STPI
Société Tunisienne
de Pathologie Infectieuse

1er CONGRÈS DE LA RÉGION MIDDLE EAST AND NORTH AFRICA DE MICROBIOLOGIE CLINIQUE ET DE PATHOLOGIE INFECTIEUSE

34éme CONGRÈS NATIONAL DE LA SOCIÉTÉ TUNISIENNE DE PATHOLOGIE INFECTIEUSE

Vaccination Anti Grippale

Dr Wafa Marrakchi

Service des Maladies infectieuses

CHU Fattouma Bourguiba de Monastir, Tunisie

Introduction

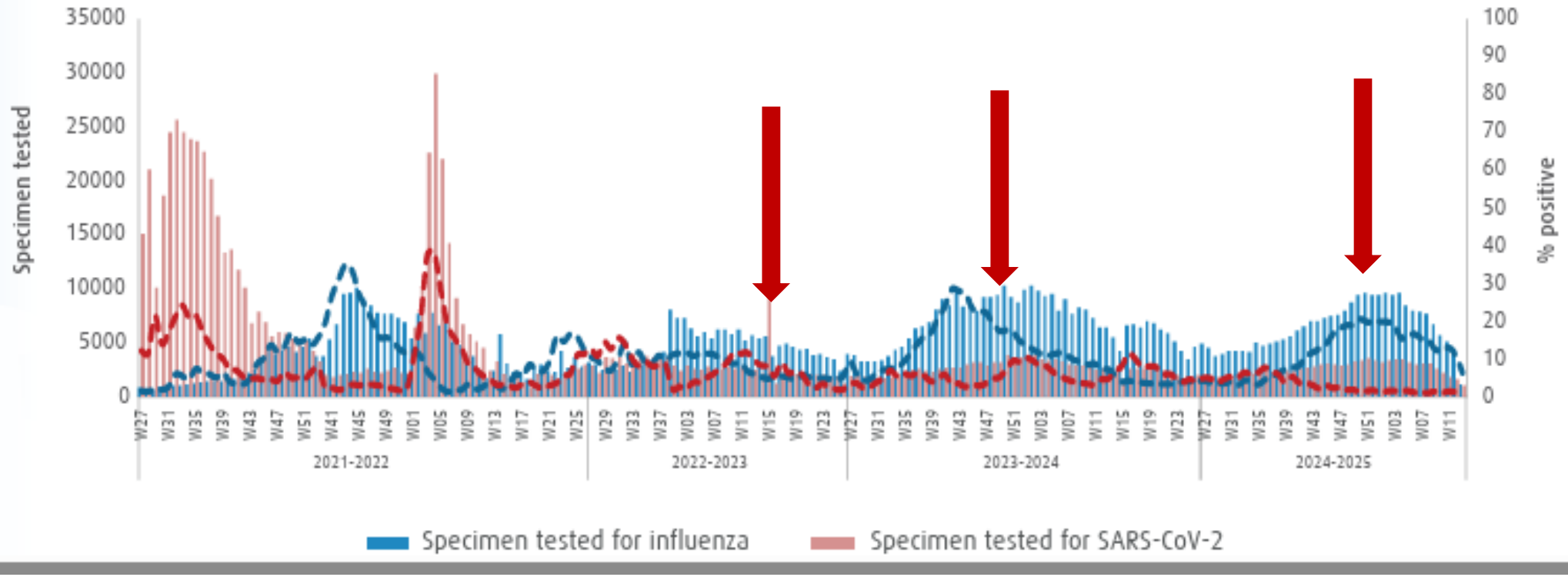
- Pourquoi parler de la grippe en 2025?
- Des hospitalisations liées à la grippe durant la saison 2024-2025
- Une **morbi-mortalité** encore élevée
- Impact post-COVID sur la vaccination
- Co-circulation d'autres virus: des implications épidémiologiques et cliniques
- **Tendance à la hausse** dans plusieurs pays

European Centre for Disease Prevention and Control, season influenza 2023
emro.who.int/docs/WHOEMCSR821E-eng.pdf?ua=1

Saison 24-25

World Health Organization
REGIONAL OFFICE FOR THE Eastern Mediterranean

Figure 1. Influenza and SARS-CoV-2 tested specimens and percent positivity in the Region from week 27, 2021 to week 13, 2025



