Infectiologie gériatrique
Du neuf chez les vieux ?

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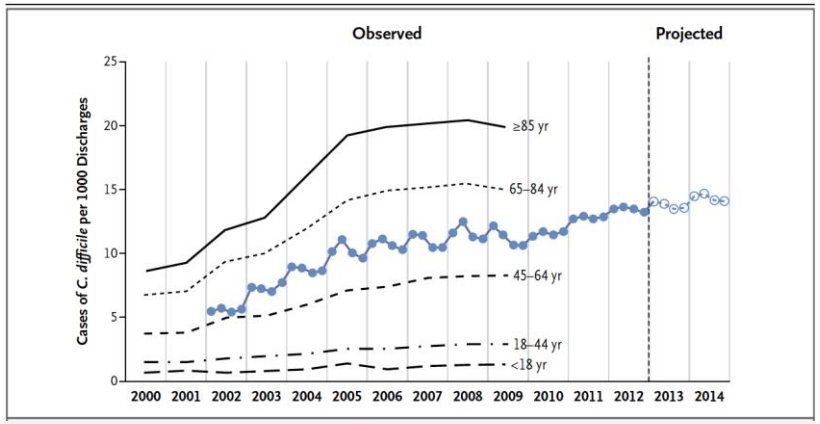
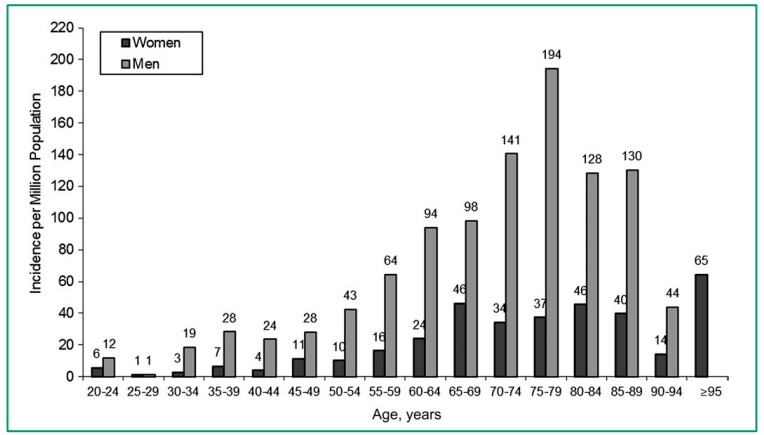
Le risque infectieux augmente avec l'âge



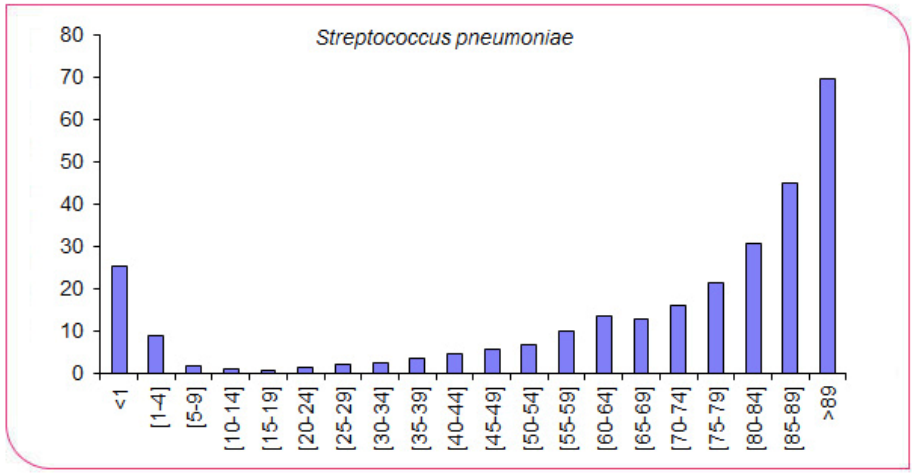
Infection à *C. difficile*

Leffler, NEJM, 2015



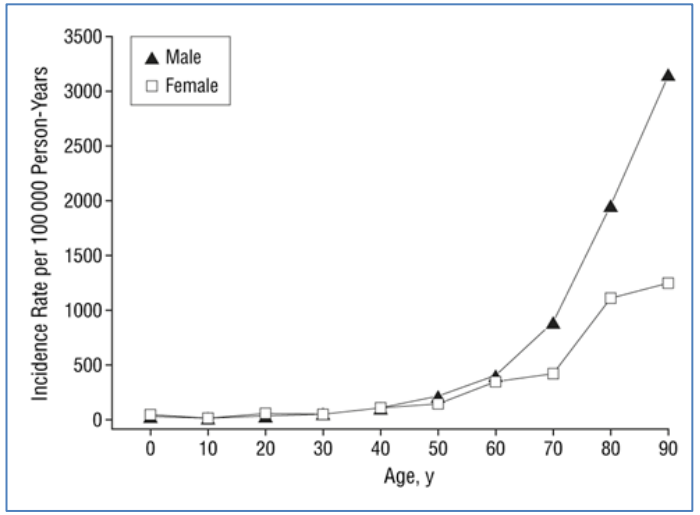
Endocardite infectieuse

Selton-Suty *et al.* Clin Infect Dis 2012



Infections à *Streptococcus pneumoniae*

Donées Epibac 2015



Bactériémies

Lee *et al.* Medicine 2007

...

Facteurs de risque d'infection en gériatrie

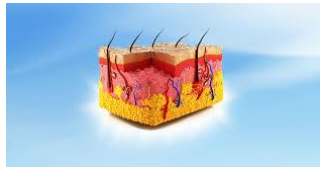
Institutionnalisation

Iatrogénie
Comorbidités

Dénutrition

Procédure invasive
Matériels étrangers

Immunosénescence

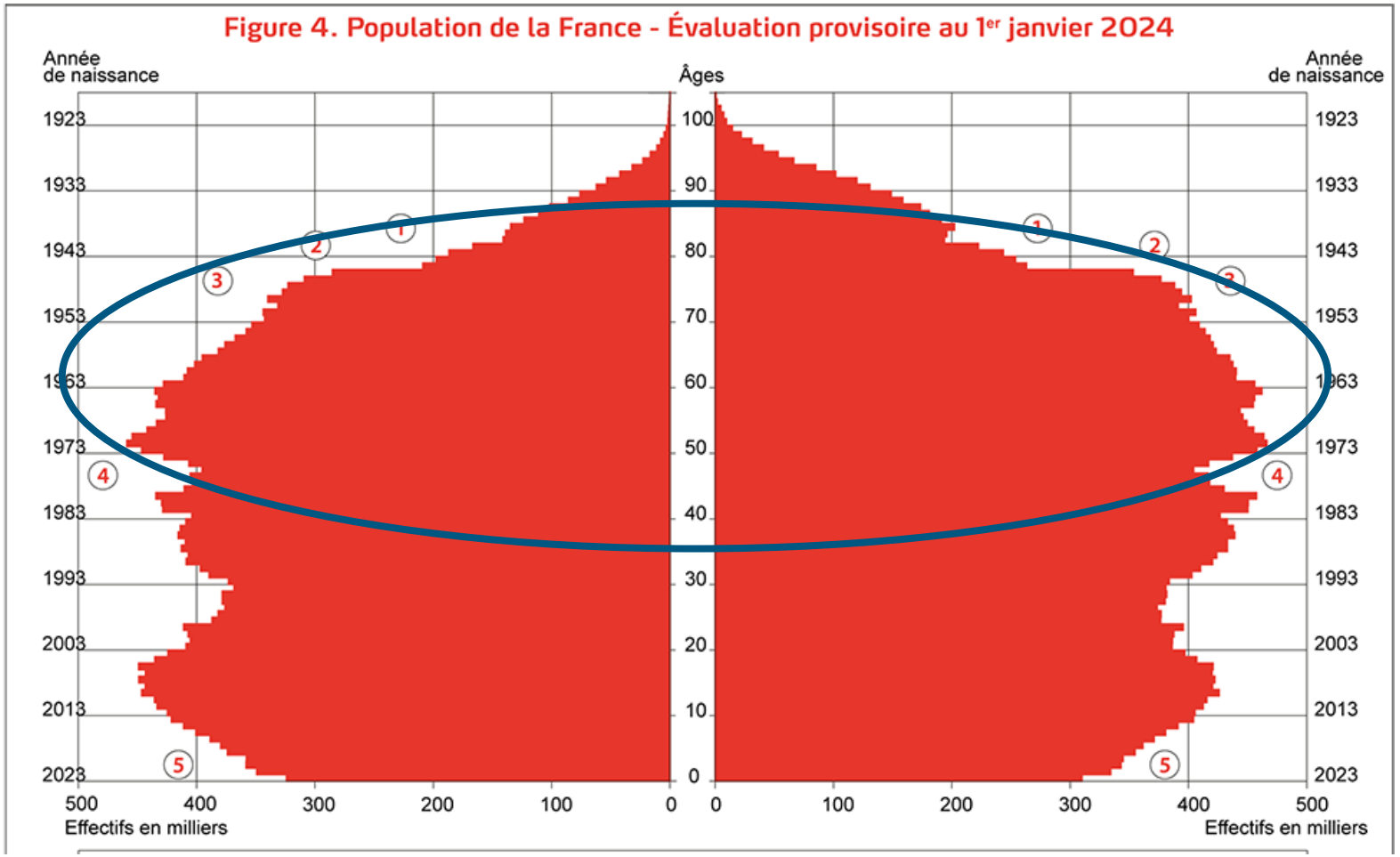


Dépendance fonctionnelle

Gavazzi *et al.* Lancet Infect Dis 2002 – **Yoshikawa** *et al.* J Am Geriatr Soc 2017

Vous avez bien fait de vous intéresser à la gériatrie

2050 : 200 000 centenaires / 20% > 75 ans



Diagnostics hospitalisation > 85 ans

1. Décompensation cardiaque
2. **Pneumonie**
3. **Infection urinaire**
4. **Bactériémie**
5. AVC

Infection x 13

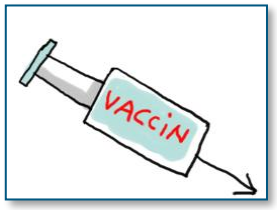
Sepsis x 7

Mortalité x 3

Gavazzi & Krause Lancet Infect Dis 2002, **Yoshikawa** Clin Infect Dis 2000, **Martin** Crit Care Med 2006

Challenge infectio-gériatrique

Sur mesure



Réduire le risque infectieux

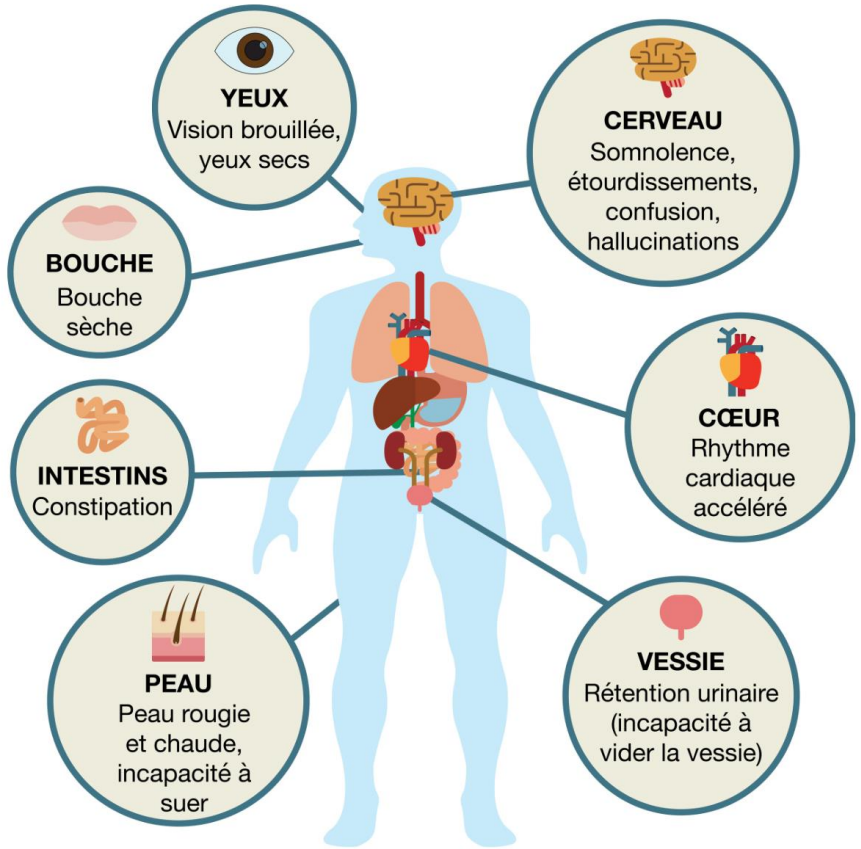
Alternatives aux guidelines
ABT suppressive, SC…

Déclin fonctionnel

Prévenir les complications

Traitements anticholinergiques et pneumonies

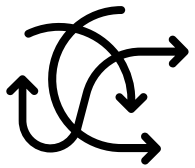
Effets secondaires des ANTICHOLINERGIQUES



Échelle CRIDECO anticholinergic Load Scale (CALS)

Ex : tramadol, hydroxyzine, clozapine…

Chute



Confusion

Yoshimatsu *et al.* Age Ageing 2024

Traitements anticholinergiques et pneumonies

Quel est l'impact de la « **charge anticholinergique** » sur le **pronostic** des **pneumonies** ?

