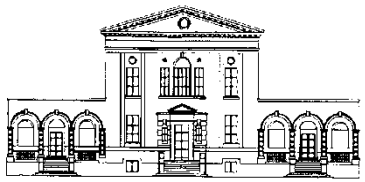
Malattie Infettive oggi: problemi aperti



Giuseppe Ippolito
National Institute for Infectious Diseases “L. Spallanzani”, Rome, Italy
giuseppe.ippolito@inmi.it

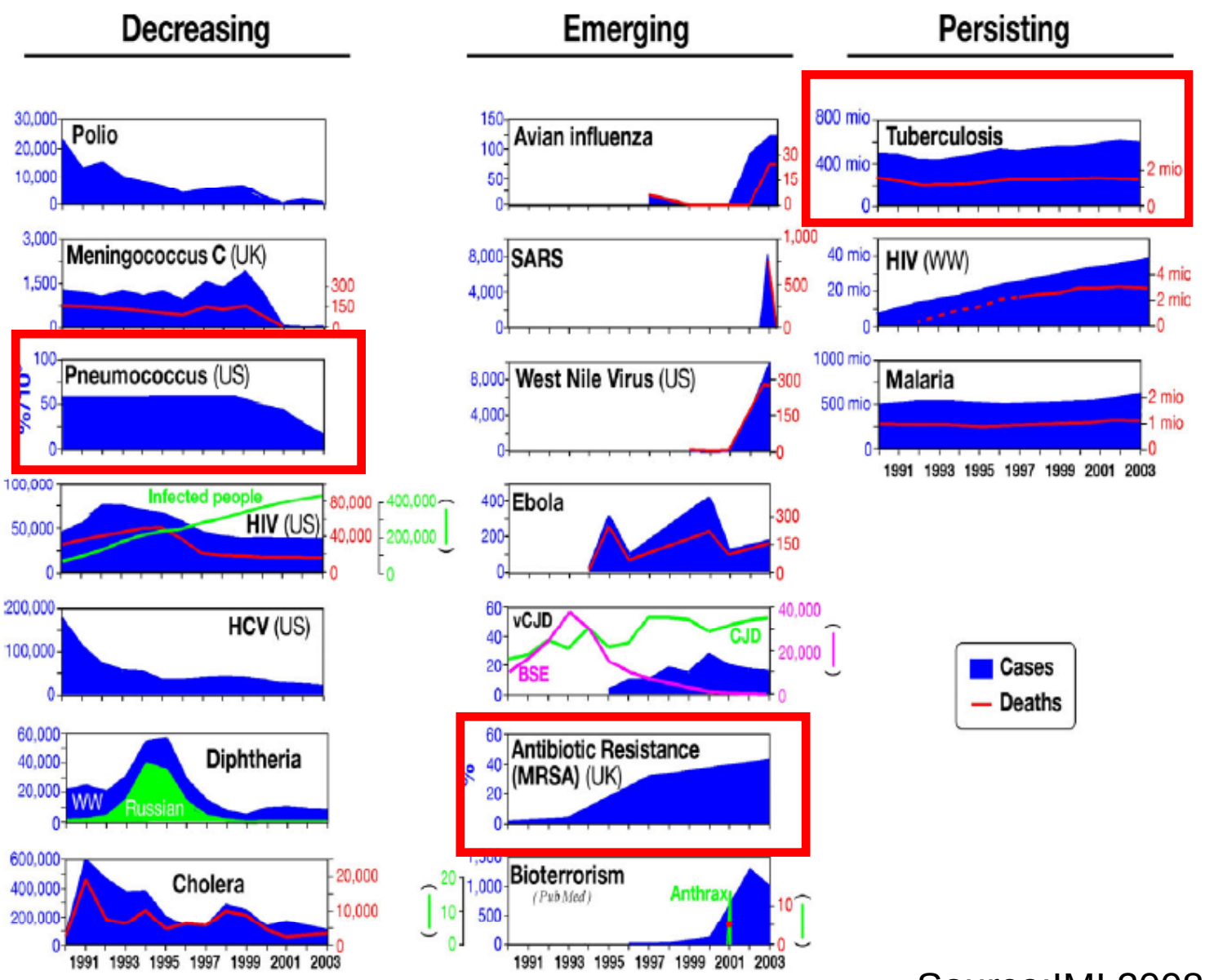
World Health Organization

WHO Collaborating Center for clinical care, diagnosis, response and training on Highly Infectious Diseases