emro.who.int/docs/WHOEMCSR817E-eng.pdf

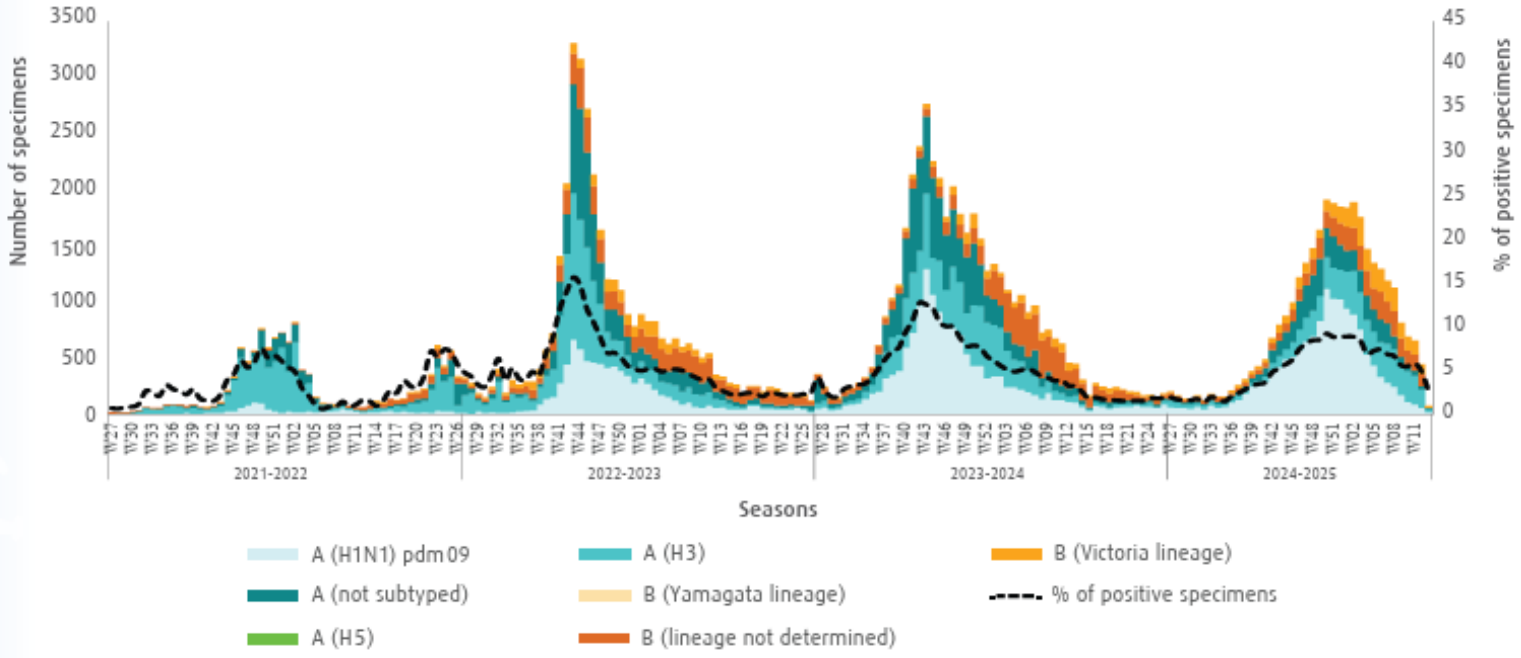
Saison 24-25

World Health Organization
REGIONAL OFFICE FOR THE Eastern Mediterranean

73%
Grippe A

27%
Grippe B

Figure 2. Number of specimens by influenza virus subtypes/lineages and percentage of specimens testing positive for influenza viruses in the Region from week 27, 2021 to week 13, 2025



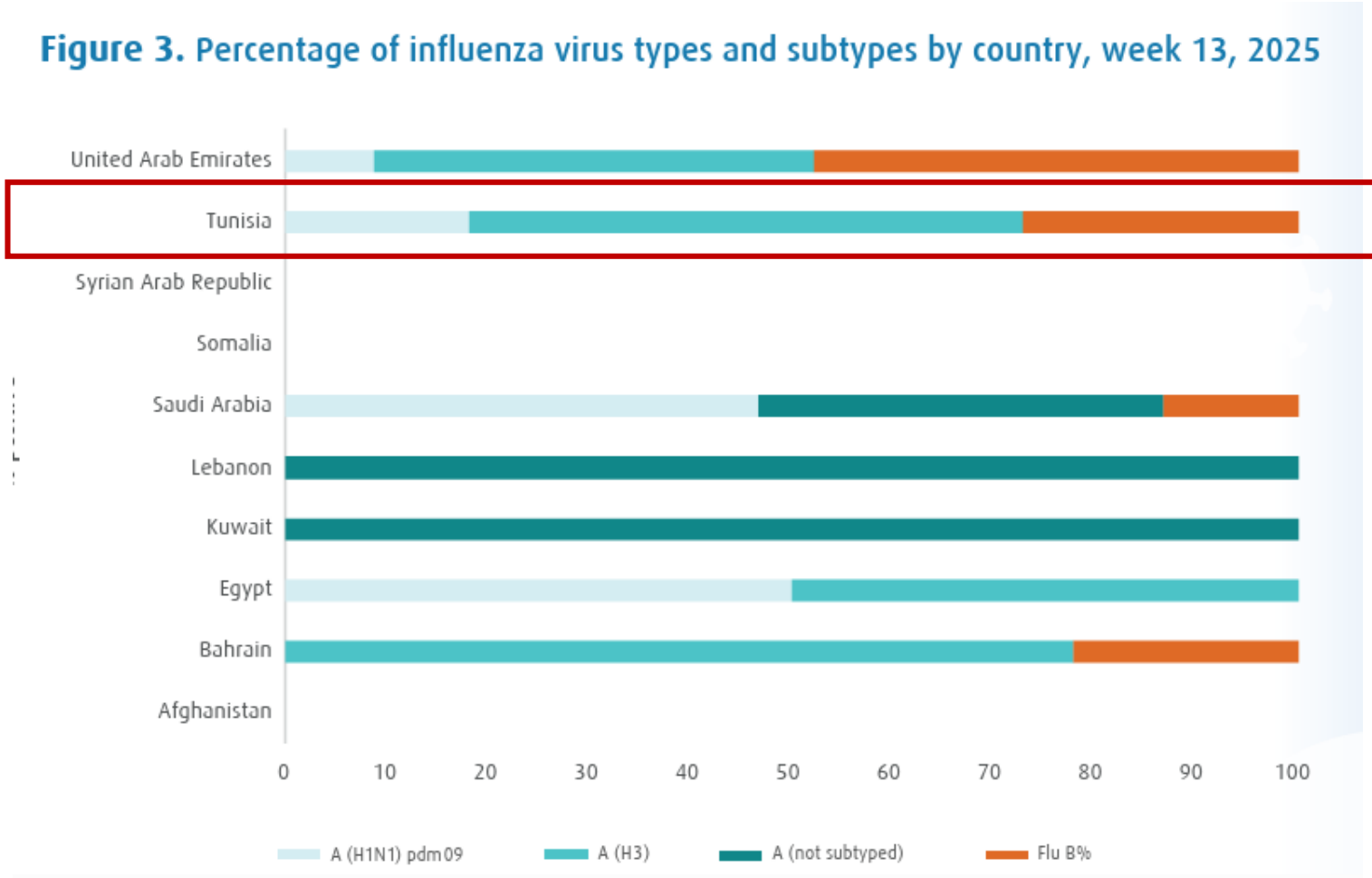
Le choix de la souche vaccinale se fait en février pour l'hémisphère Nord

emro.who.int/docs/WHOEMCSR817E-eng.pdf

Saison 24-25

World Health Organization
REGIONAL OFFICE FOR THE Eastern Mediterranean

Figure 3. Percentage of influenza virus types and subtypes by country, week 13, 2025



emro.who.int/docs/WHOEMCSR817E-eng.pdf

Vaccin AntiGrippal

- **Réduit la morbi-mortalité:** cas sévères, les hospitalisations
- Efficacité moyenne de 60%
- Stratégie préventive de santé publique chez **les groupes à haut risque**: grossesse, maladies chroniques, personnes âgées, IMC>40 kg/cm2, les immunodéprimés
- **Protection des personnes non-vaccinées vulnérables:** réduction de la transmission/ les professionnels de santé
- **Prévention des pandémies:** production rapide du vaccin et limitation de la propagation de l'infection

