BEST OF
« prévention du risque infectieux»

29 novembre 2019

Céline BOURIGAULT
Unité de Gestion du Risque Infectieux
Service de Bactériologie-Hygiène
CHU de Nantes

CENTRE HOSPITALIER
UNIVERSITAIRE DE NANTES

Risk factors associated with revision for prosthetic joint infection following knee replacement : an observational cohort study from England and Wales

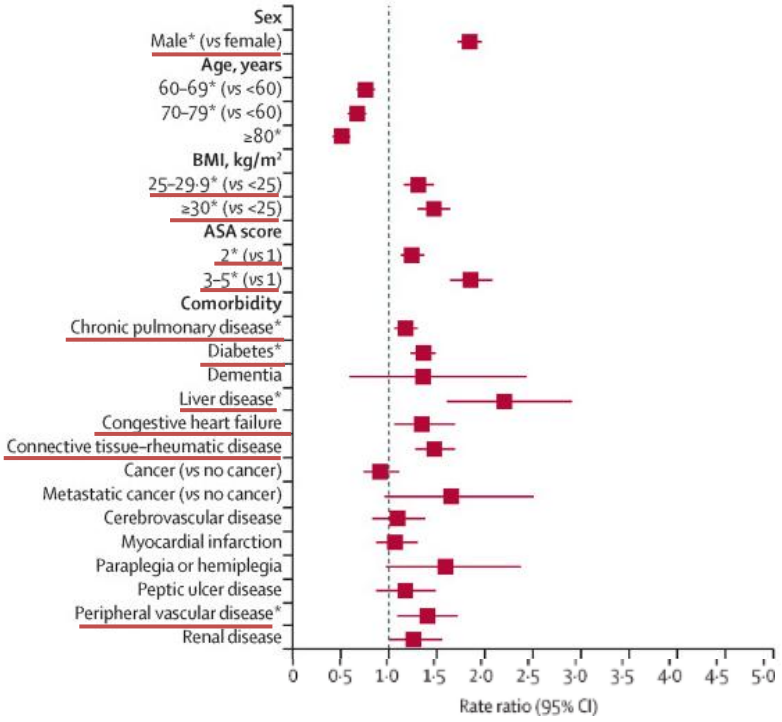
- Cohorte rétrospective (2003-2014)
- Angleterre et Pays de Galles
- Données issues du UK National Joint Registry
- **679 010 PTG** de 1ère intention
- **3 659 reprises** pour infection (0,53%)
- Délai intervention initiale – reprise :
  - 31 % < 1 an (dont 7% < 3 mois)
  - 26% entre 1-2 ans
  - 43% > 2 ans
- Analyse des facteurs de risque :
  - Liés aux patients, à l'intervention chirurgicale, à l'établissement
  - Sur l'ensemble de la période de suivi, stratifiée par période de suivi

Lenguerrand et al. ***Lancet Infect Dis*** *2019; 19:589-600*

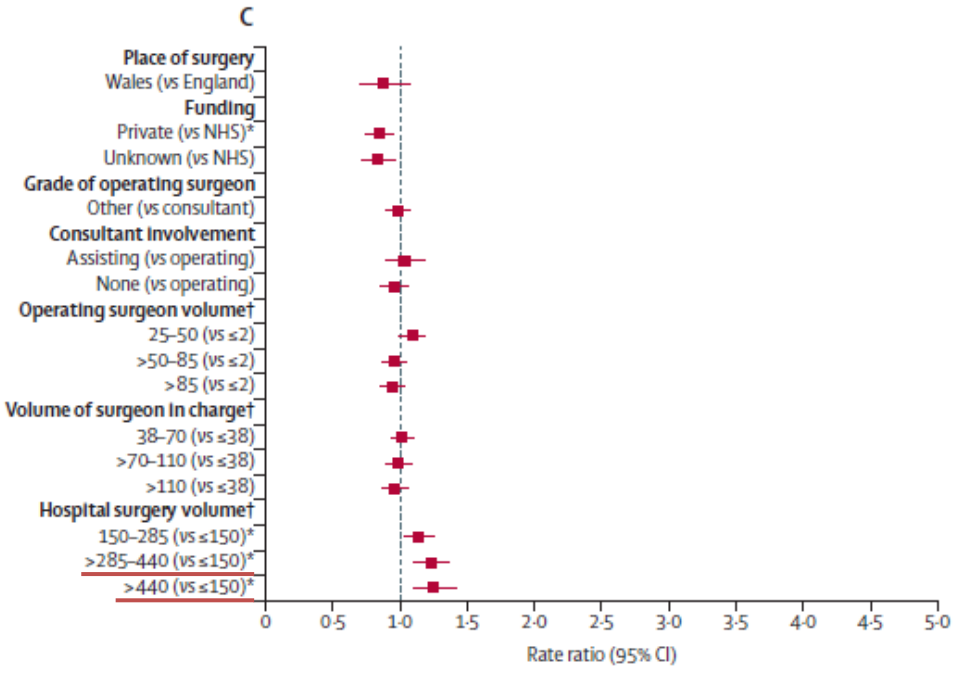
Risk factors associated with revision for prosthetic joint infection following knee replacement : an observational cohort study from England and Wales

