

EVOLUTION DES COLONISATIONS BRONCHIQUES BACTÉRIENNES CHEZ 198 PATIENTS ADULTES APRÈS 1 AN DE TRAITEMENT PAR ETI

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CRCM Hôpital Lyon Sud

Journées Scientifiques de la mucoviscidose mars 2024

CONTEXTE

CFF patient registry : 2021

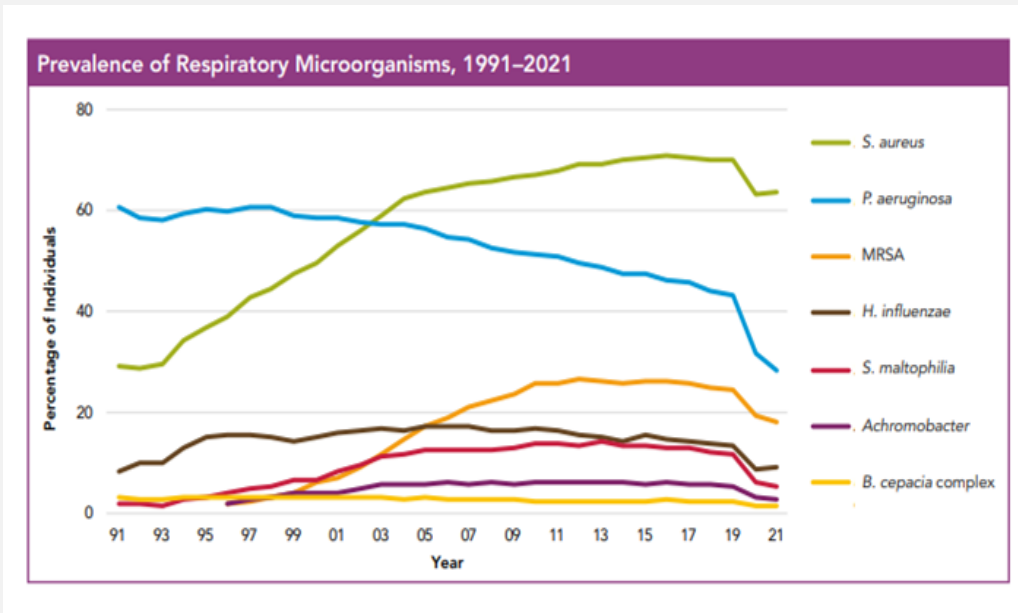


Figure 1: Prevalence of respiratory microorganisms from 1991 to 2021, CFF patient registry

Registre Français : 2021

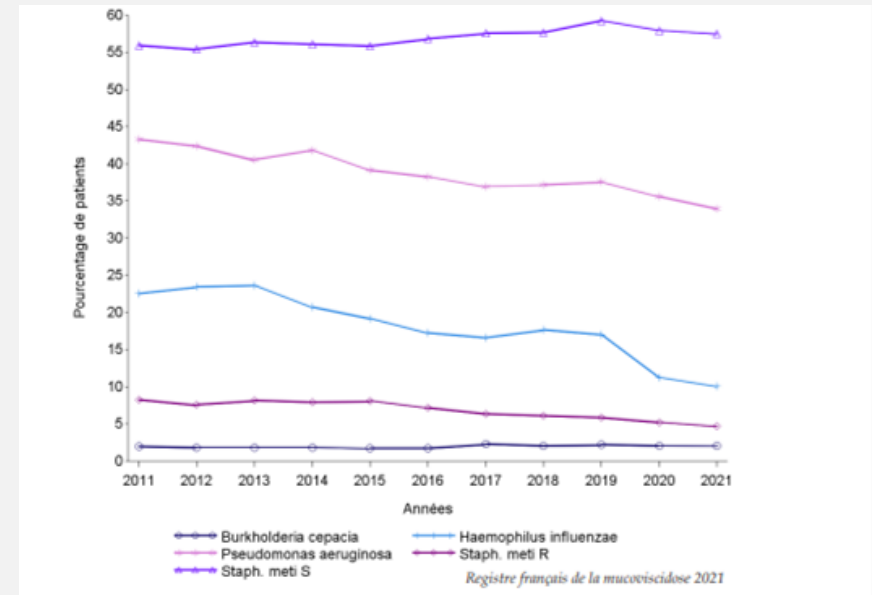


Figure 2: Prevalence of respiratory micro-organisms from 2011 to 2021, French CF patient registry

OBJECTIFS

=> Décrire l'impact de l'ETI sur la colonisation bronchique

1. Le traitement par ETI modifie la prévalence des pathogènes bronchiques habituels de la mucoviscidose et la densité bactérienne bronchique globale ?
2. Comment le traitement par ETI impacte la colonisation bronchique par *Pseudomonas aeruginosa* ?
3. Est-ce qu'on identifie une corrélation entre l'amélioration clinique sous ETI et la diminution des pathogènes bronchiques (type et densité) ?

METHODES

Etude rétrospective observationnelle

CHU de Lyon

Critères d'inclusion : tous les patients adultes traités par ETI (2019-2021)

ECBC : spontanés, à l'occasion de visites programmées de routine et/ou exacerbations, analyse microbiologique centralisée à l'institut des agents infectieux HCL

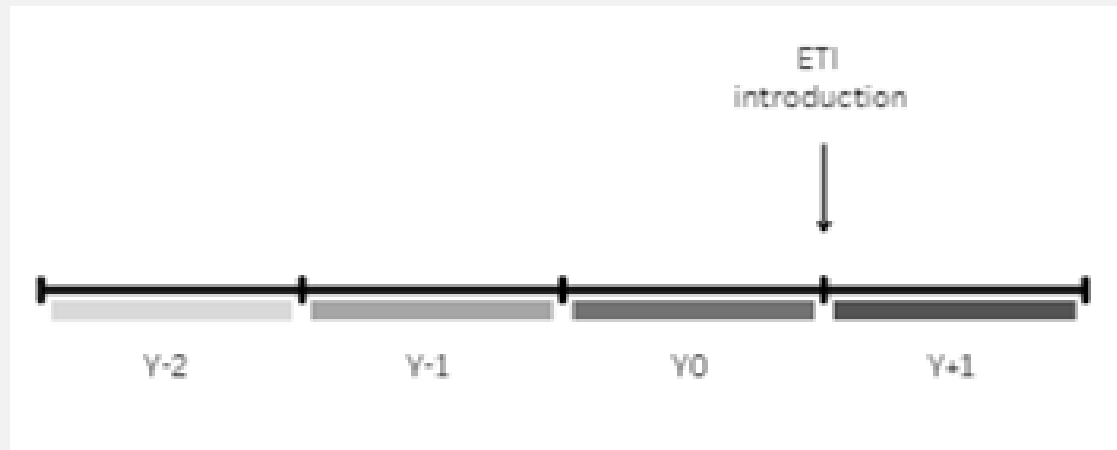


Figure 3 : schéma de l'étude

Définition statut de colonisation :

- Persistant si > 50% par an
- Intermittant si < 50% par an
- "Dé"colonisé si aucun dans l'année

