



Transmission sexuelle de la résistance bactérienne

Session « Nouvelles IST » en partenariat avec la Société Française de Dermatologie

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Sorbonne Université

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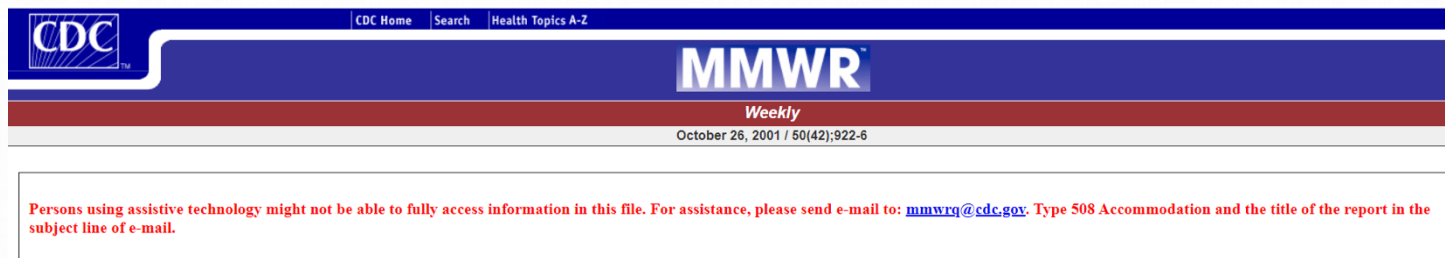
laure.surgers@aphp.fr



Déclaration d'intérêt de 2014 à 2025

- Intérêts financiers : 0
- Liens durables ou permanents : 0
- Interventions ponctuelles : 0
- Intérêts indirects : 0

Années 2000 : (ré)-émergence d'IST



Shigella sonnei Outbreak Among Men Who Have Sex with Men --- San Francisco, California, 2000-2001

➤ Int J STD AIDS. 2004 Aug;15(8):533-7. doi: 10.1258/0956462041558221.

Shigellosis - a re-emerging sexually transmitted infection: outbreak in men having sex with men in Berlin

U Marcus¹, P Zucs, V Bremer, O Hamouda, R Prager, H Tschaepe, U Futh, M Kramer

Affiliations + expand

PMID: 15307964 DOI: [10.1258/0956462041558221](https://doi.org/10.1258/0956462041558221)

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DOI: 10.1111/hiv.12191
HIV Medicine (2015), 16, 168–175

ORIGINAL RESEARCH

Shigella flexneri serotype 1 infections in men who have sex with men in Vancouver, Canada

A Wilmer,¹ MG Romney,^{1,2} R Gustafson,³ J Sandhu,⁴ T Chu,⁴ C Ng,⁵ L Hoang,^{1,5} S Champagne^{1,2} and MW Hull^{6,7}

¹Department of Pathology & Laboratory Medicine, University of British Columbia, Vancouver, BC, Canada, ²Department of Pathology & Laboratory Medicine, Division of Medical Microbiology, St. Paul's Hospital, Vancouver, BC, Canada, ³Communicable Disease Control, Vancouver Coastal Health, Vancouver, BC, Canada, ⁴Public Health Surveillance Unit, Vancouver Coastal Health, Vancouver, BC, Canada, ⁵British Columbia Centre for Disease Control, Public Health Microbiology & Reference Laboratory, Division of Mycology and Bacteriology, Vancouver, BC, Canada, ⁶Department of Medicine, University of British Columbia, Vancouver, BC, Canada and ⁷BC Centre for Excellence in HIV/AIDS, Vancouver, BC, Canada

IST classiques => nouvelles IST

Chlamydia trachomatis

Any site

Genital

Anorectal

Oropharyngeal

Neisseria gonorrhoeae

Any site

Genital

Anorectal

Oropharyngeal

Treponema pallidum ^a

Hepatitis A virus

Hepatitis B virus

Hepatitis C virus

Mycoplasma genitalium

Trichomonas vaginalis

VIH

HPV
HSV

+ STEntericl

- *Shigella*
- *Salmonella*
- *Campylobacter*
- *Entamoeba*
- *Giardia...*

- Méningo C
- Zika
- Ebola
- Lassa...