FDR associés à la survenue d'une ISO sur PTG
(sur l'ensemble de la période d'étude)

FDR liés aux patients



FDR liés à l'établissement



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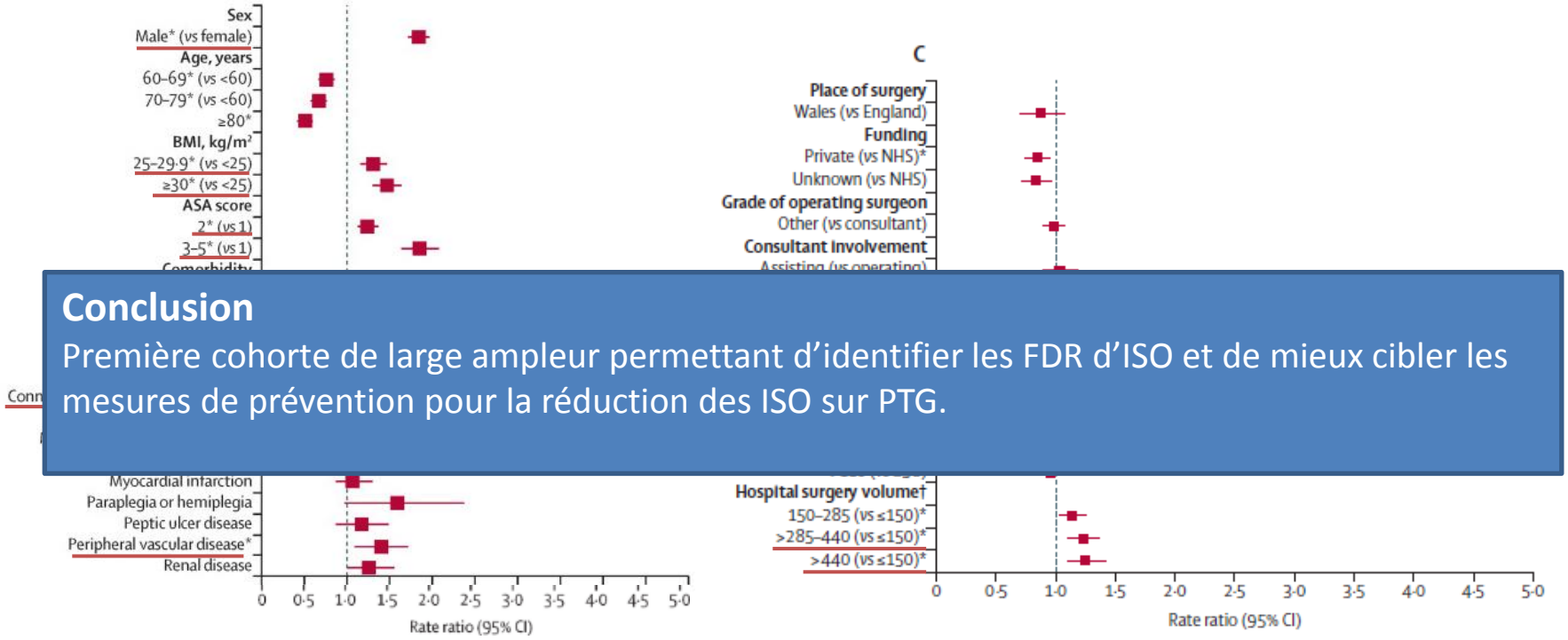

Conclusion

Première cohorte de large ampleur permettant d'identifier les FDR d'ISO et de mieux cibler les mesures de prévention pour la réduction des ISO sur PTG.