Symptomatique ou non

POPULATION

198 patients inclus

2 patients n'ont pas reçu 1 an de traitement complet

Tous les patients étaient inclus dans les analyses

	At ETI initiation N =198
Males	120 (60.6%)
Age - median (IQR)	28.8 (11.3)
BMI - median (IQR)	21.7 (3.6)
<i>Mutation</i>	
Homozygous DF508	122 (62%)
Heterozygous G542X	9 (4.5%)
Heterozygous N1303K	8 (4.4%)
<i>Modulator anteriority</i>	
Any	107 (54%)
Lumacaftor/Ivacaftor	105 (53%)
Ivacaftor/Tezacaftor	2 (0.01%)

Table 1: Caractéristiques des patients à l'initiation de l'ETI

CLINICAL OUTCOMES

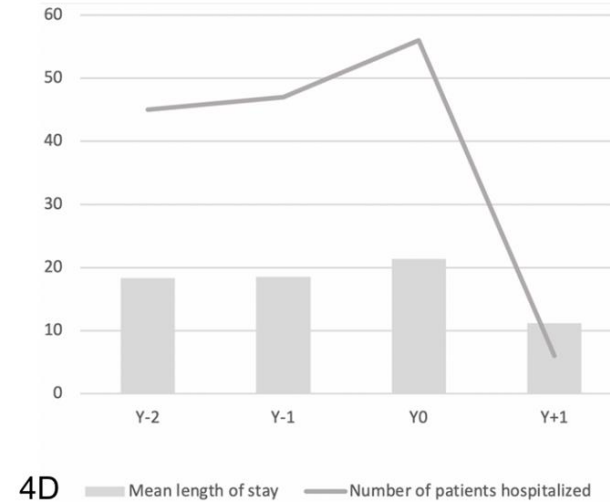
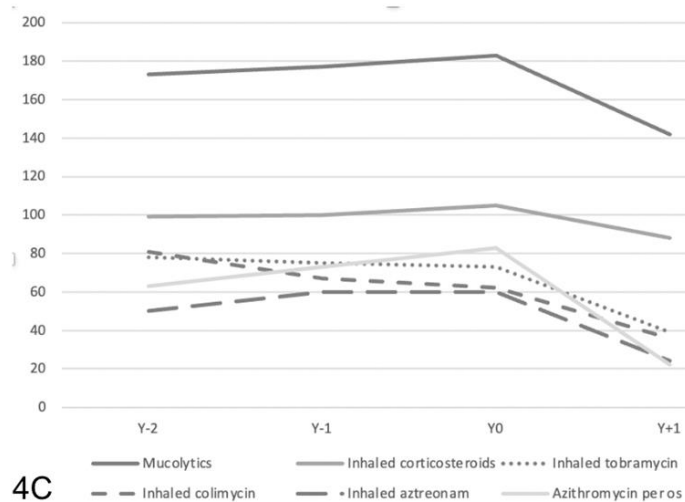
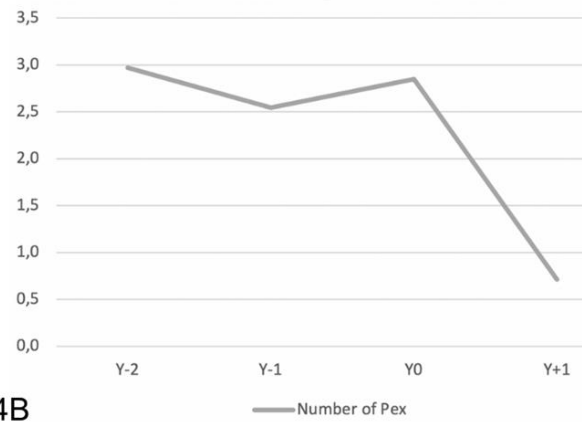
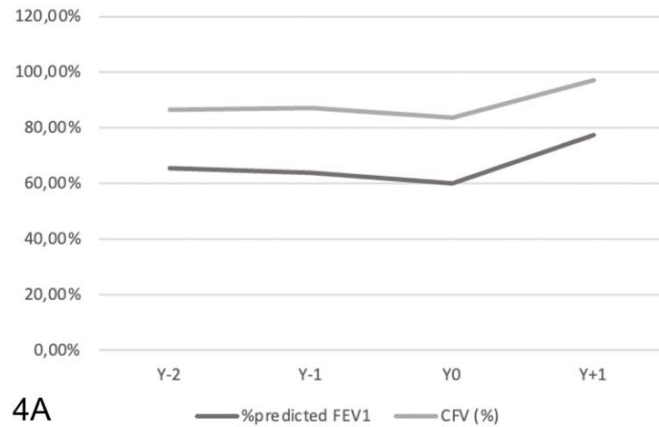


Figure 4 : Evolution des paramètres cliniques

4A. Evolution of lung function before and after ETI, % predicted FEV1 and CFV.

4B. Evolution of pulmonary exacerbations

4C. Evolution of treatment load, focusing on pulmonary treatments: mucolytics, inhaled corticosteroids, inhaled antibiotics, oral antibiotics

4D. Evolution of prevalence and length of stay of hospitalizations for respiratory reasons

ECHANTILLONAGE DES ECBC

	Before ETI			After ETI
	2 years before N=195	1 year before N=196	Year of Introduction N=198	1 year after N=197
Number of sputum cultures – <i>mean (+/- SD)</i>	4.4 (+/- 2.0)	3.9 (+/- 1.7)	4.5 (+/- 1.8)	2.8 (+/- 1.7)

Table 2: Nombre d'ECBC par an

Pas d'ECBC
pour 17
patients non
sécrétants

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DENSITE MICROBIENNE GLOBALE SOUS ETI ?

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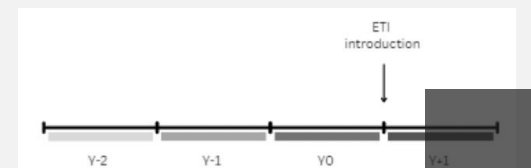
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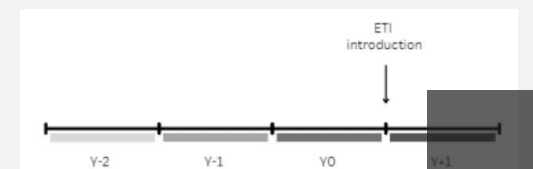
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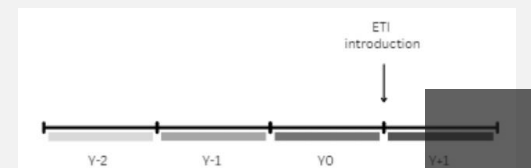
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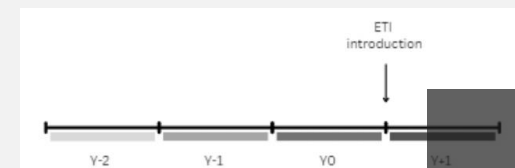
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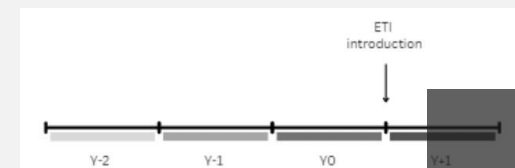
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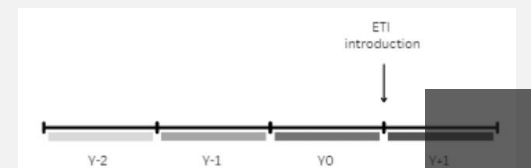
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<i>Stenotrophomonas maltophilia</i>	40 (21) [15 - 27]	29 (15) [10 - 21]	37 (19) [14 - 25]	13 (7.3) [4.1 - 12]	<0.001
<i>Achromobacter</i> spp	29 (15) [10 - 21]	33 (17) [12 - 23]	32 (16) [11 - 22]	20 (11) [7.2 - 17]	0.007
<i>Bulkholderia cepacia</i> complex species	11 (5.7) [3.0 - 10]	14 (7.1) [4.1 - 12]	13 (6.6) [3.7 - 11]	9 (5.0) [2.5 - 9.6]	0.13
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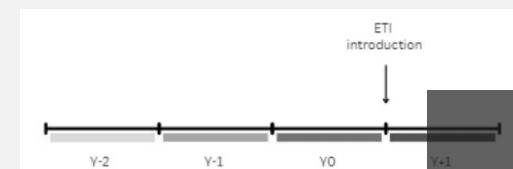
¹n (prevalence in %) [CI² of prevalence according to the Wilson method]

