

# **Survey of influenza vaccination coverage and its determinants in nursing homes in France, season 2007-2008**

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# Background

- Influenza: a threat in nursing homes
  - Rapid spread
  - High risk persons: 65 years+ /dependency
- Acute respiratory infections: leading cause of mortality by infection
  - ⇒ Vaccination of staff/ residents is recommended in french nursing homes
- Few data of this coverage



# Objectives

- To measure, in French nursing homes during the 2007-2008 season:
  - Staff influenza vaccination coverage
  - Association staff vaccination coverage / nursing homes' characteristics
  - Residents' influenza vaccine coverage



# Population and Methods



# Population

## NURSING HOMES IN FRANCE (100%)

### Medico-social institutions

**Elderly Care Residences  
ECR (61 %)**

**Apartments for seniors  
(28 %)**

**Temporary housings  
(1 %)**

### Healthcare institutions

**Long Term Care Facilities  
LTCF (10 %)**




- Living conditions close / community
- Less dependent residents
- Fewer employees



# Sample

- Sampling frame: Finess
- Population size: **N= 7,420**
- Simple random sampling
- Sample size: **n= 2,276**
- Stratification
  - Elderly Care Residences : type/ size/ geographical area
  - Long Term Care Facilities: exhaustive



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- INSTITUT  
DE VIEILLE SAINTAIRE
- # Prévention et gestion des cas groupés d'infections respiratoires aiguës en établissement pour personnes âgées au cours de l'hiver 2007-2008
- ## Réponses à l'iNVS
- par fax : 01 41 79 68 02  
par courrier : iNVS Département des maladies infectieuses  
12, rue du Val d'Osne  
94415 Saint-Maurice Cedex
- Pour toute question Joindre
- Dr Delphine Noël  
tél. : 01 41 79 69 76  
courriel : d.noel@iNVS.sainte.fr
- Attention si vous regroupez 2 types d'établissements, remplir un questionnaire pour chacun.**
- ## Volet administratif
- ### 1 Nom et adresse de votre établissement :
- adresse électronique :
- n° Finess établissement :
- 
- ### 2 Coordonnées du correspondant à contacter :
- nom :
- téléphone :
- fonction (directeur, médecin coordonnateur, surveillant(e), infirmier(e),...) :
- ### 3 Quel est le type de l'établissement ?
- ☐ maison de retraite  
☐ unité de soins de longue durée (USLD)  
☐ autre, précisez :
- ### 4 Votre établissement est une :
- ☐ structure publique  
☐ structure privée à but non lucratif  
☐ structure privée à but lucratif
- ### 5 Votre établissement a-t-il signé une convention tripartite EHPAD ?
- ☐ oui ☐ non ☐ en cours
- ### 6 Votre établissement a-t-il un médecin coordonnateur ?
- ☐ oui ☐ non
- ### 7 Votre établissement est-il rattaché à une structure hospitalière ?
- ☐ oui, dans l'enceinte d'un hôpital  
☐ oui, mais à distance d'un hôpital  
☐ non
- ### 8 Pouvez-vous avoir l'appui d'un réseau de lutte contre les infections nosocomiales ou d'une structure d'hygiène ?
- ☐ oui ☐ non ☐ ne sait pas
- Prévention et gestion des cas groupés d'infections respiratoires aiguës en établissement pour personnes âgées au cours de l'hiver 2007-2008 - 1



# Analysis

- Analysis performed according to sampling design
- Vaccination coverage rates: % and 95% confidence intervals
- Multivariate analysis: determinants of staff vaccination
  - Aggregated data
  - Poisson regression: not used (overdispersion)
  - ⇒ **Negative binomial regression**
  - Variables with strong association → multivariate model

