Comparaison des recommandations vaccinales chez les patients immunodéprimés

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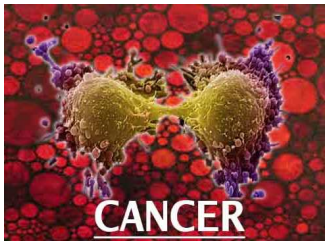
Les patients immunodéprimés nous concernent tous !

250 000 patients

Coignard-Biehler, et al. Rev Prat 2008

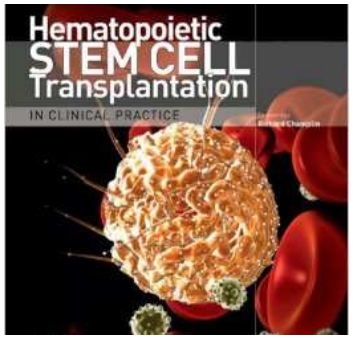


3 millions de patients

Données INCa février 2016

150 000 patients

Rapport Morlat 2013



25 000 patients

Rapport Agence de la Biomédecine 2015

57 000 patients

Rapport Agence de la Biomédecine 2015

Les patients immunodéprimés nous concernent tous !

210 000 patients

Kirchgesner, et al. Aliment Pharmacol Ther 2016

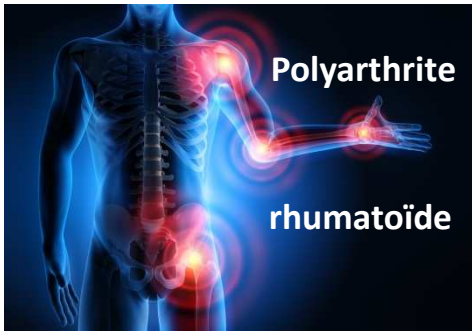
Déficit immunitaire congénital

3 000 patients

CEREDIH: The French PID study group Clin Immunol 2010

3 350 000 patients

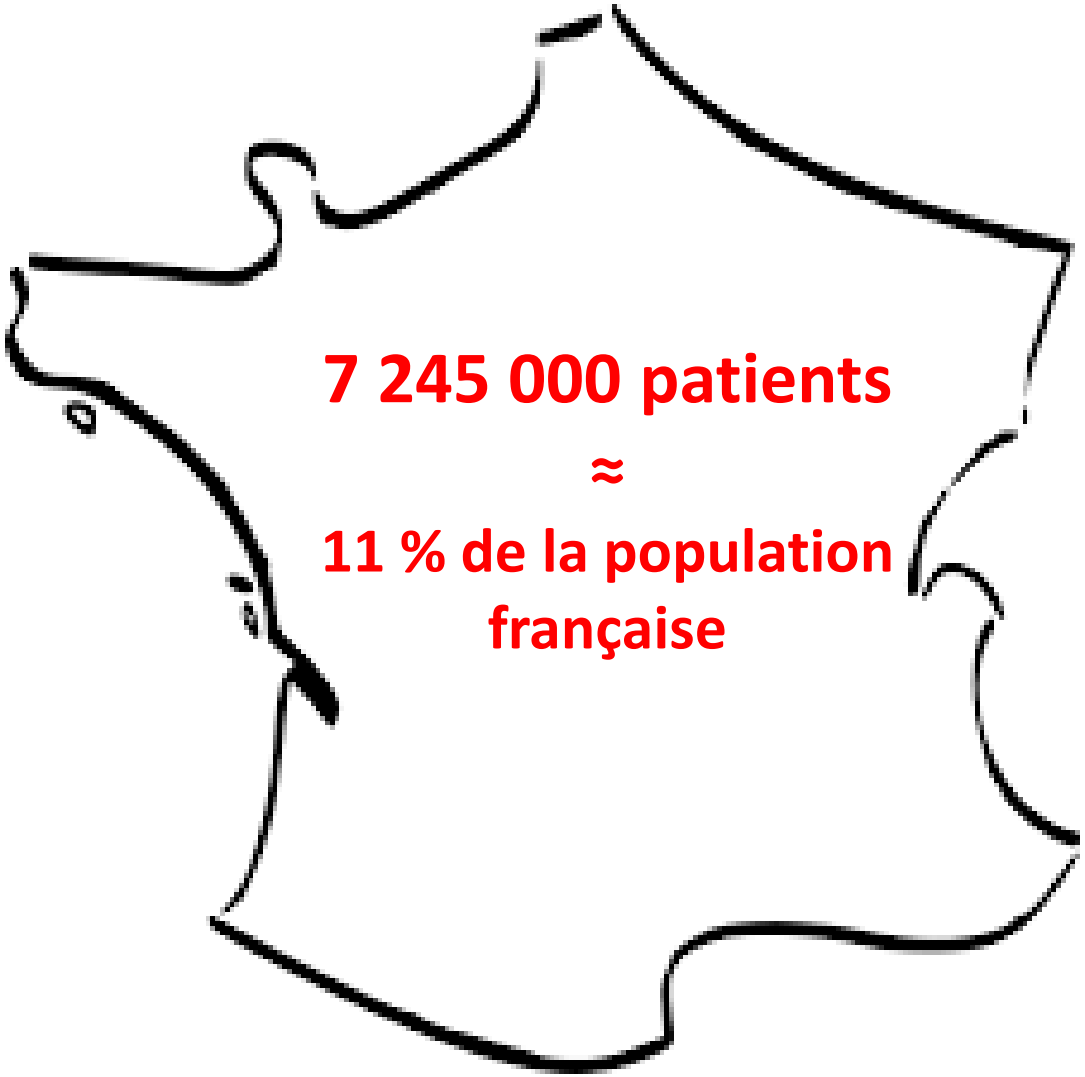
Wolkenstein, et al. Dermatology 2009



200 000 patients

Guillemin, et al. Ann Rheum Dis 2005

Les patients immunodéprimés nous concernent tous !