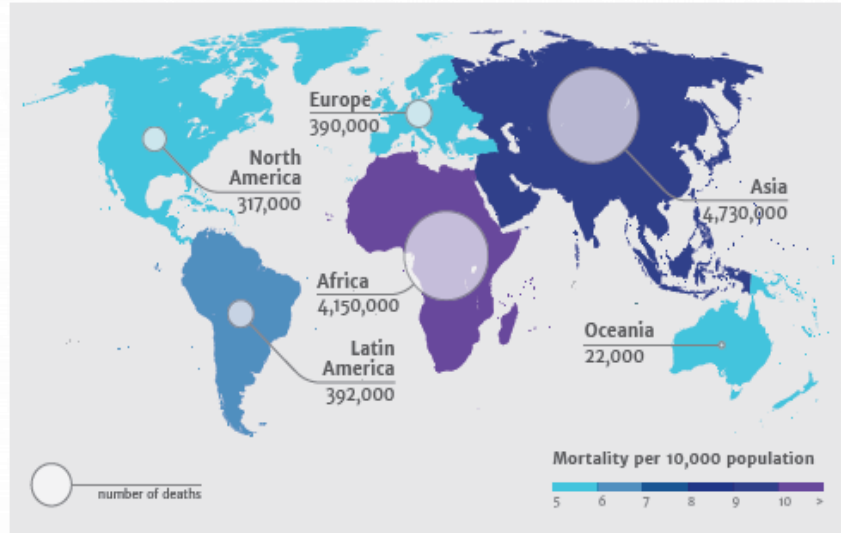
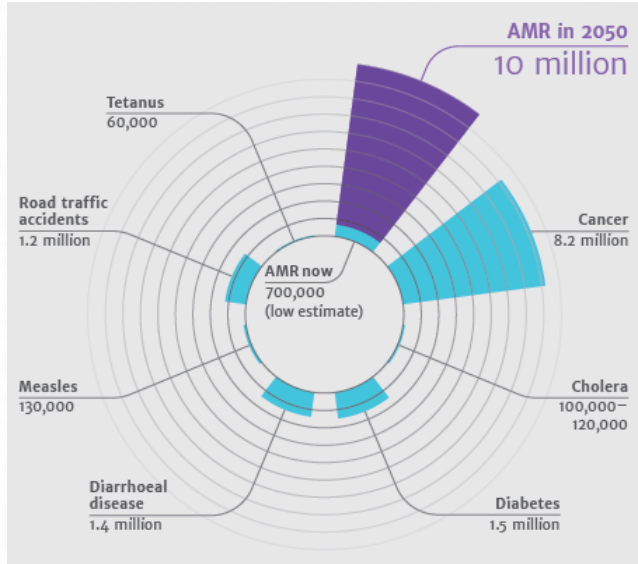
+ Cutanée

- Gale
- Dermatophyte
- Folliculite à *K. aerogenes*
- Mpox
- *Staphylococcus aureus* (MR)...

+ multirésistance
antibiotique
?????

To be continued...

Résistance antibiotique = problème santé publique



2050 = 10 millions de morts

Pays à ressources limitées ++

Shigella XDR et HSH



Centers for Disease Control and Prevention
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EMERGING INFECTIOUS DISEASES®

EID Journal > Volume 20 > Number 5—May 2014 > Main Article

Volume 20, Number 5—May 2014

Dispatch

Shigella spp. with Reduced Azithromycin Susceptibility, Quebec, Canada, 2012–2013

Christiane Gaudreau¹, Sapha Barkati, Jean-Michel Leduc, Pierre A. Pilon, Julie Favreau, and Sadjia Bekal

Author affiliations: Centre Hospitalier de l'Université de Montréal–Hôpital Saint-Luc, Montreal, Quebec, Canada (C. Gaudreau, S. Barkati, J.-M. Leduc, J. Favreau); Université de Montréal, Montreal (C. Gaudreau, S. Barkati, J.-M. Leduc, P.A. Pilon, S. Bekal); Agence de la Santé et des Services Sociaux de Montréal-Santé Publique, Montreal (P.A. Pilon); Laboratoire de Santé Publique du Québec/Institut National de Santé Publique du Québec, Sainte-Anne-de-Bellevue, Quebec, Canada (C. Gaudreau, S. Bekal)

> [Infection](#). 2013 Oct;41(5):999–1003. doi: 10.1007/s15010-013-0501-4. Epub 2013 Jul 13.

High rates of quinolone-resistant strains of *Shigella sonnei* in HIV-infected MSM

C Hoffmann¹, H Sahly, A Jessen, P Ingiliz, H-J Stellbrink, S Neifer, K Schewe, S Dupke, A Baumgarten, A Kuschel, I Krznaric

Affiliations + expand

PMID: 23852945 DOI: [10.1007/s15010-013-0501-4](#)

Emergence of extensively drug-resistant and multidrug-resistant *Shigella flexneri* serotype 2a associated with sexual transmission among gay, bisexual, and other men who have sex with men, in England: a descriptive epidemiological study

Katie Thorley, Hannah Charles, David R Greig, Mateo Prochazka, Lewis C E Mason, Kate S Baker, Gauri Godbole, Katy Sinka, Claire Jenkins



Escherichia coli producteur de β lactamase à spectre étendu

The WHO Bacterial Priority Pathogens List 2024: a prioritisation study to guide research, development, and public health strategies against antimicrobial resistance

Hatim Sati*, Elena Carrara*, Alessia Savoldi, Paul Hansen, Jacopo Garlasco, Enrica Campagnaro, Simone Bocchia, Juan Antonio Castillo-Polo, Eugenia Magrini, Pilar Garcia-Vello, Eve Wool, Valeria Gigante, Erin Duffy, Alessandro Cassini, Benedikt Huttner, Pilar Ramon Pardo, Mohsen Naghavi, Fuad Mirzayev, Matteo Zignol, Alexandra Cameron, Evelina Tacconelli, and the WHO Bacterial Priority Pathogens List Advisory Group†