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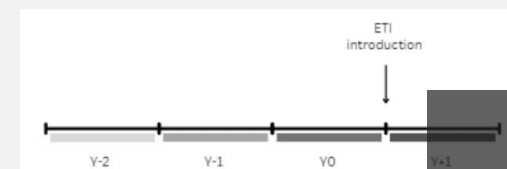
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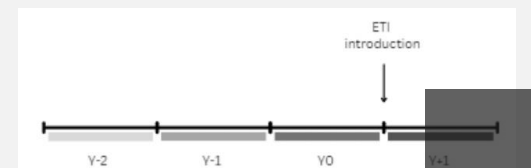
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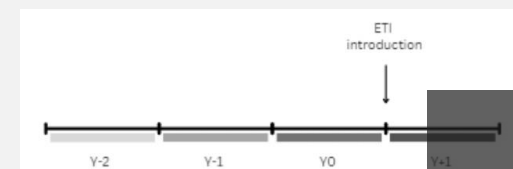
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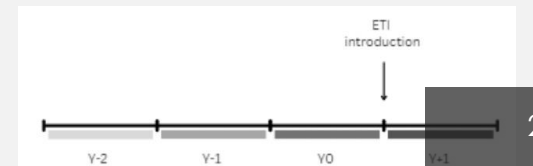
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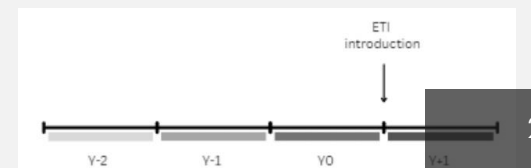
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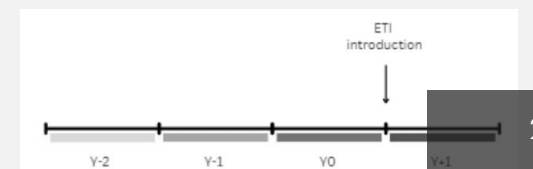
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1 an après ETI : 2 *M. Avium* et 1 *M. intracellulare*
Aucun des *M. abscessus* et *M. chimerare* de Y0 retrouvé



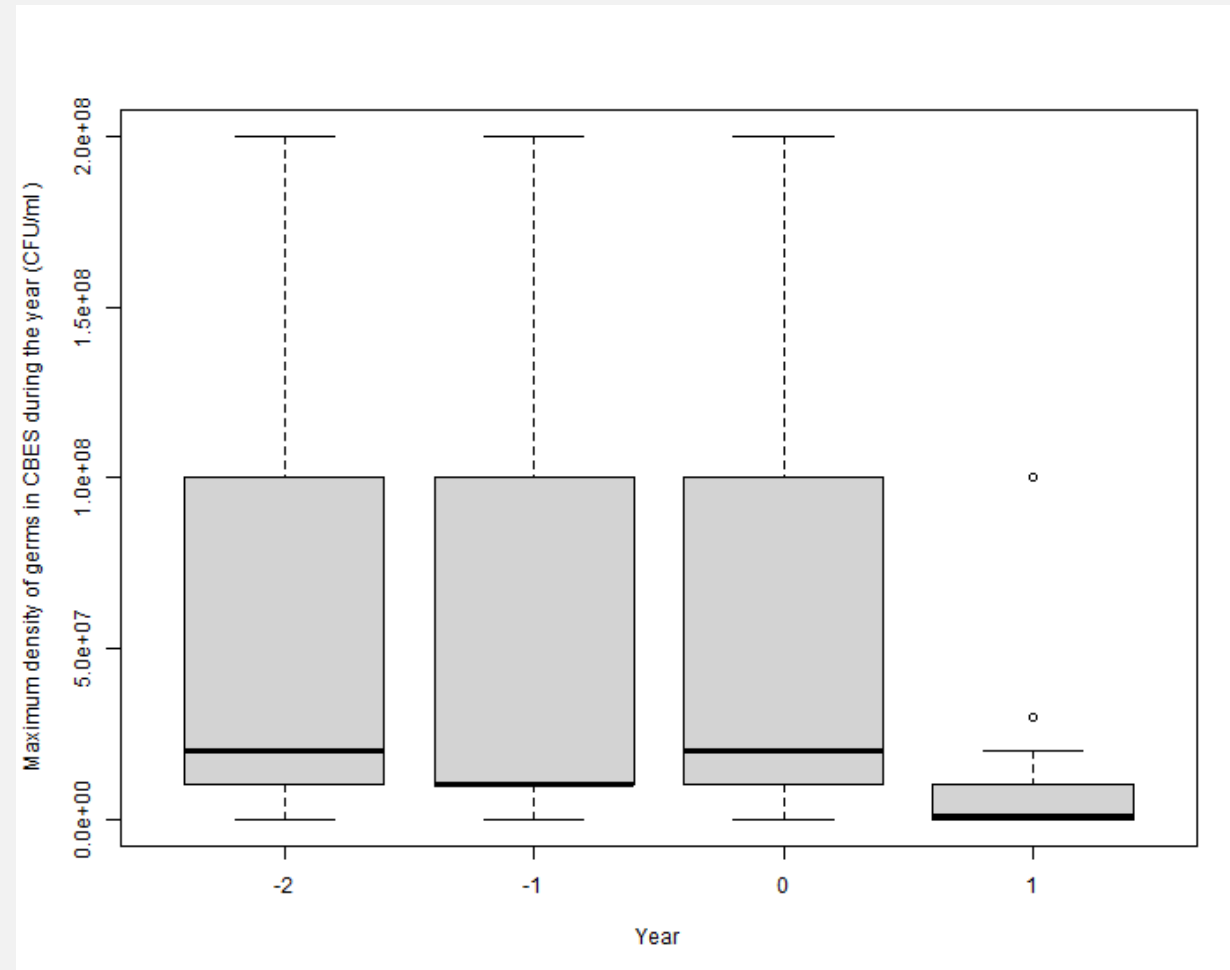


Figure 4 : Evolution de la densité globale des pathogènes dans les ECBC



2. *PSEUDOMONAS AERUGINOSA* ?