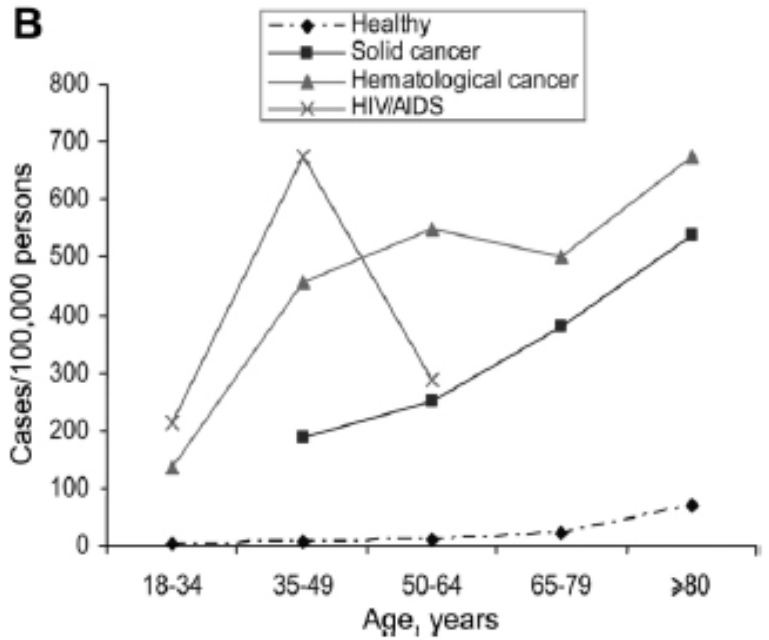


Un risque accru d'infection invasive à Pneumocoque

Table 2. No. of cases of invasive pneumococcal disease, no. of adults (≥18 years) with a given medical condition, incidence rates, and relative risks (RRs) for healthy adults and adults with select chronic conditions—United States, 1999–2000.

Category	Cases of invasive pneumococcal disease, no.		Adults with condition, no.		Incidence rate (95% CI), cases/100,000 persons[a]	RR (95% CI)	
	ABCs	US projection	NHIS	US projection		Unadjusted[b,c]	Adjusted[b,c,d]
Healthy	1570	28,495	50,434	326.0×10^6	8.8 (8.5–9.0)	Referent	Referent
Diabetes	629	11,633	3942	22.6×10^6	51.4 (49.2–53.9)	5.8 (1.6–21.0)	3.4 (1.8–6.4)
Chronic heart disease	1225	20,564	3761	22.0×10^6	93.7 (87.4–100.9)	10.4 (3.6–30.6)	6.4 (3.7–10.9)
Chronic lung disease	741	13,852	3647	22.1×10^6	62.9 (59.8–66.3)	6.9 (1.7–28.1)	5.6 (3.2–9.9)
Solid cancer	511	9557	551	3.3×10^6	300.4 (272.6–334.6)	32.2 (7.8–132.2)	22.9 (11.9–44.3)
HIV/AIDS	515	8726	374	2.1×10^6	422.9 (378.3–479.4)	48.8 (7.9–302.3)	48.4 (24.8–94.6)

Cancer = RR **x 23**
VIH = RR **x 49**
↗ **incidence avec l'âge**



Kyaw, et al. J Infect Dis 2005

Une mortalité accrue en cas d'infection invasive à Pneumocoque

Table 4. Variables Associated With Pneumococcal Infection in Patients With Severe Sepsis or Septic Shock

Variable	Patients Without Pneumococcal Sepsis (n = 76)	Patients With Pneumococcal Sepsis (n = 28)	Univariate Analysis			Multivariate Analysis		
			RR	95% CI	*P* Value	Adjusted RR	95% CI	*P* Value
Age ≥70 years	18 (24)	5 (18)	**0.97[a]**	**(.95–1.00)**	.028	0.99[a]	(.96–1.01)	.198
Male sex	44 (58)	14 (50)	0.79	(.42–1.49)	.510			
Body mass index ≤20 kg/m^2	8 (13)	2 (8)	**0.94[a]**	**(.89–.99)**	.017	0.96[a]	(.91–1.02)	.173
Current smoking	22 (29)	10 (36)	1.25	(.65–2.40)	.632			
Alcohol use	14 (18)	3 (11)	0.61	(.21–1.81)	.550			
Asplenia	30 (39)	22 (79)	**3.67**	**(1.62–8.30)**	**.001**	**2.50**	**(1.07–5.84)**	**.034**

Taux de mortalité chez les patients asplèniques ≈ **60 %**

Table 1 Differences in demographics, clinical syndromes and severity of invasive pneumococcal disease in the general population and in the immunosuppressed.

	General population N = 496	Immunosuppressed population N = 198	P
Mortality, N (%)	44 (9)	48 (24)	<0.001

Taux de mortalité chez l'ensemble des patients immunodéprimés = **24 %**

Theilacker, et al. Clin Infect Dis 2016
Weledji, et al. Int J Surg 2014
Sangil, et al. J Infect 2015