The Lancet Infectious Diseases, Volume 12, Issue 1, 36 - 44

Vaccin AntiGrippal: limites

- **Variabilité antigénique:** changement constant du Virus type A.
  - **Échappement immunologique**
  - **Mutations rapides et efficacité variable du vaccin:** **mauvaise correspondance** entre les souches circulantes et les souches vaccinales
- **Procédure lente pour la production sur œufs**
- **Production insuffisante en période de crises**

Vaccin AntiGrippal: limites

- **Nécessité d'une vaccination annuelle:** durée de protection limitée 6 mois.
- **Réponse immunitaire variable et hétérogène** :
  - des personnes vaccinées mais non protégées
  - Immunosénescence et une mauvaise réponse chez les sujets âgés
- **Accès inégal à la vaccination: pays à ressources limitées**
- **Réticence à la vaccination:** après la pandémie de COVID

Types de vaccins contre la grippe

Vaccins inactivés IIV

Vaccins à culture cellulaire ccIIV

Vaccins adjuvantés aIIV

Vaccins recombinants RIV

Vaccins vivants atténués LAIV

Vaccins à ARNm/combinés COVID et grippe

Vaccins à vecteur viral

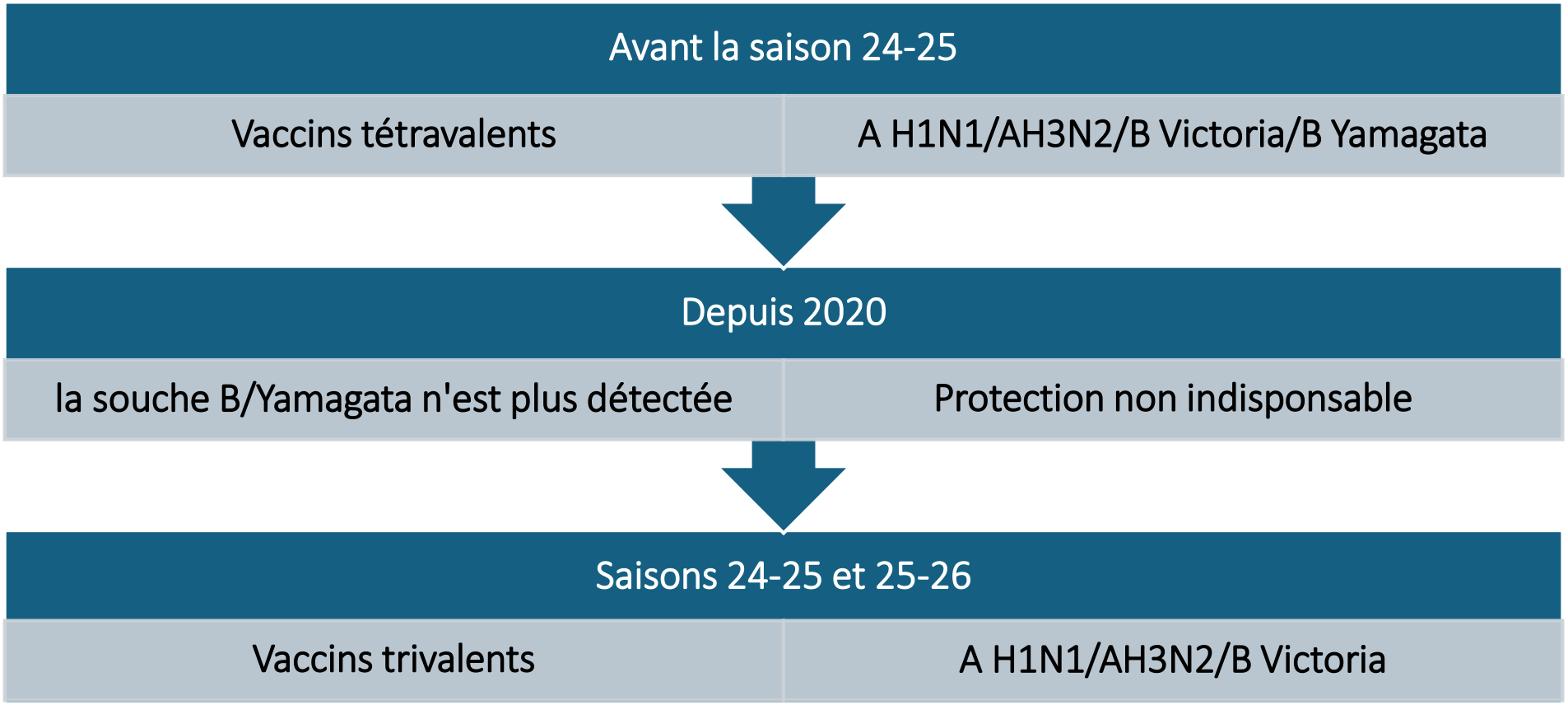
Vaccins inactivés

- **Trivalents (IIV3):** protègent contre deux souches A (H1N1 et H3N2) et une souche B (Victoria)
- **Quadrivalents (IIV4):** protègent contre deux souches A et deux souches B (Victoria et Yamagata)
- Produits dans des œufs de poules embryonnés
- Indiqués chez la majorité des populations

- **6 mois ≤ âge <8 ans:** 2 doses à 1 mois d'intervalle puis 1 dose annuelle
- **8 ans ≤ âge < 65 ans:** dose standard, 1 fois/ an
- **Voie recommandée:** intramusculaire

- Voie S/C si troubles sévères de l'hémostase ou prise d'anticoagulants

Vaccins inactivés



L'allergie aux œufs

- Versions actuelles du vaccin: moins de 1µg d'ovalbumine
- Une bonne tolérance du vaccin chez les allergiques aux œufs
- Allergie non sévère: aucune précaution
- Doute/allergie documentée: administration en milieu de soins

https://www.cdc.gov/acip/evidence-to-recommendations/influenza-egg-allergy-etr.html, septembre 2024

Vaccins à culture cellulaire

- Vaccins inactivés
- Préparés par culture du virus dans des cellules animales
- Réduction des risques d'allergie aux œufs
- Non-infériorité de l'immunogénicité par r aux vaccins habituels
- Indication: > 2 ans

HAS • Vaccin antigrippal FLUCELVAX • février 2025

Vaccins à culture cellulaire VS vaccins IIV ?

