Vaccination antigrippale : est-ce vraiment efficace ?

Bruno Housset

Pneumologie

CHI de Créteil

Conflits d'intérêts

- Lien d'intérêt éventuel avec la présentation :
  aucun conflit d'intérêt

The Cochrane Collaboration (1)

- Recherche essais contrôlés randomisés (ou quasi) comparant vaccinés vs placebo ou non intervention
  - MEDLINE (Janvier 1966 – Mai 2013)
  - EMBASE (1990 – Mai 2013)
- 90 rapports contenant 116 data sets :
  - 69 essais cliniques (70.000 sujets)
  - 27 études de comparaison de cohortes (environ 8 millions de sujets)
  - 20 études cas/contrôle
  - 23 rapports sur efficacité et sécurité chez la femme enceinte (environ 1,6 millions de couple mère/enfant)

Jefferson T, Di Pietrantonj C, Rivetti A, Bawazeer GA, Al-Ansary LA, Ferroni E. Vaccines for preventing influenza in healthy adults. Cochrane Database Syst Rev. 2014;3:CD001269.

The Cochrane Collaboration (2)

- Efficacité estimée sur le NNV (Number Needed to Vaccinate)
- Vaccin inactivé
  - Syndromes grippaux (SG) :   40 (IC 95% : 26 – 128)
  - Grippe confirmée (GC) :   71 (IC 95% : 64 – 80)
  - Femme enceinte (SG) :   92 (IC 95% : 63 – 201)
  - Nouveau-né de mère vaccinée (GC) : 27 (IC 95% : 18 – 185)
- Vaccin vivant en aérosol
  - Globalement   46 (IC 95% : 29 – 115)
- Vaccin virion entier pandémique
  - Syndromes grippaux (SG) :   16 (IC 95% : 14 – 20)
  - Grippe confirmée (GC) :   35 (IC 95% : 33 – 47)
  - Impact très modeste Hospitalisation : 94 (IC 95% : 70 – 1022)

Jefferson T, Di Pietrantonj C, Rivetti A, Bawazeer GA, Al-Ansary LA, Ferroni E. Vaccines for preventing influenza in healthy adults. Cochrane Database Syst Rev. 2014;3:CD001269.

Population	Strain	Influenza pos		Influenza neg		Vaccine effectiveness (%)*
		V+	N	V+	N	
All populations	All strains	636	1283	748	1116	51.5 (41.6, 59.7)
	A	586	1190	748	1116	52.4 (42.6, 60.6)
	A/H1N1/09pdm	75	219	748	1116	60.0 (39.9, 73.4)
	A/H3N2	163	279	748	1116	35.0 (8.8, 53.6)
	B	49	90	748	1116	39.1 (0.1, 62.8)

Cheng AC, Kotsimbos T, Kelly PM. Influenza vaccine effectiveness against hospitalisation with influenza in adults in Australia in 2014. Vaccine [Internet]. oct 2015 [cité 21 nov 2015]; Disponible sur: http://linkinghub.elsevier.com/retrieve/pii/S0264410X15014310