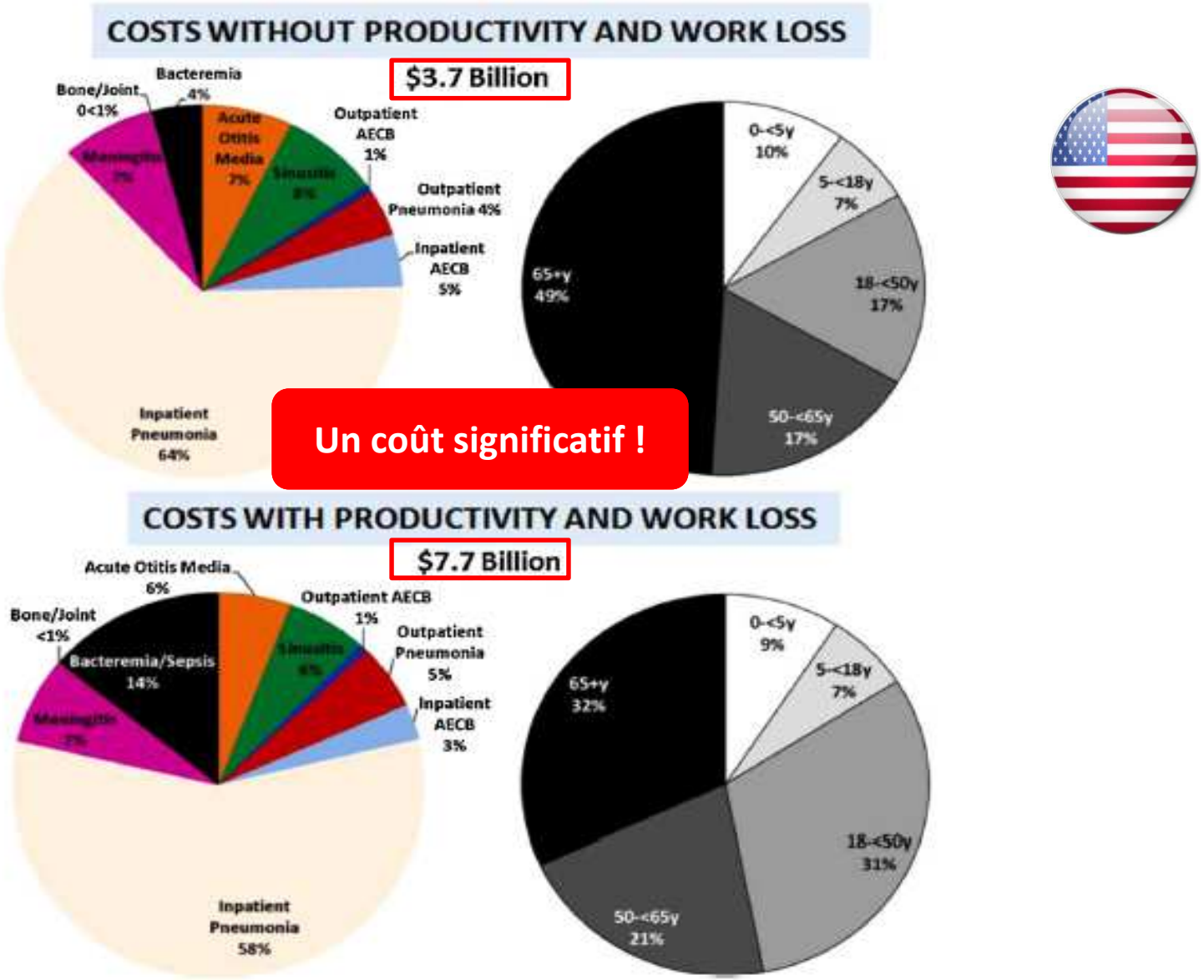
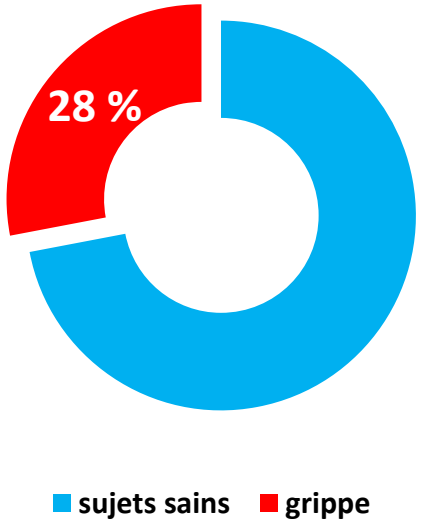


Fig. 2. Pneumococcal disease costs by age and syndrome categories comparing direct medical costs to total costs including work loss and productivity costs.

Huang, et al. Vaccine 2011

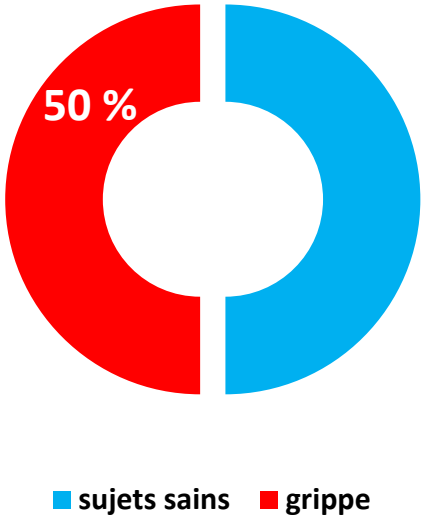
Une incidence majorée en cas d'immunosuppression

Population générale



Fowlkes, et al. Lancet Respir Med 2015

Tumeur solide ou hémopathie maligne



Eliakim-Raz, et al. Cochrane Database Syst Rev 2013

Une morbi-mortalité accrue en cas d'immunosuppression

	≥ 65 years	Chronic Respiratory Disease	Diabetes	Immunocom-promised[a]	CV Disease	All hospitalized with LCI
Clinical influenza	0.23% - 7.2%					n/a
LRTI	0% - 1.3%		2.6%	16.3% - 80%		n/a
Hospitalization rate	0% - 8.8%	2.9% - 20%	3.4% - 12.1%	14% - 20.8%	17.2% - 20%	n/a
ICU rate[b]	4.2% - 17.1%					11.8% - 28.6%
Mortality rate[b]	3.1% - 13.5%	12.1%		8.0% - 50%	14.2%	2.9% - 14.3%
Hospital LOS	7.8 - 10.8 days			6.1 - 12.0 days		7.4 - 8.4 days

Figure 2. Overview of clinical outcomes and resource-use data associated with influenza complications by high-risk group. CV, cardiovascular; HIV, human immunodeficiency virus; ICU, intensive care unit; LCI, laboratory-confirmed influenza; LOS, length of stay; LRTI, lower respiratory tract infection. [a] Including those with HIV infection, post-transplant, and with cancer. [b] Rate for those hospitalized with a confirmed influenza diagnosis.

Mauskopf, et al. J Med Econ 2013

Un vaccin efficace en cas d'immunosuppression

Influenza vaccination for immunocompromised patients: summary of a systematic review and meta-analysis

Table 1. Summary of primary meta-analyses: influenza-like illness, laboratory-confirmed influenza infection and serological response

Outcome measure	Influenza subtype	Comparator	Number of studies	Pooled ES (95% CI)	P value of ES	I^2 (%)	P value of I^2
Clinical protection							
ILI	N/A	PNV	7	0·23 (0·16–0·34)	<0·001	22·0	NS
ILI	N/A	VICT	2	0·62 (0·22–1·78)	NS	12·3	NS
LCII	N/A	PNV	2	0·15 (0·03–0·63)	0·01	50·4	NS

*= some studies contributed two sets of data included in this meta-analysis; ILI, influenza-like illness; LCII, laboratory-confirmed influenza infection; (S), seasonal; (P), pandemic; ES, effect size; CI, confidence interval; SC1, seroconversion (≥4 fold rise post-vaccination); SC2, seroconversion (<1:40 to ≥1:40 haemagglutination inhibition titre); SP, seroprotection (≥1:40 haemagglutination inhibition titre post-vaccination); VICT, vaccinated immunocompetent controls; PNV, placebo or no vaccination; NS, not statistically significant; N/A, not applicable.