Définition statut de colonisation :

- Persistant si > 50% par an
- Intermittant si < 50% par an
- "Dé"colonisé si aucun dans l'année
- Min 2 ECBC par an

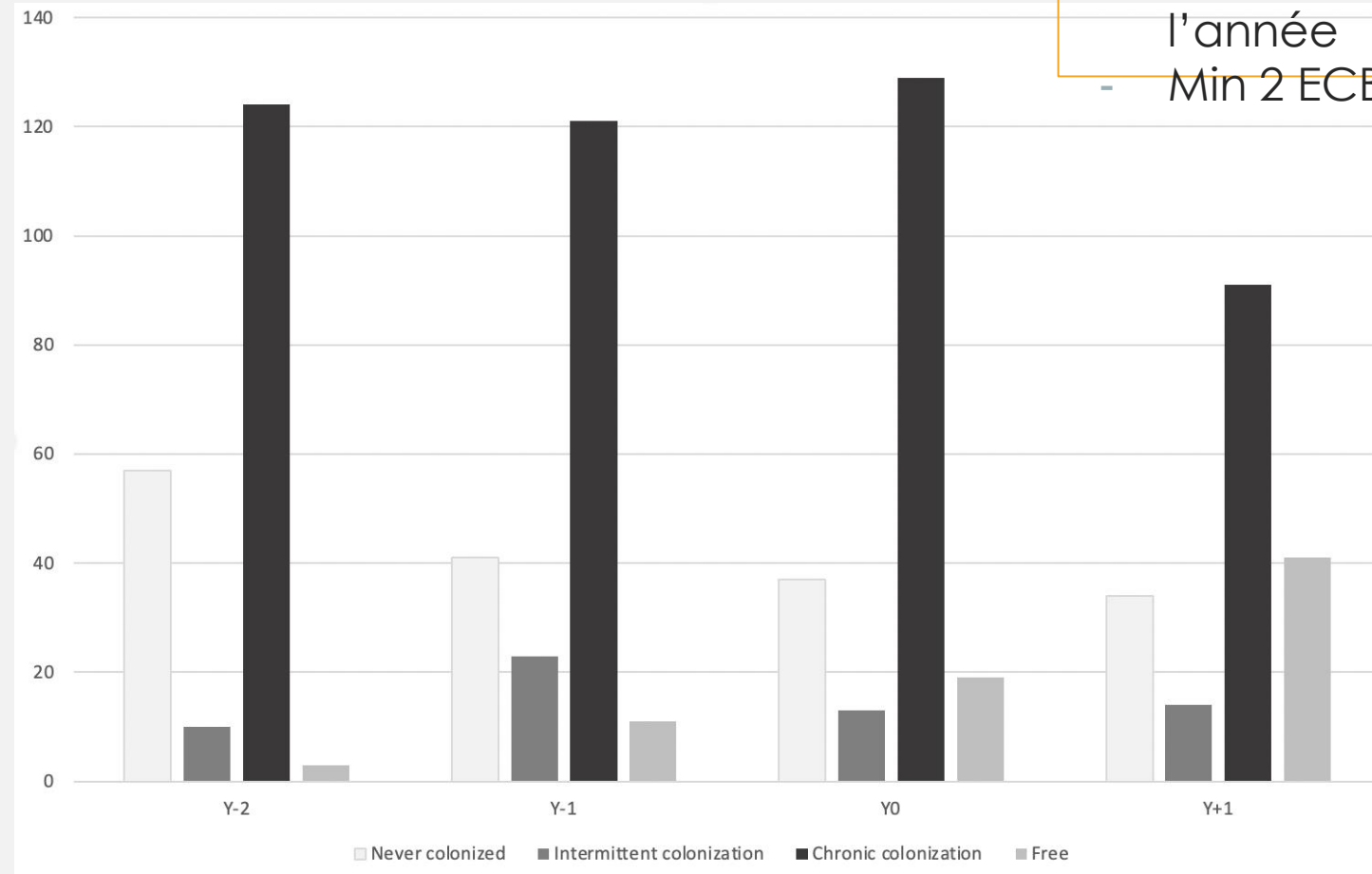


Figure 5 : Evolution du statut de la colonisation à *Pseudomonas*