Lenguerrand et al. ***Lancet Infect Dis*** *2019; 19:589-600*

Risk factors for *Staphylococcus aureus* colonization in a presurgical orthopedic population

- Etude cas-témoins (juin 2014-oct 2016)
- 1 centre (US)
- Chirurgie orthopédique
- Patients inclus
  - 115 cas (SASM +)
  - 476 témoins (SASM -)
- Evaluation des facteurs de risque de portage de SA

Kent et al. ***Am J Infect Control*** *47 (2019); 902-905*

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Table 1
Demographic and multivariable regression analysis results

	Colonized (n = 115) n (%)	Controls (n = 476) n (%)	Odds ratio (95% CI)
Sex (male)	62 (53.9)	176 (37.0)	2.3 (1.4, 3.8)
Age (years)			
8-49.9	20 (17.4)	14 (3.0)	Reference
50-59.9	27 (23.5)	87 (18.3)	0.2 (0.07, 0.5)
60-69.9	47 (40.9)	213 (44.8)	0.1 (0.04, 0.2)
70-79.9	17 (14.8)	146 (30.7)	0.04 (0.02, 0.1)
≥80	4 (3.5)	15 (3.2)	0.2 (0.04, 0.6)
			P for trend <.001
Race (self-reported)			
White	111 (96.5)	454 (95.9)	reference
Black	3 (2.6)	11 (2.3)	0.8 (0.2, 3.9)
Other	1 (0.9)	8 (1.7)	0.4 (0.04, 4.3)
BMI			
<25	23 (20.0)	107 (22.6)	reference
25-29.9	32 (27.8)	152 (32.1)	0.7 (0.3, 1.5)
30-34.9	25 (21.7)	133 (28.1)	0.8 (0.4, 1.8)
35-39.9	21 (18.3)	46 (9.7)	1.7 (0.7, 4.0)
≥40	14 (12.2)	35 (7.4)	0.7 (0.2, 1.9)
			P for trend = .7
Pets in the house	65 (56.5)	224 (47.4)	1.2 (0.7, 2.0)
Visits to public places	74 (64.4)	437 (91.8)	0.2 (0.1, 0.3)
Household pests (scabies, bedbugs, lice, other)	7 (6.1)	32 (6.7)	1.1 (0.3, 3.7)
Diabetes	20 (18.2)	32 (7.2)	3.8 (1.8, 7.8)
Skin conditions (psoriasis, eczema, other)	12 (10.9)	57 (12.9)	0.8 (0.3, 1.7)
Immunosuppressant medication use	10 (8.7)	30 (6.4)	1.2 (0.4, 3.0)
Antibiotic use	7 (6.3)	97 (21.1)	0.2 (0.1, 0.6)
Presence of facial hair	14 (12.4)	109 (23.8)	0.3 (0.1, 0.6)
Insertion of items into nose	49 (42.6)	234 (49.2)	1.0 (0.6, 1.7)

BMI, body mass index; *CI*, confidence interval.

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Conclusion

Identifier les facteurs de risque de portage de SA dans cette population permettrait de mieux cibler les stratégies de prévention et réduire le risque d'ISO associé.