Vaccin anti-grippal efficace dans 85 % des cas

Beck, et al. Influenza Other Respi Viruses 2013

Une couverture vaccinale insuffisante !

Influenza vaccination perception and coverage among patients with malignant disease

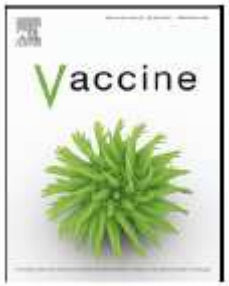


Table 1
Patient characteristics of 444 patients surveyed.

	Number (%, 95%CI)
Gender	
Male	183 (41.2%, 36.6–45.8)
Female	261 (58.8%, 54.2–63.4)
Influenza vaccination status	
Vaccinated	80 (18.02%, 14.4–21.6)
Not vaccinated	364 (81.98%, 78.4–85.6)
Disease	
Solid cancer	241 (54.3%, 49.6–58.9)
Hämtological disease	96 (21.6%, 17.8–25.5)
Others	77 (17.3%, 13.8–20.9)
No response	30 (6.8%, 4.4–9.1)

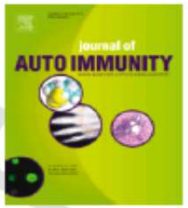
Moins de 1 patient immunodéprimé sur 5 est vacciné contre la grippe !

Poeppl, et al. Vaccine 2015

Contents lists available at ScienceDirect

Journal of Autoimmunity

journal homepage: www.elsevier.com



Vaccination recommendations for the adult immunosuppressed patient: A systematic review and comprehensive field synopsis

✓ **Objectif** : exposer toutes les recommandations des sociétés savantes concernant la vaccination chez les patients immunodéprimés publiées ces 10 dernières années.

✓ **9 catégories de patients immunodéprimés** :

- Asplénie
- Cancer
- VIH
- Transplantation de cellules souches hématopoïétiques
- Transplantation d'organes solides
- MICI
- Déficit immunitaire congénital
- Psoriasis
- Maladies inflammatoires chroniques rhumatismales

Lopez, et al. J Autoimmunity 2017

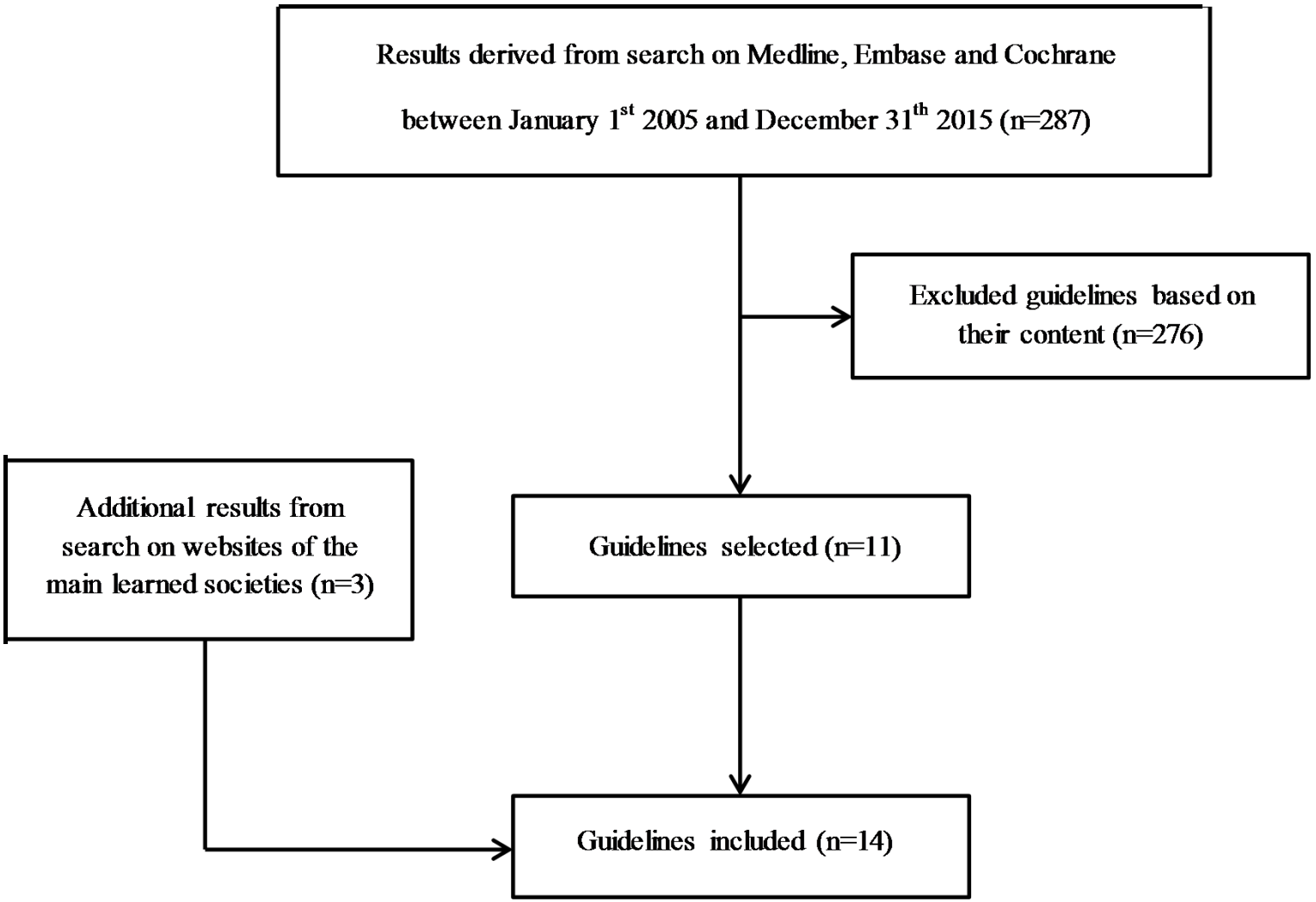
✓ **Méthodes :**

- Revue systématique de la littérature selon les recommandations Cochrane[1] et PRISMA[2]
- PubMed, EMBASE, Cochrane Library
- Sites des sociétés savantes de chaque spécialité ainsi que l'OMS et le NICE
- Mots-clés :