Aucune nouvelle colonisation sous ETI

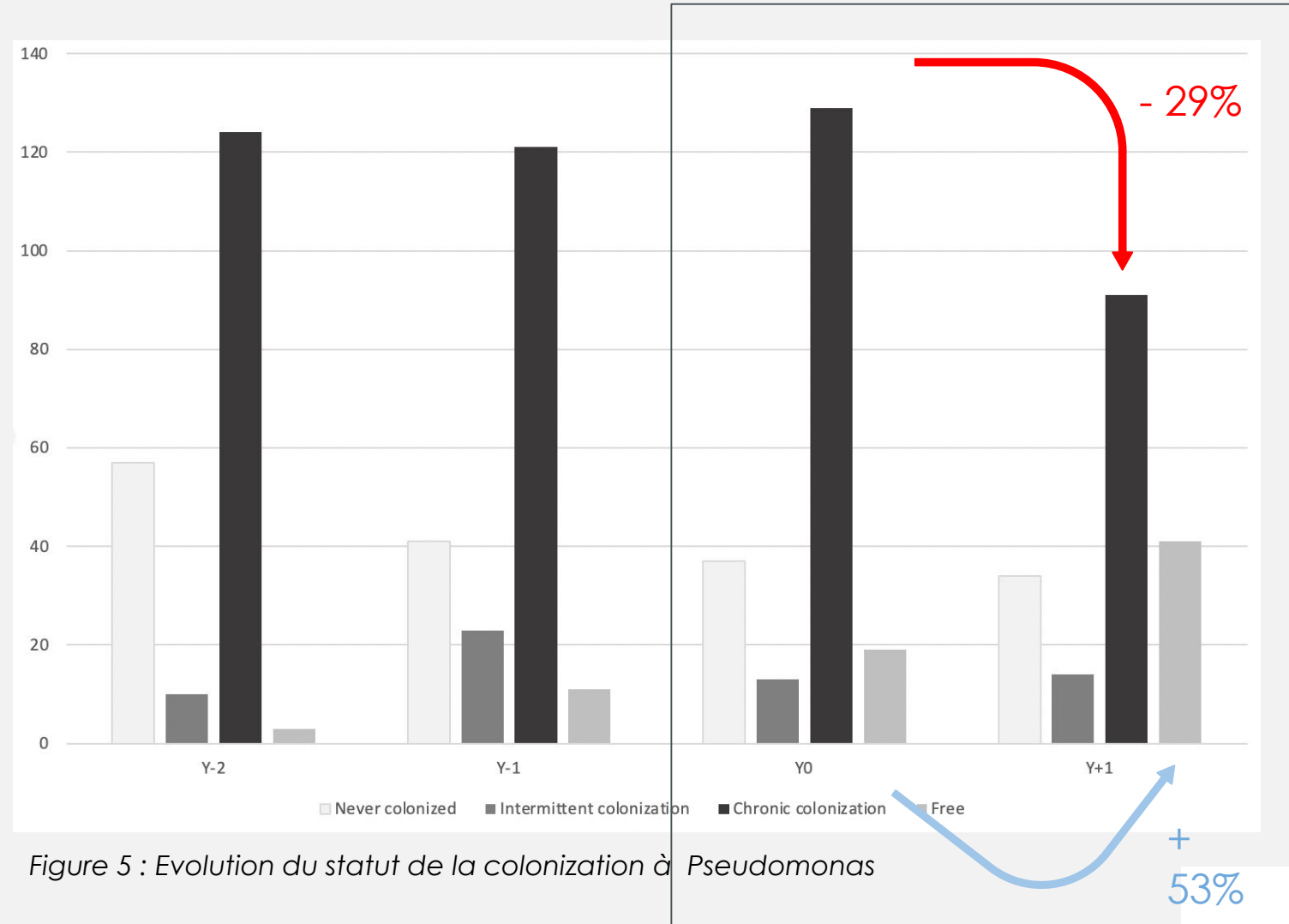
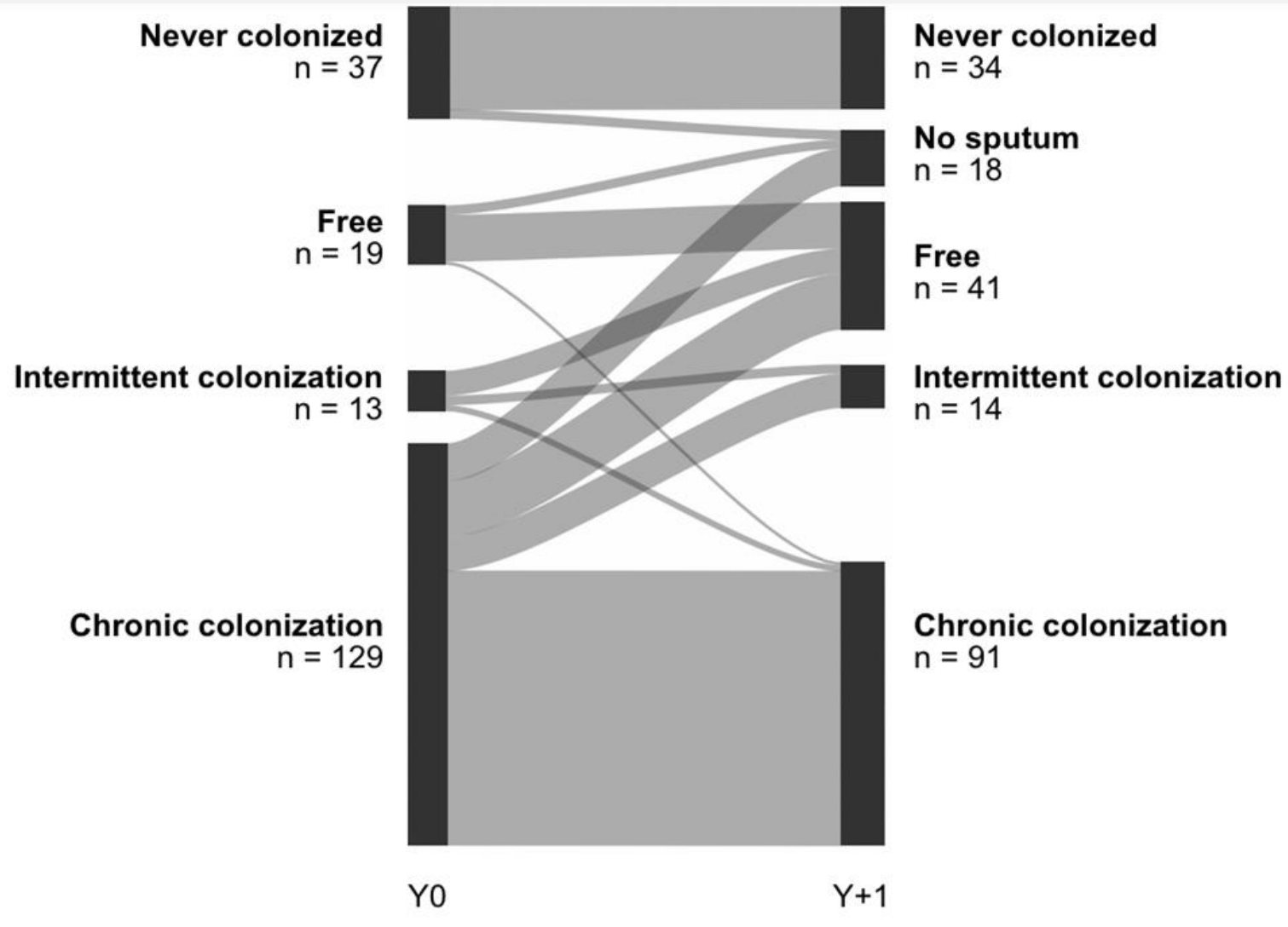
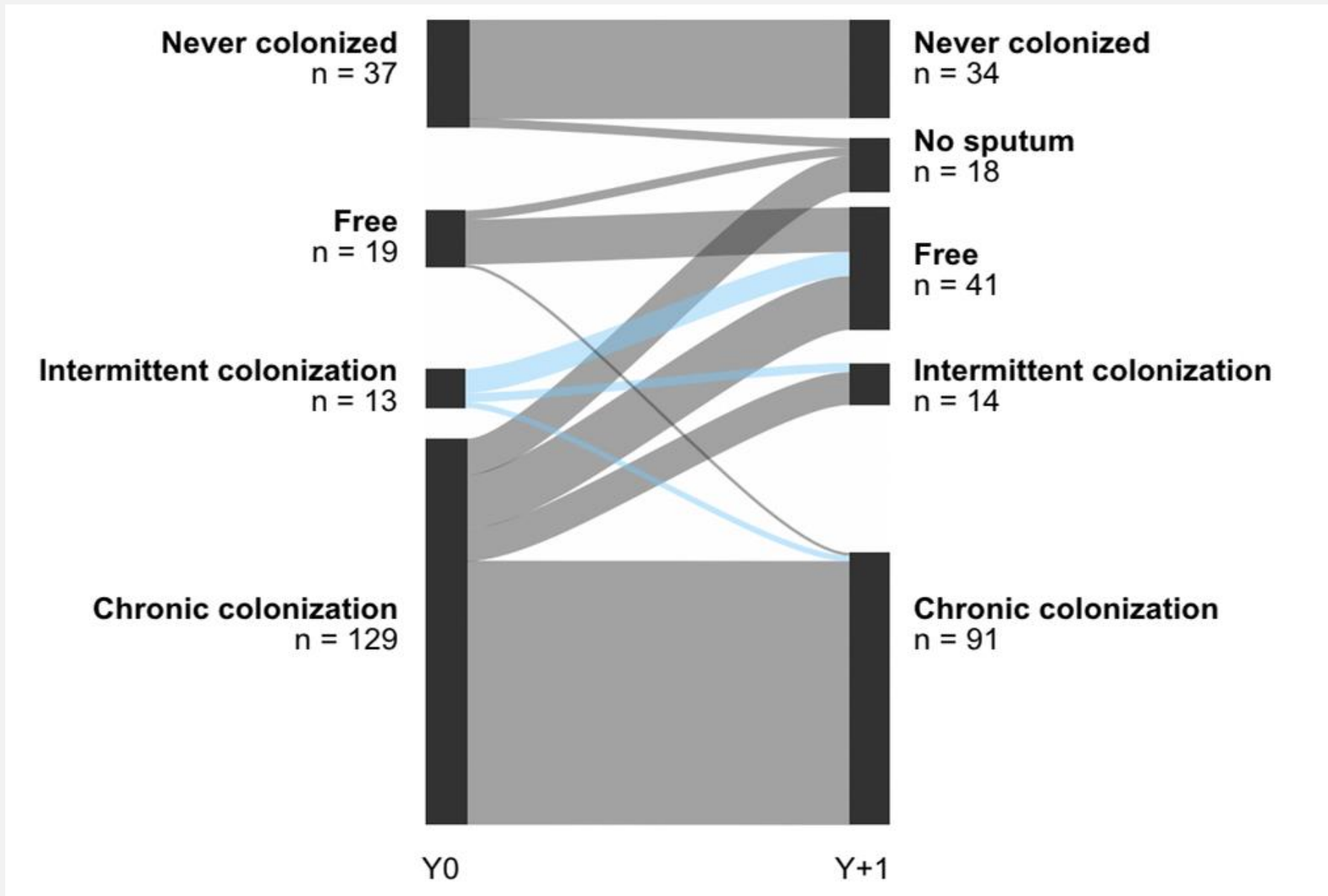
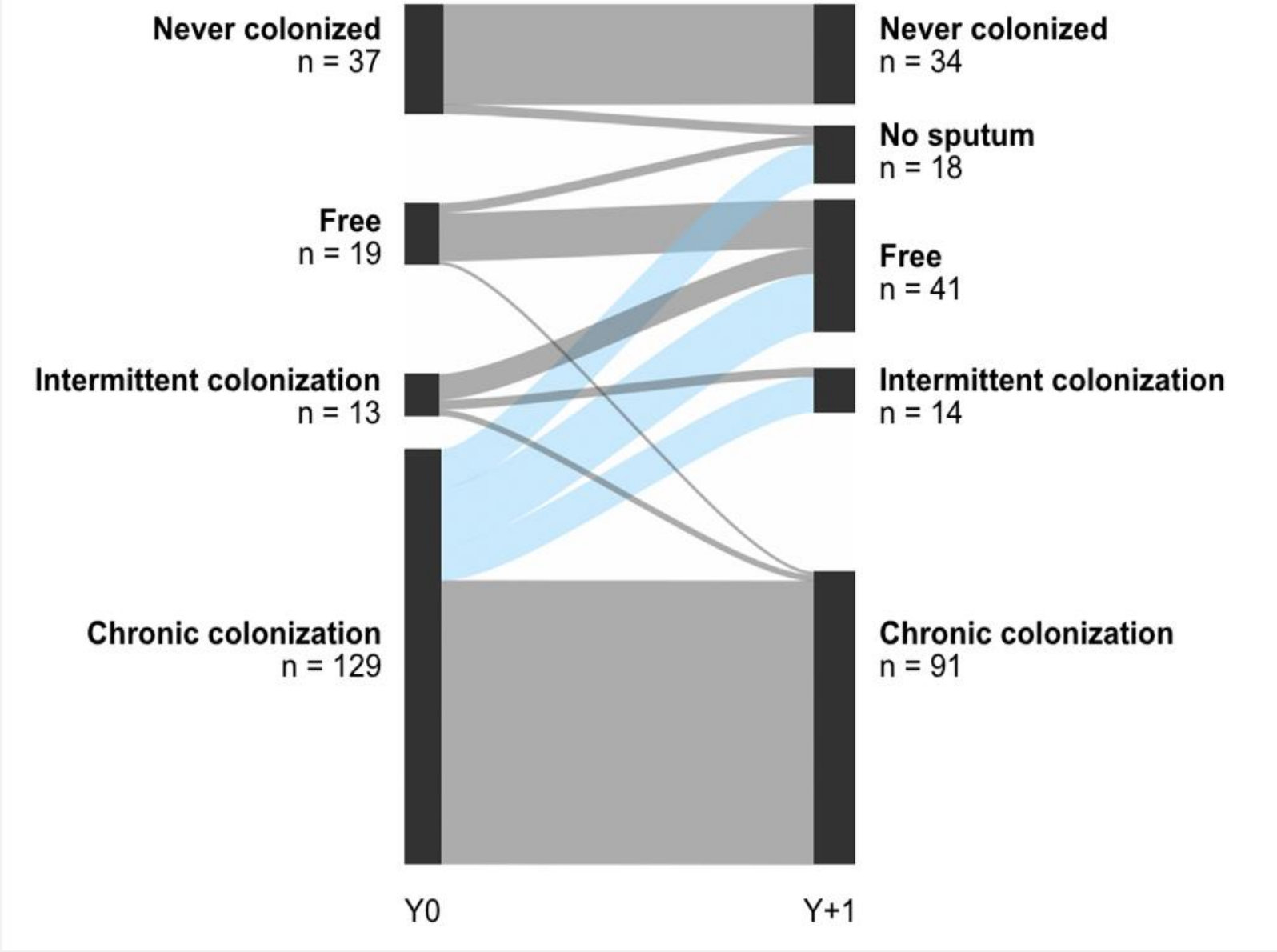