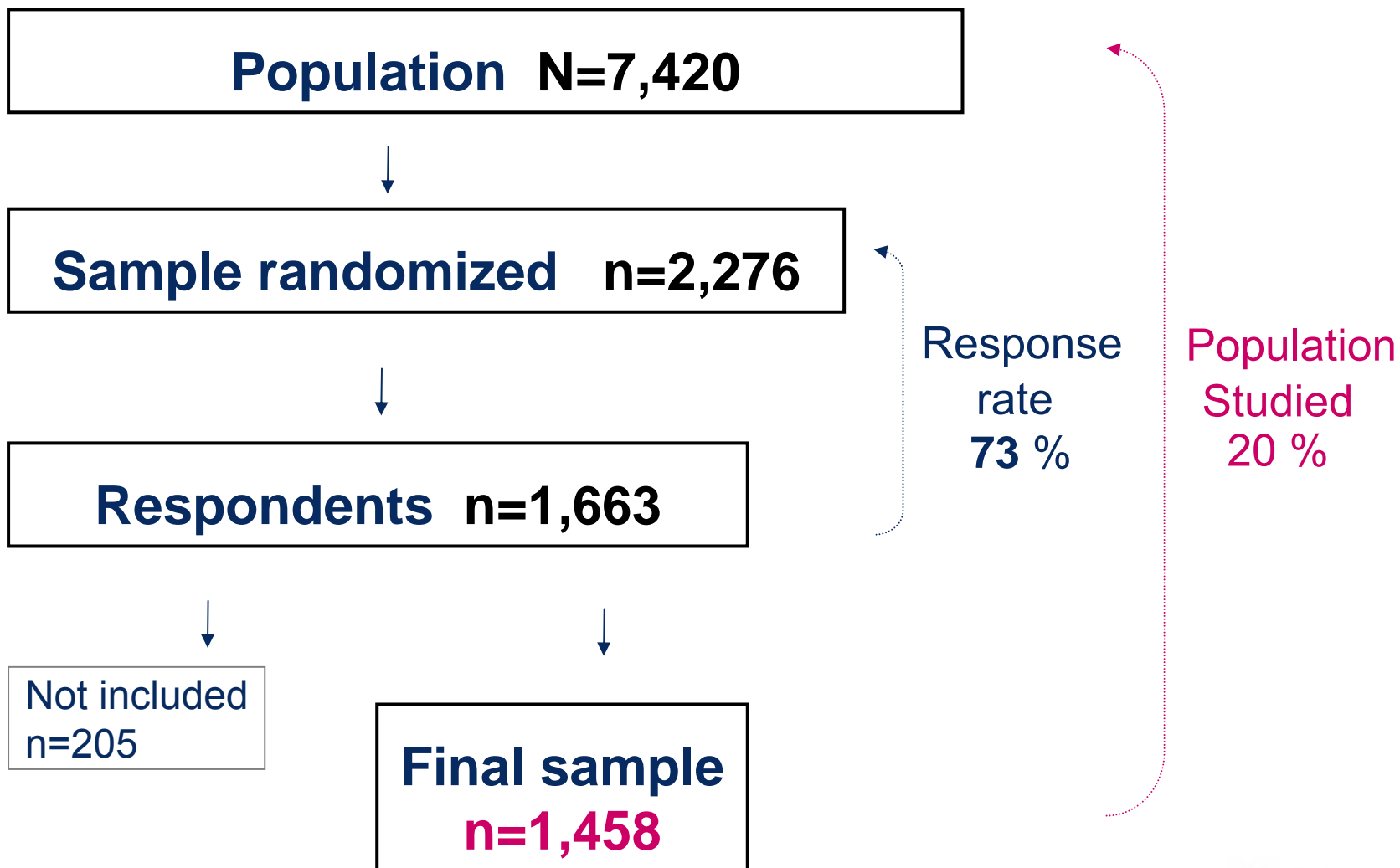




# Results



# Sample





# Vaccination coverage of staff (1)

	vaccination coverage	
	%	[95% CI]
<b>Total</b>	<b>34</b>	<b>[32-35]</b>
<b>Physicians</b>	<b>69</b>	<b>[63-74]</b>
<b>Nurses</b>	<b>46</b>	<b>[43-48]</b>
<b>Nurse assistants</b>	<b>34</b>	<b>[32-36]</b>
Cleaning staff	34	[32-37]
Recreational staff	46	[42-50]
Administrative staff	37	[33-40]



## Vaccination coverage for staff (2)

	Vaccination coverage % [95 % CI]		
	Public ECR	Private ECR	LTCF
Total	28 [26-30]	42 [38-46]	29 [26-32]
Physicians	58 [49-68]	83 [73-92]	64 [59-69]
Nurses	41 [38-44]	59 [54-64]	35 [32-38]
Nurse assistants	28 [26-31]	45 [42-49]	27 [24-29]
Other	28 [26-31]	40 [36-45]	32 [28-37]



## Determinants (1) - All staff

	RR	[95% CI]	p
<u>Categories of nursing home</u>			
Private ECR	1		
Public ECR	0.7	[0.6 - 0.9]	<10 <sup>-3</sup>
LTCF	0.7	[0.6 - 0.9]	0.001
<u>Free vaccination</u>			
No	1		
Yes	2.6	[1.8 - 3.6]	<10 <sup>-3</sup>
<u>Geographical area</u>			
Nord	1		
Ile-de-France	1.3	[0.9 - 1.8]	0.149
Bassin Parisien	1.4	[1.1 - 1.8]	0.002
Est	1.1	[1.0 - 1.4]	0.471
Ouest	1.2	[1.0 - 1.6]	0.065
Sud – Ouest	1.1	[0.9 - 1.3]	0.496
Centre Est	1.1	[1.0 - 1.5]	0.364
Méditerranée	1.3	[1.0 - 1.8]	0.038
<u>Training/ staff meeting</u>			
No	1		
Yes	1.1	[1.0 - 1.3]	0.144



## Determinants (2) - Nurses/Nurse assistants

	RR	[95 % CI]	p
<u>Categories of nursing home</u>			
Private ECR	1		
Public ECR	0.7	[0.7 - 0.8]	<10-3
LTCF	0.6	[0.6 - 0.7]	<10-3
<u>Free vaccination</u>			
No	1		
Yes	1.9	[1.2 – 3.0]	0,009
<u>Training / information</u>			
No	1		
Yes	1.2	[1.1 - 1.3]	<10-3
<u>Size of institution (number of beds)</u>			
>150	1		
[150 - 100[	1.3	[1.1 - 1.5]	0,005
[100 - 50[	1.4	[1.2 - 1.7]	<10-3
≤ 50	1.6	[1.4 - 2.0]	<10-3



# Vaccination coverage for residents

	Vaccination coverage	
	%	[95% CI]
<b>Total</b>	<b>91</b>	<b>[90 – 92]</b>
<b>Categories of nursing home</b>		
Private ECR	91	[89 – 92]
Public ECR	91	[90 – 93]
<b>LTCF</b>	<b>95</b>	<b>[94 – 96]</b>



# Discussion (1)

- Staff VC: 34 %
  - insufficient
  - needs to be improved
- Particularly among
  - Nurses and nurse assistants
  - Public nursing homes
  - Large nursing homes
- Highest coverage
  - Free vaccination offered
  - Training/ formations had been given (for nurse and nurse assistant coverage)
- For residents coverage was high with 91 %





## Discussion (2)

- High response rate
- But limitations of the study:
  - Aggregated information
  - No confirmation of vaccination status
  - Responses by a single member of staff



# Conclusions

- First randomized study providing national information on influenza vaccine coverage in nursing homes in France
- Results useful to guide influenza vaccination policy in French nursing homes



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