(("Vaccination"[Mesh]) OR "Vaccines"[Mesh]) AND "Guideline" [Publication Type]

- Entre le 1/01/2005 et le 31/12/2015
- Recherche en langues anglaise et française
- 2 chercheurs indépendants avec travail sur les textes intégraux
- Informations recueillies : nom de la société savante, pays d'origine, année de publication, recommandations concernant la vaccination
- Dans chaque catégorie de patients immunodéprimés, hiérarchisation des recommandations concernant les vaccins vivants et les vaccins inactivés

[1] *Higgins, et al. Cochrane Handbook for Systematic Reviews of Interventions. The Cochrane Collaboration 2011;version 5.0.1.*
[2] *Moher, et al. Syst Rev 2015*


Results derived from search on Medline, Embase and Cochrane between January 1st 2005 and December 31th 2015 (n=287)
Excluded guidelines based on their content (n=276)
Additional results from search on websites of the main learned societies (n=3)
Guidelines selected (n=11)
Guidelines included (n=14)


n = 5
n = 2
n = 1
n = 2
14 guidelines
n = 1
n = 1
n = 1
n = 1

18 sociétés savantes

IDSA Infectious Diseases Society of America

British HIV Association BHIVA

CDC Centers for Disease Control and Prevention

Australian Government Department of Health

ROBERT KOCH INSTITUT

BSH

CIBMTR Center for International Blood & Marrow Transplant Research

EBMT European Society for Blood and Marrow Transplantation

ASBMT American Society for Blood and Marrow Transplantation

CBMTG

National Psoriasis Foundation

DGHO Deutsche Gesellschaft für Hämatologie und Onkologie

OeGHO Österreichische Gesellschaft für Hämatologie & Medizinische Onkologie

ECCO European Crohn's and Colitis Organisation

Swiss Blood Stem Cells
Blutstammzellen
Cellules souches du sang
Cellule staminali del sangue

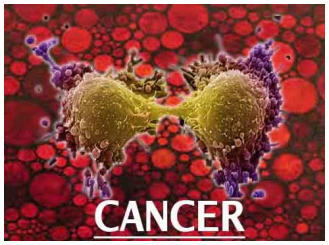
eular

Public Health Agency of Canada

Haut Conseil de la Santé Publique

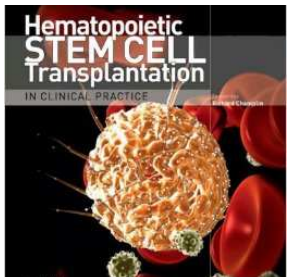
Recommandations par catégorie d'immunosuppression

n = 5



n = 4

n = 5



n = 4

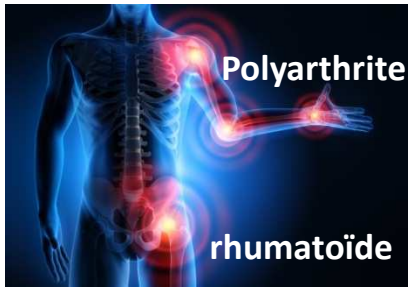
n = 5

n = 5

Déficit immunitaire congénital

n = 3

n = 4



n = 5

Table 1. Vaccination recommendations in cancer patients.

	Learned society, country, year			
	IDSA , U.S.A., 2013	**PHAC, Canada, 2014**	**ATAGI, Australia, 2015**	**HCSP, France, 2014**
Vaccine				
Live vaccines				
BCG (Bacillus Calmette-Guérin)	Not recommended during or after CT	Not recommended during CT but possible 3 months after cancer CT	Not recommended during CT but possible 3 months after cancer CT	Not recommended during or after CT
Measles, mumps, and rubella	Not recommended during CT but possible 3 months after cancer CT	Not recommended during CT but possible 3 months after cancer CT	Not recommended during CT but possible 3 months after cancer CT	Not recommended during CT but possible 3 months after cancer CT
Varicella	Not recommended during CT but possible 3 months after cancer CT	Not recommended during CT but possible 3 months after cancer CT	Not recommended during CT but possible 3 months after cancer CT	Not recommended during CT but possible 12 months after cancer CT
Rotavirus	Not recommended during or after CT	Not recommended during CT but possible 3 months after cancer CT	Not recommended during CT but possible 3 months after cancer CT	Not recommended during or after CT
Influenza (intranasal)	Not recommended during CT	Not recommended during CT but possible 3 months after cancer CT	Not recommended during CT but possible 3 months after cancer CT	Not recommended during CT but possible 6 months after cancer CT
Yellow fever	Not recommended during CT but possible 3 months after cancer CT	Not recommended during CT but possible 3 months after cancer CT	Not recommended during CT but possible 3 months after cancer CT	Not recommended during CT but possible 6 months after cancer CT

CT, chemotherapy

Table 1. Vaccination recommendations in cancer patients.

	Learned society, country, year			
	IDSA , U.S.A., 2013	**PHAC, Canada, 2014**	**ATAGI, Australia, 2015**	**HCSP, France, 2014**
Vaccine				
Inactivated vaccines				
Tetanus-diphteria-acellular pertussis (Tdap)-polio	Not recommended during CT but possible 3 months after cancer CT	Not recommended during CT but possible 3 months after cancer CT	Not recommended but possible during CT	Not recommended during CT but possible 3 months after cancer CT
Haemophilus influenzae type b	Not recommended during CT but possible 3 months after cancer CT	Not recommended during CT but possible 3 months after cancer CT	Not recommended but possible during CT	Not recommended during CT but possible 3 months after cancer CT
Hepatitis B	Not recommended during CT but possible 3 months after cancer CT	Not recommended during CT but possible 3 months after cancer CT	Not recommended but possible during CT	Recommended during CT for at risk patients, with a supplementary injection 6 months after CT
Meningococcal vaccination	Not recommended during CT but possible 3 months after cancer CT	Not recommended during CT but possible 3 months after cancer CT	Not recommended but possible during CT	MenC: not recommended during CT 3 months after CT, a single dose is recommended MenACWY (2 doses with an interval of 8 weeks: not recommended except for asplenic, immunocompromised, international travelers)

Table 1. Vaccination recommendations in cancer patients.