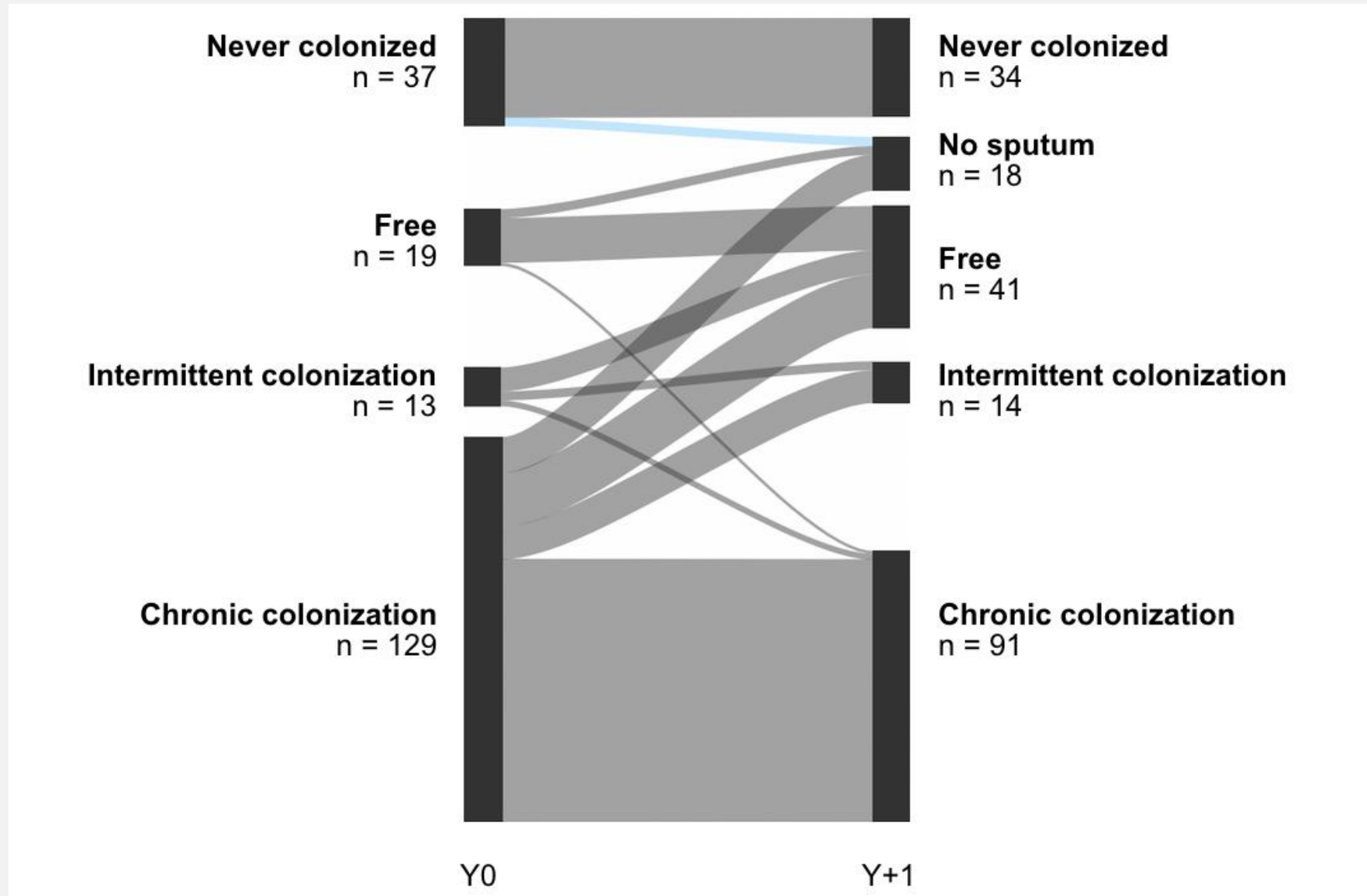
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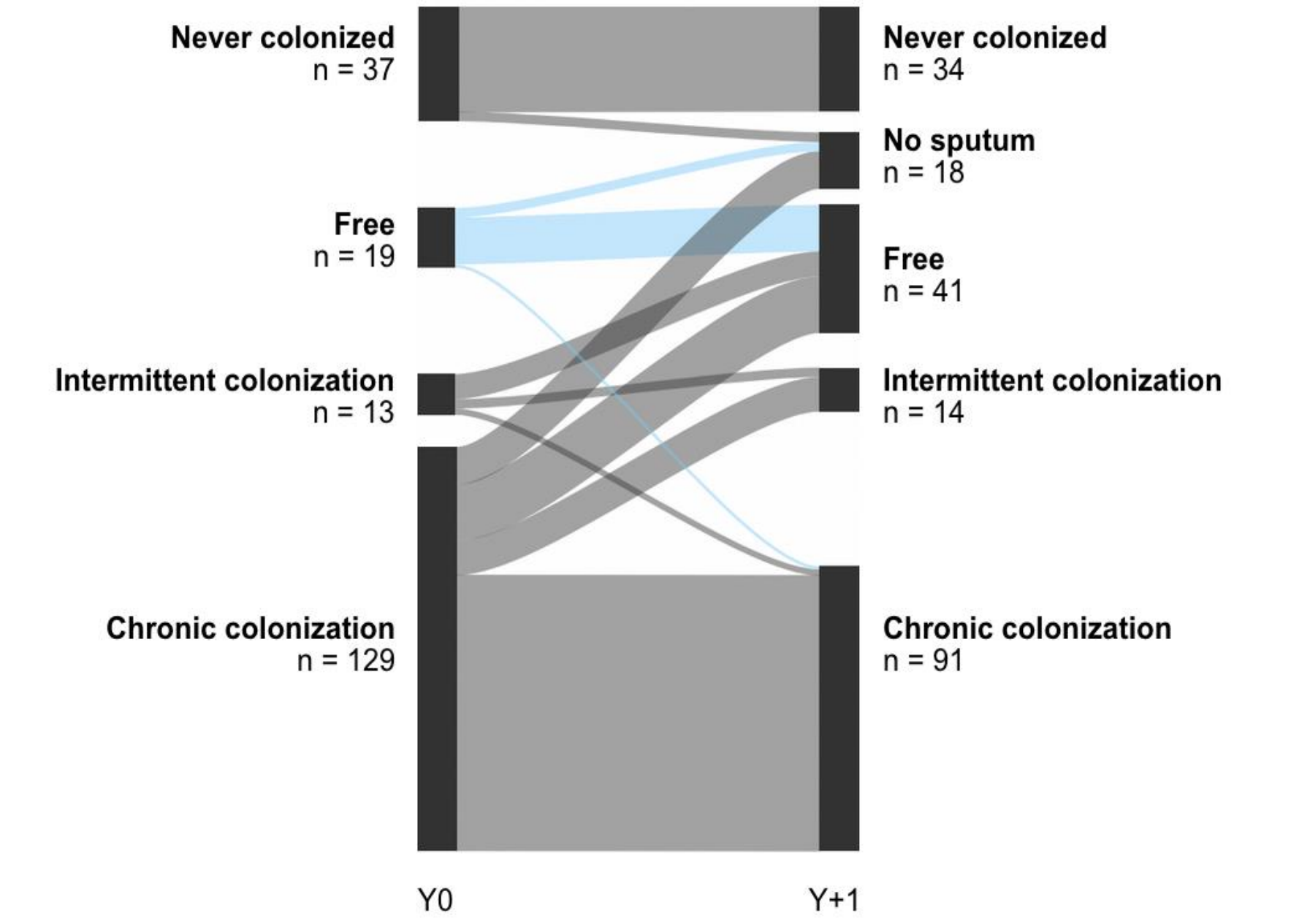