Mauvaise saison 2014/2015 – Mismatch A/H3N2

Laboratory detections of influenza by week and type/subtype, interim 2014/15 influenza vaccine effectiveness evaluation, Canadian Sentinel Physician Surveillance Network, 28 September 2014–19 January 2015 (n=978)
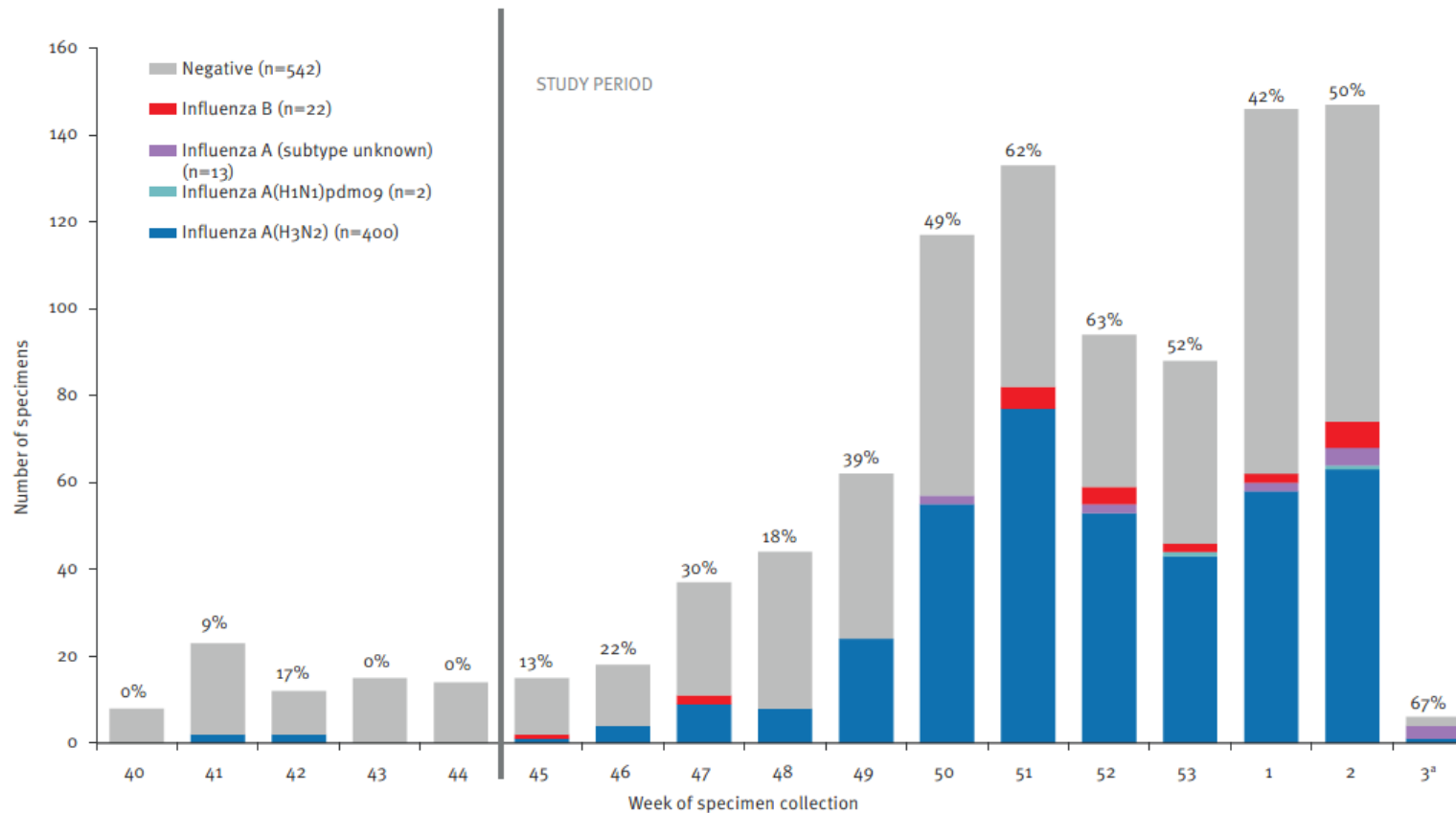
a Based on partial week.
Influenza percent positivity by week is shown above bars.

Skowronski DM, Chambers C, Sabaiduc S, De Serres G, Dickinson JA, Winter AL, et al. Interim estimates of 2014/15 vaccine effectiveness against influenza A(H3N2) from Canada's Sentinel Physician Surveillance Network, January 2015. Euro Surveill. 2015;20(4).

6

Mauvaise saison 2014/2015 – Mismatch A/H3N2

Model	Influenza (any)	Influenza A	Influenza A(H3N2)
	VE (95% CI)	VE (95% CI)	VE (95% CI)
Primary analysis			
N [n case (% vac); n control (% vac)]	861 [410 (35); 451 (33)]	842 [391 (36); 451 (33)]	830 [379 (37); 451 (33)]
Unadjusted	−12 (−49 to 16)	−17 (−55 to 12)	−21 (−61 to 9)
Age group (1−8, 9−19, 20−49, 50−64, ≥65 years)	−11 (−51 to 18)	−17 (−60 to 14)	−22 (−67 to 10)
Sex (female/male)	−19 (−58 to 11)	−24 (−65 to 7)	−29 (−73 to 4)
Comorbidity (no/yes)	−10 (−47 to 18)	−15 (−54 to 14)	−19 (−60 to 12)
Province (Alberta, British Columbia, Ontario, Quebec)	−12 (−49 to 16)	−15 (−54 to 14)	−19 (−59 to 11)
Collection interval (≤4/5−7 days)	−14 (−52 to 14)	−19 (−59 to 11)	−23 (−65 to 8)
Calendar time (2-week interval)	0 (−34 to 25)	−4 (−39 to 23)	−8 (−45 to 20)
Age, sex, comorbidity, province, interval, time	−1 (−40 to 28)	−4 (−45 to 25)	−8 (−50 to 23)