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Chlorhexidine-alcohol versus iodine-alcohol for surgical site skin preparation for elective arthroplasty (ACAISA) study : a cluster randomized controlled trial

- Essai randomisé contrôlé (août 2014 – Janvier 2016)
- 1 centre (Australie)
- 780 patients (>18 ans)
  - Arthroplastie de hanche et genou
- 2 groupes
  - Iode 1% + 70% alcool (n=390)
  - CHX 0,5% + 70% alcool (n=390)
- Critères de jugement
  - Complication superficielle (J30)
  - Infection de prothèse (1 an)

Peel et al. ***CMI*** *25 (2019) 1239-1245*

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Critères	Iode (n=390)	CHX (n=390)	OR (IC 95%)	p
Complication superficielle	**3,8%**	**4,9%**	1,28 (0,62-2,63)	0,50
Infection de prothèse	**0,5%**	**1,8%**	3,55 (1,20-10,44)	0,022

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Conclusion

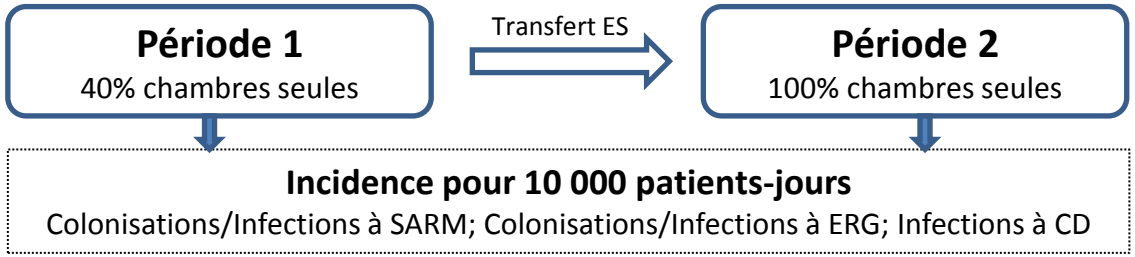
Pas de différence significative pour les complications superficielles.

Iode 1%-OH est supérieur à la CHX 0,5%-OH pour la prévention des ISO après arthroplastie de hanche ou de genou.

Peel et al. ***CMI*** *25 (2019) 1239-1245*

Time-Series Analysis of Health Care–Associated Infections in a New Hospital With All Private Rooms

- Etude avant-après
- 1 hôpital (Canada)



McDonald et al. ***JAMA Intern Med****. 2019;179(11):1501-1506*

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Figure 1. Nosocomial Vancomycin-Resistant *Enterococcus* (VRE) Colonization Rate Before and After Move to a New Hospital With All Private Rooms

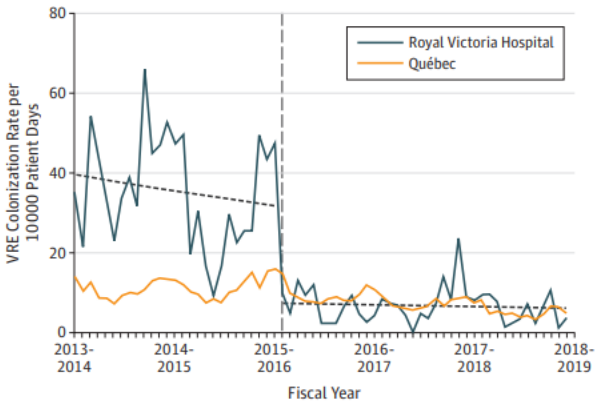

Table. Number of Colonizations, Infections, Patient Days, and Mean Unadjusted Rates Before and After the Move

Variable	Before the Move[a] No.	Before the Move[a] Unadjusted Rate per 10 000 Patient-Days, Mean (95% CI)	After the Move[b] No.	After the Move[b] Unadjusted Rate per 10 000 Patient-Days, Mean (95% CI)
VRE				
Colonizations ↓	766	35.0 (32.6-37.6)	209	6.6 (5.7-7.5)
Infections ↓	55	2.5 (1.9-3.3)	14	0.4 (0.2-0.7)
MRSA				
Colonizations ↓	129	5.9 (4.9-7.0)	112	3.5 (2.9-4.2)
Infections →	27	1.2 (0.8-1.8)	37	1.2 (0.8-1.6)
CDI infections →	236	10.8 (9.5-12.2)	223	7.0 (6.1-8.0)