	Learned society, country, year			
	IDSA , U.S.A., 2013	**PHAC, Canada, 2014**	**ATAGI, Australia, 2015**	**HCSP, France, 2014**
Inactivated vaccines				
Pneumococcal vaccination	Recommended 2 weeks before CT, with PCV13 and PPSV23 8 weeks after	PCV13 and PPSV23 8 weeks after, with a second dose of PPSV23 5 years after	Not recommended but possible during CT	Recommended 2 weeks before CT, with PCV13 and PPSV23 8 weeks after
Human papillomavirus	Not recommended during CT but possible 3 months after cancer CT	Not recommended during CT but possible 3 months after cancer CT	Not recommended but possible during CT	Not recommended during CT but possible 3 months after cancer CT
Influenza (injectable)	A single dose of influenza vaccination is recommended annually	A single dose of influenza vaccination is recommended annually	2 doses at least 4 weeks apart are recommended, and 1 dose annually thereafter	Recommended during CT and during the 6 months after (a second dose is possible at least 1 month after if patients were vaccinated at the begining of the epidemic period)
Hepatitis A	Not recommended during CT but possible 3 months after cancer CT	Not recommended during CT but possible 3 months after cancer CT	Not recommended but possible during CT	Not recommended during CT but possible 3 months after cancer CT for at risk patients¶

IDSA, Infectious Diseases Society of America; PHAC, Public Health Agency of Canada; ATAGI, Australian Technical Advisory Group on Immunisation; HCSP, Haut Conseil de la Santé Publique; CT, chemotherapy; MenC, meningococcal C vaccination; MenACWY, quadrivalent meningococcal vaccination; PCV13, 13-valent pneumococcal conjugate vaccine; PPSV23, 23-valent pneumococcal polysaccharide vaccine; ¶young handicapped people, kystic fibrosis, hepato-biliary diseases with a risk of cirrhosis, men who have sex with men, family of patients infected with hepatitis A, young children and handicapped peole workers, waste water workers.

Table 2. Vaccination recommendations in HIV patients.

	Learned society, country, year				
	IDSA, U.S.A., 2013	**British HIV Association, U.-K., 2008**	**PHAC, Canada, 2014**	**ATAGI, Australia, 2015**	**HCSP, France, 2012**
Vaccine					
Live vaccines					
BCG (Bacillus Calmette-Guérin)	Contraindicated	Contraindicated	Contraindicated	Contraindicated	Contraindicated
Measles, mumps, and rubella	Recommended if CD4 ≥200/mm3	Recommended if CD4 ≥200/mm3	Recommended if CD4 ≥200/mm3 and ≥15% CD4and ≥15% CD4and ≥15% CD4	Recommended if CD4 ≥200/mm3	Recommended if CD4 ≥200/mm3
	Contraindicated if CD4 <200/mm3	Contraindicated if CD4 <200/mm3	Contraindicated if CD4 <200/mm3	Contraindicated if CD4 <200/mm3	Contraindicated if CD4 <200/mm3
Varicella-zoster	Recommended if CD4 ≥200/mm3	Recommended if CD4 ≥400/mm3 but also consider if ≥200/mm3	Recommended if CD4 ≥200/mm3 and ≥15% CD4and ≥15% CD4and ≥15% CD4	Recommended if CD4 ≥200/mm3	Recommended if CD4 ≥200/mm3
				Contraindicated if CD4 <200/mm3	Contraindicated if CD4 <200/mm3
		Contraindicated if CD4 <200/mm3	Contraindicated if CD4 <200/mm3	Zoster vaccine in patients ≥50 years	
Rotavirus	Not recommended in adults	Not recommended	Not recommended in adults	Not recommended in adults	Not recommended
Yellow fever	Not recommended but possible if CD4 ≥200/mm3	Consider if at true risk of infection and if CD4 ≥200/mm3	Possible if CD4 ≥200/mm3	Consider in at risk patients and if CD4 ≥200/mm3	Recommended in patients living in French Guiana
	Contraindicated if CD4 <200/mm3	Contraindicated if aged >60 years, if CD4 <200/mm3	Contraindicated if CD4 <200/mm3	Contraindicated if CD4 <200/mm3	Contraindicated if CD4 <200/mm3

Table 2. Vaccination recommendations in HIV patients.

	Learned society, country, year				
	IDSA, U.S.A., 2013	**British HIV Association, U.-K., 2008**	**PHAC, Canada, 2014**	**ATAGI, Australia, 2015**	**HCSP, France, 2012**
Vaccine					
Inactivated vaccines					
Tetanus-diphteria-acellular pertussis (Tdap)-polio	Recommended	Recommeded (3 doses at least 1 month apart, with a booster dose at 5 and 10 years)	Recommended	Recommended	Recommended (with a booster dose every 10 years)
Haemophilus influenzae b	Not recommended in adults	Not recommended in adults	Recommended (1 dose)	Not recommended in adults	Not recommended in adults
Hepatitis B	Recommended (3 high doses of 40 µg; a second scheme is recommended if anti-HBs <10 mIU/mL 1 to 2 months after)	Recommended (3 doses with Ig anti-HBs +/- a booster dose and Ig anti-HBs in non responders)	Recommended (3 high doses of 40 µg; a second scheme is recommended if anti-HBs <10 mIU/mL 1 to 2 months after)	Recommended (4 double doses at 0, 1, 2 and 6 months)	Recommended (4 double doses at 0, 1, 2 and 6 months)
Meningococcal vaccination	Not recommended in adults	MenC is recommended <25years or at risk patients (one or 2 doses in asplenic patients) MenACWY in at risk patients (one dose with a booster dose 5 years after)	Recommended (MenACWY)	Recommended (MenC and MenACWY)	MenC is recommended <25years MenACWY is recommended in complement deficit or asplenic patients

Table 2. Vaccination recommendations in HIV patients.

