

# IMPATTO DELL'INFLUENZA IN PEDIATRIA

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# INFLUENZA - EPIDEMIOLOGIA

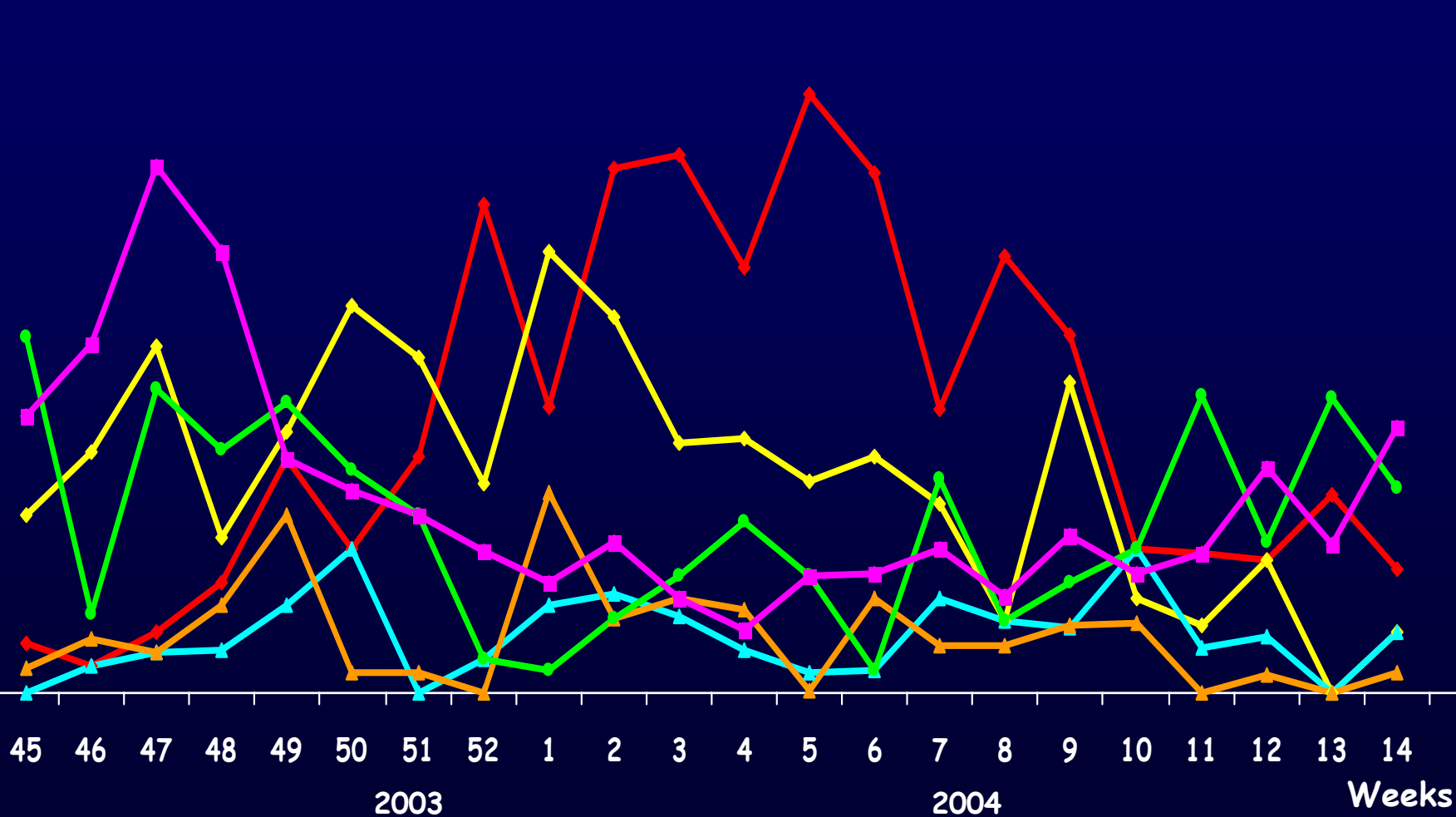
- Terza causa di morte per patologia infettiva
- Ubiquitaria e altamente contagiosa
- Causata da agenti virali a elevata variabilità antigenica
- Esistenza di serbatoi animali
- Associata a gravi complicanze

# DISTRIBUTION OF RESPIRATORY VIRUSES DURING THE WINTER SEASON 2003-2004

(Children enrolled = 2,060)