- Revue de la littérature
- 2019
- Non infériorité du vaccin à culture cellulaire
- Efficacité significative par rapport aux groupes placebo
- Bonne tolérance

ADIS DRUG EVALUATION

Cell-Based Quadrivalent Inactivated Influenza Virus Vaccine (Flucelvax® Tetra/Flucelvax Quadrivalent®): A Review in the Prevention of Influenza

Yvette N. Lamb[1]

Table 2 Protective efficacy of cell- and egg-based trivalent inactivated influenza virus vaccines in adults

Strains	TIVc ($n=3776$[a])		TIVe ($n=3638$[a])		Placebo ($n=3843$[a])		Vaccine efficacy[b]			
							TIVc vs. placebo		TIVe vs. placebo	
	No. of cases	Attack rate (%)	No. of cases	Attack rate (%)	No. of cases	Attack rate (%)	%	Lower limit of 97.5% CI[c]	%	Lower limit of 97.5% CI[c]
Antigenically matched[d] (i.e. vaccine-like) strains										
Overall[e]	7	0.19	9	0.25	44	1.14	83.8**	61.0	78.4*	52.1
A/H1N1	5	0.13	8	0.22	43	1.12	88.2**	67.4	80.3*	54.7
A/H3N2[f]	2	0.05	1	0.03	0	0				
B[f]	0	0	0	0	1	0.03				
Non-antigenically matched[g] (i.e. non-vaccine-like) strains										
Overall	30	0.79	29	0.80	74	1.93	58.7	33.5	58.6	32.9
A/H1N1	1	0.03	0	0	8	0.21	87.3	4.6	100	33.9
A/H3N2	0	0	2	0.05	8	0.21	100	36.3	73.6	− 30.1
B	29	0.77	27	0.74	59	1.54	50.0	17.5	51.7	19.4
All culture-confirmed influenza										
Overall	42	1.11	49	1.35	140	3.64	69.5**	55.0	63.0*	46.7
A/H1N1	6	0.16	10	0.27	57	1.48	89.3**	73.0	81.5**	60.9
A/H3N2	6	0.16	12	0.33	25	0.65	75.6	35.1	49.3	− 9.0
B	30	0.79	27	0.74	61	1.59	49.9	18.2	53.2	22.2

amb YN. Cell-Based Quadrivalent Inactivated Influenza Virus Vaccine (Flucelvax® Tetra/Flucelvax Quadrivalent®): A Review in the Prevention of Influenza. Drugs. 2019 Aug;79(12):1337-1348. doi: 10.1007/s40265-019-01176-z.

Vaccins adjuvantés

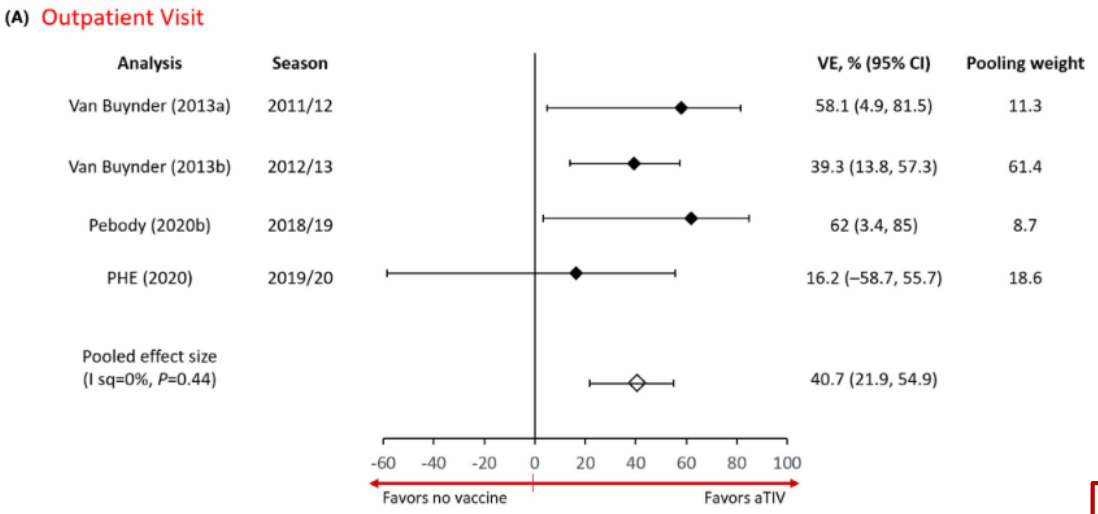
- Vaccins inactivés à antigènes de surface
- Ajout de l'adjuvant MF59 ou AS03 à un vaccin inactivé
- Améliore le recrutement des cellules immunitaires et la réponse humorale
- Protection plus prolongée
- Recommandé âge ≥ 65 ans, la réponse immunitaire est souvent diminuée: **meilleure immunogénicité**

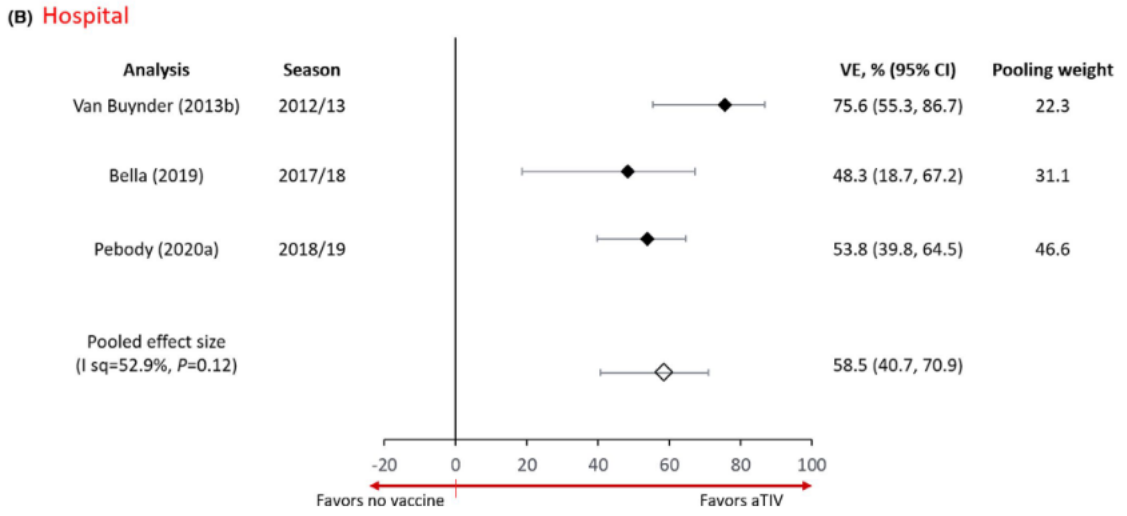
HAS • Vaccin antigrippal FLUAD • février 2025