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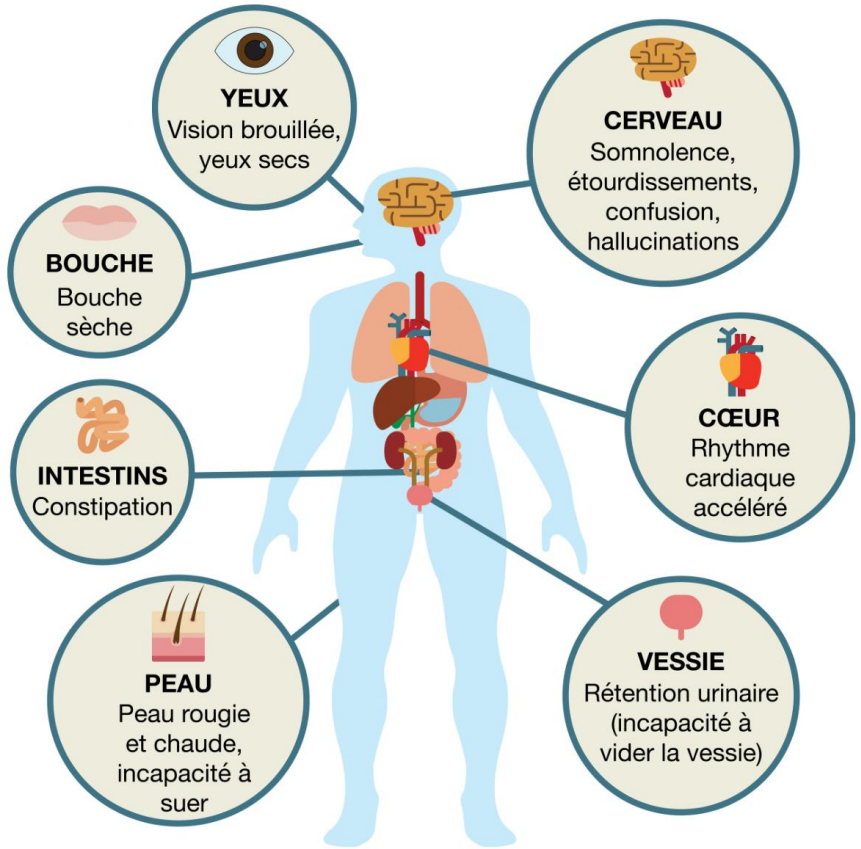

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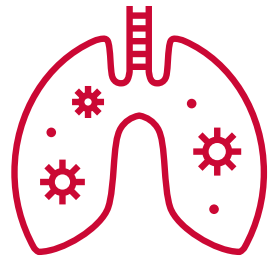
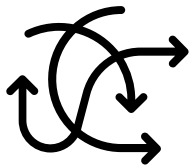


- N= 186735 H pneumonie
- Moy age **80 ans**

Chute



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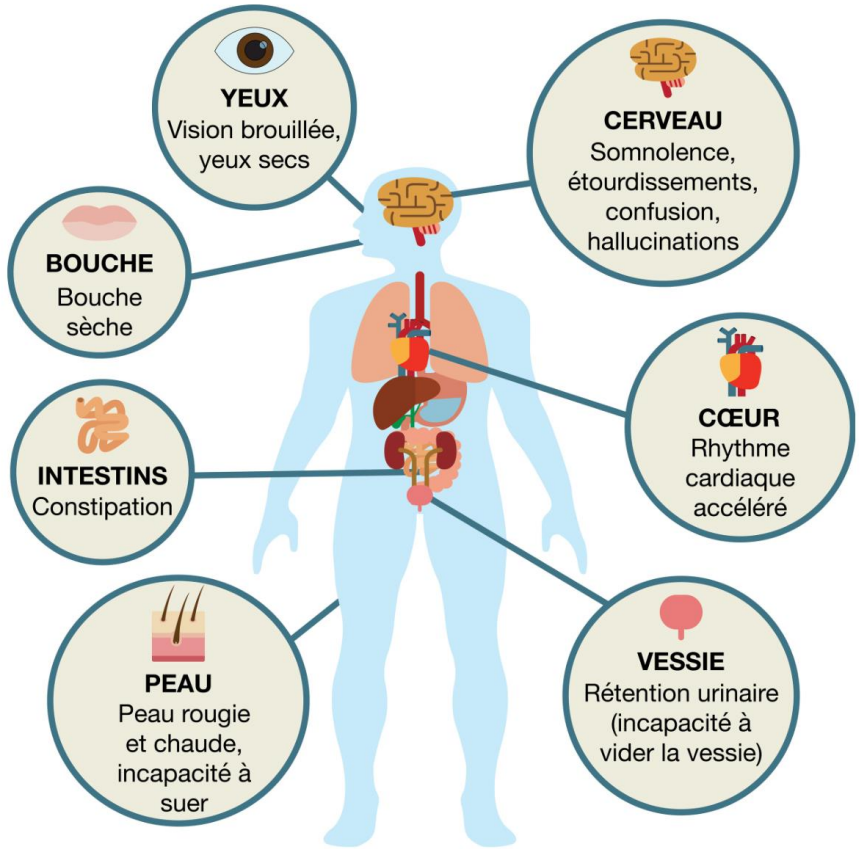

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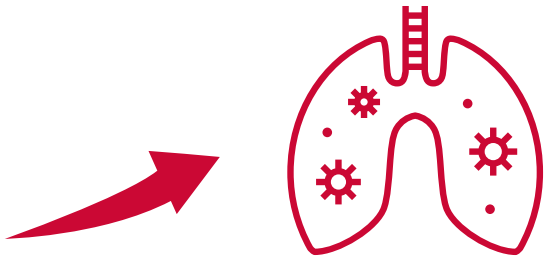

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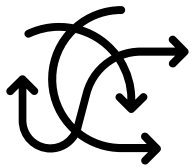
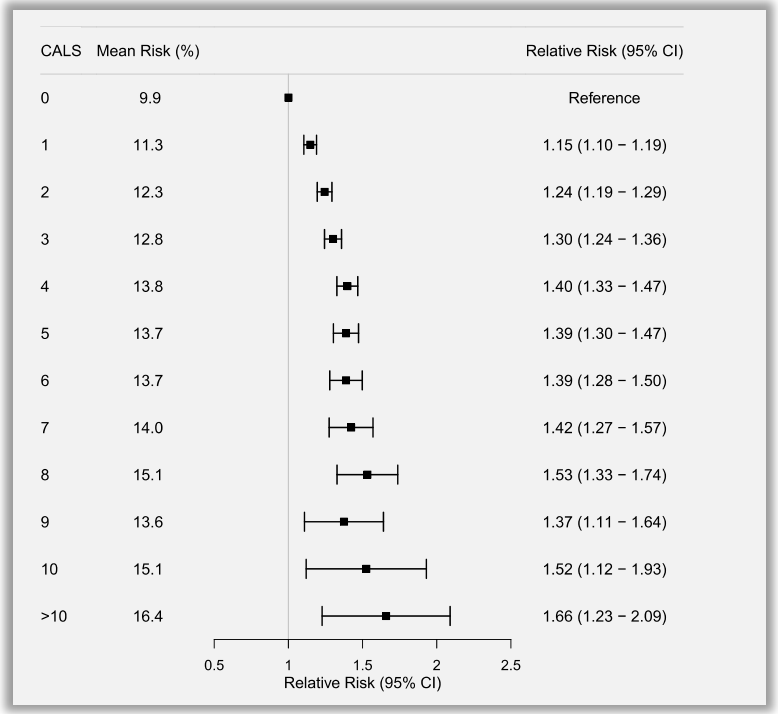


Confusion

Quel est l'impact de la « **charge anticholinergique** » sur le **pronostic** des **pneumonies** ?

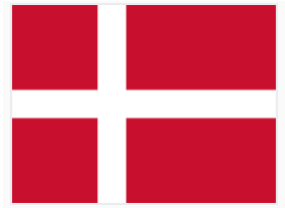


CALS	Mean Risk (%)	Relative Risk (95% CI)
0	9.9	Reference
1	11.3	1.15 (1.10 – 1.19)
2	12.3	1.24 (1.19 – 1.29)
3	12.8	1.30 (1.24 – 1.36)
4	13.8	1.40 (1.33 – 1.47)
5	13.7	1.39 (1.30 – 1.47)
6	13.7	1.39 (1.28 – 1.50)
7	14.0	1.42 (1.27 – 1.57)
8	15.1	1.53 (1.33 – 1.74)
9	13.6	1.37 (1.11 – 1.64)
10	15.1	1.52 (1.12 – 1.93)
>10	16.4	1.66 (1.23 – 2.09)

Mortalité intra-hospitalière*

Yoshimatsu *et al.* Age Ageing 2024

Traitements anticholinergiques et pneumonies



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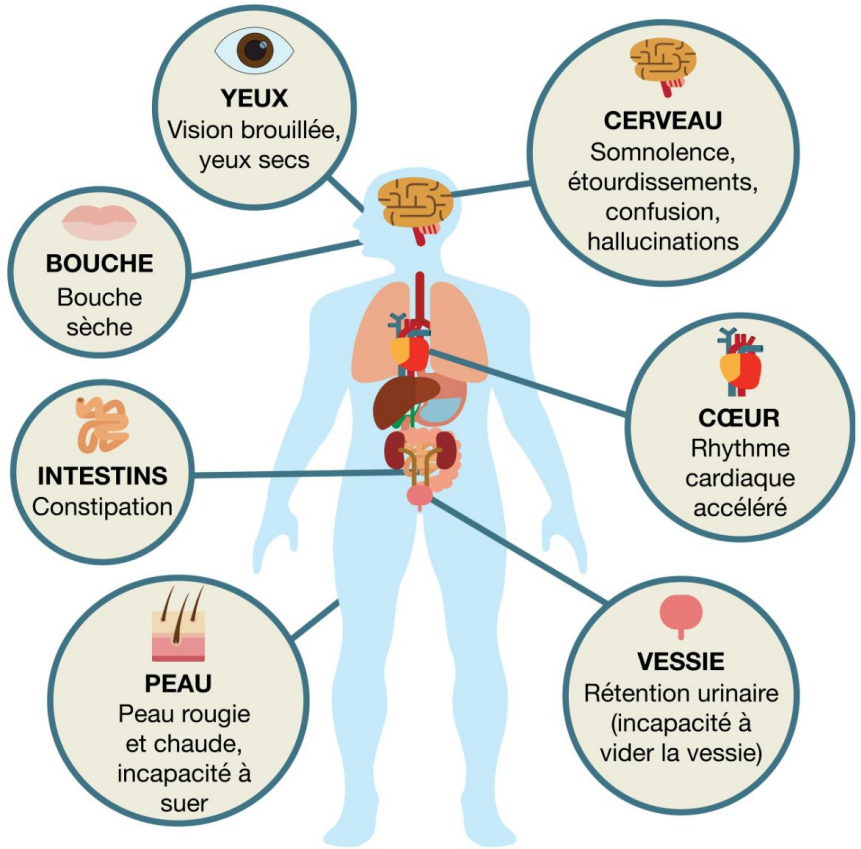

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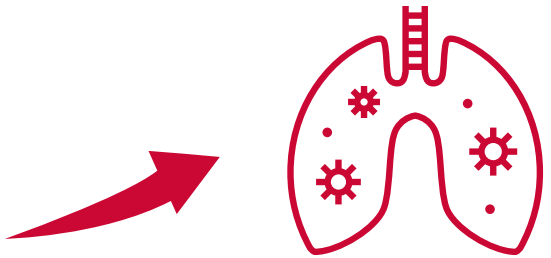

