Knowledge, attitudes and vaccination coverage of healthcare workers in Paris

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Immunizations and healthcare workers in France

- 2 types of recommendations:
  - Mandatory:
    - BCG
    - Diphtheria, tetanus, poliomyelitis
    - Hepatitis B
  - « Recommended » (i.e. not mandatory)
    - Influenza
    - Measles
    - Pertussis
    - Varicella

Vaccine policy at AP-HP (Paris hospitals)

- Each occupational vaccine is given free in occupational medicine, for each professional category (incl. students)
- Vaccination campaign only for influenza, annually
- Information on other vaccination during or after epidemics (measles, pertussis)

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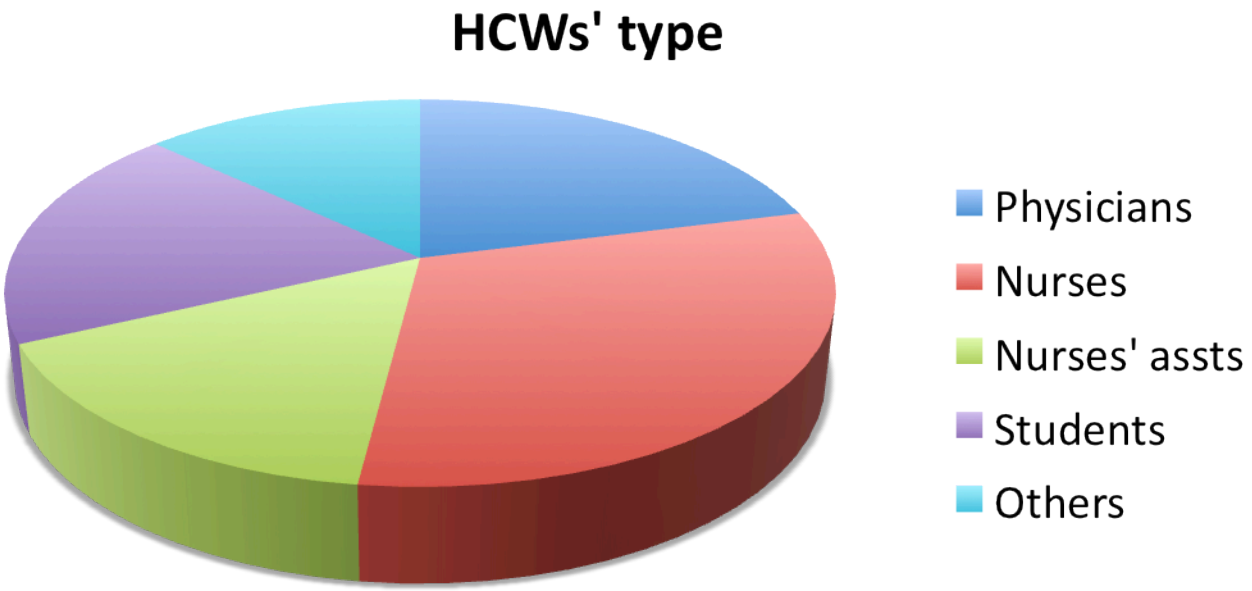
Methods

- Monocentric 1200-bed university hospital
- Self-administered questionnaire
- Filled in front a nurse
- 5 professional categories:
  - Physicians
  - Nurses
  - Nurses' assistants
  - Students
  - Others (w/o contact with patients)

Results

395 HCWs included (other 580) in 2 departments (Internal medicine and Pediatrics)
Median age: 33 years
M/F ratio: 0.2



Knowledge on occupational vaccinations

- Mandatory vaccinations:
  - 25% cited them all correctly
  - 37% cited 2
  - 35% cited 1
  - 3% cited none
- Hep B was the most cited (69%), followed by BCG (54%) and DTP (43%)

- Recommended vaccinations:

Knowledge of HCWs regarding recommended occupational vaccinations in a teaching hospital of Paris, France.

Vaccination cited	Healthcare workers category					
	Physicians, $N=82$	Nurses, $N=124$	Nurses' assistants, $N=63$	Students, $N=75$	Others[a], $N=51$	Total, $N=395$
Influenza	54(66%)	67(54%)	19(30%)	46(61%)	18(35%)	204(52%)
Pertussis	18(22%)	16(13%)	3(5%)	8(11%)	2(4%)	47(12%)
Measles	3(4%)	10(8%)	2(3%)	2(3%)	1(2%)	18(5%)
Varicella	7(8.5%)	6(5%)	0(0%)	1(1.5%)	0	14(4%)

[a] HCWs without close and repeated contact with patients (clinical research assistants, psychologists, secretaries, and administrative staff).