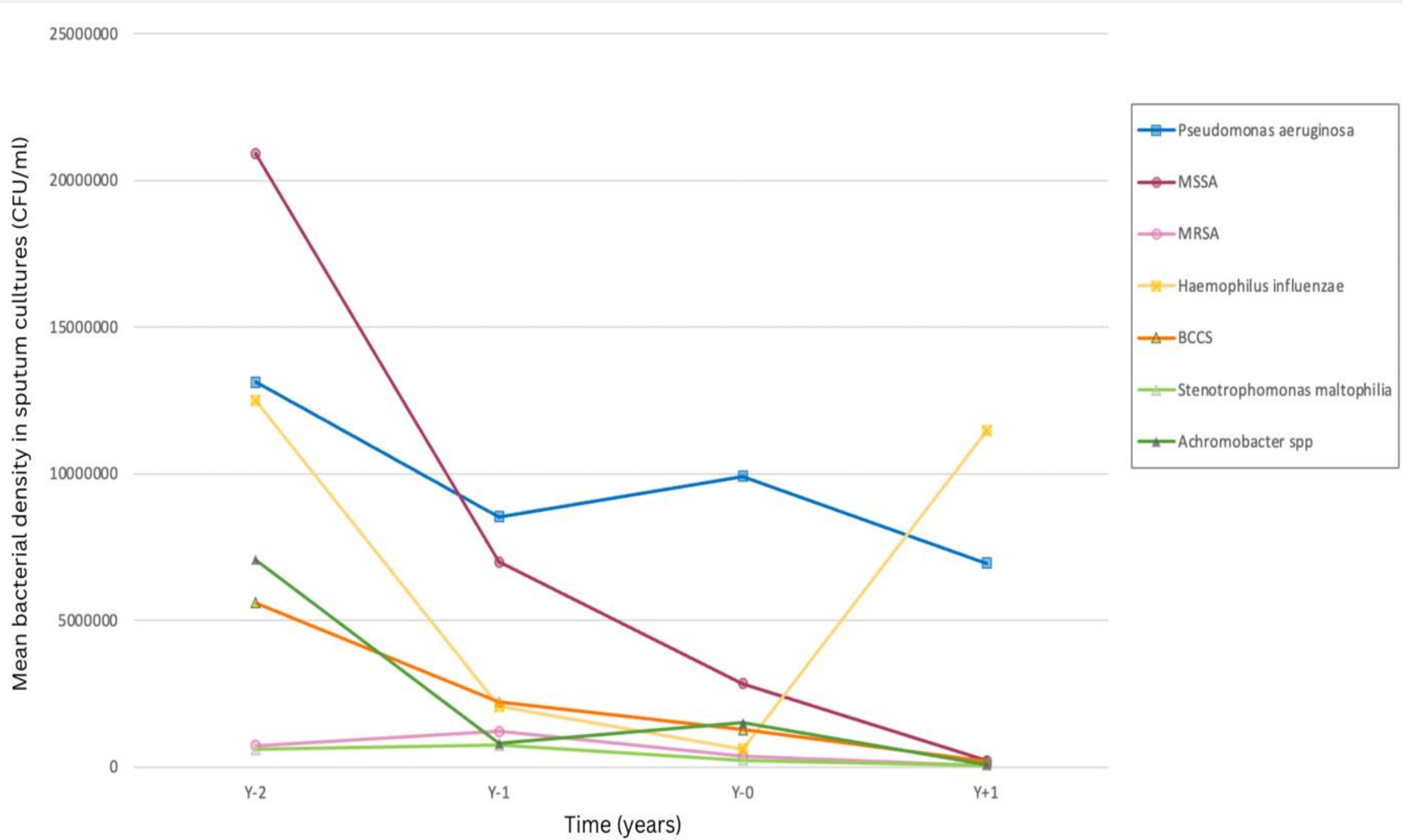
3. CORRELATION ENTRE AMELIORATION CLINIQUE ET DIMINUTION COLONISATION BRONCHIQUE ?