	Learned society, country, year				
	IDSA, U.S.A., 2013	**British HIV Association, U.-K., 2008**	**PHAC, Canada, 2014**	**ATAGI, Australia, 2015**	**HCSP, France, 2012**
Vaccine					
Inactivated vaccines					
Pneumococcal vaccination	Recommended (one dose of PVC13, one dose of PPSV23 8 weeks after, with a booster dose 5 years after)	Recommended if CD4 ≥200/mm3 Consider if CD4 <200/mm3 (one dose of PPSV23, with booster doses every 5-10 years)	Recommended (one dose of PCV13, one dose of PPSV23 8 weeks after, with a booster dose 5 years after)	Recommended (one dose of PCV13, one dose of PPSV23 8 weeks after, with a booster dose 5 years after)	Recommended (one dose of PCV13, one dose of PPSV23 8 weeks after)
Human papillomavirus	Recommended in females and males (HPV4 at 0, 2, and 6 months)	Not recommended	Recommended (HPV4 at 0, 2, and 6 months)	Recommended (HPV4 at 0, 2, and 6 months)	Recommended in females (HPV4 at 0, 2, and 6 months)
Influenza (injectable)	Recommended (annual vaccine with the TIV)	Recommended (annual vaccine with the TIV)	Recommended (annual vaccine with the TIV)	Recommended (annual vaccine with the TIV, with initially 2 doses 4 weeks apart if CD4 <200/mm3)	Recommended (annual vaccine with the TIV)
Hepatitis A	Not recommended	Recommended in at risk patients (2 doses at 0 and 6-12 months if CD4 >300/mm3, 3 doses over 6-12 months if CD <300/mm3, with a booster dose every 5 years Consider Ig in very high risk patients	Recommended in at risk patients (2 doses at 0 and 6-12months)	Recommended in at risk patients (2 doses at 0 and 6-12months)	Recommended in at risk patients (2 doses at 0 and 6-12months)

Table 3. Vaccination recommendations in IBD patients.

	Learned society, country, year					
	ACIP, U.S.A., 2010	**ECCO, Europe, 2014**	**ASPC, Canada, 2014**	**ATAGI, Australia, 2015**	**HCSP, France, 2012**	**STIKO, Germany, 2010**
Vaccine						
Live vaccines						
BCG (Bacillus Calmette-Guérin)	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended
	Contraindicated during IT	Contraindicated during IT	Contraindicated during IT	Contraindicated during IT	Contraindicated during IT	Contraindicated during IT
Measles, mumps, and rubella	Recommended at least 6 weeks before starting IT	Recommended at least 3 weeks before starting IT	Not recommended	Not recommended	Not recommended	Recommended at least 2 weeks before starting IT
	Contraindicated during IT	Contraindicated during IT	Contraindicated during IT	Contraindicated during IT	Contraindicated during IT	Contraindicated during IT
Varicella-zoster	Recommended at least 1-3 months before starting IT	Recommended at least 3 weeks before starting IT	Not recommended	Not recommended	Not recommended	Recommended at least 2 weeks before starting IT
	Contraindicated during IT	Contraindicated during IT	Contraindicated during IT	Contraindicated during IT	Contraindicated during IT	Contraindicated during IT
Rotavirus	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended
	Contraindicated during IT	Contraindicated during IT	Contraindicated during IT	Contraindicated during IT	Contraindicated during IT	Contraindicated during IT
Yellow fever	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended	Not recommended
	Contraindicated during IT	Contraindicated during IT	Contraindicated during IT	Contraindicated during IT	Contraindicated during IT	Contraindicated during IT

IT, immunosuppressive therapy

Table 3. Vaccination recommendations in IBD patients.

	Learned society, country, year					
	ACIP, U.S.A., 2010	**ECCO, Europe, 2014**	**ASPC, Canada, 2014**	**ATAGI, Australia, 2015**	**HCSP, France, 2012**	**STIKO, Germany, 2010**
Inactivated vaccines						
Tetanus-diphteria-acellular pertussis (Tdap)-polio	Administer vaccine if not given over the past 10 years or give Tdap if Td ≥ 2 years, with a booster dose every 10 years Possible during IT	Not recommended but possible during IT	Not recommended but possible during IT	Not recommended but possible during IT	Administer vaccine if not given over the past 10 years, with a booster dose every 10 years Possible during IT	Administer vaccine if not given over the past 10 years, with a booster dose every 10 years Possible during IT
Haemophilus influenzae b	Not recommended but possible during IT	Not recommended but possible during IT	Not recommended but possible during IT	Not recommended but possible during IT	Not recommended but possible during IT	A single dose is recommended in patients with IT
Hepatitis B	Recommended (3 doses at 1, 1-2 and 4-6 months; if no response 1 month after finishing last dose then revaccinate with double dose) Possible during IT	Recommended (double dose at 0,1 and 2 months; if no response 1 month after finishing last dose then revaccinate with double dose) Possible during IT	Not recommended but possible during IT	Not recommended but possible during IT	Not recommended but possible during IT	Not recommended but possible during IT
Meningococcal vaccination	Not recommended but possible during IT	Not recommended but possible during IT	Not recommended but possible during IT	Not recommended but possible during IT	Not recommended but possible during IT	A single dose of Men ACWY is recommended in patients with IT

Table 3. Vaccination recommendations in IBD patients.

	Learned society, country, year					
	ACIP, U.S.A., 2010	**ECCO, Europe, 2014**	**ASPC, Canada, 2014**	**ATAGI, Australia, 2015**	**HCSP, France, 2012**	**STIKO, Germany, 2010**
Inactivated vaccines						
Pneumococcal vaccination	Recommended (PCV13 and PPSV23 8 weeks after; Recommended (PCV13 and PPSV23 8 weeks after; re-vaccinate with a single dose of PPSV23 5 years after) Possible during IT	Recommended (PCV13 and PPSV23 8 weeks after; Recommended (PCV13 and PPSV23 8 weeks after; re-vaccinate with a single dose of PPSV23 5 years after) Possible during IT	Recommended (PCV13 and PPSV23 8Recommended (PCV13 and PPSV23 8 weeks after; re-vaccinate with a single dose of PPSV23 5 years after) Possible during IT	Recommended (PCV13 and PPSV23 8Recommended (PCV13 and PPSV23 8 weeks after; second dose of PPSV23 5-10 years after, third dose at 65 years) Possible during IT	Recommended (PCV13 and PPSV23 8Recommended (PCV13 and PPSV23 8 weeks after; re-vaccinate with a single dose of PPSV23 5 years after) Possible during IT	Recommended (a single dose of PPSV23, with a second dose 5 years in case of IT) Possible during IT
Human papillomavirus	Recommended through age 26 years (3 doses 0,2 and 6 months with the quadrivalent vaccine) Possible during IT	Recommended through age 26 years (3 doses 0,2 and 6 months with the quadrivalent vaccine) Possible during IT	Not recommended but possible during IT	Recommended through age 18 years in patients with IT (3 doses 0,2 and 6 months with the quadrivalent vaccine) Possible during IT	Not recommended but possible during IT	Not recommended but possible during IT

Table 3. Vaccination recommendations in IBD patients.