Skowronski DM, Chambers C, Sabaiduc S, De Serres G, Dickinson JA, Winter AL, et al. Interim estimates of 2014/15 vaccine effectiveness against influenza A(H3N2) from Canada's Sentinel Physician Surveillance Network, January 2015. Euro Surveill. 2015;20(4).

- Canada
  - 2014/15 : - 8 % [-50 – 23]
  - 2013/14 : 74 % [58 – 83]
  - 2012/13 : 45 %
  - 2011/12 : 39 %

Mauvaise saison 2014/2015 – Mismatch A/H3N2

TABLE 2. Number and percentage receiving 2014–15 seasonal influenza vaccine among 2,321 outpatients with acute respiratory illness and cough, by influenza test result status, age group, and vaccine effectiveness* against all influenza A and B and against virus type A (H3N2) — U.S. Influenza Vaccine Effectiveness Network, United States, November 10, 2014–January 2, 2015

| | Influenza positive | | | Influenza negative | | | Vaccine effectiveness | | | |
| | | | | | | | Unadjusted | | Adjusted | |
Influenza type/Age group	No. vaccinated	Total sample	(%)	No. vaccinated	Total sample	(%)	(%)	(95% CI)	(%)	(95% CI)
Influenza A and B										
Overall	465	950	(49)	771	1,371	(56)	(25)	(12–37)	(23)	(8–36)
Age group (yrs)										
6 mos–17	159	410	(39)	285	583	(49)	(34)	(14–49)	(24)	(0–43)
18–49	114	268	(43)	193	400	(48)	(21)	(-8–42)	(16)	(-18–41)
≥50	192	272	(71)	293	388	(76)	(22)	(-10–45)	(23)	(-14–47)
Influenza A (H3N2)										
Overall	407	841	(48)	771	1,371	(56)	(27)	(13–39)	(22)	(5–35)
Age group (yrs)										
6 mos–17	143	375	(38)	285	583	(49)	(35)	(16–50)	(26)	(2–45)
18–49	100	235	(43)	193	400	(48)	(21)	(-10–43)	(12)	(-26–39)
≥50	164	231	(71)	293	388	(76)	(21)	(-15–45)	(14)	(-31–43)

Abbreviation: CI = confidence interval.
* Vaccine effectiveness was estimated as 100% x (1 - odds ratio [ratio of odds of being vaccinated among outpatients with influenza-positive test results to the odds of being vaccinated among outpatients with influenza-negative test results]); odds ratios were estimated using logistic regression.

Flannery B, Clippard J, Zimmerman RK, Nowalk MP, Jackson ML, Jackson LA, et al. Early estimates of seasonal influenza vaccine effectiveness - United States, January 2015. MMWR Morb Mortal Wkly Rep. 16 janv 2015;64(1):10-5.

Ce n'est pas une raison pour ne plus vacciner !

- Early estimates indicate that influenza vaccines provide limited protection against influenza viruses circulating so far during 2014–15 season, which were mainly influenza A (H3N2) viruses.

- Although vaccination should continue as long as influenza viruses are circulating, treatment with influenza antiviral medications is more important than usual.

Flannery B, Clippard J, Zimmerman RK, Nowalk MP, Jackson ML, Jackson LA, et al. Early estimates of seasonal influenza vaccine effectiveness - United States, January 2015. MMWR Morb Mortal Wkly Rep. 16 janv 2015;64(1):10-5.