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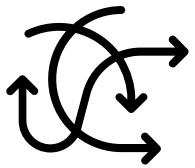
- N= 186735 H pneumonie
- Moy age **80 ans**

Charge AntiCHOL ↗
- **Mortalité**
- **Réadmissions**
- **Dépendance**

Chute



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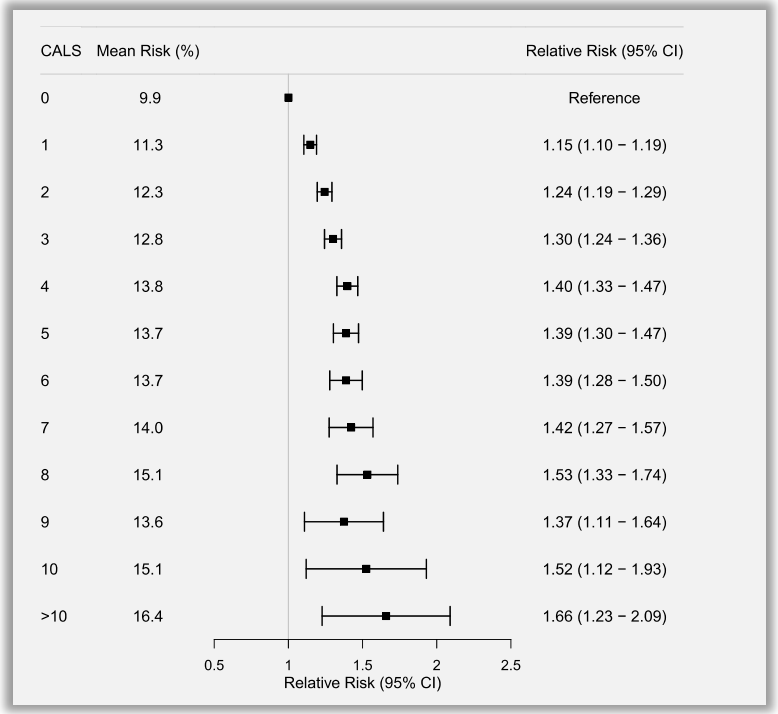
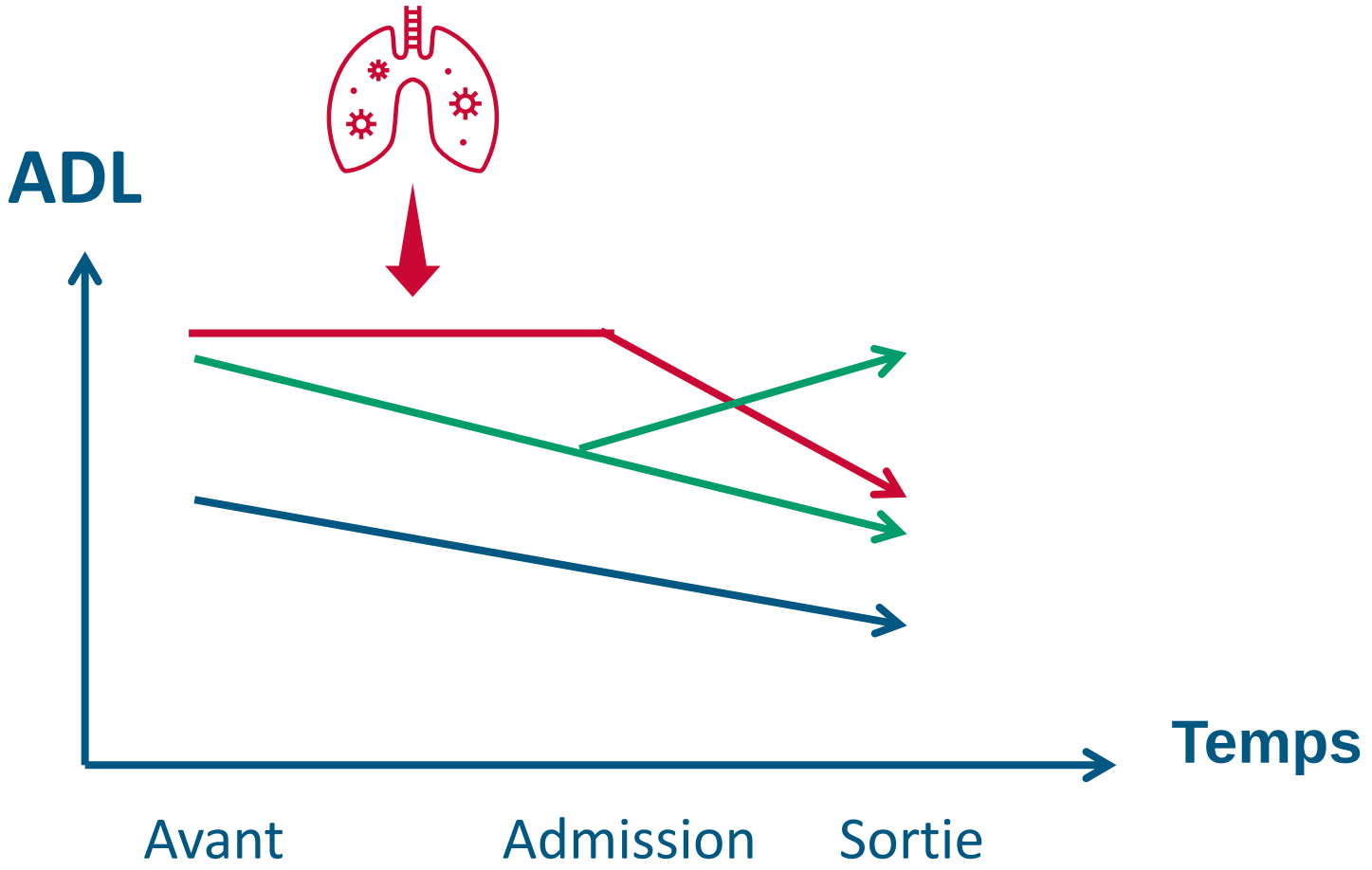


Mortalité intra-hospitalière

Yoshimatsu *et al.* Age Ageing 2024

Trajectoires fonctionnelles et pneumonies

Indépendance fonctionnelle



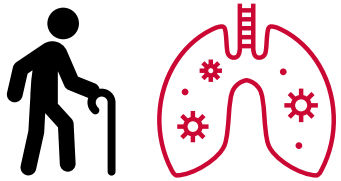
Katz *et al.* Gerontologist 1970

RESEARCH LETTER

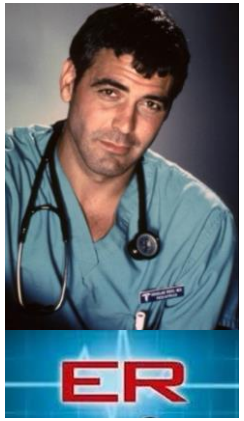
Journal of the
American Geriatrics Society

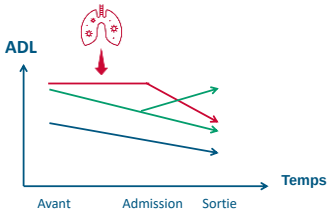
Functional decline in older adults with suspected pneumonia at emergency department presentation

Katherine M. Hunold MD, MPH[1] | Andrew L. Schwaderer MD[2] | Matthew Exline MD, MPH[3] | Courtney Hebert MD, MS[4,5] | Brent C. Lampert DO[6] | Lauren T. Southerland MD, MPH[1] | Julie A. Stephens MS[7] | Edward W. Boyer MD, PhD[1] | Tanya R. Gure MD[8] | Lorraine C. Mion PhD, RN, FAAN[9] | Michael Hill RN[1] | Ching-Min B. Chu BS[1] | Gabriel Lee BS[1] | Jeffrey M. Caterino MD, MPH[1]



N=130
76 ans





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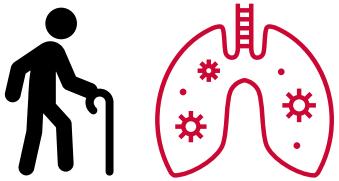

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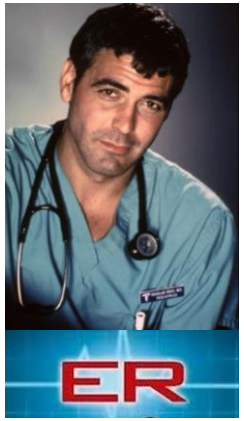
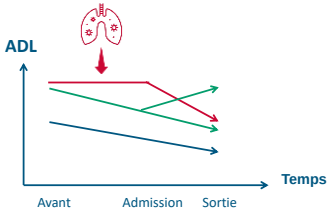
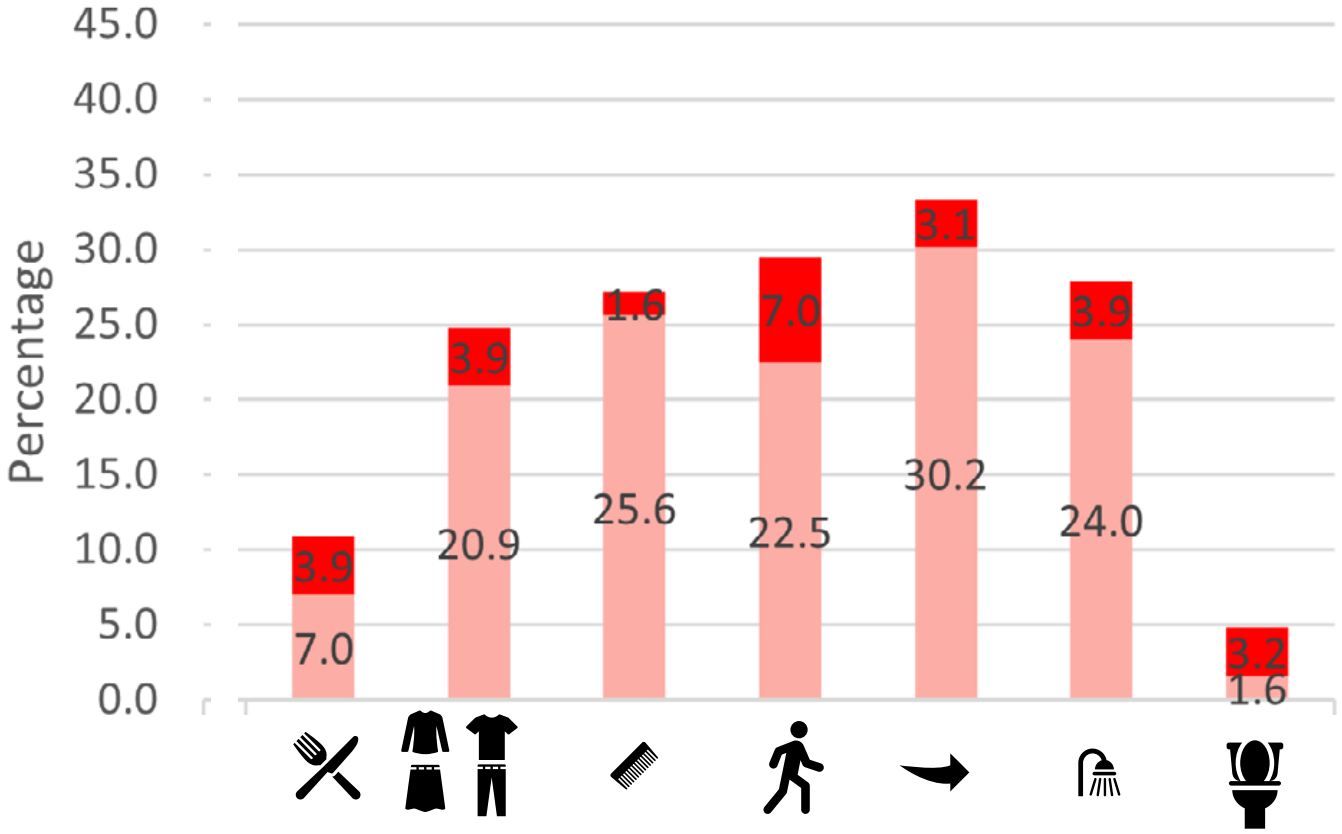