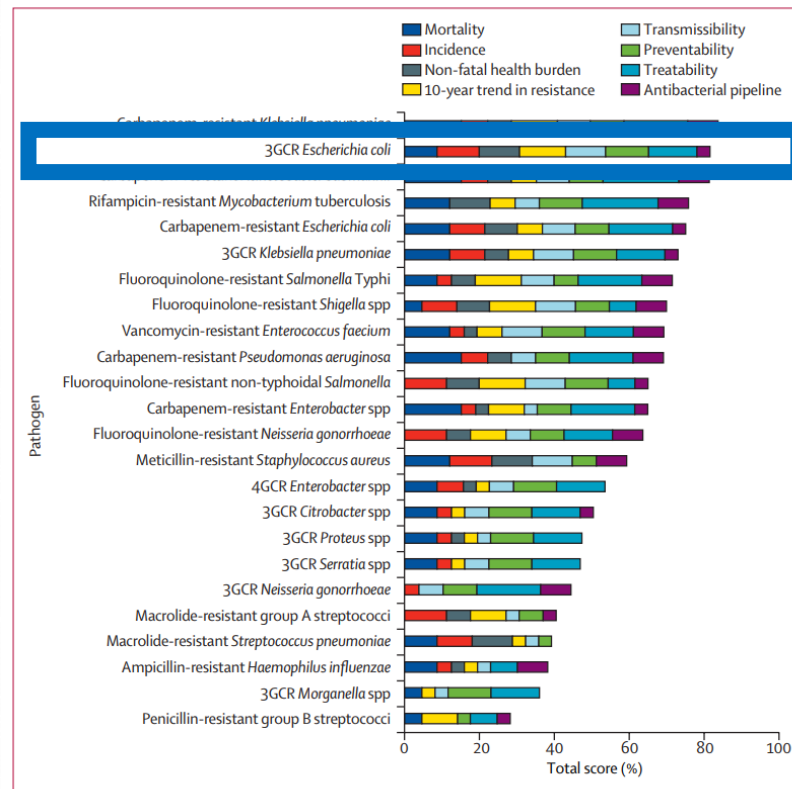
**Lancet Infect Dis 2025;
25: 1033-43**

Published Online

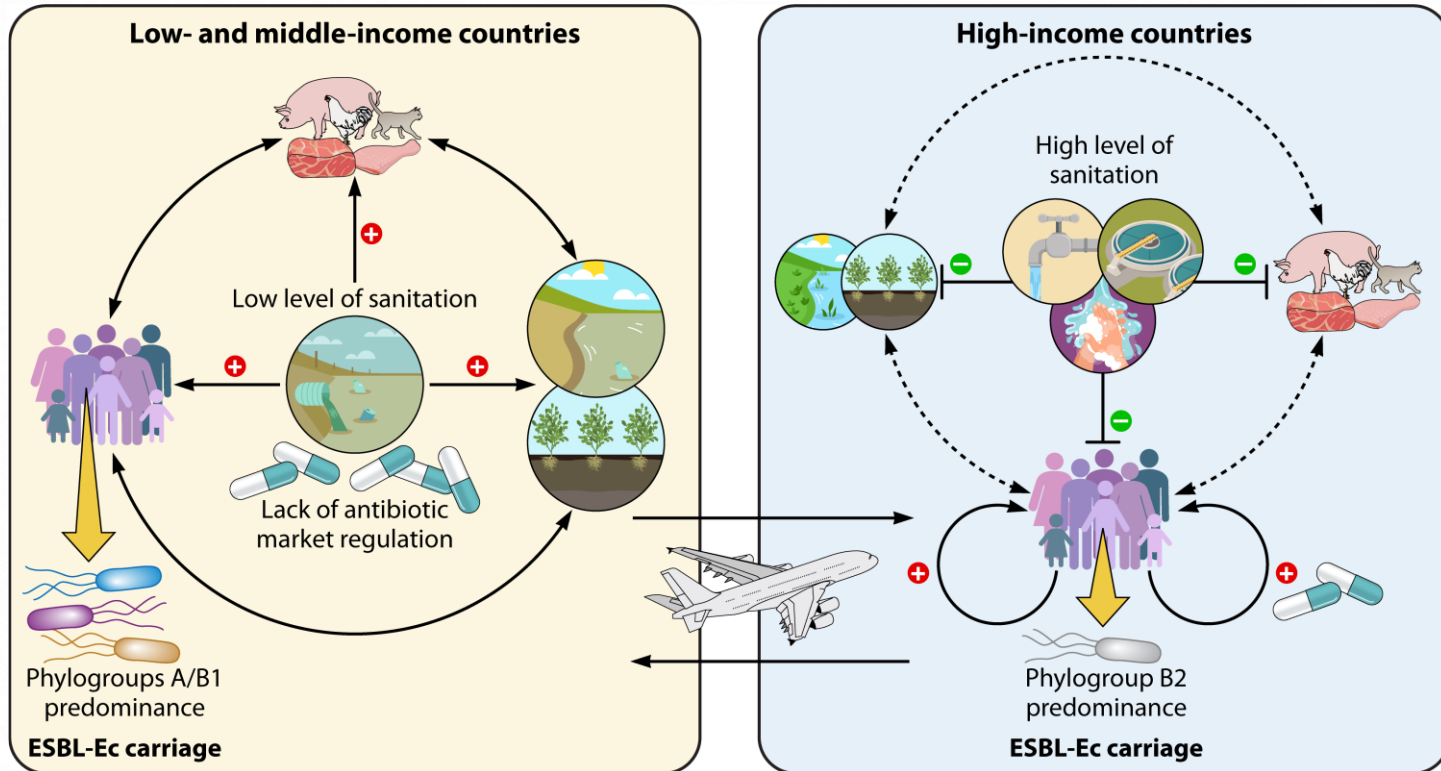
April 14, 2025

[https://doi.org/10.1016/](https://doi.org/10.1016/S1473-3099(25)00118-5)