Knowledge on occupational vaccinations

- Better knowledge for physicians, nurses and students for influenza vaccination (60% vs 32%, $p<0.05$)
- The dept. of Pediatrics had a better knowledge of influenza vaccination than adult medicine (76% vs 61%, $p<0.05$)
- Better answers for HCWs in contact w/ patients compared to the others ($p = 0.001$; OR 3.05, 95% CI 1.50–5.91)

Vaccine coverage

- Hepatitis B:
  - 97% vaccinated
    - 65% knew their serological status
- Influenza:
  - 49% received at least one shot, 27% last year
    - 52% of the physicians
    - 43% of the students
    - 22% of the nurses and nurses' assistants
    - 8% of the others
- Varicella:
  - 84% had a history of varicella

Reasons for vaccination or refusal (influenza)

Table 2
Main reasons given for accepting influenza shot among vaccinated responders ($N = 121$) sorted by category of HCWs.

Reason[a]	Healthcare workers category					
	Physicians, $N = 43$	Nurses, $N = 28$	Nurses' assistants, $N = 14$	Students, $N = 32$	Others, $N = 4$	Total, $N = 121$
Recommended	21 (49%)	9 (32%)	6 (43%)	12 (37.5%)	2 (50%)	50
Protecting oneself	35 (81%)	21 (75%)	7 (50%)	6 (18.75%)	2 (50%)	83
Protecting one's family	29 (67%)	14 (50%)	5 (36%)	8 (25%)	1 (25%)	68
Protecting the patients	35 (81%)	18 (64%)	10 (71%)	26 (81%)	0	76

[a] More than one reason was possible.

Table 3
Main reasons given for absence of influenza vaccine among non-vaccinatedresponders ($N = 199$) sorted by profession.

Reason[a]	Healthcare workers category					
	Physicians, $N = 23$	Nurses, $N = 67$	Nurses' assistants, $N = 34$	Students, $N = 37$	Others, $N = 38$	Total, $N = 199$
Not effective	7 (31%)	37 (55%)	18 (53%)	24 (65%)	23 (61%)	109 (55%)
Fear of side effects	4 (18%)	14 (21%)	9 (27%)	5 (14%)	9 (24%)	41 (21%)
Forgot	11 (44%)	8 (12%)	2 (6%)	5 (14%)	4 (11%)	30 (15%)

[a] More than one reason was possible.

Final model[a] of risk markers for being vaccinated against influenza ($N = 395$).

Variables		Unadjusted OR (95% CI)	Adjusted OR (95% CI)
Sex	Female	1	–
	Male	1.53 (0.93–2.53)	–
HCWs in contact with patients	No	1	1
	Yes	3.25 (1.67–6.32)	3.05 (1.50–5.91)
Knowledge of the recommended vaccinations	No correct answer	1	–
	At least 1 correct answer	1.72 (1.15–2.57)	–
Influenza vaccination cited as recommended vaccination	No	1	1
	Yes	1.8 (1.21–2.67)	1.75 (1.13–2.57)

OR = odds ratio; CI = confidence interval.

[a] All the variables listed were included in the logistic regression model and a backward stepwise procedure were used to include in the final model only factors independently associated with influenza vaccination.

Discussion

- HCWs know little on the occupational immunizations
- Better knowledge for mandatory vaccines, and « polemical » ones (hep B, influenza)
- Recommended vaccines are badly known, even if they are related to epidemics (measles, pertussis), the existence of varicella vaccine is barely known

Discussion

- Influenza vaccination rates are different between the categories of HCWs
- Barriers to vaccination are also different
- Interestingly, same is found in other studies worldwide *(Hofman, Infection 2006; Abramson, Vaccine 2008; Norton, Vaccine 2009)*
- 2010: national survey *(Guthmann, Vaccine 2012)*
  - Hep B: 92%
  - DTP: 95%
  - BCG: 95%
  - Influenza: 25%
  - Measles: 49%
  - Pertussis: 11%
  - VZV: 30%

Ideas to improve vaccine coverage

- Education: more hours for vaccinology in healthcare schools, discuss the benefits and the questions
- Communication: different beliefs, different fears => different communication ! ADAPT the com to the different groups of HCWs
- Enforcement: produce a real certificate that the HCW can keep
- Mandatory ?

HCWs' vaccines: all mandatory ?

- HCWs seem to prefer this solution *(Maltezou AJIC 2012)*
- Need a good education campaign, adapted to different HCWs *(Banach AJIC 2012)*
- Question of civil rights ? France 2010: H1N1 vaccine cannot be mandatory because it is more a heteroprotection than a autoprotection

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THANK YOU

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