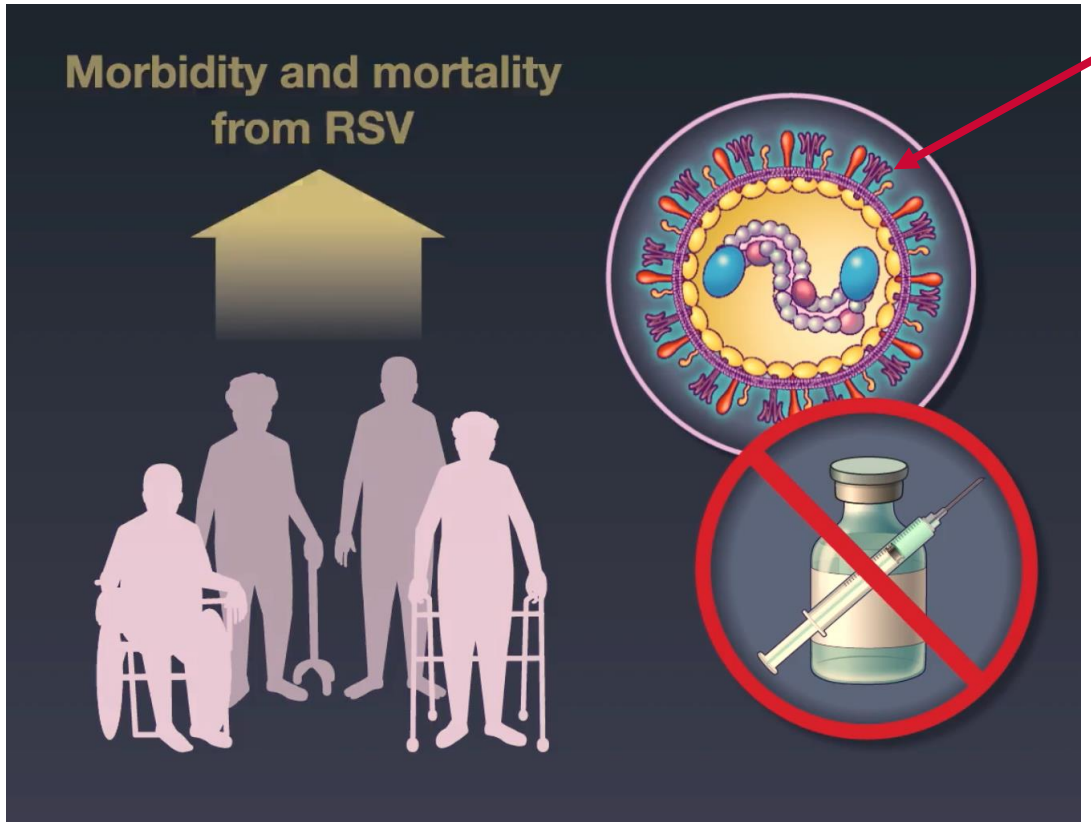
Déclin fonctionnel : 1 patient sur 2

Il n'y a pas que les antibiotiques qui sont importants dans la prise en charge !

Virus Respiratoire Syncytial et la population âgée

- Hospitalisation
- Perte d'indépendance
- Décompensation de comorbidités
- Décès

Âge
Comorbidités
IC, AVC, I rénale chronique
BPCO, immunodépression



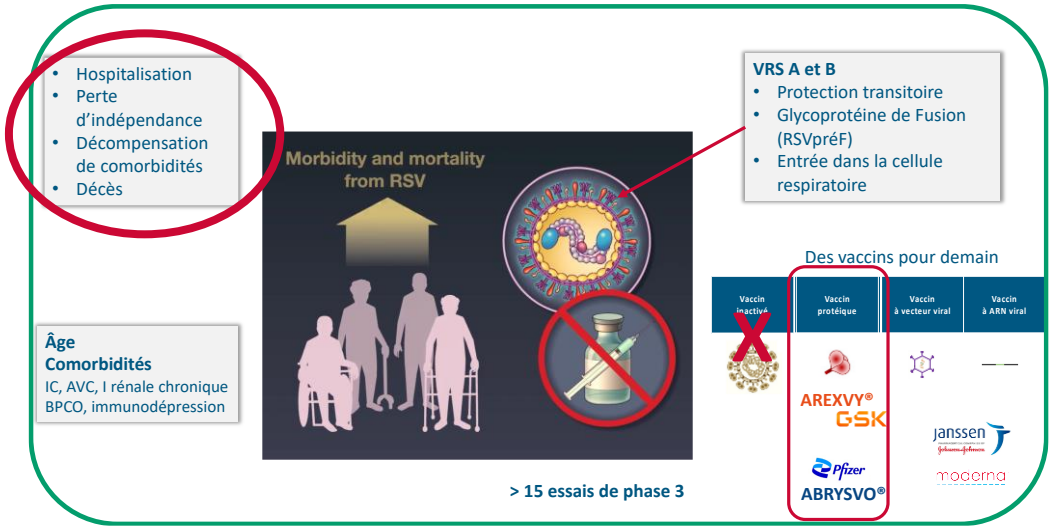
VRS A et B
- Protection transitoire
- Glycoprotéine de Fusion (RSVpréF)
- Entrée dans la cellule respiratoire

Des vaccins pour demain

Vaccin inactivé	Vaccin protéique	Vaccin à vecteur viral	Vaccin à ARN viral
X	AREXVY® GSK Pfizer ABRYSVO®	Janssen	moderna

> 15 essais de phase 3

Coût-efficacité des vaccins protéiques anti-VRS dans la population âgée



Clinical Infectious Diseases

MAJOR ARTICLE

IDSA Infectious Diseases Society of America · hivma hiv medicine association · OXFORD

Cost-effectiveness of Prefusion F Protein-based Vaccines Against Respiratory Syncytial Virus Disease for Older Adults in the United States

Seyed M. Moghadas,[1] Affan Shoukat,[1] Carolyn E. Bawden,[2] Joanne M. Langley,[3] Burton H. Singer,[4] Meagan C. Fitzpatrick,[5,6] and Alison P. Galvani[6]

[1]Agent-Based Modelling Laboratory, York University, Toronto, Ontario, Canada; [2]Department of Microbiology and Immunology, McGill University, Montreal, Quebec, Canada; [3]Canadian Center for Vaccinology, IWK Health Centre and Nova Scotia Health Authority, Dalhousie University, Halifax, Nova Scotia, Canada; [4]Emerging Pathogens Institute, University of Florida, Gainesville, Florida, USA; [5]Center for Vaccine Development and Global Health, University of Maryland School of Medicine, Baltimore, Maryland, USA; and [6]Center for Infectious Disease Modeling and Analysis, Yale School of Public Health, New Haven, Connecticut, USA

Moghadas *et al.* Clin Infect Dis 2023

Simulation

1 Différents scenarii

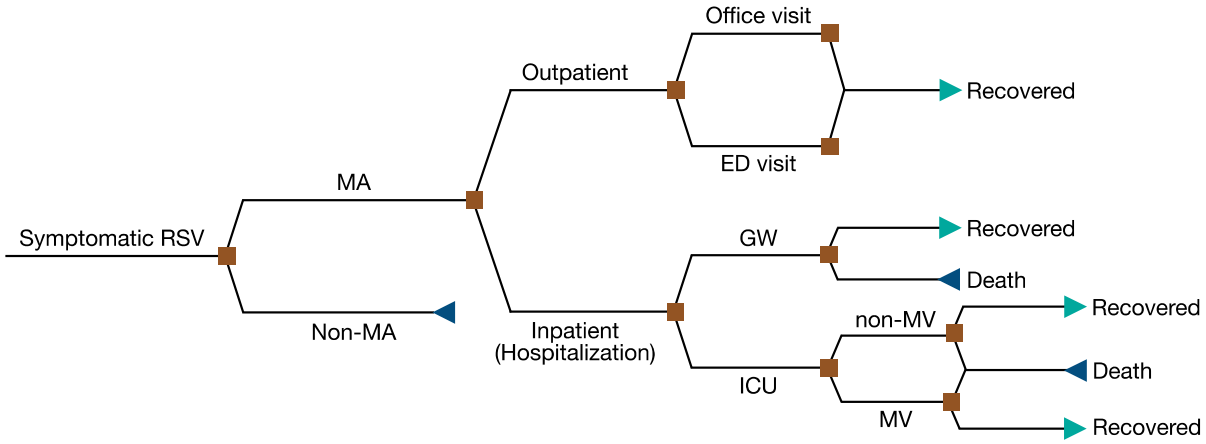


Figure 1. Structure of the discrete-event simulation model applied to scenarios in the abence and presence of interventions for different outcomes. Abbreviations: ED, emergency department; GW, general ward; ICU, intensive care unit; MA, medically attended; MV, mechanical ventilation; RSV, respiratory syncytial virus.

2 En fonction des classes d'âge (tous > 60 ans)

- Comorbidités en fonction des classes d'âge

3 Couverture vaccinale 66% Idem grippe

4 Données sur RSV et outcomes

- Taux d'hospitalisation
- Taux de transfert en réanimation
- Taux de décès

5 Coûts associés consultations, hospitalisations et passages aux urgences associés à l'infection VRS

Moghadas *et al.* Clin Infect Dis 2023

Coût-efficacité des vaccins protéiques anti-VRS dans la population âgée

Cost-Effectiveness of Prefusion F Protein-Based Vaccines Against Respiratory Syncytial Virus Disease for Older Adults in the United States

Moghadas et al., 2023 | *Clinical Infectious Diseases*

IDSA Infectious Diseases Society of America

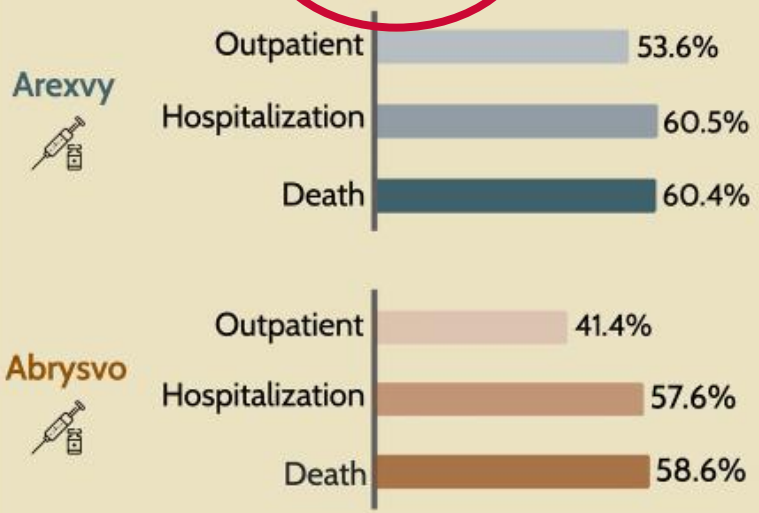
STUDY POPULATION

Vaccination of adults 60 years of age or older

METHODS

Discrete-event simulation model to evaluate cost-effectiveness of vaccination against RSV disease over a two-year time horizon

Reduction of outcomes during the first RSV season after vaccination with 66% vaccine coverage



Cost-effectiveness results with willingness-to-pay of $95,000 per quality-adjusted life-year gained

Vaccine is effective for one RSV season

- Arexvy is cost-effective for up to $127 per dose
- Abrysvo is cost-effective for up to $118 per dose

Vaccine is effective for two RSV seasons

- Arexvy is cost-effective for up to $235 per dose
- Abrysvo is cost-effective for up to $245 per dose

Budget Impact (Billion $)

Vaccination of older adults would provide substantial health benefits by reducing RSV-related illness, hospitalization, and loss of productivity

Clinical Infectious Diseases https://doi.org/10.1093/cid/ciad658

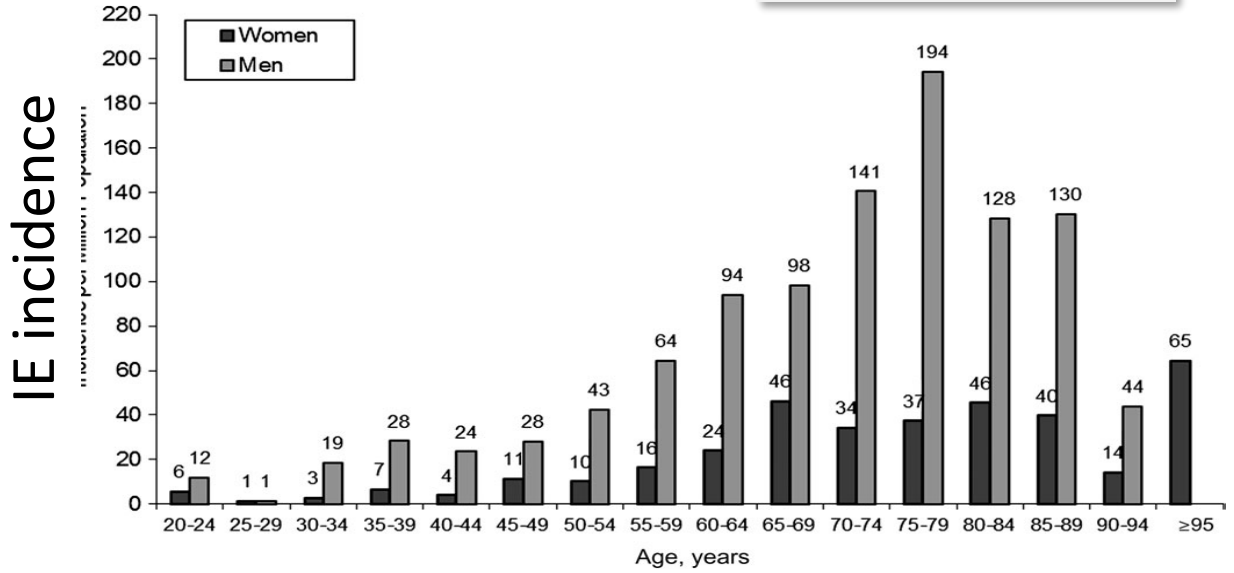
Évolution des endocardites au cours du temps

↗ Age
↗ Male

x5

Pic d'incidence
70 ans

38% > 70y
Male/female >2



Selton-Suty *et al.* Clin Infect Dis 2012, **Ursi** *et al.* Drug & Ageing 2019

2023 : les gériatres apparaissent (enfin) dans les Guidelines !!!