Characteristics of the study participants and the 2012-2013 influenza vaccination rates

Characteristics	n	%	2012-2013 Influenza vaccination coverage	
			%	95% CI
Overall	3,213	100	22.3	20.9-23.8
Sex				
Female	2,705	84.2	21.1	19.6-22.7
Male	365	11.4	32.3	27.6-37.4
Missing data	143	4.4	NA	
Age, y				
<40	1,489	46.3	16.1	14.3-18.1
≥40	1,528	47.6	29.0	26.7-31.4
Missing data	196	6.1	NA	
Occupation				
Physician	132	4.1	61.4	52.5-69.7
Senior nurse	125	3.9	49.6	40.5-58.7
Nurse	788	24.5	22.1	19.3-25.2
Assistant nurse	916	28.5	17.2	14.9-19.9
Nonmedical staff	1,128	32.2	19.9	17.6-22.3
Missing data	124	3.9	NA	
Work setting				
Short-stay care	557	17.3	30.0	26.2-34.0
Long-term care	626	19.5	20.3	17.2-23.7
Long-term care for older adults	1,227	38.2	19.6	17.4-21.9
Other*	669	20.8	22,4	19.4-25.8
Missing data	134	4.2	NA	
Contact with patients				
Daily or frequent	2,672	88.2	21.3	19.8-22.9
Rare or absent	359	11.8	28.1	23.6-33.1
Missing data	182	5.7	NA	
Correct answers (out of 7 questions on influenza disease and vaccination)				
0	187	5.8	8.0	4.6-12.9
1	700	21.8	14.9	12.3-17.8
2	1,500	46.7	22.7	20.7-25.0
3	826	25.7	31.1	28.0-34.4
4-7	0	NA	NA	NA

CI, confidence interval; NA, not applicable.
*Administrative services, home care, and patient transport.

Kadi Z, Atif M-L, Brenet A, Izoard S, Astagneau P. Barriers of influenza vaccination in health care personnel in France. American Journal of Infection Control [Internet]. nov 2015 [cité 21 nov 2015]; Disponible sur: http://linkinghub.elsevier.com/retrieve/pii/S0196655315010287

Barrières à la vaccination

Barriers to influenza vaccination in 2012-2013, multivariate analysis ($P < .05$)

Barrier	OR	95% CI	P value
Occupation: nurse, assistant nurse or nonmedical	3.39	2.51-4.56	<.01
Physicians and senior nurses	1	NA	
Age <40 y	2.01	1.66-2.44	<.01
Age ≥40 y	1	NA	
Level of knowledge of influenza score (by 1)*	1.57	1.39-1.78	<.01
Female sex	1.44	1.09-1.89	.01
Male sex	1	NA	
Long-term care setting	1.33	1.05-1.68	.02
Short-stay care and other[†]	1		NA

CI, confidence interval; NA, not applicable; OR, odds ratio.
*Number of correct answers (out of 7).
[†]Administrative services, home care, and patient transport.

Kadi Z, Atif M-L, Brenet A, Izoard S, Astagneau P. Barriers of influenza vaccination in health care personnel in France. American Journal of Infection Control [Internet]. nov 2015 [cité 21 nov 2015]; Disponible sur: http://linkinghub.elsevier.com/retrieve/pii/S0196655315010287
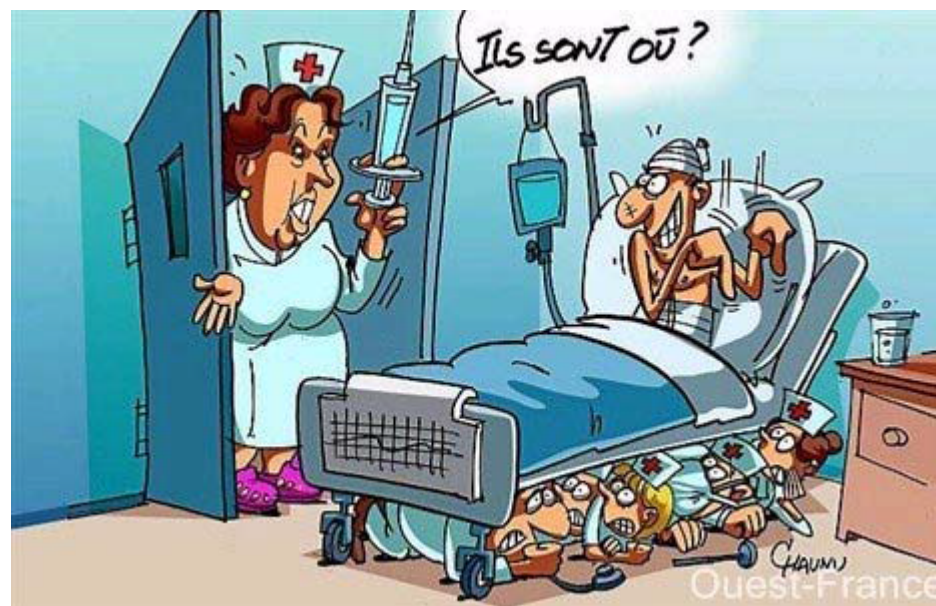
- La vaccination des professionels de santé est justifiée par des raisons cliniques, économiques et éthiques