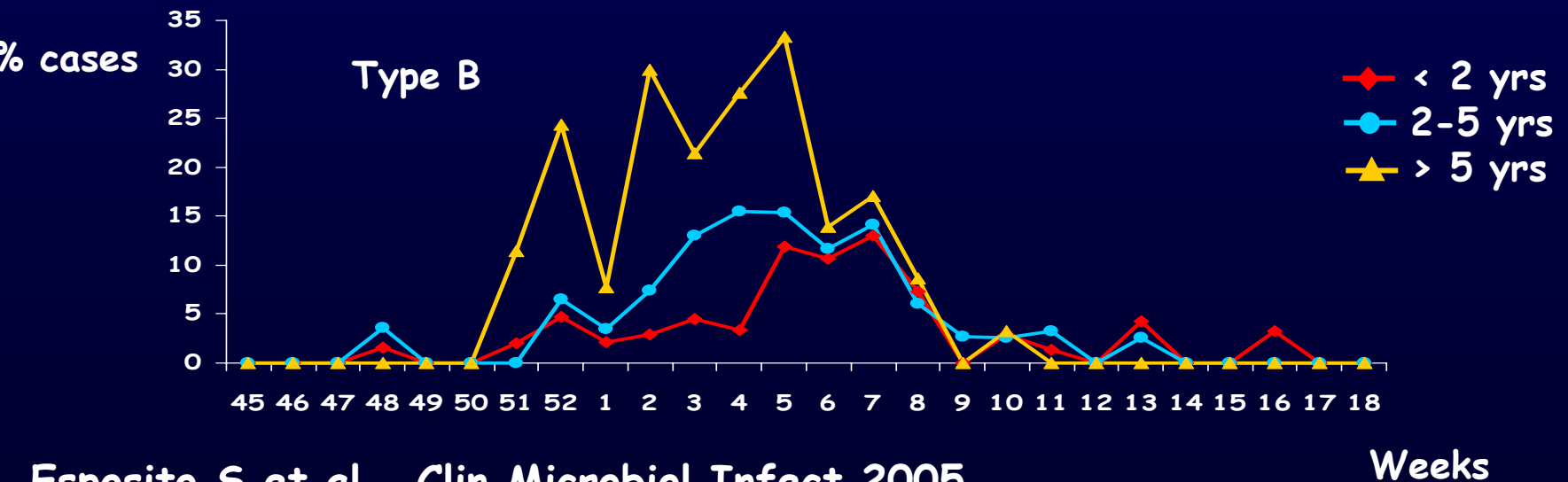
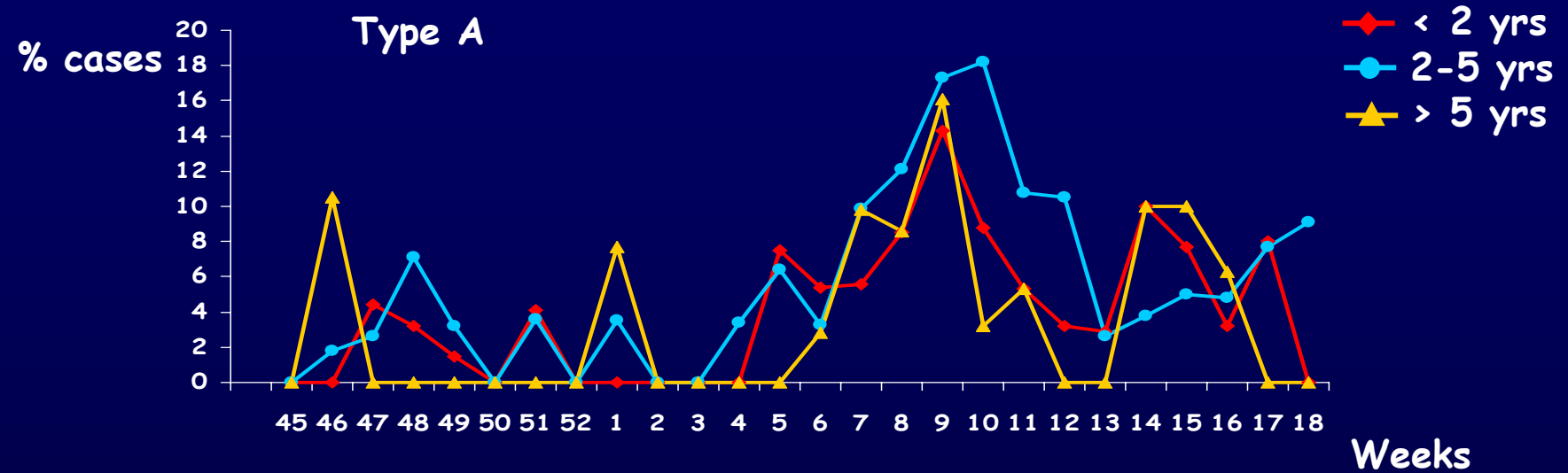
Esposito S et al. J Med Virol 2006