	Learned society, country, year					
	ACIP, U.S.A., 2010	**ECCO, Europe, 2014**	**ASPC, Canada, 2014**	**ATAGI, Australia, 2015**	**HCSP, France, 2012**	**STIKO, Germany, 2010**
Inactivated vaccines						
Influenza	Recommended (annual vaccine with the TIV) Possible during IT	Recommended (annual vaccine with the TIV) Possible during IT	Recommended (annual vaccine with the TIV) Possible during IT	Recommended (annual vaccine with the TIV) Possible during IT	Recommended (annual vaccine with the TIV) Possible during IT	Recommended (annual vaccine with the TIV) Possible during IT
Hepatitis A	Recommended (2 doses at 0 and 6-12 months or 0 and 12-18 months with a booster dose > 10 years) Possible during IT	Not recommened but possible during IT	Not recommened but possible during IT	Not recommened but possible during IT	Not recommened but possible during IT	Not recommened but possible during IT

- ✓ Vaccins vivants contre-indiqués en cas de traitement immunosuppresseur ou en cas de CD4 < 200/mm^3

- ✓ Vaccins vivants en majorité non recommandés mais possibles (sauf cas mentionnés ci-dessus)
  → ROR et VZV parfois recommandés chez les patients séronégatifs avant une transplantation ou en cas de VIH

- ✓ Vaccination anti-pneumococcique recommandée chez tous les patients immunodéprimés
  → Schéma vaccin 13-valent puis 23-valent 8 semaines plus tard, avec rappel tous les 5 ans

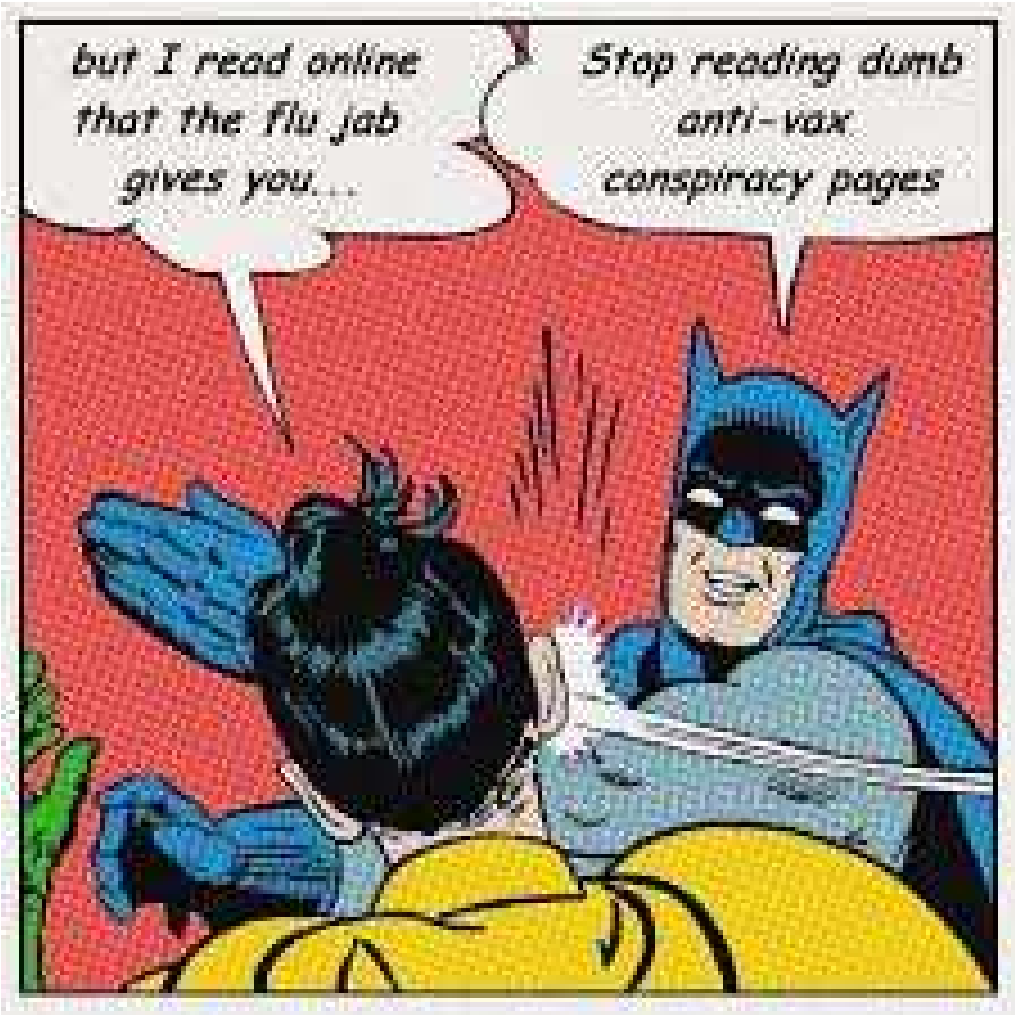
- ✓ Vaccination anti-grippale recommandée chez tous les patients immunodéprimés
  → 1 injection, parfois 2 injections à 1 mois d'intervalle selon certains référentiels

- ✓ Les autres vaccins inactivés sont uniquement recommandés chez les patients à risque
  → DTP-coqueluche acellulaire en cas de transplantation ou de VIH
  → *Haemophilus influenzae* B en cas d'asplénie ou de transplantation de CSH
  → Méningocoque en cas de transplantation, de VIH ou d'asplénie
  → HPV en cas de VIH ou de maladie inflammatoire chronique

1 **Vaccinations anti-pneumococcique et anti-grippale universellement recommandées en cas d'immunosuppression**

2 **Vaccins vivants contre-indiqués en cas de traitement immunosuppresseur ou en cas de CD4 < 200/mm^3**

3 **Autres vaccins uniquement recommandés chez les patients à risque**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