- La question n'est pas
  - "Faut-il vacciner ?"

- La question est
  - "Comment améliorer la compliance ?"

Les actions proposées pour améliorer la compliance

- ☐ Assurer la gratuité des vaccins

- ☐ Communiquer / informer le professionnel

- ☐ Implication forte de l'administration

- ☐ Faciliter accès à la vaccination : équipe mobile, vaccination à toute heure

- ☐ Assurer une rétro-information de la couverture vaccinale

- ☐ Inscrire la couverture vaccinale des personnels dans les indicateurs de qualité et sécurité des soins

- ☐ Vaccination visible des leaders (chefs de service, cadres…)

- ☐ Faire signer un formulaire de refus ?

- ☐ Rendre la vaccination obligatoire ?

Les actions proposées pour améliorer la compliance

- ☑ Assurer la gratuité des vaccins

- ☑ Communiquer / informer le professionnel

- ☑ Implication forte de l'administration

- ☑ Faciliter accès à la vaccination : équipe mobile, vaccination à toute heure

- ☑ Assurer une rétro-information de la couverture vaccinale

- ☑ Inscrire la couverture vaccinale des personnels dans les indicateurs de qualité et sécurité des soins

- ☐ Vaccination visible des leaders (chefs de service, cadres…)

- ☐ Faire signer un formulaire de refus ?

- ☐ Rendre la vaccination obligatoire ?

Politique vaccinale « incitative »

- Colombie britannique Vaccination « obligatoire » du personnel de santé:
  - Vaccinés : point vert sur le badge
  - Non vaccinés : port de masque pendant la période épidémique
- Résultats

	2011/2012	2012/2013
MCO	40% (23,375/58,212)	74% (35,889/48,818)
Résidences personnes âgées	57% (21,535/37,700)	75% (27,617/36,620)

$P < 0,001$

Health care unions claimed that the Policy was coercive, and they launched an unsuccessful grievance with the BC Labour Relations Board

Ksienski DS. Mandatory seasonal influenza vaccination or masking of British Columbia health care workers: Year 1.
Can J Public Health. 2014 Aug;105(4):e312–6.

Analyse des commentaires sur des sites internet au Canada

Table 1. Comparison of sentiment towards influenza vaccine and indicators of interest between commenters to articles in B.C. papers and national papers.

		Number of individuals (%) (Overall)	Number of individuals (%) (B.C.)	Number of individuals (%) (Canada)
	N	648	92	556
Sentiment toward influenza vaccine	Positive	182 (28%)	19 (29%)	163 (29%)
	Negative	313 (48%)	41 (45%)	272 (49%)
	Neutral	128 (20%)	27 (29%)	101 (18%)
	Mixed	25 (4%)	5 (5%)	20 (4%)
Indicator of interest	HCW	70 (11%)	11 (12%)	59 (11%)
	Personal Story	83 (13%)	10 (11%)	73 (13%)
	Link or Statistic	114 (18%)	22 (24%)	92 (17%)
	Support for B.C. Policy	144 (22%)	16 (17%)	128 (23%)