[S1473-3099\(25\)00118-5](https://doi.org/10.1016/S1473-3099(25)00118-5)



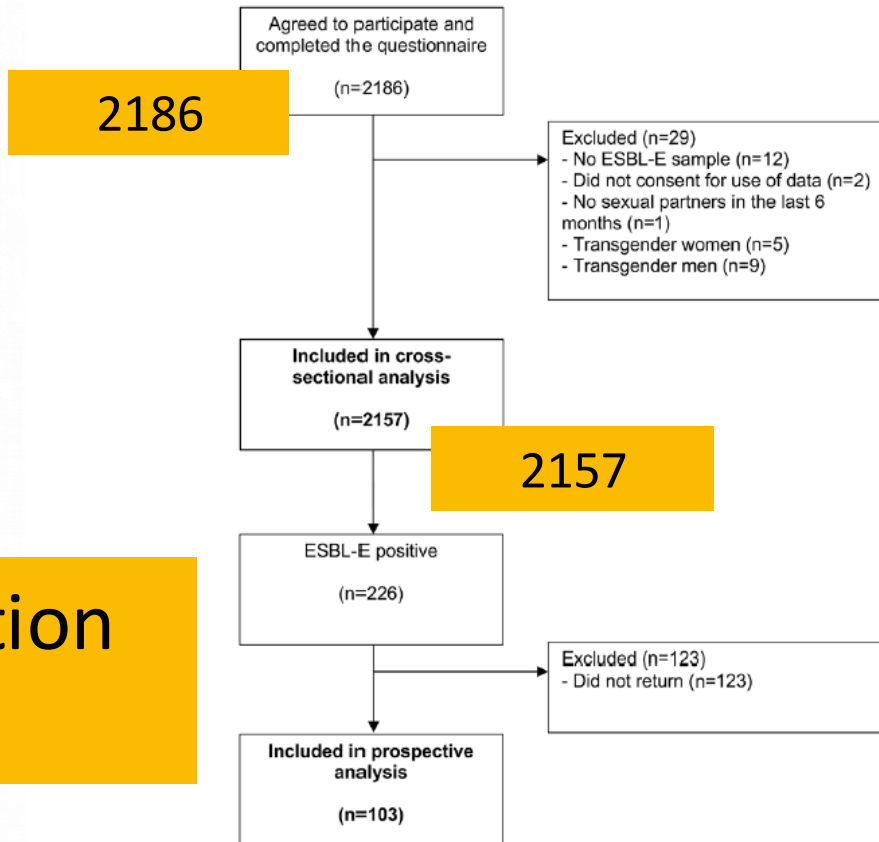
Transmission communautaire Ec BLSE



Transmission sexuelle de Ec BLSE ?

- ❖ Etude BMR-IST
- ❖ Cohorte 2018-2019
- ❖ Monocentrique
- ❖ Population > 18 ans
- ❖ Sexuellement active