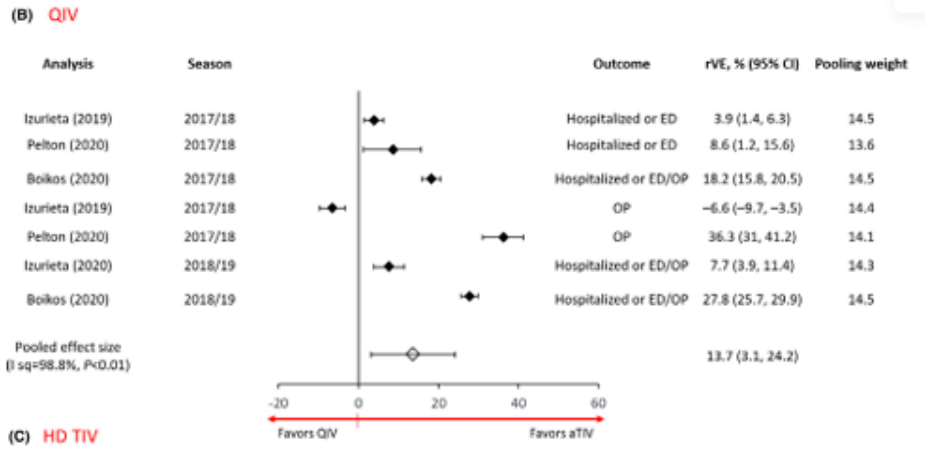
Vaccins adjuvantés

Effectiveness of the MF59-adjuvanted trivalent or quadrivalent seasonal influenza vaccine among adults 65 years of age or older, a systematic review and meta-analysis

Brenda L. Coleman[1,2,3] | Ruth Sanderson[1] | Mendel D. M. Haag[4] | Ian McGovern[5]







- Réduction du taux des tests positifs
- Supériorité par rapport au vaccin tétravalent inactivé

Coleman BL, Sanderson R, Haag MDM, McGovern I. Effectiveness of the MF59-adjuvanted trivalent or quadrivalent seasonal influenza vaccine among adults 65 years of age or older, a systematic review and meta-analysis. Influenza Other Respir Viruses. 2021 Nov;15(6):813-823. doi: 10.1111/irv.12871

Gériatrie: Vaccins adjuvantés ou high-dose?

High-dose: 60µg par souche (standard 15µg/souche)

Efficacité similaire entre les deux vaccins

Moins d'effets indésirables locales pour le high-dose

Gériatrie: Vaccins adjuvantés ou high-dose?

Contents lists available at ScienceDirect

International Journal of Infectious Diseases

journal homepage: www.elsevier.com/locate/ijid

Review

Comparative effectiveness of adjuvanted versus high-dose seasonal influenza vaccines for older adults: a systematic review and meta-analysis

Alexander Domnich[1,*], Chiara de Waure[2]

[1] Hygiene Unit, San Martino Policlinico Hospital - IRCCS for Oncology and Neurosciences, Genoa, Italy
[2] Department of Medicine and Surgery, University of Perugia, Perugia, Italy

- Revue systématique et méta-analyse
- 2022
- Non infériorité entre le vaccin adjuvanté MF50 et le High Dose (HD)

Like all SRMAs, our results and conclusions are affected by the limitations of the primary studies analyzed and those that arose during the review process. The former shortcomings include using nonspecific influenza-related end points with a moderate risk of residual confounding and the likelihood of industry sponsorship bias. Most available studies were industry-sponsored and reported ESs were often skewed toward manufacturers' products. We, therefore, cannot rule out the industry sponsorship bias also, considering that, when only estimates from the publicly funded studies were pooled, no significant differences were usually found. Regarding the SRMA process's limitations, we have to acknowledge that the paucity of available studies did not allow us to verify the presence of publication bias, nor more advanced statistical procedures like meta-regression could be conducted. Second, in some meta-analyses, the observed heterogeneity was extremely severe, and these pooled estimates should be interpreted with particular caution. Analogously, because the number of pooled studies was limited, the observed I^2 values are likely biased (von Hippel, 2015).

In conclusion, the available real-world data on the rVE of aTIV/aQIV versus hdTIV/hdQIV are at moderate RoB but limited to few influenza seasons, nonspecific influenza-related end points, and issuing inconclusive results. Currently, MF59-adjuvanted standard-dose and nonadjuvanted high-dose vaccines appear to have similar effectiveness in preventing seasonal influenza in the elderly. Therefore, no conclusive recommendations on the preference of one vaccine over another could be drawn. Considering

Domnich A, de Waure C. Comparative effectiveness of adjuvanted versus high-dose seasonal influenza vaccines for older adults: a systematic review and meta-analysis. Int J Infect Dis. 2022 Sep;122:855-863. doi: 10.1016/j.ijid.2022.07.048

Et les immunodéprimés?