% cases

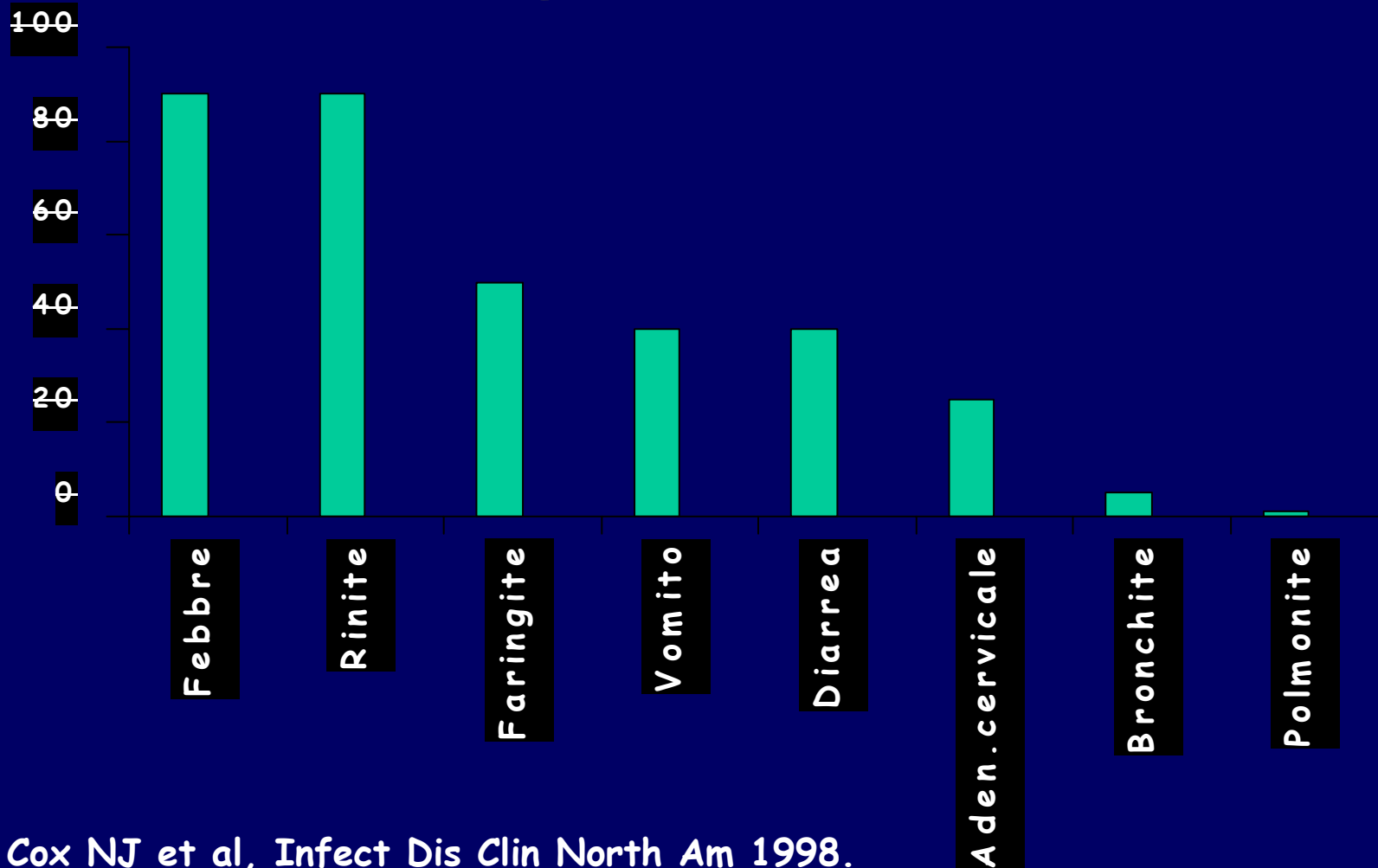


—◆— Influenza —◆— RSV —▲— hMPV —▲— Coronaviruses —●— Rhinovirus —■— Adenovirus

# AGE DISTRIBUTION OF SWABS POSITIVE FOR INFLUENZA A AND B VIRUSES IN STUDY CHILDREN (n=3310)



# FREQUENZA (%) DEI PRINCIPALI SEGNI E SINTOMI CLINICI DI INFLUENZA NEL BAMBINO



Da Cox NJ et al, Infect Dis Clin North Am 1998.

# ESPRESSIVITA' CLINICA DELLE INFEZIONI DA MPV, RSV E VIRUS INFLUENZALI (I)

(Da Principi et al. NEJM 2004)

	<b>MPV (N=35)</b>	<b>RSV (N=141)</b>	<b>INFLUENZA (N=223)</b>
<b>T° ascellare ≥ 38.5</b>	<b>28 (80,0%)*</b>	66 (46,8%)	<b>179 (80,3%)**</b>
<b>Infezione delle vie aeree</b>	<b>35 (100%)</b>	135 (95,7%)	199 (89.2%)
<b>Infezione gastroenterica</b>	0	6 (4,3%)	14 (6,3%)
<b>Febbre di origine sconosciuta</b>	0	0	10 (4,5%)

\* $p < 0,05$  e \*\* $p < 0,0001$  vs RSV

# MAIN CLINICAL CHARACTERISTICS (%) OF CHILDREN WITH INFECTIONS CAUSED BY A SINGLE VIRUS

(Esposito S et al., ICAAC – Chicago 17-20, 2007)

	hBoV (n=49)	RSV (n=121)	Flu (n=151)	Adeno (n=70)	Parainfl (n=21)	Rhino (n=74)	hCoV (n=36)	hMPV (n=2)
Upper ARI	<b>85.7*</b>	32.2	66.2	61.4	76.2	62.2	69.4	0
Lower ARI	4.0	<b>57.0*</b>	23.2	5.8	0	57.0	13.9	100.0
URI disease	10.2	9.1	4.0	<b>25.7*</b>	11.1	10.8	14.3	0
Fever VS	0	1.7	6.6	1.4	5.6	2.7	9.5	0
Xantho- na	0	0	0	5.7	0	8.1	0	0

\* $p < 0.05$  vs at least one of the other viral groups

# IMPACT OF RAPID FLU TEST ON PEDIATRICIAN DECISION-MAKING

(From Esposito S et al. *Arch Dis Child* 2003)

	CASES (n=43)	CONTROL GROUP 1 (n=435)	P VALUE	CONTROL GROUP 2 (n=479)	P VALUE
Routine blood examination	1 (2.3)	63 (14.5)	0.045	72 (15.0)	0.038
Chest radiograph	2 (4.6)	50 (11.5)	0.207	56 (11.7)	0.208
Antibiotic use	14 (32.6)	282 (64.8)	<0.0001	296 (61.8)	0.0001
Days of antib.					
Median	7	7	0.944	7	0.961
Range	4-10	3-20		5-14	
Antiviral use	0	0		0	
Admitted	0	20 (4.6)	0.240	28 (5.8)	0.154

Percentages in parentheses



# OUTCOME AND SOCIOECONOMIC IMPACT (% OF CHILDREN WITH INFECTIONS CAUSED BY A SINGLE VIRUS

(Esposito S et al., ICAAC – Chicago 17-20, 2007)

	hBoV (n=49)	RSV (n=121)	Flu (n=151)	Adeno (n=70)	Parainfl (n=21)	Rhino (n=74)	hCoV (n=36)	hMPV (n=2)
hospitalization	4.1	15.7*	4.6	1.4	4.8	5.4	8.3	0