Importanza delle Malattie infettive nei paesi sviluppati

- Rilevante “burden of disease”
- Impatto sociale
- Impatto economico e mediatico
- Potenzialità di rapida diffusione

Global Infectious Diseases Prevalence



Source:IMI 2008 on WHO

Determinanti dell'importanza delle malattie infettive oggi

- Transizione epidemiologica
- La situazione di reparti di malattie infettive in Italia
- Comparsa di nuovi patogeni
- Disponibilità di nuovi strumenti diagnostici e terapeutici
- Rilevanza della etiologia infettiva in altre patologie
- Eventi infettivi inattesi (epidemie) o ad elevata pericolosità

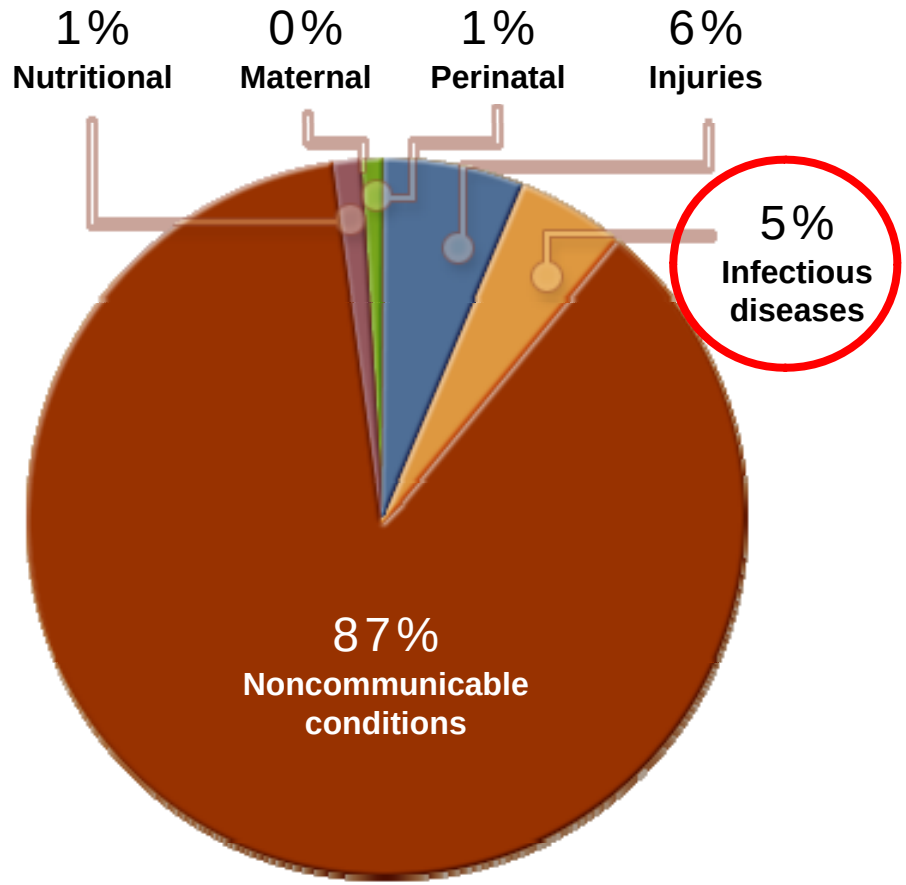
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Main Causes of Death