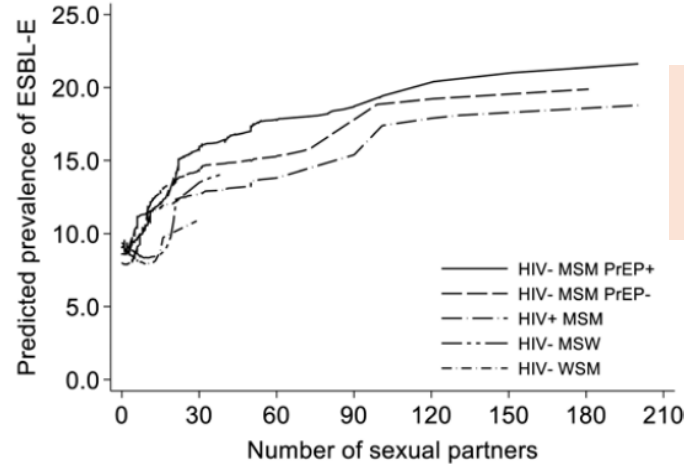
Prévalence colonisation
Ec BLSE = 10 %



BMR-IST : population

	Participants, No. (%) ^a					
Characteristic	251 PrEP MSM	487 MSM	500 HIV MSM	439 MSW	480 WSM	P Value ^b
Demographic characteristics						
Age, median (IQR), y	36 (29–45)	31 (25–40)	46	27 (23–33)	25	<.001
Geographic origin						<.001
Europe	200 (79.7)	395 (81.1)	399 (79.8)	348 (79.3)	393 (82.1)	
North America, DOM, TOM, or Australia	19 (7.6)	45 (9.2)	58 (11.6)	23 (5.2)	33 (6.9)	
Africa or Middle East	23 (9.2)	37 (7.6)	36 (7.2)	64 (14.6)	46 (9.6)	
Asia	9 (3.6)	10 (2.1)	7 (1.4)	4 (0.9)	7 (1.5)	
Born outside France	58 (21.1)	118 (24.2)	115 (23.0)	87 (19.8)	86 (17.9)	.11
Time since arrival in France, median (IQR), y ^c	9 (3–19)	7 (2–18)	16 (7–29)	4 (1–19)	4 (1–15)	<.001
Employment status						<.001
Employed	216 (86.1)	370 (76.0)	433 (86.6)	267 (60.8)	218 (45.4)	
Vegetarian or vegan diet	2 (4.2)	6 (6.5)	6 (4.0)	8 (9.5)	23 (16.2)	.005
Hospitalization in past 12 mo	11 (4.4)	18 (3.7)	41 (8.2)	11 (9.5)	20 (4.2)	.001
Antibiotic use in past 6 mo	37	122 (25.1)	149 (29.8)	10	75 (15.6)	<.001
Type of antibiotic used ^d						<.001
None	157 (62.6)	365 (75.0)	351 (70.2)	393 (89.5)	405 (84.4)	
β-Lactamines	30 (12.0)	59 (12.1)	62 (12.4)	28 (6.4)	47 (9.8)	
Doxycycline	19 (7.6)	21 (4.3)	27 (5.4)	9 (1.9)	7 (1.5)	
Other	23	42 (8.6)	60 (12.0)	6	21 (4.4)	
Antibiotic use in past 3 mo	23	80 (16.4)	97 (19.4)	6	57 (11.9)	<.001
Travel outside France	190 (75.7)	383 (78.6)	335 (67.0)	313 (71.3)	358 (74.6)	.001

BMR-IST : prévalence de colonisation



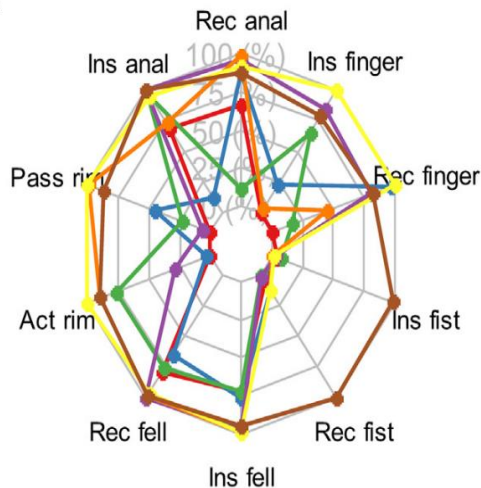
Ajusté ATB
Ajusté Voyage

Sexual Group	Participants No.	ESBLE Positive No. (%)	Univariable Analysis		Model 1 ^a		Model 2 ^b	
			OR (95% CI)	PValue	aOR (95% CI)	PValue	aOR (95% CI)	PValue
HIV-negative MSM on PrEP	251	64 (16.2)	1.64 (1.63–4.30)	<.001	RR = 2,58		1.94 (1.09–3.44)	.02
HIV-negative MSM not on PrEP	487		1.15 (.91–2.30)	.12			1.19 (.72–1.97)	.51
HIV-positive MSM	500	61 (12.2)	1.88 (1.21–2.93)	.005	1.96 (1.17–3.28)	.01	1.75 (1.03–2.97)	.04
HIV-negative MSW	439	26 (6.0)	1.51 (.94–2.42)	.09	1.50 (.93–2.42)	.09	1.48 (.92–2.38)	.11
HIV-negative WSM	480		Reference	...	Reference	...	Reference	...

Association Between Sexual Groups and Extended-Spectrum β -Lactamase-Producing Enterobacteriales Carriage

Prévalence de colonisation uniforme ?