\* $p < 0.05$  vs at least one of the other viral groups

# RELATIONSHIP BETWEEN VIRAL LOAD (cp/mL) AND HOSPITALIZATION

VIRUSES	HOSPITALIZED	NOT HOSPITALIZED
hBoV	$4.15 \times 10^6 \pm 5.86 \times 10^6$	$5.70 \times 10^5 \pm 1.85 \times 10^6$
Flu	$4.79 \times 10^6 \pm 2.55 \times 10^3^*$	$3.16 \times 10^4 \pm 4.70 \times 10^3$
RSV	$5.66 \times 10^6 \pm 2.09 \times 10^3^*$	$1.16 \times 10^4 \pm 5.66 \times 10^4$
Rhino	$4.88 \times 10^6 \pm 3.61 \times 10^3$	$2.10 \times 10^5 \pm 6.76 \times 10^4$
Adeno	$5.99 \times 10^6$	$4.10 \times 10^6 \pm 3.16 \times 10^5$
hCoVs	$3.01 \times 10^6 \pm 4.49 \times 10^6$	$3.37 \times 10^6 \pm 5.51 \times 10^6$
Parainfl.	$3.10 \times 10^5$	$2.24 \times 10^6 \pm 3.76 \times 10^6$
hMPV	0	$5.42 \times 10^6 \pm 6.42 \times 10^2$

\* $p < 0.05$  vs not hospitalized

# OSPEDALIZZAZIONI PER INFLUENZA IN FUNZIONE DELL'ETA'

(Da Neuzil KM et al. *NEJM* 2000)

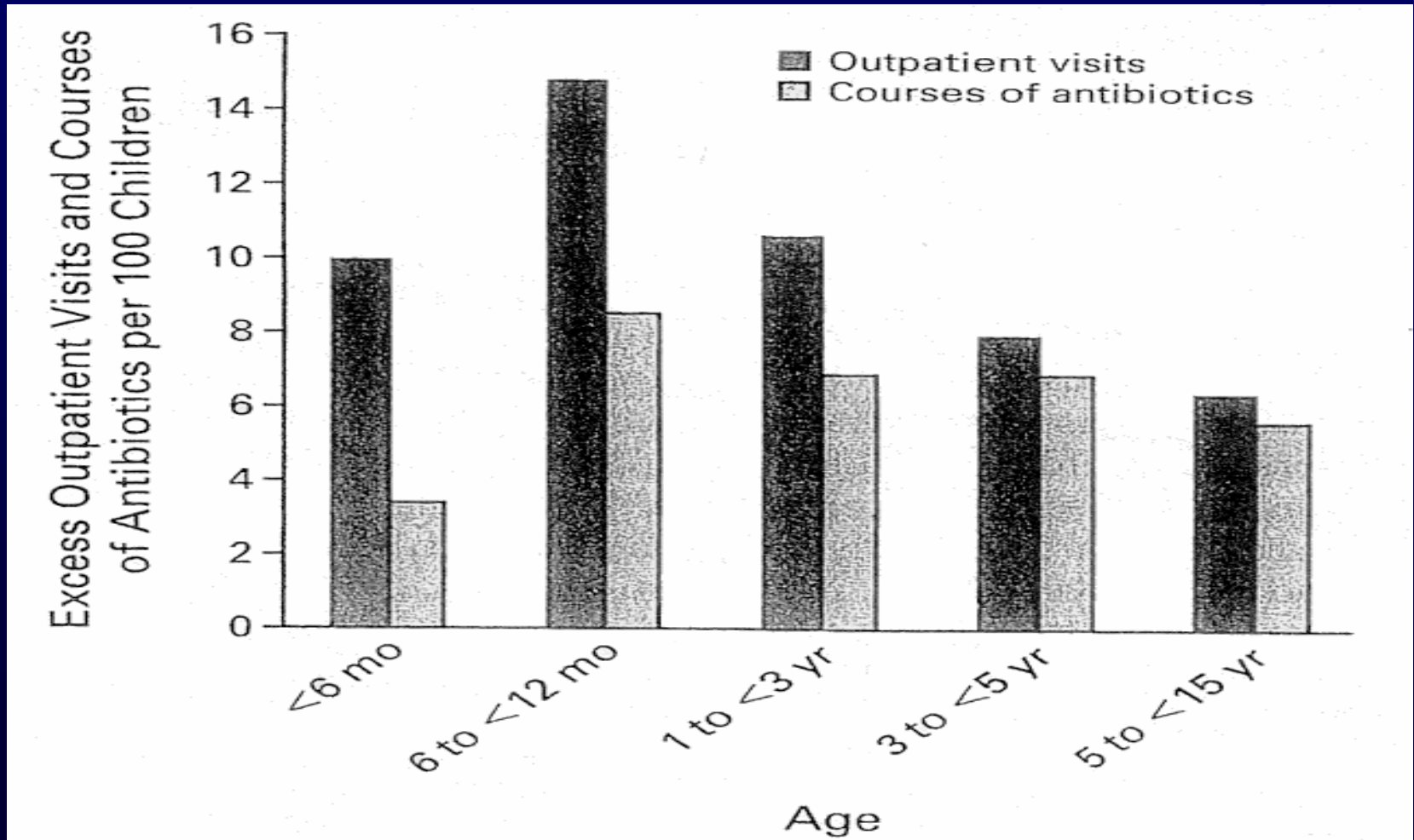
AGE	No. OF PERSON- YEARS	No. OF HOSPITALIZATIONS FOR ACUTE CARDIOPULMONARY CONDITIONS PER 10,000 PERSON-YEARS				No. OF INFLUENZA- ATTRIBUTABLE HOSPITALIZATIONS PER 10,000 PERSON-YEARS*		AVERAGE EXCESS No. HOSPITALIZATIONS PER 10 CHILDREN PER YEAR (95% CI)†
		INFLUENZA	PERI-INFLUENZA	SUMMER	TOTAL	CRUDE	STANDARDIZED‡	
		SEASON	SEASON					
6 mo	117,205	1964	1497	608	1146	467	449	103.8 (89.0–118.6)
6 mo <12 mo	82,997	1117	854	403	675	263	233	49.6 (35.3–63.8)
6 mo <3 yr	324,900	464	387	233	325	77	79	18.6 (14.2–23.0)
6 mo <5 yr	302,344	232	193	138	173	39	43	8.6 (4.9–12.3)
6 mo <15 yr	1,207,697	120	105	86	98	15	22	4.1 (2.8–5.5)

\*Values are differences in rates between the influenza season and the peri-influenza season (the base-line values).