ESC European Society of Cardiology
European Heart Journal (2023) **44**, 3948–4042
https://doi.org/10.1093/eurheartj/ehad193

Table 7 **Members of the Endocarditis Team**

	Heart Valve Centre
Core members	• Cardiologists. • Cardiac imaging experts. • Cardiovascular surgeons. • Infectious disease specialist (or internal medicine specialist with expertise in infectious diseases). • Microbiologist. • Specialist in outpatient parenteral antibiotic treatment.
Adjunct specialities	• Radiologist and nuclear medicine specialist. • Pharmacologist. • Neurologist and neurosurgeon. • Nephrologist. • Anaesthesiologists. • Critical care. • Multidisciplinary addiction medicine teams. • Geriatricians. • Social worker. • Nurses. • Pathologist.

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12.2. Endocarditis in the elderly

Characteristics of patients with IE have dramatically changed over recent decades, with an increasing prevalence and specific features of IE in the elderly population.[25,145,637,638] In this population, enterococci and *S. aureus* are reported to be the most frequent aetiological agents. In addition, the higher presence of intracardiac prosthetic devices (CIED and valvular prosthesis/repair including TAVI devices) and increased incidence of healthcare-associated IE episodes are observed.[25,637] Finally, a lower risk of embolic episodes has been observed in this subgroup.[462,639–641]

...

In elderly IE patients, functional and nutritional status are important predictors of outcomes.[400] When considering cardiac surgery in elderly patients, functional and nutritional status, and their associated risks, should be accurately explored through a comprehensive assessment by geriatricians. In addition, the earliest possible discharge home to facilitate the patient's functional recovery should be considered in this subgroup of patients.

Clinical Infectious Diseases
MAJOR ARTICLE

The Mortality of Infective endocarditis with and without Surgery in Elderly (MoISE) Study

Victor Hémar,[1] Fabrice Camou,[2] Claire Roubaud-Baudron,[3,4] Julien Ternacle,[5] Mathieu Pernot,[6] Carine Greib,[7] Marina Dijos,[5] Gaetane Wirth,[8] Hélène Chaussade,[1] Olivia Peuchant,[9] Fabrice Bonnet,[1] and Nahéma Issa[2]; the MoISE Study Group[a]

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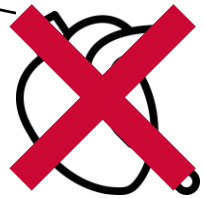
EI > 80 ans (n=163)

Indication chirurgicale n=105

n=38



n=67

Absence d'indication chirurgicale, n=58

Hémar *et al.* CID 2023

Clinical Infectious Diseases
MAJOR ARTICLE

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- Plus jeunes
- Moins comorbides
- Plus autonomie
- ETO

EI > 80 ans (n=163)

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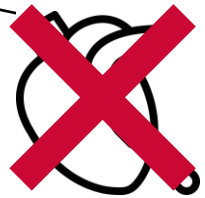

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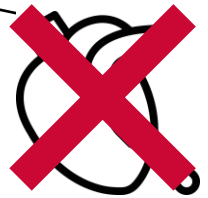
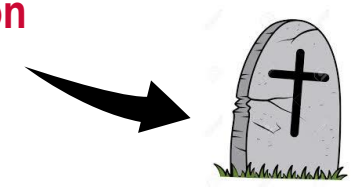


n=67

Absence d'indication chirurgicale, n=58

ADL<4
Confusion



	Indication chirurgicale n=38	Indication chirurgicale n=67	Absence d'indication chirurgicale, n=58	
M1	**1/38 (2,6%)**	**30/67 (45%)**	**8/58 (14%)**	**<0.001**
M3	4/38 (11%)	37/67 (55%)	13/58 (22%)	<0.001
M6	4/38 (11%)	40/67 (60%)	13/58 (22%)	<0.001

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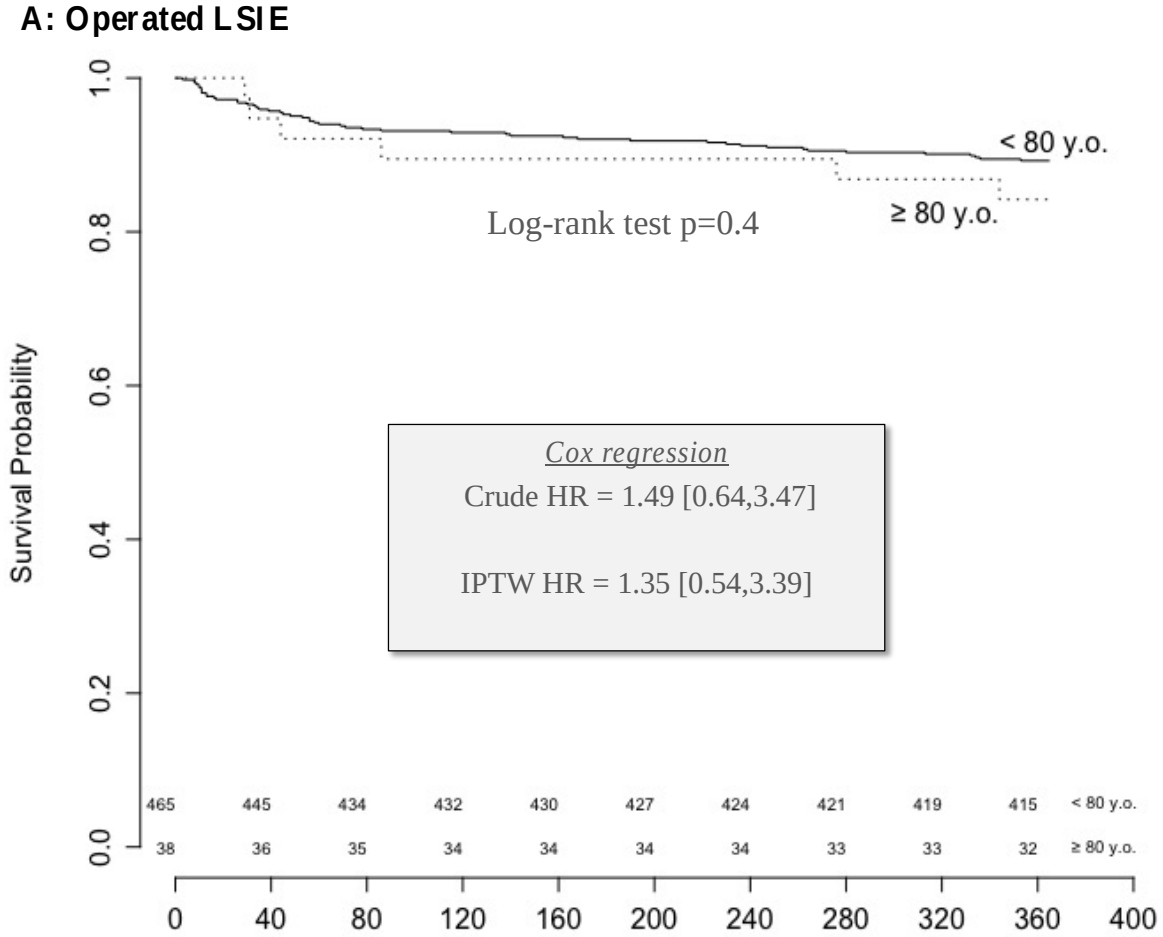
Bordeaux, étude prospective 2013-2020, n=923

Même survie des patients opérés



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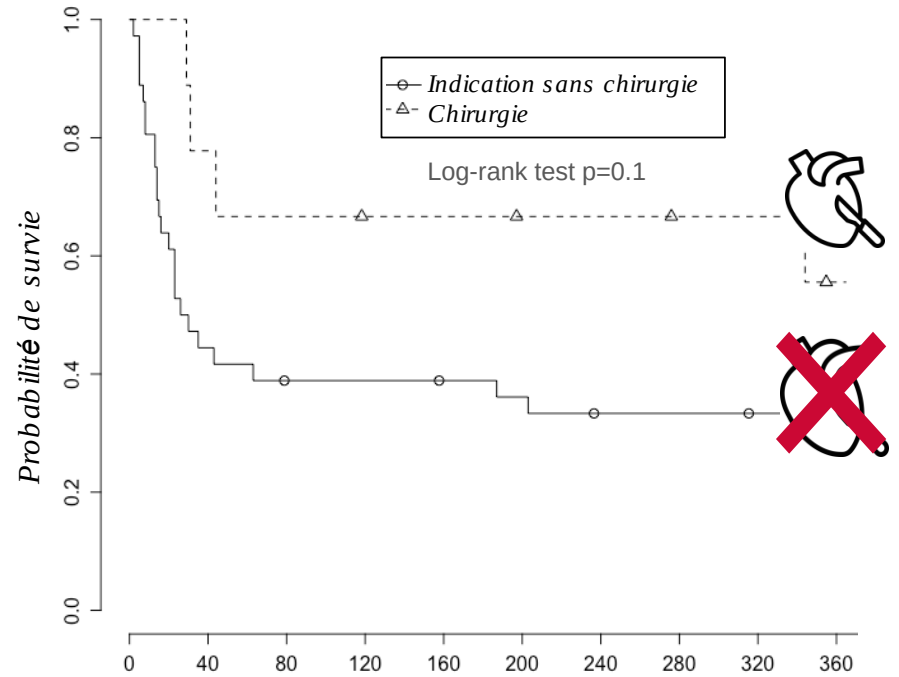
Le niveau de dépendance fonctionnelle est un facteur pronostique majeur

ADL < 4

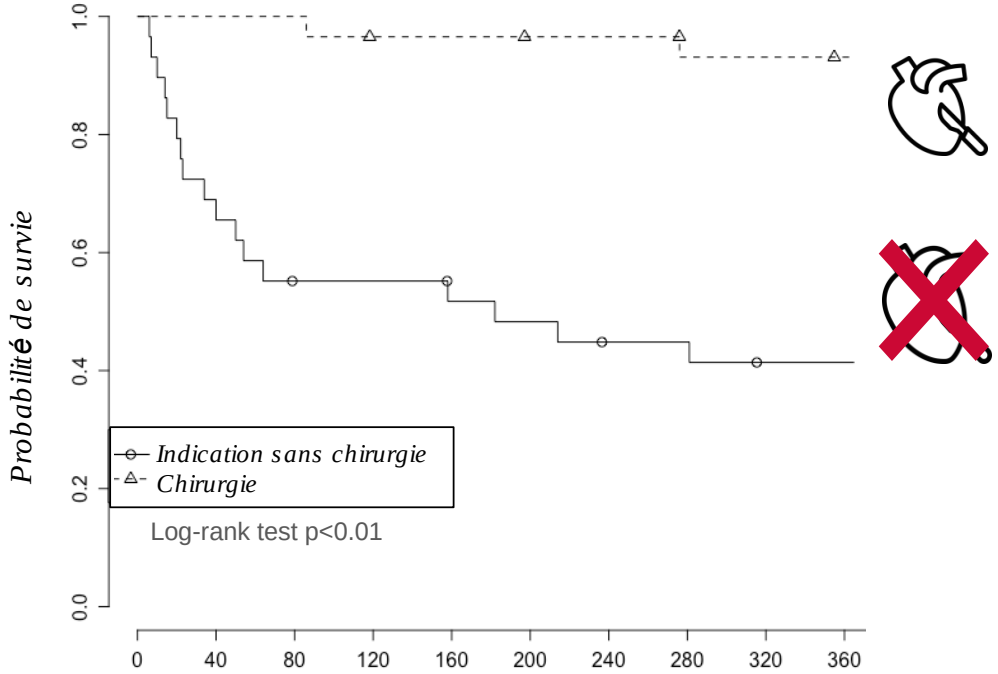
A: EI chez les patients ≥ 80 ans avec score ADL < 4



Effectif à risque										
Indication sans chirurgie	36	16	14	14	14	13	12	12	12	11
Chirurgie	9	7	6	6	6	6	6	6	6	5

ADL ≥ 4

B: EI chez les patients ≥ 80 ans avec score ADL ≥ 4



Effectif à risque										
Indication sans chirurgie	29	20	16	16	15	14	13	13	12	12
Chirurgie	29	29	29	28	28	28	28	27	27	27

Hémar *et al.* CID 2023

Décontamination résidents d'EHPAD, décès et hospitalisation

Résidents d'EHPAD

- Polypathologie
- Polymédication
- Prothèses (SU, articulaire…)
- Dénutrition
- Porteurs de BMR (40% SARM)

→ **Risque infectieux +++**

Hospitalisation

Décès

Décontamination ?