Vaccin High-Dose (HD)

Vaccin adjuvanté

Voie inradermique (ID)

2ème dose

Contents lists available at ScienceDirect

Vaccine

journal homepage: www.elsevier.com/locate/vaccine

Influenza vaccination in immunocompromised populations: Strategies to improve immunogenicity ☆

Freddy Caldera [a,*], Monica Mercer [b], Sandrine I. Samson [b], Jonathan M. Pitt [c], Mary S. Hayney [d]

[a] Department of Medicine, Division of Gastroenterology and Hepatology, University of Wisconsin School of Medicine and Public Health, Madison, WI, USA
[b] Sanofi Pasteur, Swiftwater, PA, USA
[c] 4Clinics, Paris, France
[d] School of Pharmacy, University of Wisconsin-Madison, Madison, WI, USA

Prise d'immunosuppresseurs

- Arrêt transitoire de Méthotrexate
- High-dose

Transplantation d'organes solides

- 2ème dose
- High-dose
- Vaccin adjuvanté
- Aucun intérêt pour la voie ID

Greffe de cellules souches hémopoétiques

- meilleure immunogénicité si > 1 an post-greffe
- High-dose
- Vaccin adjuvanté

Infection à VIH

- vaccin adjuvanté
- High-dose
- 2ème dose
- Aucun intérêt pour la voie ID

Vaccins recombinants

- Produits par génie génétique
- Expriment la protéine de l'hémagglutinine (HA)
- Réponse immunitaire plus forte
- Production indépendante des œufs
- Moins de risque d'allergie aux œufs
- Indication: âge ≥18 ans

Vaccins recombinants

Clinical Infectious Diseases

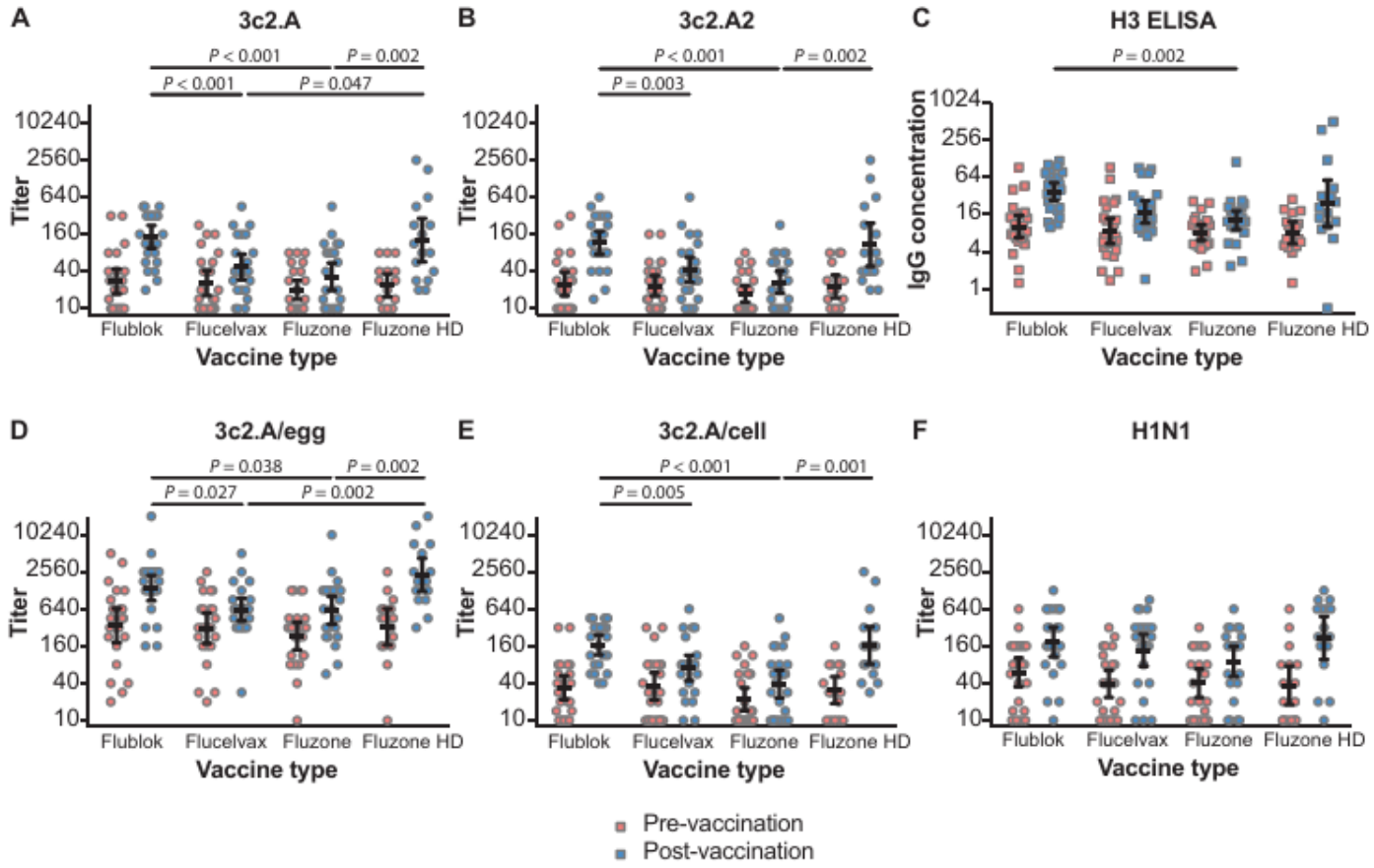
MAJOR ARTICLE

Comparison of Human H3N2 Antibody Responses Elicited by Egg-Based, Cell-Based, and Recombinant Protein–Based Influenza Vaccines During the 2017–2018 Season

Sigrid Gouma,[1] Seth J. Zost,[1] Kaela Parkhouse,[1] Angela Branche,[2] David J. Topham,[3] Sarah Cobey,[4] and Scott E. Hensley[1]

[1]Department of Microbiology, Perelman School of Medicine, University of Pennsylvania, Philadelphia, Pennsylvania, USA, [2]Division of Infectious Diseases, University of Rochester Medical Center, Rochester, New York, USA, [3]Department of Medicine and Department of Microbiology and Immunology, David H. Smith Center for Vaccine Biology and Immunology, University of Rochester Medical Center, Rochester, New York, USA, and [4]Department of Ecology & Evolution, University of Chicago, Chicago, Illinois, USA

- Supériorité du RIV par rapport au vaccin inactivé à dose standard
- Non-infériorité du RIV par rapport au vaccin inactivé High-dose



Comparison of Influenza Vaccines • cid 2020:71 (15 September)

Vaccins vivants atténués

- Administrés par voie nasale: Pulvérisation dans chaque narine
- Enfants: **vecteurs de transmission**/complications
- Réponse immunitaire similaire à l'infection naturelle
- Recommandé: 2-17 ans (HAS), 2-49 ans (CDC)
- **Non recommandé:** femme enceinte, immunodéprimé ou ayant des antécédents d'asthme sévère
- adultes âgés: mauvaise réponse vaccinale