†Values are weighted averages of annual excess hospitalizations for a population of 10,000 persons within the specified age group. Excess hospitalizations were calculated for each stratum by multiplying the stratum-specific difference in hospitalization rate by the proportion of the study year covered by the influenza season. CI denotes confidence interval.

‡The weighted average differences in rate between the influenza season and the peri-influenza season were calculated with stratum-specific person-years in all seasons as weights; strata were defined by age group, study year, race, and residence.

# INCREMENTO DELLE VISITE E DEI CICLI DI TERAPIA ANTIBIOTICA PER INFLUENZA



# OSPEDALIZZAZIONE PER INFLUENZA IN FUNZIONE DELL'ETA' E DEI FATTORI DI RISCHIO

(Da Izurieta HS et al. *NEJM* 2000)

ANNI	ETA'	OSPEDAL./ 100.000 SOGGETTI A RISCHIO	OSPEDAL./ 100.000 SOGGETTI NON A RISCHIO
1973 - 1993	0-11 mesi	1900	496 - 1038
	12-24 mesi	800	186
	3 - 4 anni	320	86
	5 - 14 anni	92	41
1992 - 1997	0-23 mesi	-	144 - 187
	2 - 4 anni	-	0 - 25
	5 - 17 anni	-	8 - 12
1968 - 1973	15 - 44 anni	56 - 110	23 - 25
	45 - 64 anni	392 - 635	13 - 23
	> 65 anni	399 - 518	-
1969 - 1995	< 65 anni	-	20 - 42 (*)
	≥ 65 anni	-	125 - 228 (*)

(\*) senza distinzione tra casi a rischio e casi non a rischio

# IMPATTO DELLE INFEZIONI DA MPV, RSV E VIRUS INFLUENZALI SUI CONTATTI FAMILIARI

(Da Principi et al. *NEJM* 2004)

	FAMILIARI DI MPV+	FAMILIARI DI RSV+	FAMILIARI DI INFLUENZA+
Malattie simili	16 (12,5%)*	24 (4,7%)	78 (9,7%)*
Visite mediche	16 (12,5%)**	16 (3,2%)	78 (9,7%)**
Antipiretici	14 (10,9%)*	18 (3,6%)	104 (12,9%)**
Antibiotici	6 (4,7%)	11 (2,2%)	36 (4,5%)
Ospedalizzazioni	0	0	3 (0,4%)
Gg. di lavoro persi (media, range)	4 (2-10)*	2,5 (2-7)	4 (1-10)*
Gg. di scuola persi (media, range)	4 (3-15)*	2 (2-4)	5 (1-15)*

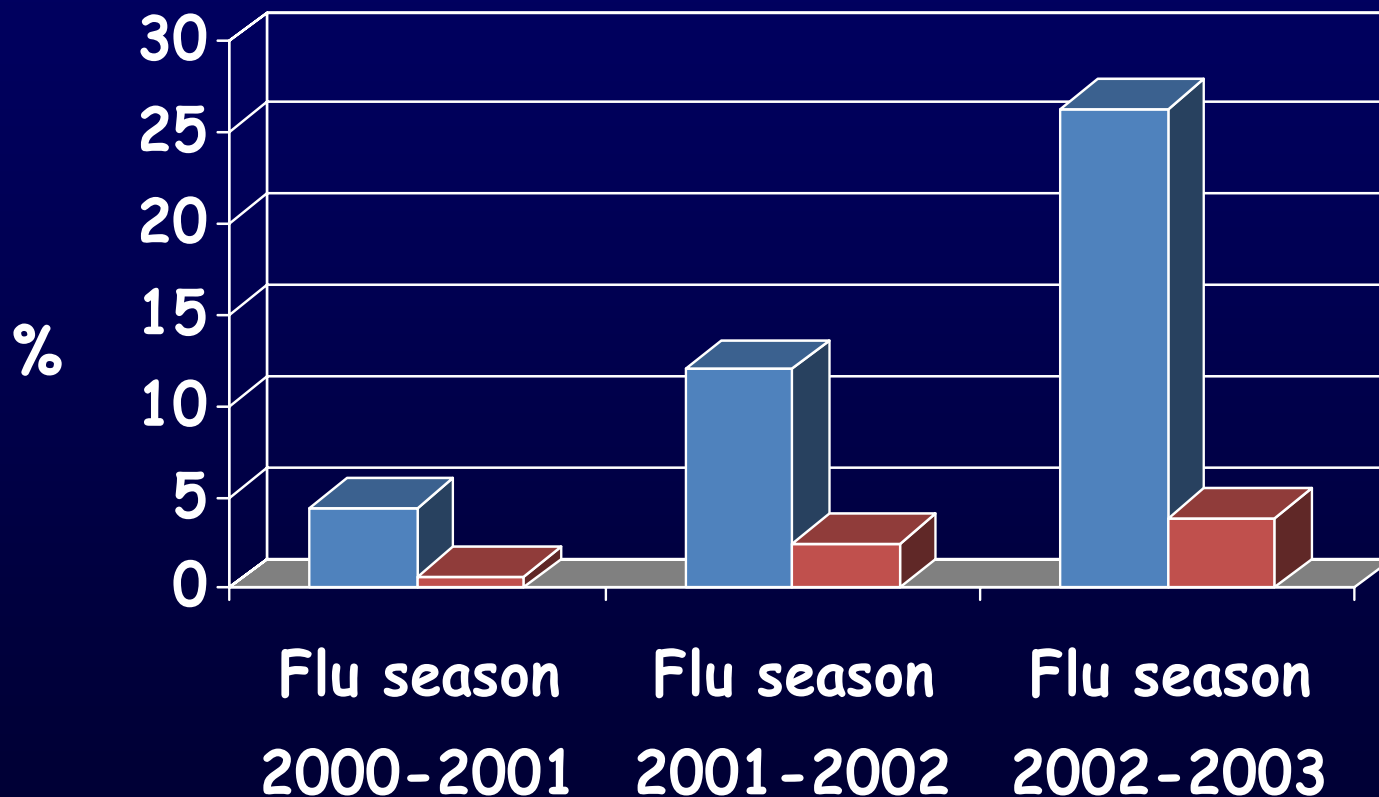
\* $p < 0,05$  e \*\* $p < 0,0001$  vs familiari di RSV+