RCT ICU, device, sortie d'hôpital

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The NEW ENGLAND JOURNAL of MEDICINE

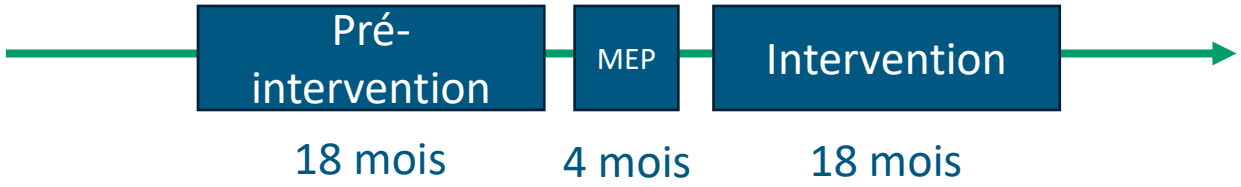
ORIGINAL ARTICLE

Decolonization in Nursing Homes to Prevent Infection and Hospitalization

28 EHPAD (14-14)

Randomisation en cluster

> 28000 résidents



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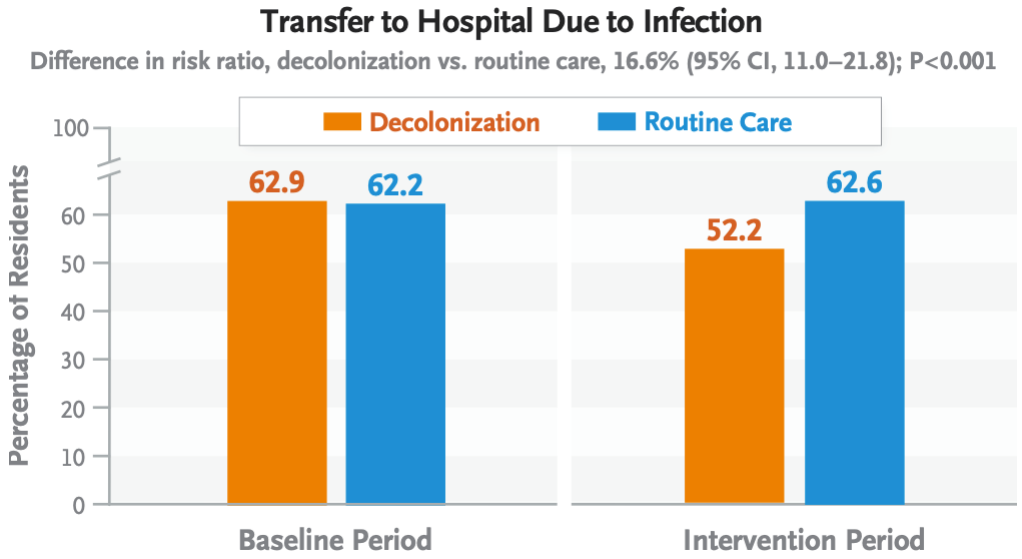

Faisable?

Effet long terme?

≈ 2 transferts évités par mois pour NH de 100 résidents

The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Effet de la décontamination sur le portage de BMR

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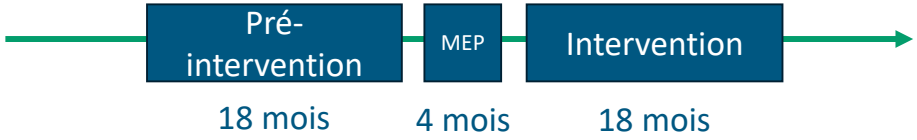

Table 3. Prevalence of MDRO Carriage during the Baseline Period and near the End of the Intervention Period.*

MDRO or sample	Prevalence in the Routine-Care Group		Prevalence in the Decolonization Group		Risk Ratio (95% CI)†
	Baseline Period (N = 700)	Intervention Period (N = 650)	Baseline Period (N = 700)	Intervention Period (N = 550)	
	percent (number of positive samples)				
Any MDRO	48.3 (338)	47.2 (307)	48.9 (342)	32.0 (176)	0.70 (0.58–0.84)
Any MRSA	37.6 (263)	36.9 (240)	36.4 (255)	25.1 (138)	0.73 (0.59–0.92)
Nostril swab sample	29.1 (203)	27.1 (176)	29.9 (209)	22.0 (121)	0.81 (0.62–1.05)
Skin swab sample	26.1 (183)	25.4 (165)	22.6 (158)	11.6 (64)	0.58 (0.42–0.79)
VRE	5.9 (41)	5.1 (33)	8.3 (58)	2.2 (12)	0.29 (0.14–0.62)
ESBL producer	15.9 (111)	17.9 (116)	16.7 (117)	9.2 (51)	0.50 (0.34–0.75)
CRE	1.4 (10)	0.6 (4)	0.4 (3)	0.4 (3)	3.53 (0.44–28.52)

Bon usage des AB chez les patients âgés fragiles avec susp d'infection urinaire

- Complexité du diagnostic
- Prescription AB inappropriée
- Antibiorésistance
- Evènements indésirables

Peut-on faire mieux?

Hartman *et al.* BMJ 2023

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Study design	Cluster randomised controlled trial	38 clusters consisting of general practices and older adult care organisations	Located in Poland, the Netherlands, Norway, and Sweden	
Population	1041 frail older adults aged 70 years or older	Mean age: 86 years	Sex: 71% women	Dementia: 44% incidence

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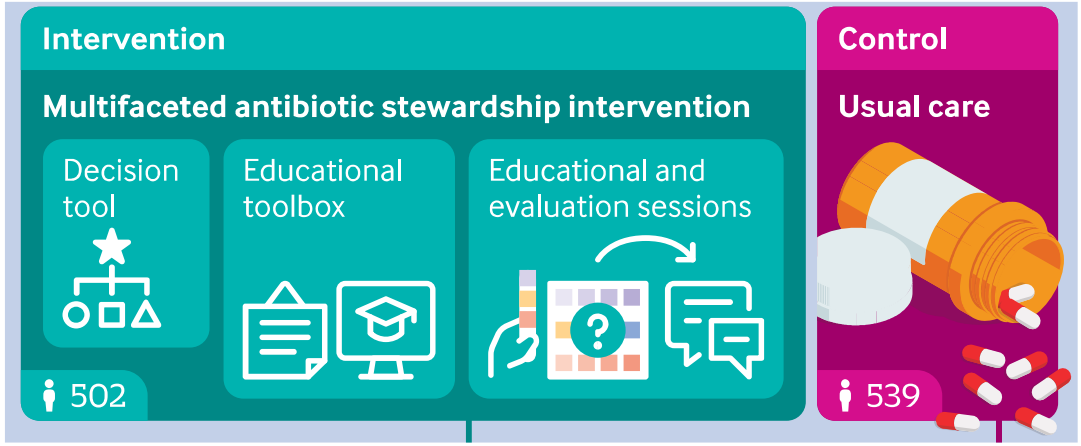

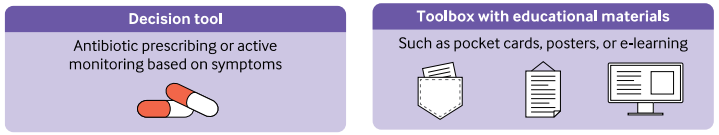

February 2020 → Pause due to covid-19 → September to November 2020

Pro, résidents & entourage

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Ça marche !

Subgroup	Antibiotic prescription rate per person year				Adjusted rate ratio (95% CI)	Adjusted rate ratio (95% CI)
	Intervention		Usual care			
	Baseline	Follow-up	Baseline	Follow-up		
All patients	0.50	0.27	0.44	0.58		0.42 (0.26 to 0.68)
Poland	0.30	0.14	0.43	0.68		0.28 (0.11 to 0.73)
The Netherlands	0.87	0.24	0.68	0.58		0.32 (0.12 to 0.82)
Norway	0.48	0.35	0.31	0.68		0.40 (0.16 to 1.03)
Sweden	0.37	0.42	0.39	0.23		2.25 (0.57 to 8.88)
Women	0.57	0.30	0.43	0.58		0.43 (0.25 to 0.73)
Men	0.36	0.18	0.47	0.58		0.40 (0.15 to 1.06)
Patients with dementia	0.70	0.37	0.38	0.64		0.33 (0.17 to 0.64)
Patients without dementia	0.39	0.22	0.53	0.53		0.56 (0.28 to 1.12)
Patients with urinary incontinence	0.51	0.38	0.43	0.60		0.53 (0.29 to 0.96)
Patients without urinary incontinence	0.48	0.15	0.47	0.56		0.24 (0.11 to 0.54)
Patients with catheter	1.31	0.60	1.07	1.22		0.37 (0.11 to 1.21)
Patients without catheter	0.44	0.25	0.38	0.54		0.43 (0.26 to 0.74)
Patients aged <80	0.37	0.24	0.41	0.64		0.38 (0.14 to 1.08)
Patients aged ≥80	0.54	0.28	0.45	0.56		0.44 (0.26 to 0.75)

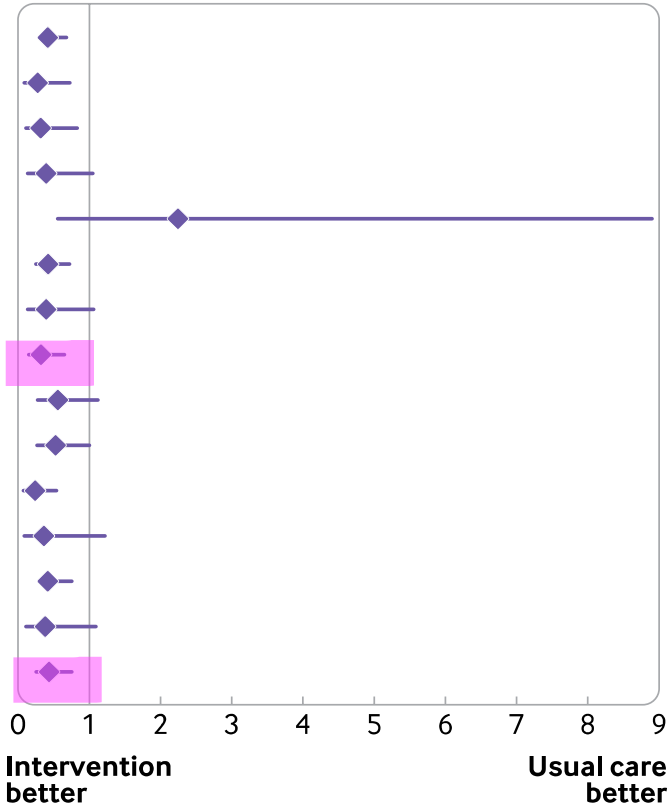


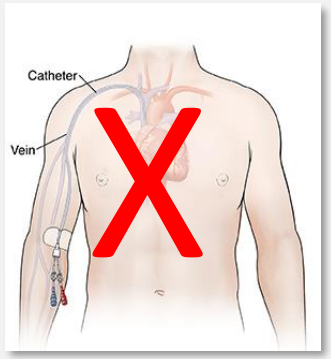
Fig 3 | Effect of the antibiotic stewardship intervention on the primary outcome (number of antibiotic prescriptions for suspected urinary tract infections per person year) across subgroups per country, in men, women, patients with and without dementia, with and without urinary incontinence, with and without an indwelling catheter, and younger and older than 80 years. CI=confidence interval

Pas de différences en termes de mortalité à 21 jours – suivi de 7 mois, effets à long terme?