A



HSH

Prévalence de colonisation à Ec BLSE

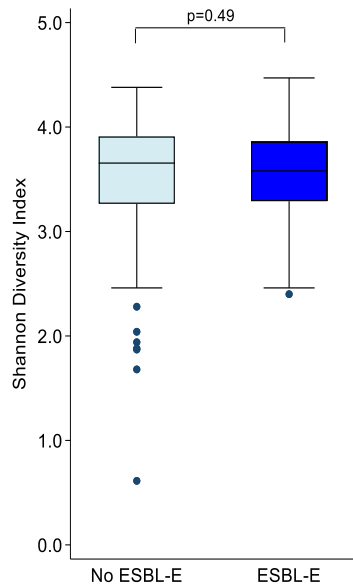
Latent class ^a	<i>n</i>	Mean proportion of behaviors	ESBL-E prevalence
MSM (N = 1211)			
Class 1	259	29.9%	7 %
Class 2	102	42.3%	12.1%
Class 3	124	44.8%	15.3%
Class 4	100	60.0%	16.0%
Class 5	198	62.2%	10.6%
Class 6	358	79.7%	24 %
Class 7	70	91.7%	

PrEP/chemsex

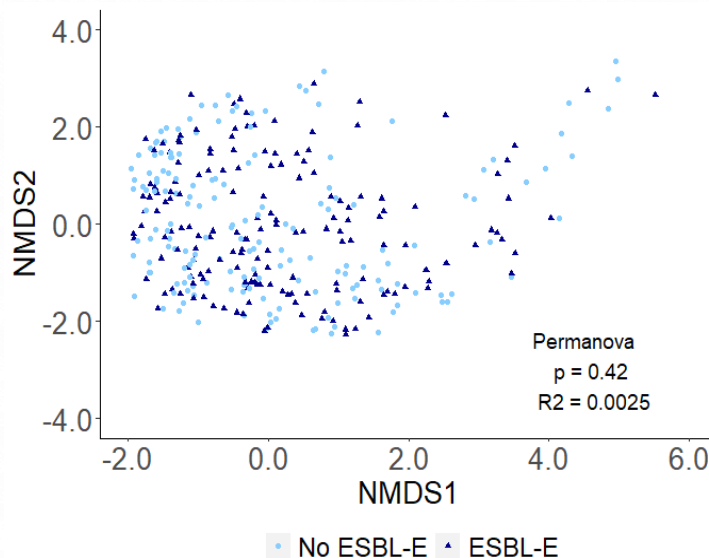
Stabilité de la colonisation à Ec BLSE ?

Microbiote chez 176 patients BLSE + vs BLSE –
16S rRNA gene amplicon

α diversité
Shannon Diversity Index



β diversité
NMDS analysis



Composition, α et β
diversités identiques
chez porteurs et non
porteurs de Ec BLSE

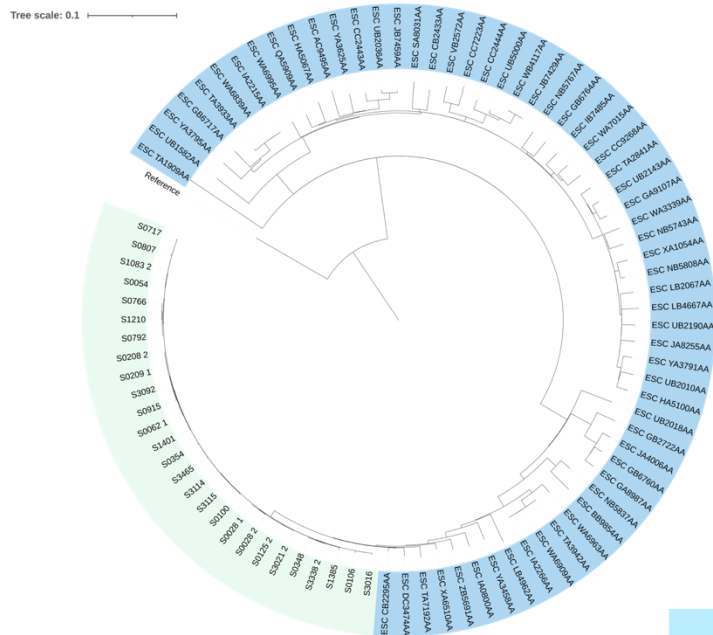
**Stabilité indépendante
du microbiote**

BMR-IST : clones et enzymes de Ec BLSE

Variable	251 PrEP MSM	487 MSM	500 HIV MSM	439 MSW	480 WSM	P Value ^b
ST	(n = 46)	(n = 49)	(n = 72)	(n = 47)	(n = 37)	.001
ST10	3 (5.6)	1 (2.0)	8 (11.1)	1 (2.1)	2 (5.4)	
ST14	11 (23.9)	9 (18.4)	7 (9.7)	0 (0)	0 (0)	
ST131	8 (17.4)	14 (28.6)	14 (19.4)	12 (25.5)	13 (35.1)	
ST1193	6 (13.0)	5 (10.2)	9 (12.5)	1 (2.1)	2 (5.4)	
Other ST	18 (39.1)	20 (40.8)	34 (47.2)	33 (70.2)	20 (54.1)	
ESBL gene	(n = 46)	(n = 49)	(n = 72)	(n = 47)	(n = 37)	.004
CTX-M-15	22 (47.8)	27 (55.1)	45 (62.5)	29 (61.7)	21 (56.8)	
CTX-M-27	9 (19.6)	7 (14.3)	12 (16.7)	8 (17.0)	7 (18.9)	
SHV-12	11 (23.9)	10 (20.4)	8 (11.1)	0 (0)	0 (0)	
Other	4 (8.7)	5 (10.2)	7 (9.7)	10 (21.3)	9 (24.3)	