# INDICAZIONI ALL'USO DEL VACCINO ANTINFLUENZALE IN PEDIATRIA (Italia 2007)

- **BAMBINI > 6 MESI CON PATOLOGIA CRONICA:**  
CARDIACA  
RESPIRATORIA (ASMA INCLUSO)  
METABOLICA  
RENALE  
CAUSA DI MALASSORBIMENTO  
DEL SISTEMA IMMUNITARIO
- **SOGGETTI TRA 6 MESI E 18 ANNI IN TERAPIA  
CRONICA CON ASPIRINA**

# INFLUENZA VACCINATION RATES AMONG 5,286 ITALIAN CHILDREN

(Esposito S et al., Vaccine 2006)



■ High risk children ■ Healthy children



# INFLUENZA VACCINATION COVERAGE IN THE STUDY CHILDREN, BY CHRONIC MEDICAL CONDITION (%)

(Esposito S et al., Vaccine 2006)

High-risk condition	2000-2001	2001-2002	2002-2003
Asthma (n=101)	1.9*	5.9*	20.8
Cystic fibrosis (n=24)	8.3*	20.8*	41.7
Bronchopulmonary dysplasia (n=12)	8.3	25.0	33.3
Cardiac disease (n=47)	0*	6.4	12.8
Diabetes (n=14)	7.1	14.2	35.7
Chronic renal dysfunction (n=25)	8.0	16.0	32.0
Hemoglobinopathies (n=12)	8.3	16.7	33.3
Primary immunodeficiency (n=11)	9.1	18.2	36.4
Cancer (n=18)	5.6	16.7	33.3
HIV infection (n=10)	10.0	30.0	40.0

# PEDIATRICIANS' OPINIONS CONCERNING INFLUENZA (No.=256)

For which high-risk categories is influenza prevention recommended?

<b>ANSWER</b>	<b>FREQUENCY</b>
Chronic pulmonary disease	231 (90.2%)
Significant cardiac disease	228 (89.1%)
Metabolic disease	152 (59.3%)
Chronic renal dysfunction	169 (66.0%)
Hemoglobinopathies	163 (63.7%)
Immunosuppressive disorder	201 (78.5%)
Long-term aspirin therapy	155 (60.5%)

# PEDIATRICIANS' OPINIONS CONCERNING INFLUENZA (No.=256)

If you do not recommend influenza vaccination in a child with chronic disease, what are the reasons?

<b>ANSWER</b>	<b>FREQUENCY</b>
Influenza infection not sufficiently severe	68 (26.6%)
Poor efficacy of influenza vaccines	149 (58.2%)
Concern about side effects	39 (15.2%)

# IMMUNOGENICITA' DI DUE DIFFERENTI TIV IN BAMBINI DI 6 MESI - 5 ANNI

(Da Kanra, Marchisio et al., *Pediatr Infect Dis J* 2004)

Immune Status	Treatment	ITT Population	Seroconversion (% of Subjects)			Seroprotection (% of Subjects)			GMT (Fold Increase)		
			H1N1	H3N2	B	H1N1	H3N2	B	H1N1	H3N2	B
Total	Virosome- adjuvanted split	156	80.1	66.0	90.4	87.8	80.1	90.4	18.08	6.89	37.7
		170	75.9	62.9	89.4	82.9	78.2	89.4	15.77	6.74	35.8
			0.3559	0.5612	0.7711	0.2142	0.6743	0.7711			
Unprimed	Virosome- adjuvanted split	116	88.8	69.8	94.8	88.8	77.6	94.8	26.99	7.95	49.9
		120	77.5	68.3	93.3	78.3	75.8	93.3	18.01	8.07	43.3
			0.0208	0.8039	0.6271	0.0306	0.7502	0.6271			
Primed	Virosome- adjuvanted split	40	55.0	55.0	77.5	85.0	87.5	77.5	5.66	4.56	16.7
		50	72.0	50.0	80.0	94.0	84.0	80.0	11.47	4.38	22.6
			0.0941	0.6370	0.7727	0.1573	0.6388	0.7727			

# EFFICACIA DEL VACCINO TIV IN BAMBINI DI 2-5 ANNI

(Da Esposito et al., *Vaccine* 2006)

Outcome	Vaccinated children ( <i>n</i> =202)	Unvaccinated children ( <i>n</i> =101)	Vaccine effectiveness (%) <sup>*</sup>	<i>p</i> -value
Number of upper respiratory tract infections	1.66 ± 0.62	2.47 ± 0.43	33	<0.001
Number of lower respiratory tract infections	0.32 ± 0.88	0.41 ± 1.32	22	0.001
Number of febrile respiratory illnesses	2.47 ± 1.49	3.32 ± 2.74	26	<0.001
Number of hospitalisations	0.01 ± 0.23	0.02 ± 0.25	50	0.41
Number of antibiotic prescriptions	1.36 ± 1.28	1.98 ± 1.59	32	<0.001
Number of antipyretic prescriptions	4.70 ± 2.03	6.59 ± 2.37	29	<0.001
Number of missed school days	4.61 ± 6.23	8.84 ± 12.50	48	<0.001

Mean values ± S.D.