Les avantages de la voie SC

↘ veinite, infection

Évite des procédures invasives



Facile à réaliser
↗ Confort

Utile si troubles de la déglutition

Très utile en cas de confusion/agitation

Permet une mobilisation précoce

Ker *et al.* Cochrane Database Syst Rev 2015, **Covinsky** *et al.* JAMA 2011, **Stoner** *et al.* Patient 2014

Ceftriaxone sous cutanée - tolérance

Received: 22 September 2023 | Revised: 7 January 2024 | Accepted: 10 January 2024

DOI: 10.1111/jgs.18786

CLINICAL INVESTIGATION

Journal of the **American Geriatrics Society**

Safety of subcutaneous versus intravenous ceftriaxone administration in older patients: A retrospective study

Inès Pardo MD[1] | Morgane Pierre-Jean MSc[2] | Guillaume Bouzillé MD[3] | Heloïse Fauchon MSc[1] | Aline Corvol MD, PhD[4] | Joaquim Prud'homm MD, PhD[1] | Dominique Somme MD, PhD[4]

- Comparaison **tolérance** ceftriaxone IV versus SC
- Patients > 75 ans
- Entrepôt de données, CHU Rennes 2020-2023
- EI dans les 15j

keywords: erythema, redness, edema, local pain, urticaria, pruritus, itching, skin rash, hematoma at the puncture/ injection site, lymphangitis, chills, anaphylactic shock, anaphylaxis, angioedema, edema of the uvula, broncho-spasm, dyspnea, necrolysis, necrosis, DRESS syndrome, Stevens-Johnson syndrome, abdominal or epigastric pain, nausea, vomiting, diarrhea, loose/watery stools, mouth inflammation or pain, mucositis, glossitis, stomatitis, thrush, mycosis, headache, dizziness, gallstones or renal stones, pancreatitis, hepatitis, and seizures. These key-

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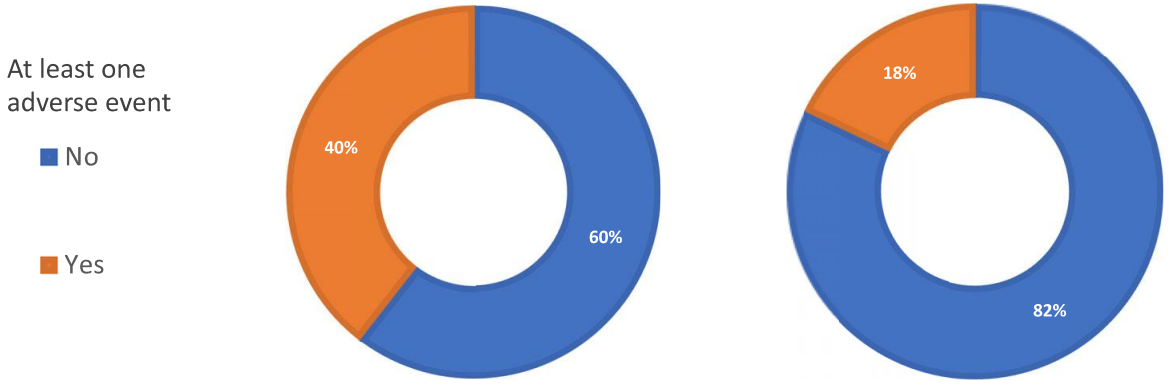

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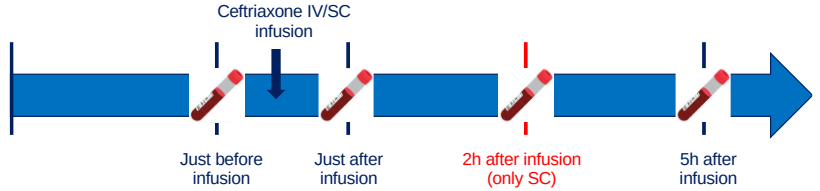
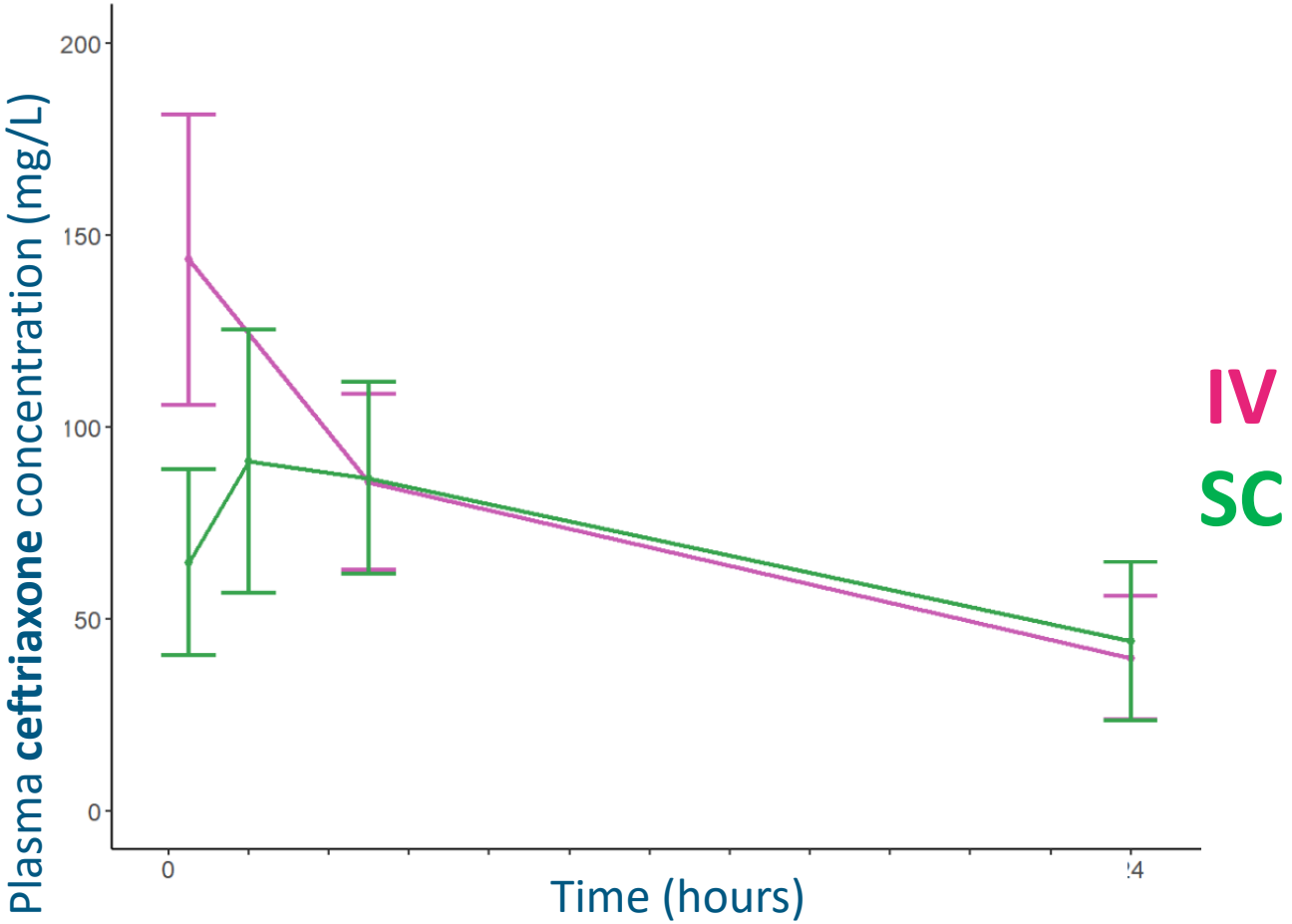
- IV n=3387 et SC n=402 -84 ans
- SC : + âgé, + S Pall

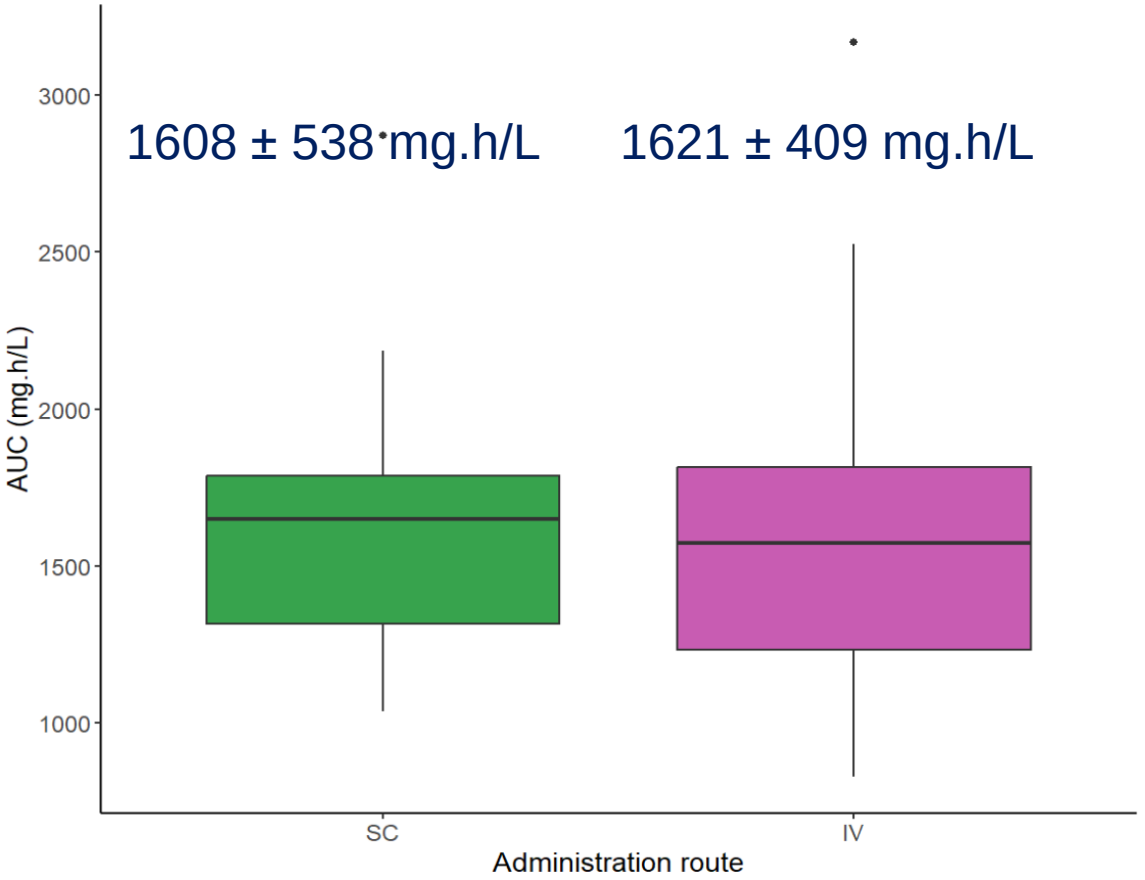
- **EI + fréquents dans le groupe IV (RR 2,2)**
- Mortalité + importante dans le groupe SC

Ceftriaxone sous cutanée - PK (en avant première)





Aire sous la courbe



Roubaud Baudron *et al.* In preparation

La collaboration entre gériatres et infectiologues devient évidente !

