in place to ensure current copies of policies/procedures/guidelines are in place?	6	0	6	0
Is there an audit of compliance with IC policies/procedures/guidelines?	5	1	6	0
Are audit results used to improve IC practice?	6	0	6	0
Are incidents and outbreaks reviewed?	3	3	5	1
Are there mechanisms in place to disseminate information to all staff?	6	0	6	0
Is there an induction programme?	6	0	6	0
Hand decontamination before & after patient contact	6	0	6	0

Infection Control Audit

Nursing homes	Baseline Observations (2005)*			Final observations (2006)*		
	Hand Hygiene facilities	Environmental Cleanliness	Disposal of Clinical waste	Hand Hygiene Facilities	Environmental cleanliness	Disposal of Clinical waste
A (Control)	Compliant (93%)	Compliant (88%)	Compliant (100%)	Partial (78%)	Partial (77%)	Compliant (87%)
B (Control)	Minimal (71%)	Minimal (55%)	Minimal (56%)	Compliant (96%)	Compliant (96%)	Compliant (96%)
C (Control)	Minimal (79%)	Minimal (62%)	Minimal (75%)	Compliant (88%)	Compliant (95%)	Compliant (96%)
D (Control)	Minimal (75%)	Minimal (70%)	Minimal (61%)	Compliant (88%)	Compliant (88%)	Compliant (85%)
E (Control)	Partial (78%)	Minimal (64%)	Partial (79%)	Minimal (68%)	Compliant (96%)	Compliant (92%)
F (Control)	Minimal (67%)	Minimal (39%)	Minimal (55%)	Partial (76%)	Compliant (89%)	Compliant (70%)
G (Intervention)	Minimal (70%)	Minimal (70%)	Compliant (100%)	Compliant (88%)	Compliant (96%)	Compliant (96%)
H (Intervention)	Compliant (92%)	Compliant (88%)	Minimal (56%)	Compliant (100%)	Compliant (92%)	Compliant (96%)
I (Intervention)	Compliant (88%)	Minimal (29%)	Partial (79%)	Partial (71%)	Compliant (86%)	Compliant (93%)
J (Intervention)	Minimal (70%)	Minimal (45%)	Minimal (61%)	Minimal (67%)	Minimal (54%)	Partial (81%)
K (Intervention)	Minimal (52%)	Minimal (75%)	Minimal (75%)	Compliant (100%)	Compliant (88%)	Compliant (96%)
L (Intervention)	Partial (83%)	Compliant (89%)	Minimal (56%)	Compliant (96%)	Partial (80%)	Minimal (79%)

Scores were classified as minimum compliance (≤75%), partial compliance (76-84%) and compliant, 85% or above

Statistical Analysis of changes in compliance before and end of study

Category	Control	Intervention	Mean difference	P-value (Two sample T test)
Hand Hygiene facilities (T2 - T1)*	6.7 (-10, 23.3)	11.2 (-11.2, 34.2)	-4.5 (-29.1 to 20.1)	0.69 (NS)
Environment cleanliness (T2 - T1)	27.2 (4.6, 49.7)	16.7 (-7.3, 40.6)	10.5 (-18, 39)	0.43 (NS)
Clinical Waste disposal (T2 - T1)	16.5 (-1.8, 34.8)	17.5 (2.6, 32.4)	-1 (-21.5, 19.5)	0.92 (NS)

(T1: Baseline observations; T2: Final Observations)

Limitations of the study

- The study may have been inadequately powered to detect the differences.
- Care homes were not identical in their facilities such as single rooms and may have contributed to differences in compliance with infection control practice.
- A principal limitation of the study was that were not able to assess hand hygiene compliance by observation.
- It is difficult to rule out 'Hawthorne effect' in the control nursing homes

Conclusions

- Infection control practice improved in both groups, but we could not demonstrate that provision of short term enhanced infection control support had a significant impact in infection control practice in care homes.
- Greatest improvement in disposal of clinical waste and environmental cleanliness
- Least improvement in availability of hand hygiene facilities
- Further research is necessary to identify

Members of the study team

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Reference

- G.Gopal Rao, A.Jeanes, H.Russell, D.Wilson, E.Atere-Roberts, D.O'Sullivan, and N.Donaldson. Effectiveness of short term enhanced infection control support in improving compliance with infection control guidelines and practice in Nursing Homes: a cluster randomised trial. *Epidemiol and Infect.* 2009; doi:10.1017/S0950268809002210