# IMPATTO DELLA VACCINAZIONE DEI BAMBINI DI 2-5 ANNI CON TIV SUI CONVIVENTI

(Da Esposito et al. *Vaccine* 2006)

Event	Household contacts of vaccinated children ( <i>n</i> = 548)	Household contacts of unvaccinated controls ( <i>n</i> = 256)	Vaccine effectiveness (%) <sup>*</sup>	<i>p</i> -value
Number of influenza-like illness	3.03 ± 1.68	4.27 ± 1.68	30	0.0
Number of medical visits for influenza-like illness	2.18 ± 1.37	3.16 ± 1.77	31	0.0
Number of hospitalisations	0	0	0	1.0
Number of antibiotic prescriptions	0.76 ± 0.99	1.40 ± 1.33	46	<0.0
Number of antipyretic prescriptions	1.01 ± 0.76	1.99 ± 1.46	49	<0.0
Loss of parental work (days)	1.91 ± 1.43	2.93 ± 2.31	35	0.0
Mothers	3.22 ± 1.86	4.78 ± 2.34	33	0.0
Fathers	0.56 ± 0.46	0.98 ± 1.22	43	<0.0
Missed school days of siblings	1.43 ± 2.61	2.93 ± 4.10	51	<0.0

Mean values ± S.D.

# VANTAGGI ECONOMICI DELLA VACCINAZIONE ANTIFLU CON TIV IN BAMBINI DI 2-5 ANNI

(Da Esposito et al., Vaccine 2006)

Cost items	Vaccinated children (€) ( <i>n</i> =202)	Unvaccinated children (€) ( <i>n</i> =101)	Net saving (€)
Direct costs	224.26 ± 479.61	234.61 ± 516.82	10.35 ± 536.1
Cost of two vaccinations	73.40 ± 6.46	0	-73.40 ± 6.46
Cost of vaccine	21.70	0	-21.70
Cost of personnel	2.05	0	-2.05
Preparation, administration and surplus (flat rate)	15.00	0	-15.00
Costs related to vaccine side effects requiring pharmacological treatment	4.04 ± 8.47	0	-4.04 ± 8.47
Household absence from work for vaccine administration	30.61	0	-30.61
Medical costs of the study children	101.68 ± 473.63	158.44 ± 510.33	56.76 ± 525.8
Cost of medical examinations	62.07 ± 31.46	90.28 ± 39.69	28.21 ± 41.1
Cost of hospitalisation	19.55 ± 449.65	39.10 ± 488.75	19.55 ± 493.6
Cost of antibiotics	17.24 ± 16.10	25.10 ± 19.87	7.86 ± 22.3
Cost of antipyretics	2.82 ± 2.59	3.96 ± 2.57	1.14 ± 2.79
Medical costs of households	49.18 ± 33.93	76.17 ± 39.33	26.99 ± 43.1
Cost of medical examinations	33.22 ± 20.87	48.15 ± 26.97	14.93 ± 28.9
Cost of antibiotics	12.68 ± 16.08	22.76 ± 21.61	10.08 ± 22.2
Cost of antipyretics	3.28 ± 3.01	5.26 ± 2.19	1.98 ± 3.10
Indirect costs	226.78 ± 110.22	347.86 ± 99.81	121.08 ± 119.4
Household absence from work for influenza-like illness in the children	151.19 ± 96.16	196.89 ± 82.43	45.70 ± 99.5
Household absence from work for own influenza-like illness	75.59 ± 47.07	150.97 ± 46.39	75.38 ± 49.7

# COST-EFFECTIVENESS OF ADJUVANTED INFLUENZA VACCINATION

	No Vaccination of 6-60-Month- Old-Children	Vaccination of 6-24-Month- Old-Children	Vaccination of 6-60-Month- Old-Children
ILI events in Children 6-60 months	4,080,000	3,930,000	3,600,000
ILI events saved in Children 6-60 months	-	150,000	480,000
ILI events in Households	5,670,000	5,520,000	5,130,000
ILI events saved in Households	-	150,000	540,000
ILI events saved in Children and Households	-	300,000	1,020,000
Incremental QALYs	-	900	3000
Incremental costs	-	+ €12,000,000	+ € 30,000,000
incremental cost-effectiveness	-	€13,333/QALY	€10,000/QALY
Incremental costs	-	- €21,000,000	- €63,000,000
Incremental cost-effectiveness	-	dominant	dominant



# EFFICACY OF CAIV-T IN OTHERWISE HEALTHY CHILDREN

Variable	Similarity to Vaccine†	Live Attenuated Vaccine (N = 3916)‡		Inactivated Vaccine (N = 3936)§		Reduction in Attack Rate with Live Vaccine¶
		Cases	Attack Rate	Cases	Attack Rate	
		no.	%	no.	%	
Virus	Well matched	53	1.4	93	2.4	44.5 (22.4 to 60.6)
A/H1N1		3	0.1	27	0.7	89.2 (67.7 to 97.4)
A/H3N2		0	0	0	0	—
B		50	1.3	67	1.7	27.3 (-4.8 to 49.9)
Age at first vaccination (any influenza virus)	Well matched					
6–23 mo		23	1.3	32	1.7	29.1 (-21.2 to 59.1)
24–35 mo		17	1.3	24	1.8	32.6 (-25.8 to 64.5)
36–59 mo		13	1.7	37	4.7	65.6 (36.3 to 82.4)
Previous vaccination (any influenza virus)	Well matched					
Yes		18	1.9	29	3.1	39.3 (-9.2 to 66.9)
No		35	1.2	64	2.1	46.9 (20.0 to 65.2)
Virus	Not well matched	102	2.6	245	6.2	58.2 (47.4 to 67.0)
A/H1N1		0	0	0	0	—
A/H3N2		37	0.9	178	4.5	79.2 (70.6 to 85.7)
B		66	1.7	71	1.8	6.3 (-31.6 to 33.3)
Virus	Regardless of match	153	3.9	338	8.6	54.9 (45.4 to 62.9)
A/H1N1		3	0.1	27	0.7	89.2 (67.7 to 97.4)
A/H3N2		37	0.9	178	4.5	79.2 (70.6 to 85.7)
B		115	2.9	136	3.5	16.1 (-7.7 to 34.7)