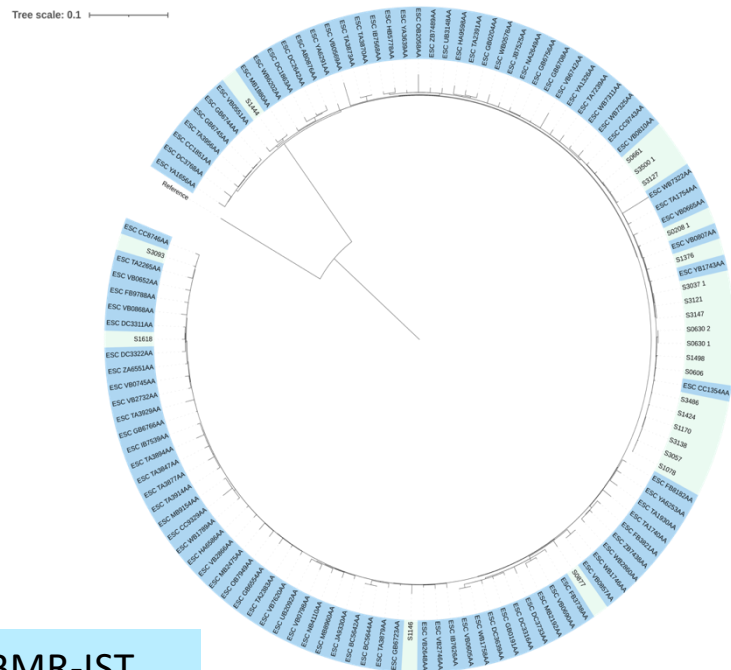
Ec BLSE complex clonal 14

ST14 *E. coli* core-genome phylogeny



Vert clair : BMR-IST
Bleu : Enterobase

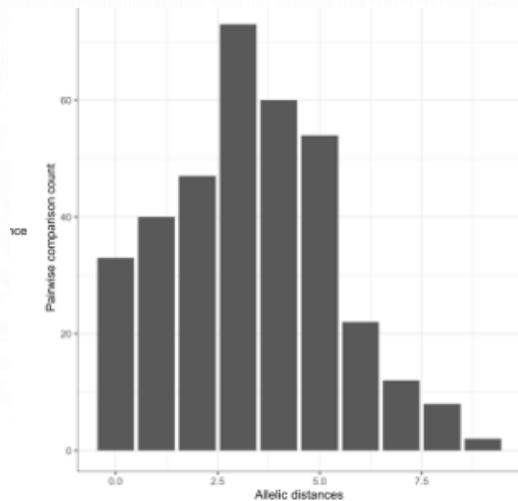
ST1193 *E. coli* core-genome phylogeny



Ec BLSE complex clonal 14

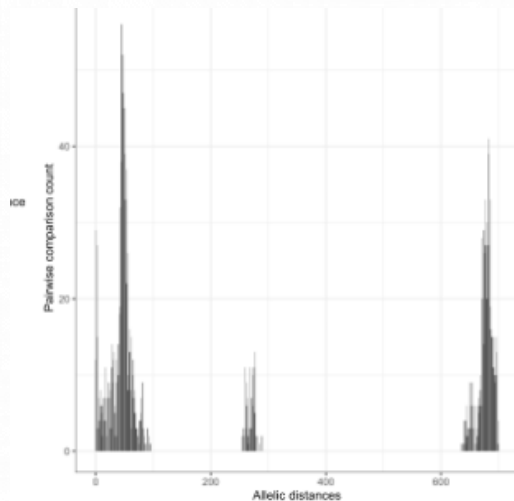
ST14

9 allelic variant differences
(median=3, [IQR=2-5])



ST131

0 to 700 allelic variant differences
(median=61, [IQR=45-675])