doi:10.1371/journal.pone.0129993.t001

Lei Y, Pereira JA, Quach S, Bettinger JA, Kwong JC, Corace K, et al. Examining Perceptions about Mandatory Influenza Vaccination of Healthcare Workers through Online Comments on News Stories. Bauch CT, éditeur. PLOS ONE. 18 juin 2015;10(6):e0129993.
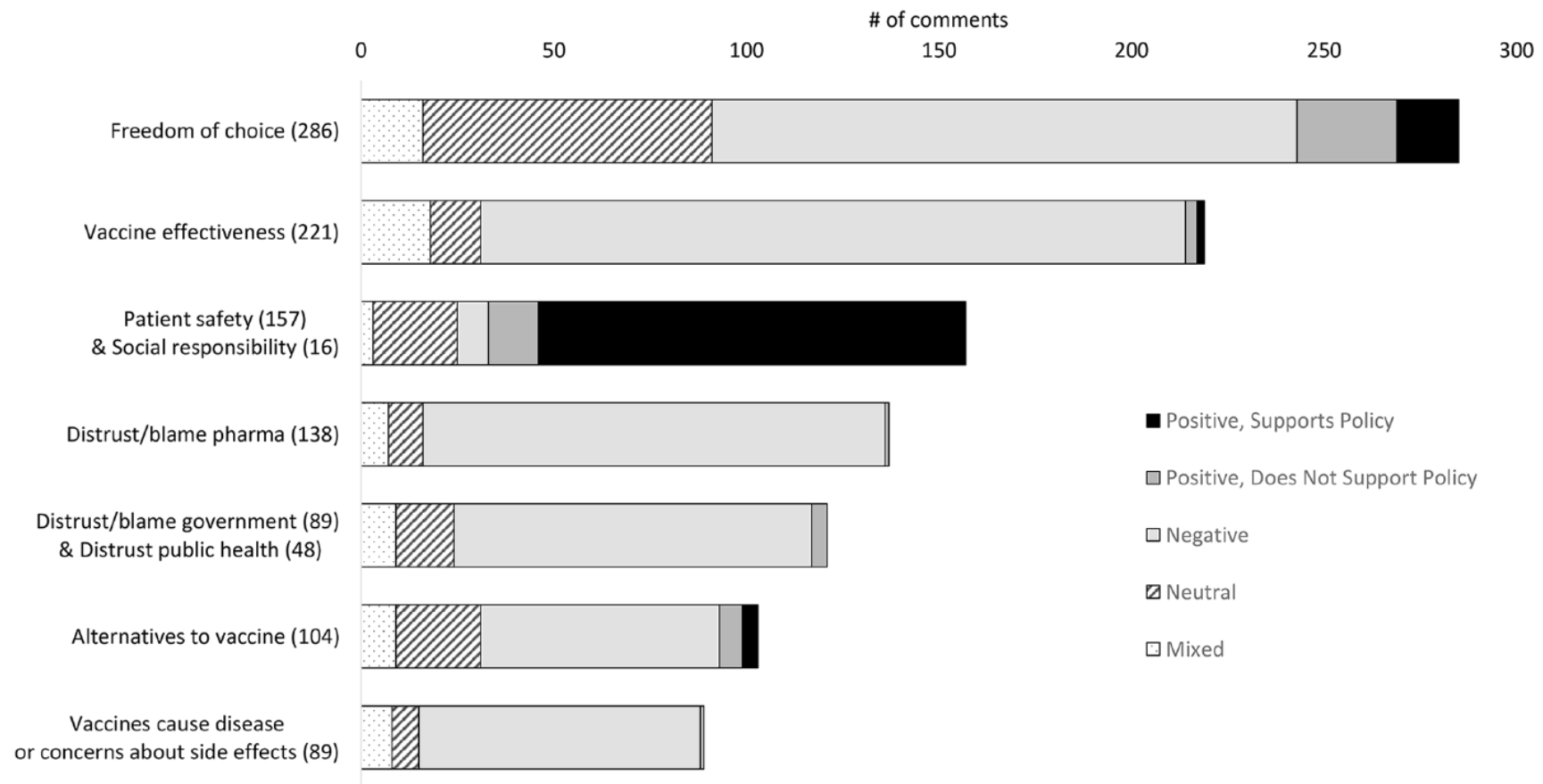
Fig 2. Seven most frequent themes and their distribution of sentiment. Freedom of choice, vaccine effectiveness, patient safety, distrust of the pharmaceutical industry, distrust of the government or public health, alternatives to vaccine, and concerns about side effects are the seven most frequently-appearing themes in our analysis.

Lei Y, Pereira JA, Quach S, Bettinger JA, Kwong JC, Corace K, et al. Examining Perceptions about Mandatory Influenza Vaccination of Healthcare Workers through Online Comments on News Stories. Bauch CT, éditeur. PLOS ONE. 18 juin 2015;10(6):e0129993.

18