HAS HAUTE AUTORITÉ DE SANTÉ

CDC U.S. CENTERS FOR DISEASE CONTROL AND PREVENTION

Vaccins vivants atténués

Non recommandé:

- si prise d'aspirine: risque de syndrome de Reye
- Si prise d'antiviral contre la grippe dans les 3 semaines précédant la vaccination: bloquer la multiplication des virus atténués
- Si épisode de sifflement respiratoire dans les 12 mois: risque de brochospasme
- Implants cochléaire ou brèche ostéo-méningée: risque **théorique** de méningite virale

Vaccins vivants atténués

Contents lists available at ScienceDirect

Vaccine

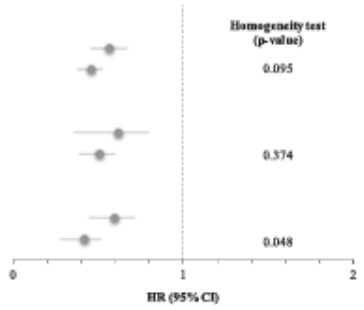
journal homepage: www.elsevier.com/locate/vaccine

Real-world effectiveness of influenza vaccination in preventing influenza and influenza-like illness in children

Vera Rigamonti [a], Vittorio Torri [b], Shaun K. Morris [c,d,e,f], Francesca Ieva [b,g], Carlo Giaquinto [h], Daniele Donà [h], Costanza Di Chiara [c,d,h,1,*], Anna Cantarutti [a,1], CARICE study group

[a] Laboratory of Healthcare Research and Pharmacoepidemiology, Department of Statistic and Quantitative Methods, Division of Biostatistics, Epidemiology and Public Health, University of Milano-Bicocca, Milano, Italy
[b] MOX – Modelling and Scientific Computing Lab, Department of Mathematics, Politecnico di Milano, Milano, Italy
[c] Division of Infectious Diseases, The Hospital for Sick Children, Toronto, ON, Canada
[d] Center for Global Child Health, The Hospital for Sick Children, Toronto, ON, Canada
[e] Department of Pediatrics, Faculty of Medicine, University of Toronto, Toronto, ON, Canada
[f] Division of Clinical Public Health and Centre for Vaccine Preventable Diseases, Dalla Lana School of Public Health, Toronto, ON, Canada
[g] HDS - Health Data Science Centre, Human Technopole, Milano, Italy
[h] Department of Women's and Children's Health, University of Padova, Padova, Italy

Type of vaccine	Influenza season	N of children Vaccinated	N of children Unvaccinated	N of outcomes Vaccinated	N of outcomes Unvaccinated	HR (95% CI) *	Homogeneity test (p-value)
LAIV-4	2022/2024	5,270	125,142	154	6,212	0.57 (0.47 - 0.68)	0.095
IIV		7,510	125,142	245	6,212	0.46 (0.39 - 0.54)	
LAIV-4	2022/2023	1,683	59,542	46	3,413	0.62 (0.44 - 0.88)	0.374
IIV		4,320	59,542	172	3,413	0.51 (0.42 - 0.63)	
LAIV-4	2023/2024	3,587	65,600	108	2,799	0.60 (0.48 - 0.75)	0.048
IIV		3,190	65,600	73	2,799	0.42 (0.32 - 0.56)	



* HRs were adjusted for sex, age at the start of each influenza season, Italian region of birth, deprivation index, comorbidities, and influenza vaccination status number of influenza/ILI episodes, antibiotic therapies, and primary care visits in the epidemiological season preceding the season of interest

- Étude rétrospective
- Effet protecteur de la vaccination chez les enfants

Vaccine 53 (2025) 126946

Vaccins vivants atténués

Contents lists available at ScienceDirect

Journal of Infection and Chemotherapy

journal homepage: www.elsevier.com/locate/jic

Original Article

The efficacy and safety of a quadrivalent live attenuated influenza nasal vaccine in Japanese children: A phase 3, randomized, placebo-controlled study

Tetsuo Nakayama [a,*], Takuya Hayashi [b], Kentaro Makino [b], Keiji Oe [b]

Table 3
Incidence of influenza onset due to vaccine-matched strains (PPS).

	MEDI3250 n = 595 n (%)	Placebo n = 290 n (%)	Relative risk reduction[b] % (95 % CI)[c]
Influenza onset[a] due to vaccine-matched strains	65 (10.9)	50 (17.2)	36.6 (6.5, 56.8)
A/H1N1	0	0	–
A/H3N2	46 (7.7)	38 (13.1)	41.0 (6.8, 62.4)
B/Yamagata	16 (2.7)	9 (3.1)	13.4 (−122.5, 63.9)
B/Victoria	3 (0.5)	3 (1.0)	51.3 (−263.9, 93.5)

- Réduction du risque relatif de l'infection
- Bonne tolérance

Journal of Infection and Chemotherapy 31 (2025) 102460

Les nouvelles technologies: ARNm/Vecteur viral

Vaccin à ARNm

- Meilleure réponse immunitaire
- Adaptation plus rapide aux nouvelles souches
- Possibilité de vaccin combiné grippe/COVID-19
- Phase III

Vaccin à vecteur viral

- Vecteur non réplicatif: adénovirus
- Essai expérimental uniquement

Effets indésirables sévères?