❖ Ec BLSE CC14 a émergé et disséminé chez HSH

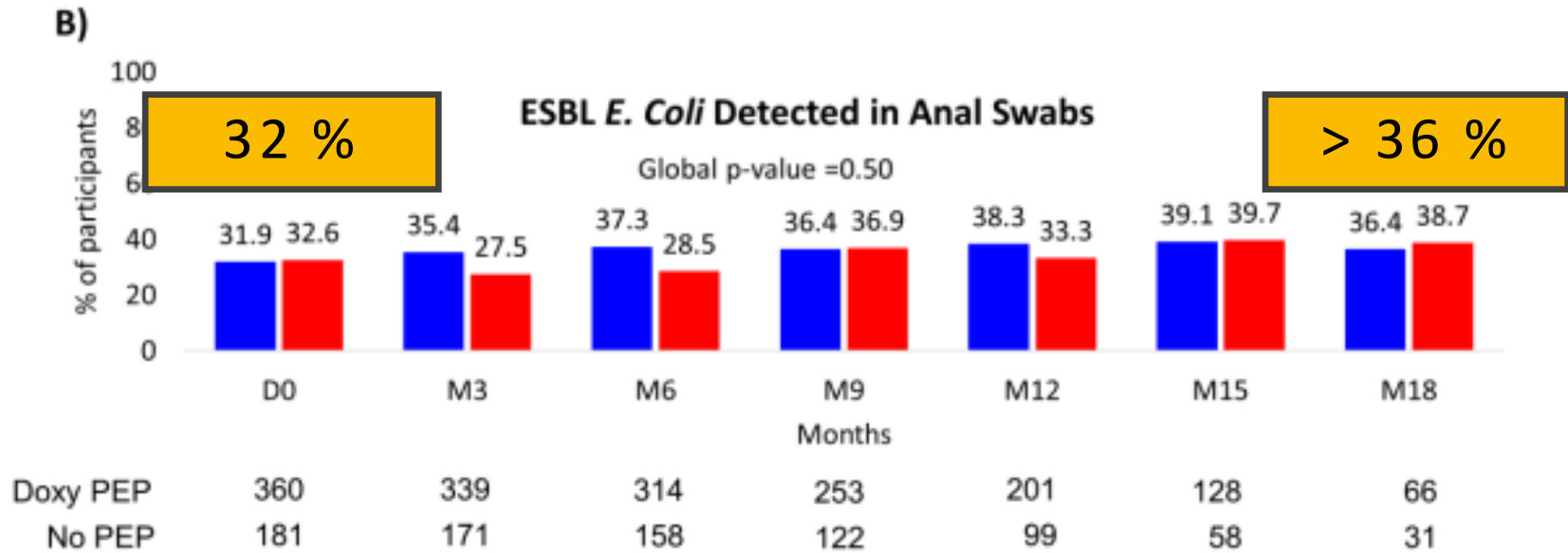
❖ Association avec comportements sexuels (fisting)

Transmission sexuelle de Ec BLSE = IST

- Sélection et dissémination de clones multirésistants à succès (CC14) : prises itératives d'antibiotiques chez patients IST +
- Associations à des pratiques sexuelles
- Clones à succès implantés indépendamment du microbiote

- Prévention ?
- Persistance ?
- Infection ?

Colonisation à Ec BLSE... plus récemment



HSH sous PrEP

Transmission sexuelle Ec BLSE (mais pas que)

Outbreak of sexually transmitted, extensively drug-resistant *Shigella sonnei* in the UK, 2021–22: a descriptive epidemiological study



Hannah Charles, Mateo Prochazka, Katie Thorley, Adam Crewdson, David R Greig, Claire Jenkins, Anais Painset, Helen Fifer, I Paul Cabrey, Robert Smith, Daniel Richardson, Laura Waters, Katy Sinka, Gauri Godbole, on behalf of the Outbreak Control Team

Clinical Infectious Diseases

MAJOR ARTICLE



International Spread of Multidrug-Resistant *Campylobacter coli* in Men Who Have Sex With Men in Washington State and Québec, 2015–2018

Alexander L. Greninger,^{1,2} Amin Addetia,^{1,2} Kimberly Starr,¹ Robert J. Cybulski,² Mary K. Stewart,¹ Stephen J. Salipante,¹ Andrew B. Bryan,¹ Brad Cookson,¹ Christiane Gaudreau,^{3,4} Sadjia Bekal,^{4,5} and Ferric C. Fang¹

Review

> Clin Microbiol Rev. 2025 Dec 11;38(4):e0007523. doi: 10.1128/cmr.00075-23.

Epub 2025 Sep 17.

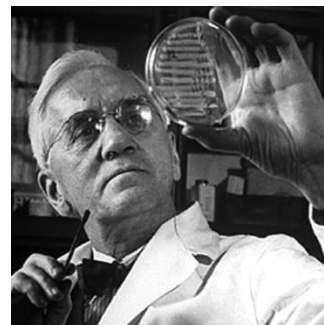
Sexually transmitted enteric infections in men who have sex with men

Kira L Newman [#] 1, Gretchen Snoeyenbos Newman [#] 2, Chase A Cannon ³, Ferric C Fang ⁴



Conclusion, merci et bonne soirée à toutes et à tous

« Les personnes irréfléchies qui abuseront de la pénicilline seront moralement responsables de la mort des patients qui succomberont aux germes résistants, j'espère que ce fléau pourra être évité »



Alexander Fleming 1945
Discours de remise du Prix Nobel