	Y-2 N = 194	Y-1 N = 196	Y0 N = 198	Y+1 N = 179	p-value ¹
Prevalence of colonisation with at least one bacteria of interest - % (n)					
Age range (years)					
18-23	98 (49)	96 (48)	96 (50)	81 (39)	<i>p=0.03</i>
23-28	100 (46)	100 (46)	100 (46)	87 (34)	
28-34	100 (51)	100 (51)	100 (51)	100 (44)	
34-60	100 (45)	100 (47)	98 (46)	91 (42)	
ppFEV1 at Y0 (%)					
<30%	100 (11)	100 (12)	100 (12)	100 (12)	<i>p=0.06</i>
30-50%	100 (63)	100 (63)	98 (62)	97 (57)	
50-70%	100 (53)	100 (53)	98 (54)	84 (41)	
≥ 70%	98 (62)	97 (62)	98 (63)	86 (48)	
Change in ppFEV1 with ETI (%)					
0-15%	100 (63)	100 (64)	98 (65)	88 (51)	<i>p=0.88</i>
15-20%	100 (65)	98 (65)	98 (65)	92 (56)	
20-35%	98 (65)	98 (65)	98 (65)	92 (54)	

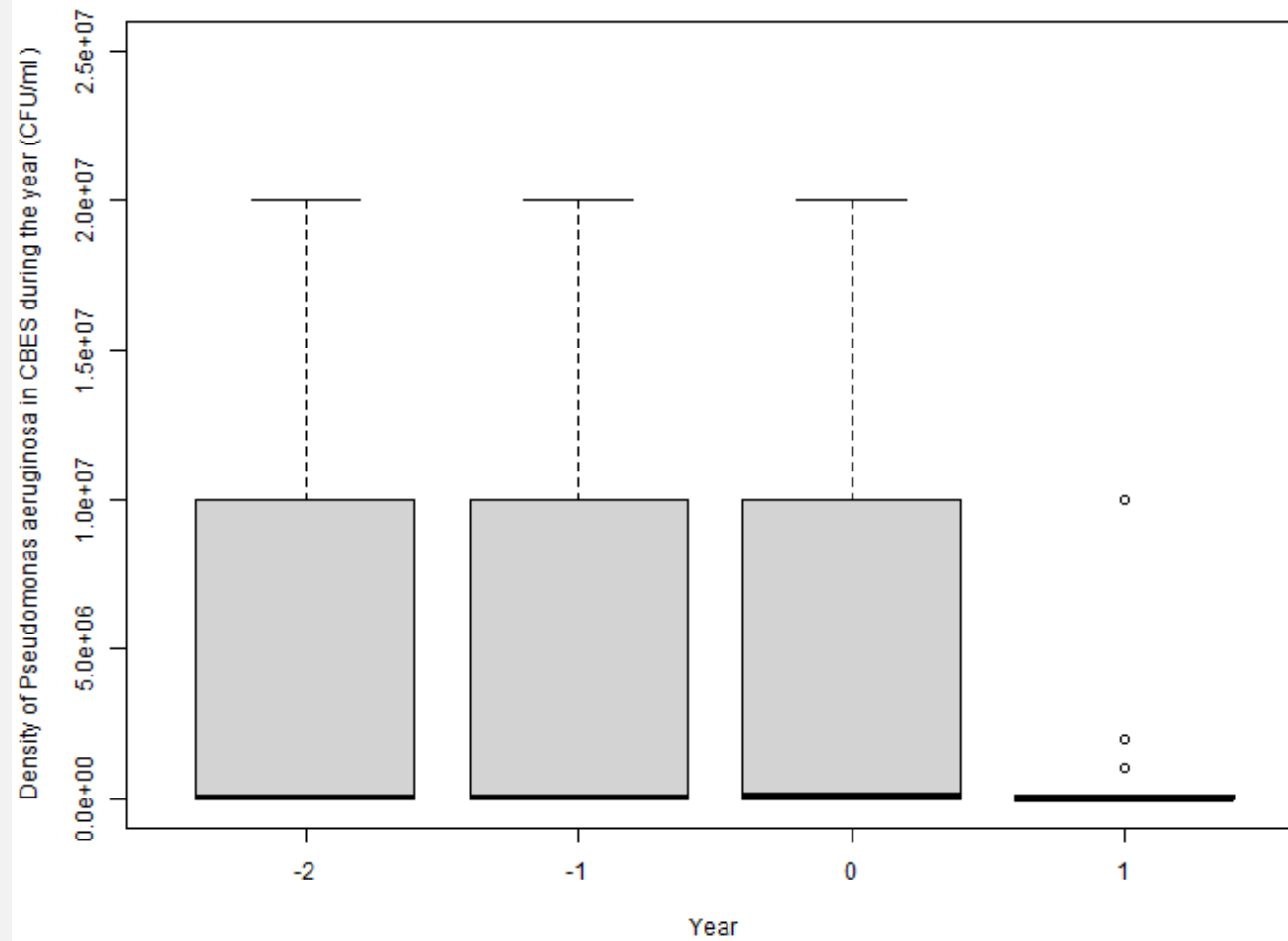
CONCLUSION

- Diminution de la densité bactérienne globale et de la prévalence de la plupart des pathogènes CF (PA, SM, MRSA, MSSA, Achromobacter, NTM)
- Diminution de la colonisation chronique à *Pseudomonas aeruginosa*
- Pas de corrélation entre la clairance bactérienne et la fonction respiratoire

- Mécanismes ?
- Stratégie surveillance ECBC : qualité et quantité ECBC ? Nouvelles techniques ?
- Traitements respiratoires associés ?
- Utilisation des antibiotiques ?



Mean density of CF pathogens in sputum cultures (CFU/ml) at a one-year interval from ETI introduction



Evolution of the density of *Pseudomonas aeruginosa* in sputum cultures at one-year interval from ETI introduction