GInGer
Groupe Infectio-Gériatrie
SOCIÉTÉ FRANÇAISE DE GÉRIATRIE GÉRONTOLOGIE

Clinical Infectious Diseases

MAJOR ARTICLE

Clinical and Ecological Impact of an Educational Program to Optimize Antibiotic Treatments in Nursing Homes (PROA-SENIOR): A Cluster, Randomized, Controlled Trial and Interrupted Time-Series Analysis

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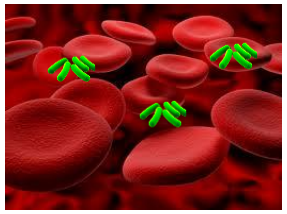
Infection
https://doi.org/10.1007/s15010-023-02073-0

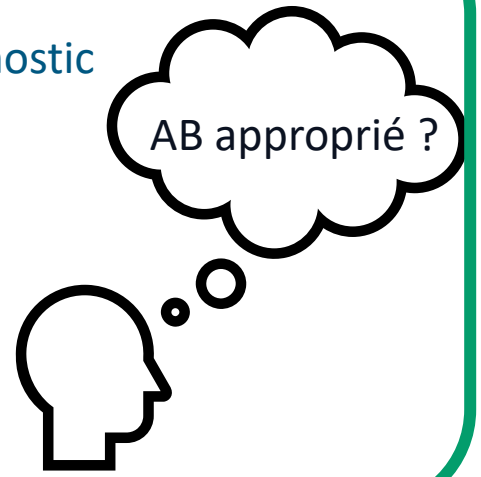
RESEARCH

Empirical antibiotic therapy modalities for *Enterobacteriaceae* bloodstream infections in older patients and their impact on mortality: a multicentre retrospective study

Albane Roseau-Vincenti[1] · Emmanuel Forestier[2] · Jean-Philippe Lanoix[3] · Cécile Ricard[4] · Marie-Christine Carret[2] · Pauline Caraux-Paz[5] · Marc Paccalin[6] · Gaëtan Gavazzi[7] · Claire Roubaud-Baudron[1,8] · On behalf of the GInGer group (SPILF-SFGG)

- ↗ EB et ↗ BMR
- Début AB et pronostic
- Épargne AB





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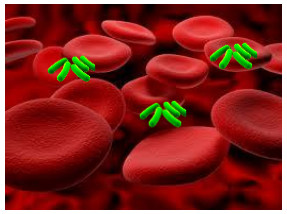

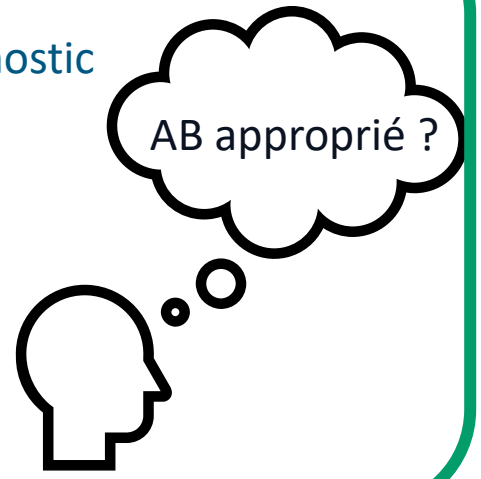

- **Étude rétrospective**
- **49 centres en France**
- **> 75 ans + bactériémie à EB**

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Groupe Infectio-Gériatrie
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- N=487; Age 86 ans, médecine SSR et EHPAD
- 70% ont au moins 1 FDR BLSE – 78% ont reçu des C3G
- *E. coli* (70%) – urinaire (70%) - 14% R aux C3G
- 28% infections sévères
- 74% ont reçu une AB probabiliste adaptée
- 30% de bi-antibiothérapie
- 2,8% de carbapénème
- 11% AB SC !

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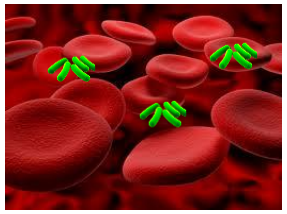

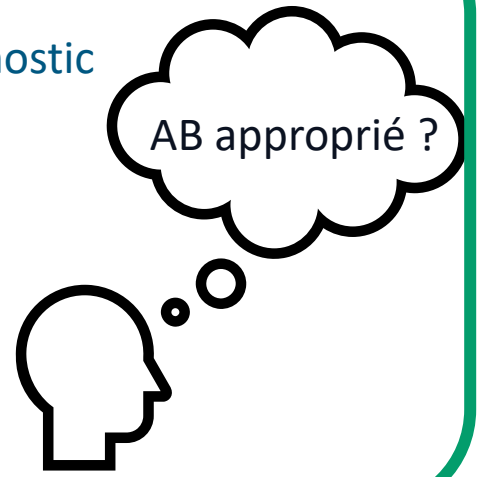

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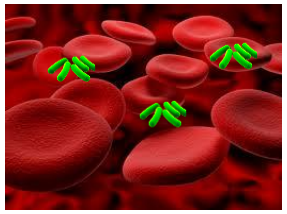

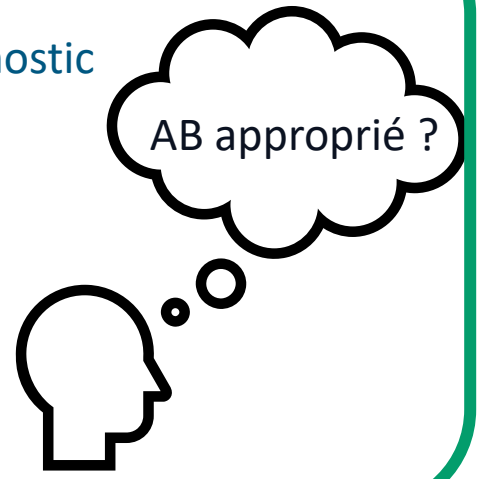

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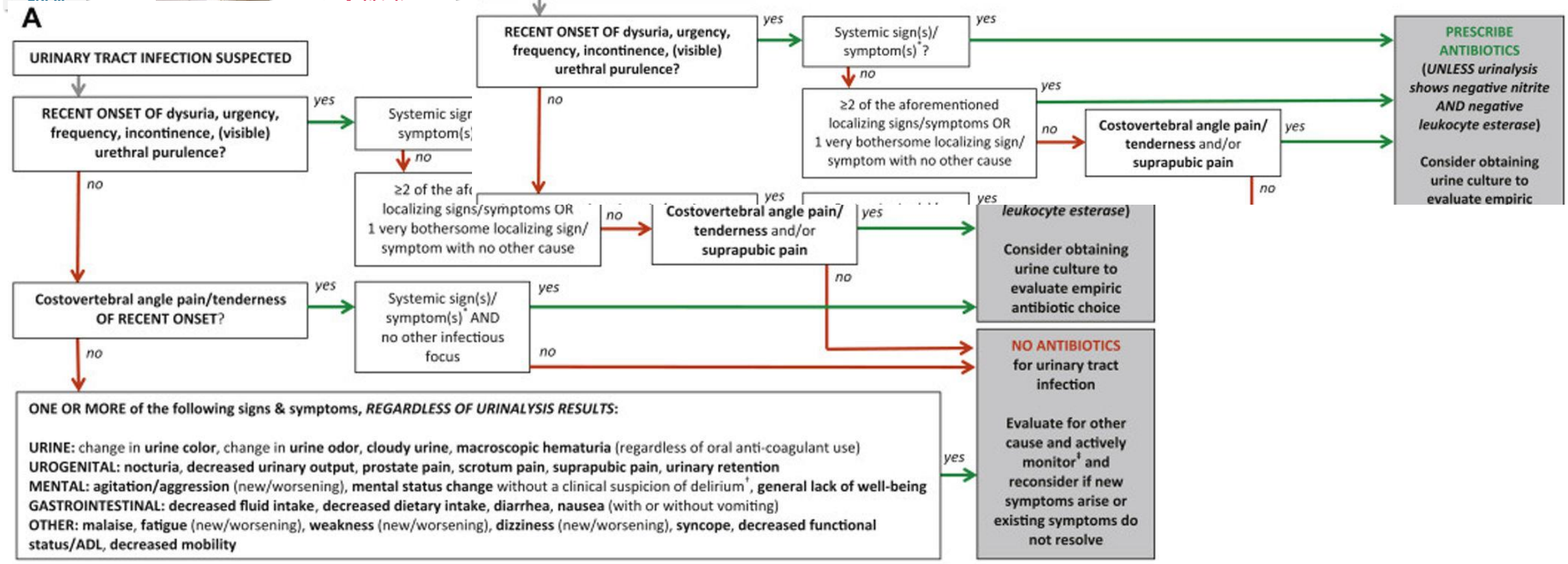
	In-hospital mortality (D14)				In-hospital mortality (D30)			
	p-value	OR	CI 95% OR		*p*-value	OR	CI 95% OR	
			Inferior	Superior			Inferior	Superior
Empirical treatment								
No empirical AB (=ref)								
Inappropriate empirical AB	0.88	0.91	0.26	3.09	0.84	1.12	0.34	3.69
Appropriate empirical AB	0.78	0.87	0.36	2.37	0.53	1.33	0.57	3.52
Age	0.06	1.06	0.99	1.12	0.01	1.08	1.02	1.14
ADL before admission	0.81	1.09	0.55	2.28	0.56	0.83	0.45	1.56
Chronic heart disease	0.75	1.11	0.57	2.15	0.70	0.89	0.49	1.60
Diabetes mellitus	0.42	0.73	0.32	1.54	0.63	0.85	0.42	1.64
Immunosuppression	0.18	1.75	0.74	3.91	0.01	2.62	1.29	5.21
Chronic renal failure	0.03	2.10	1.06	4.23	0.01	2.14	1.16	3.97
Urinary portal of entry	0.000	0.33	0.17	0.64	0.000	0.34	0.19	0.60
Severity	0.000	3.36	1.74	6.55	0.000	3.17	1.75	5.75

AB, antibiotics; ADL, activities of daily living; CI, confidence interval; and OR, odds ratio

AB Stewardship et prescription d'AB pour infection urinaire en EHPAD



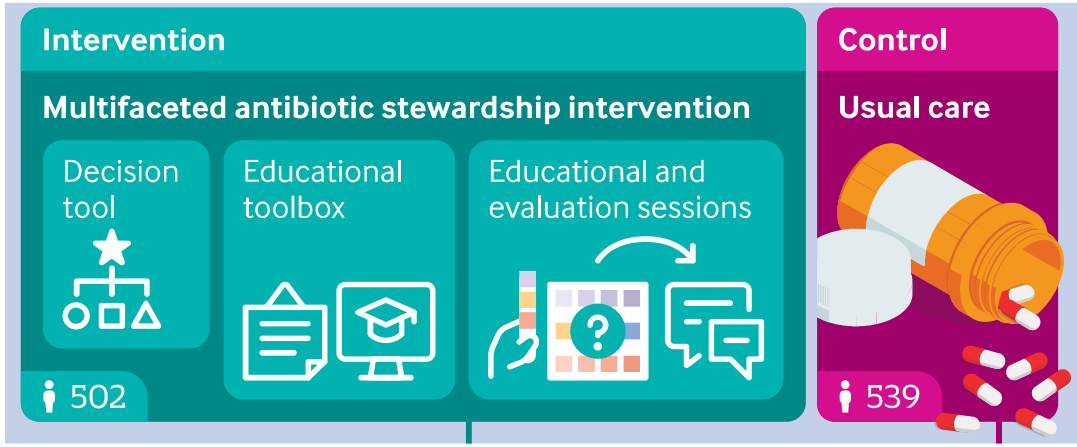
Bon usage des AB chez les patients âgés fragiles avec susp d'infection urinaire

- Complexité du diagnostic
- Prescription AB inappropriée
- Antibiorésistance
- Evènements indésirables

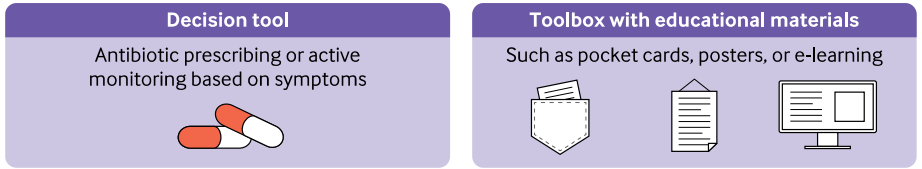
Peut-on faire mieux?

Study design — Cluster randomised controlled trial | 38 clusters consisting of general practices and older adult care organisations | Located in Poland, the Netherlands, Norway, and Sweden

Population — 1041 frail older adults aged 70 years or older | Mean age: 86 years | Sex: 71% women | Dementia: 44% incidence



Characteristics	Antibiotic stewardship intervention (n=502)	Usual care (n=539)	Total* (n=1041)
Site of residence:			
Nursing home	379 (75)	429 (80)	808 (77.6)
Residential care home	88 (18)	110 (20)	198 (19.0)
Home care	35 (7)	0	35 (3.4)



Pro, patients & entourage

Hartman *et al.* BMJ 2023