The Journal of Infectious Diseases

MAJOR ARTICLE

Guillain-Barré Syndrome After High-Dose Influenza Vaccine Administration in the United States, 2018–2019 Season

Silvia Perez-Vilar,[1,a] Mao Hu,[2] Eric Weintraub,[3] Deepa Arya,[1,a] Bradley Lufkin,[2] Tanya Myers,[3] Emily Jane Woo,[1] An-Chi Lo,[2] Steve Chu,[4] Madeline Swarr,[2] Jiemin Liao,[2] Michael Wernecke,[2] Tom MaCurdy,[2,5] Jeffrey Kelman,[4] Steven Anderson,[1] Jonathan Duffy,[3] and Richard A. Forshee[1]

[1]Center for Biologics Evaluation and Research, US Food and Drug Administration, Silver Spring, Maryland, USA, [2]Acumen LLC, Burlingame, California, USA, [3]Immunization Safety Office, Centers for Disease Control and Prevention, Atlanta, Georgia, USA, [4]Centers for Medicare & Medicaid Services, Washington, DC, USA, [5]Department of Economics, Stanford University, Stanford, California, USA

ess Review

DOI: 10.7759/cureus.10208

Antigenic Variability a Potential Factor in Assessing Relationship Between Guillain Barré Syndrome and Influenza Vaccine – Up to Date Literature Review

Ravi Soni [1] , Stacey E. Heindl [2] , Dwayne A. Wiltshire [3] , Ilmaben S. Vahora [3] , Safeera Khan [3]

1. Neurology, California Institute of Behavioral Neurosciences & Psychology, Fairfield, USA 2. Medicine, California Institute of Behavioral Neurosciences & Psychology, Fairfield, USA 3. Internal Medicine, California Institute of Behavioral Neurosciences & Psychology, Fairfield, USA

Corresponding author: Ravi Soni, ravisoni.4318@gmail.com

Review Article

sciendo

Influenza vaccination and Guillain–Barré syndrome: Reality or fear

Arefeh Babazadeh[1], Zeinab Mohseni Afshar[2], Mostafa Javanian[1], Mousa Mohammadnia-Afrouzi[1], Ahmad Karkhah[3], Jila Masrour-Roudsari[1], Parisa Sabbagh[1], Veerendra Koppolu[4], Veneela KrishnaRekha Vasigala[5], Soheil Ebrahimpour[1]

- Un effet indésirable rare
- Le risque de syndrome de Guillain Barré (GBS) en cas de grippe est significativement supérieur au risque du GBS lié au vaccin

Réticence à la vaccination avant la pandémie COVID19

PLOS ONE

RESEARCH ARTICLE

Knowledge attitudes and practices toward seasonal influenza vaccine among pregnant women during the 2018/2019 influenza season in Tunisia

Sonia Dhaouadi[1], Ghassen Kharroubi[2,3], Amal Cherif[1], Ines Cherif[2,3], Hind Bouguerra[1], Leila Bouabid[1], Nourhene Najar[1], Adel Gharbi[2,3], Afif Ben Salah[2,3,4], Nissaf Bouafif ép Ben Alaya[1], Jihene Bettaieb[2,3]

1 National Observatory of New and Emerging Diseases, Tunis, Tunisia, **2** Laboratory of Medical Epidemiology, Pasteur Institute of Tunis, Tunis, Tunisia, **3** Laboratory of Transmission, Control and Immunobiology of Infections (LR11IPT02), Pasteur Institute of Tunis, Tunis, Tunisia, **4** Arabian Gulf University, Manama, Bahrain

Check for updates

- Questionnaire mené en 2019
- 1157 femmes enceintes
- 4.6% vaccinée durant la grossesse

Réticence à la vaccination avant la pandémie COVID19

JOURNAL ARTICLE

Prevalence of seasonal Influenza vaccination among Tunisian elderly FREE

G Kharroubi , I Cherif , L Bouabid , A Gharbi , A Boukthir , M McCarron , N Ben Alaya , A Ben Salah , J Bettaieb

European Journal of Public Health, Volume 30, Issue Supplement_5, September 2020, ckaa166.1436, https://doi.org/10.1093/eurpub/ckaa166.1436

Published: 30 September 2020

- Questionnaire mené en 2019
- 1191 personnes> 60ans
- Vaccination antérieure: 34.8%
- Vaccination durant la saison 18-19: 19.4%

Réticence à la vaccination en Post-COVID19

Public Health 194 (2021) 245–251

Contents lists available at ScienceDirect

Public Health

journal homepage: www.elsevier.com/locate/puhe

Review Paper

Vaccine hesitancy in the era of COVID-19

G. Troiano*, A. Nardi

UOSD Vaccinations, ASST Melegnano e della Martesana, Italy

- 2021
- Taux d'acceptation pour le vaccin antigrippal de 69%

A B S T R A C T

Objectives: In 2019, a new coronavirus has been identified and many efforts have been directed toward the development of effective vaccines. However, the willingness for vaccination is deeply influenced by several factors. So the aim of our review was to analyze the theme of vaccine hesitancy during COVID-19 pandemic, with a particular focus on vaccine hesitancy toward COVID-19 vaccine.

Study design: Narrative review.

Methods: In November 2020, we performed a search for original peer-reviewed articles in the electronic database PubMed (MEDLINE). The key search terms were "Vaccine hesitancy AND COVID-19". We searched for studies published during COVID-19 pandemic and reporting information about the phenomenon of vaccine hesitancy.

Results: Fifteen studies were included in the review. The percentage of COVID-19 vaccine acceptance was not so high (up to 86.1% students or 77.6% general population); for influenza vaccine, the maximum percentage was 69%. Several factors influenced the acceptance or refusal (ethnicity, working status, religiosity, politics, gender, age, education, income, etc.).

The most given reasons to refuse vaccine were as follows: being against vaccines in general, concerns about safety/thinking that a vaccine produced in a rush is too dangerous, considering the vaccine useless because of the harmless nature of COVID-19, general lack of trust, doubts about the efficiency of the vaccine, belief to be already immunized, doubt about the provenience of vaccine.

Conclusions: The high vaccine hesitancy, also during COVID-19 pandemic, represents an important problem, and further efforts should be done to support people and give them correct information about vaccines.

Réticence à la vaccination en Post-COVID19

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P1-5 - Vaccination antigrippale chez les pédiatres en 2022-2023, Tunisie

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- 2024
- 192 pédiatres inclus
- **25.1% vaccinés en 2023**
- Facteurs associées à la vaccination: l'âge, l'expérience professionnelle et les comorbidités

Les défis majeurs du vaccin antigrippal: un vaccin universel

- **Anticiper les souches circulantes:** correspondance entre les souches et les vaccins
- **Améliorer l'efficacité** chez les personnes âgées/immunodéprimées
- Alternatives à la production dans les œufs
- **Augmenter la durée de protection**
- **Réduire les changements annuels**
- **Éviter les pandémies**

Conclusion

- Vaccin disponible, efficace et bien toléré
- Type selon les populations spécifiques
- Nouvelles plateformes
- Renforcer la sensibilisation