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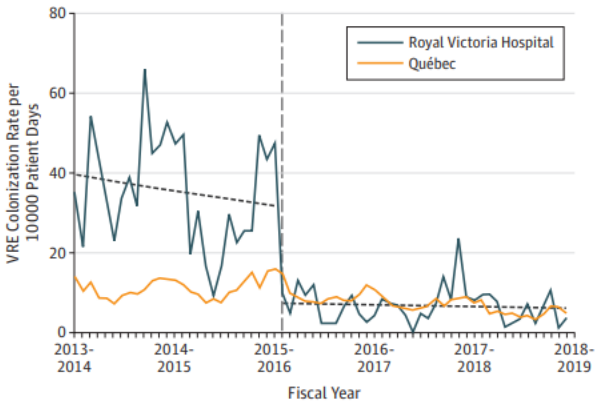

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Conclusion

Intérêt de la chambre seule pour diminuer le risque de transmission des BMR dans les ES.
Implications pour la rénovation d'unités ou la construction de nouveaux ES ?

McDonald et al. ***JAMA Intern Med****. 2019;179(11):1501-1506*

Contact precautions in single-bed or multiple-bed rooms for patients with extended-spectrum β- lactamase-producing Enterobacteriaceae in Dutch hospitals : a cluster-randomised cross-over, non-inferiority study

- Essai randomisé en clusters (hôpital), contrôlé, en cross-over (avril 2011-février 2014)
- 16 hôpitaux (Pays-Bas)
- 693 patients EBLSE + (ITT)
- Intervention
  - PC Chambre seule *versus* PC chambre multiple (2 à 6 lits)
- Critère de jugement
  - Transmission d'EBLSE du patient index à un autre patient du service

Kluytmans-van den Bergh et al. ***Lancet Infect Dis*** *2019*

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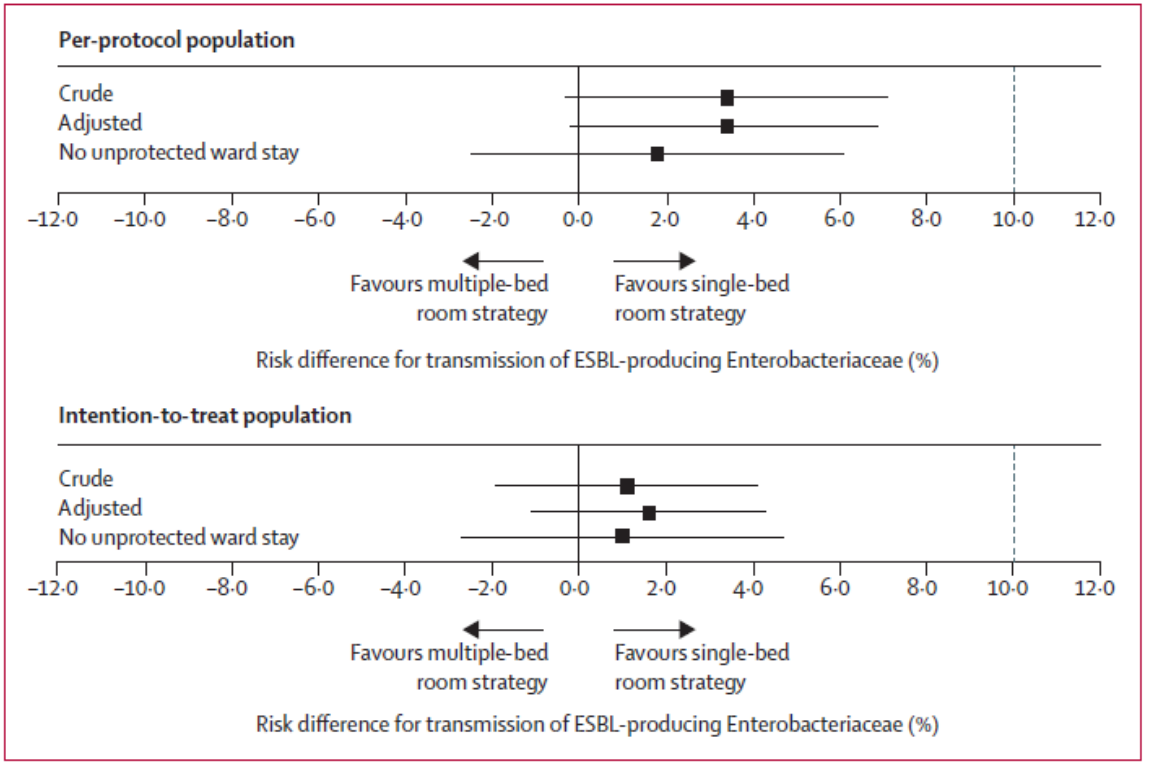
Transmission EBLSE