# VANTAGGIO ECONOMICO DERIVANTE DALLA VACCINAZIONE ANTINFLUENZALE CON CAIV-T IN UNA STAGIONE CON BASSA INCIDENZA (13%)

(Da Hibbert et al., Vaccine 2007)

Cost category	LAIV-T	Placebo	LAIV-T-placebo
Direct vaccination cost			
Acquisition	US\$ 36.00	US\$ 0	US\$ 36.00
Administration	US\$ 23.79	US\$ 0	US\$ 23.79
Vaccine reactions	US\$ 7.85	US\$ 0	US\$ 7.85
Subtotal for direct vaccination costs	US\$ 67.63	US\$ 0	US\$ 67.63
Direct influenza costs—primary cases			
Outpatient, emergency department visit, and/or prescription	US\$ 1.66	US\$ 10.12	−US\$ 8.46
Inpatient	US\$ 1.28	US\$ 7.78	−US\$ 6.50
Over-the-counter medication	US\$ 0.15	US\$ 0.92	−US\$ 0.77
Transportation	US\$ 0.07	US\$ 0.42	−US\$ 0.35
Direct influenza costs—secondary cases			
Outpatient visit, emergency department visit, prescription, and/or over-the-counter medications	US\$ 0.39	US\$ 2.36	−US\$ 1.97
Transportation	US\$ 0.01	US\$ 0.09	−US\$ 0.08
Subtotal for direct influenza costs	US\$ 3.56	US\$ 21.69	−US\$ 18.13
Indirect influenza costs			
Work loss by caregiver for primary cases (absenteeism)	US\$ 7.64	US\$ 46.53	−US\$ 38.89
Work loss for secondary cases (absenteeism)	US\$ 2.11	US\$ 12.83	−US\$ 10.72
Work loss for secondary cases (presenteeism)	US\$ 1.05	US\$ 6.42	−US\$ 5.37
Subtotal for indirect influenza costs	US\$ 10.80	US\$ 65.78	−US\$ 54.98
Total costs	US\$ 81.99	US\$ 87.47	−US\$ 5.47

# VANTAGGIO ECONOMICO DERIVANTE DALLA VACCINAZIONE ANTINFLUENZALE CON CAIV-T IN UNA STAGIONE CON ALTA INCIDENZA (32%) (Da Hibbert et al., Vaccine 2007)

Cost category	LAIV-T	Placebo	LAIV-T-placebo
Direct vaccination cost			
Acquisition	US\$ 18.00	US\$ 0	US\$ 18.00
Administration	US\$ 11.89	US\$ 0	US\$ 11.89
Adverse vaccine reactions	US\$ 4.51	US\$ 0	US\$ 4.51
Subtotal for direct vaccination costs	US\$ 34.41	US\$ 0	US\$ 34.41
Direct influenza costs—primary cases			
Outpatient visit, emergency department visit, and/or prescription	US\$ 3.55	US\$ 24.23	–US\$ 20.68
Inpatient	US\$ 2.73	US\$ 18.64	–US\$ 15.91
Over-the-counter medication	US\$ 0.32	US\$ 2.21	–US\$ 1.89
Transportation	US\$ 0.15	US\$ 1.01	–US\$ 0.86
Direct influenza costs—secondary cases			
Outpatient visit, emergency department visit, prescription, and/or over-the-counter medications	US\$ 0.83	US\$ 5.65	–US\$ 4.82
Transportation	US\$ 0.03	US\$ 0.21	–US\$ 0.18
Subtotal for direct influenza costs	US\$ 7.61	US\$ 51.95	–US\$ 44.34
Indirect influenza costs			
Work loss by caregiver for primary cases (absenteeism)	US\$ 16.32	US\$ 111.47	–US\$ 95.15
Work loss for secondary cases (absenteeism)	US\$ 4.50	US\$ 30.74	–US\$ 26.24
Work loss for secondary cases (presenteeism)	US\$ 2.25	US\$ 15.37	–US\$ 13.12
Subtotal for indirect influenza costs	US\$ 23.07	US\$ 157.58	–US\$ 134.5
Total costs	US\$ 65.08	US\$ 209.53	–US\$ 144.4

# VACCINO ANTINFLUENZALE E BAMBINO: NUOVE POSSIBILI INDICAZIONI

## ➤ *SOGGETTI A RISCHIO*

NECESSITA' DI ATTIVARE METODOLOGIE ATTE AD ALLARGARE LA COPERTURA VACCINALE NEI BAMBINI CON MALATTIE CRONICHE

INCLUSIONE DI BAMBINI CON OMA RICORRENTE E INFEZIONI RESPIRATORIE RICORRENTI

## ➤ *SOGGETTI SANI*

CONSIDERARE VACCINAZIONE ANTINFLUENZALE NEI BAMBINI DI ETA' COMPRESA TRA 6 E 59 MESI PER MOTIVI MEDICI E SOCIOECONOMICI