PCC + chambre à un seul lit
4%

PCC + chambre à plusieurs lits
7%



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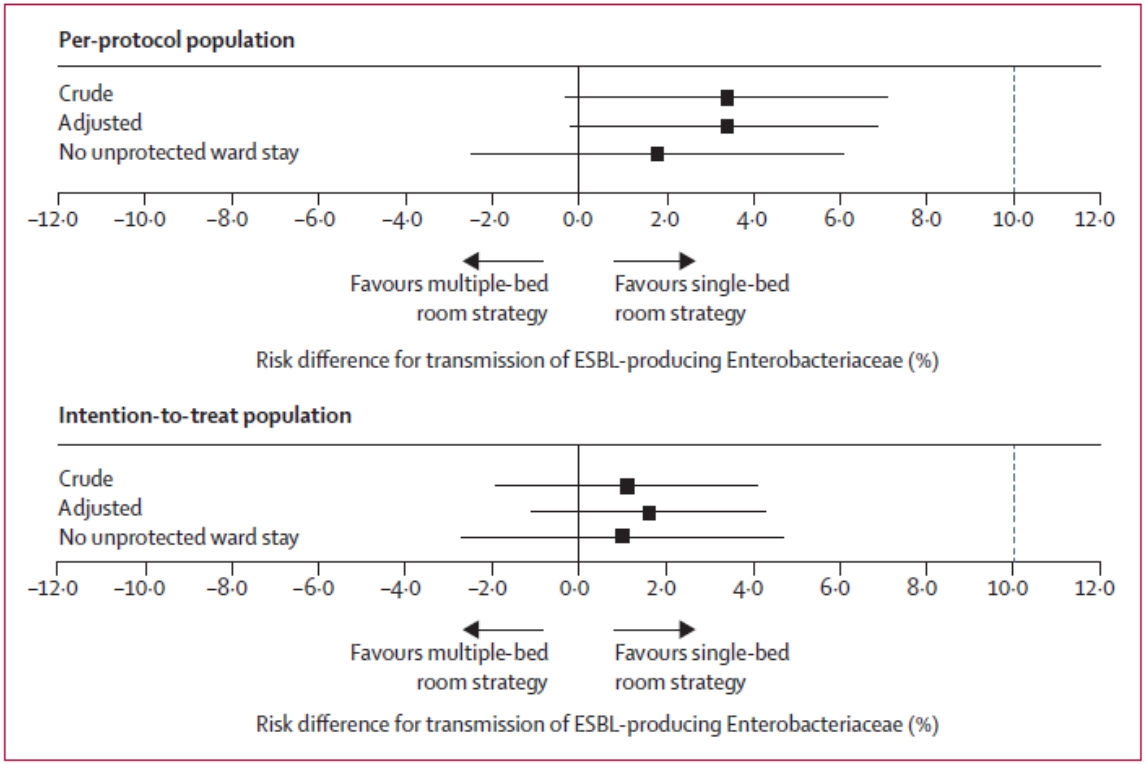

Conclusion

La stratégie des PCC en chambre à plusieurs lits n'est pas inférieure aux PCC en chambre seule pour prévenir la transmission d'EBLSE au sein d'un service.

Kluytmans-van den Bergh et al. ***Lancet Infect Dis*** *2019*

Faecal microbiota transplantation for eradicating carriage of multidrug-resistant organisms : a systematic review

- 21 études (-> 11/02/2019) / 151 patients inclus
- Evaluation de l'efficacité de la transplantation fécale (décolonisation BMR/BHRe)

1 essai randomisé (*Huttner et al. CMI 2019*)
- Groupe interventionnel : décolonisation de **66,7%** après TMF
- Groupe témoin: décolonisation spontanée de **58,8%** à 5-7 mois (> aux études précédentes)
- 22,7% des patients du groupe interventionnel et 17,6% du groupe témoin ont eu une antibiothérapie avant la TMF

20 études observationnelles
- Décolonisation de **37,5% à 87,5%**
- 8 études avec un suivi ≥ 6 mois : décolonisation de 37,5% à 72,7%

Saha et al. ***CMI*** *25 (2019) 958-963*

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Conclusion

Faible niveau d'évidence (échantillons faibles, différentes voies d'administration de la TMF)
Nécessité d'études complémentaires (essais randomisés) pour améliorer le niveau de preuve sur cette population de patients.

Saha et al. ***CMI*** *25 (2019) 958-963*

N95 Respirators vs Medical Masks for Preventing Influenza Among Health Care Personnel : A Randomized Clinical Trial

JAMA Network

QUESTION Is the use of N95 respirators or medical masks more effective in preventing influenza infection among outpatient health care personnel (HCP) in close contact with patients with suspected respiratory illness?

CONCLUSION This cluster randomized clinical trial found that as worn by HCP, N95 respirators were no more effective than medical masks as measured by the rate of laboratory-confirmed influenza events.

POPULATION

2369 Women
493 Men

HCP in settings with a high prevalence of acute respiratory illness

Mean age: 43 years

LOCATIONS

137
Outpatient settings in 7 US medical centers

INTERVENTION

5180 HCP-seasons randomized

2512 HCP-seasons
N95 respirators
Worn when within 6 feet of patients with respiratory illness

2668 HCP-seasons
Medical masks
Worn when within 6 feet of patients with respiratory illness

PRIMARY OUTCOME

Incidence of laboratory-confirmed influenza over 4 years during peak viral respiratory illness season (5180 total HCP-seasons analyzed)

FINDINGS

Incidence of laboratory-confirmed influenza events

N95 respirators
207 influenza infection events in 2512 HCP-seasons

Medical masks
193 influenza infection events in 2668 HCP-seasons

Difference in influenza rates was not significant:

1.0% (95% CI, −0.5% to 2.5%)

Radonovich Jr LJ, Simberkoff MS, Bessesen MT; the ResPECT Investigators. N95 respirators vs medical masks for preventing influenza among health care personnel: a randomized clinical trial [published September 3, 2019]. *JAMA*. doi:10.1001/jama.2019.11645

Radonovich et al. ***JAMA.*** *2019;322(9):824-833*

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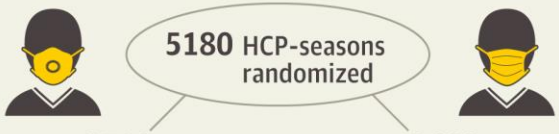
Outpatient settings in 7 US medical centers

INTERVENTION



N95 respirators
Worn when within 6 feet of patients with respiratory illness

Medical masks
Worn when within 6 feet of patients with respiratory illness

PRIMARY OUTCOME

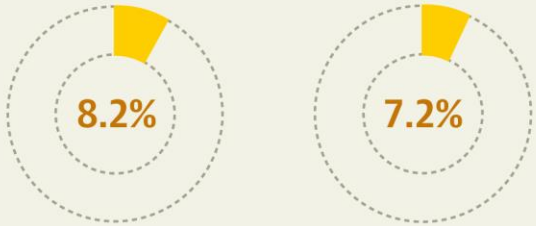
Incidence of laboratory-confirmed influenza over 4 years during peak viral respiratory illness season (5180 total HCP-seasons analyzed)

FINDINGS

Incidence of laboratory-confirmed influenza events

N95 respirators
207 influenza infection events in 2512 HCP-seasons

Medical masks
193 influenza infection events in 2668 HCP-seasons



Difference in influenza rates was not significant:

1.0% (95% CI, −0.5% to 2.5%)

Radonovich Jr LJ, Simberkoff MS, Bessesen MT; the ResPECT Investigators. N95 respirators vs medical masks for preventing influenza among health care personnel: a randomized clinical trial [published September 3, 2019]. *JAMA*. doi:10.1001/jama.2019.11645

Radonovich et al. ***JAMA.*** *2019;322(9):824-833*