High-income countries

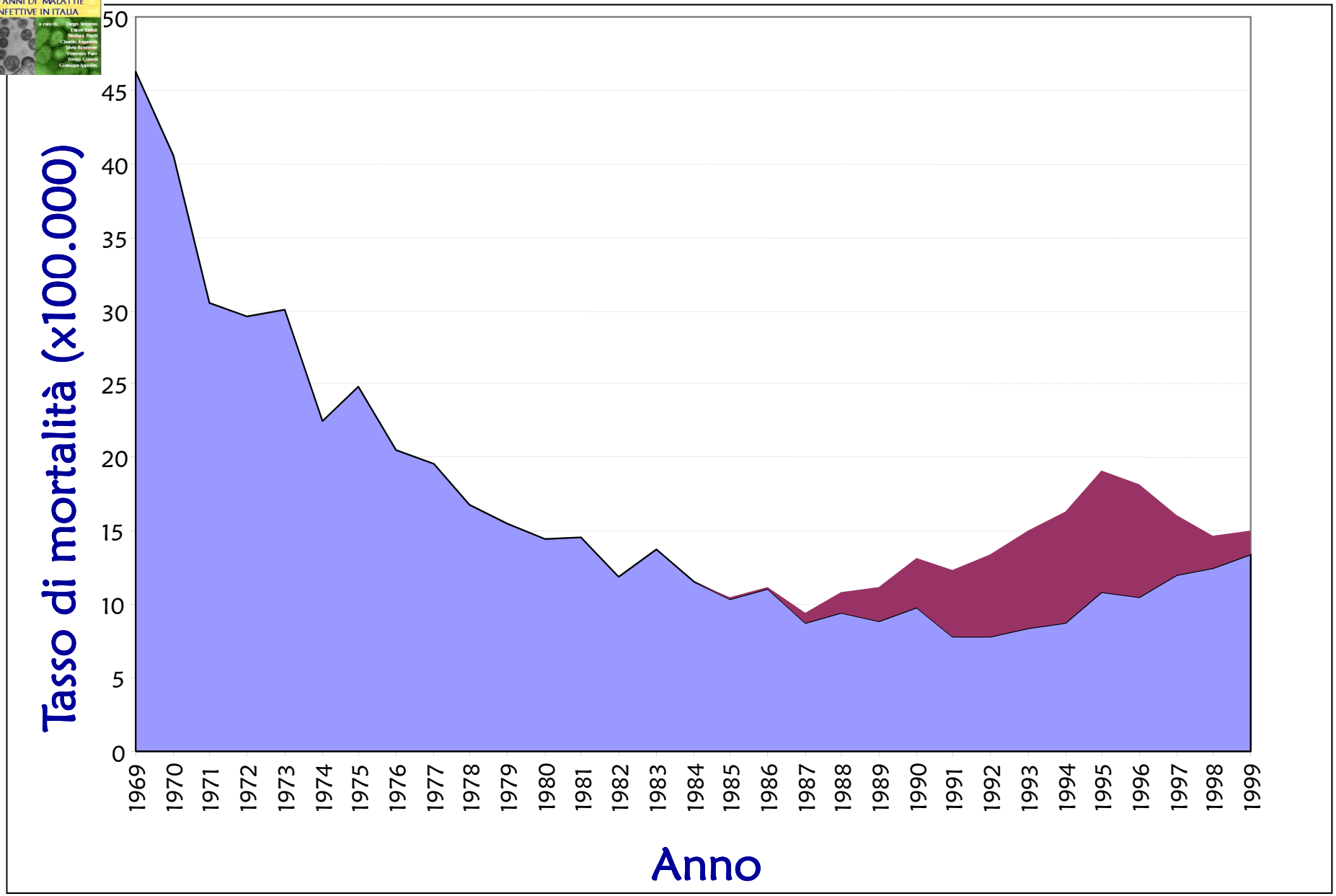
Primarily in North America and Europe



World Health Organization

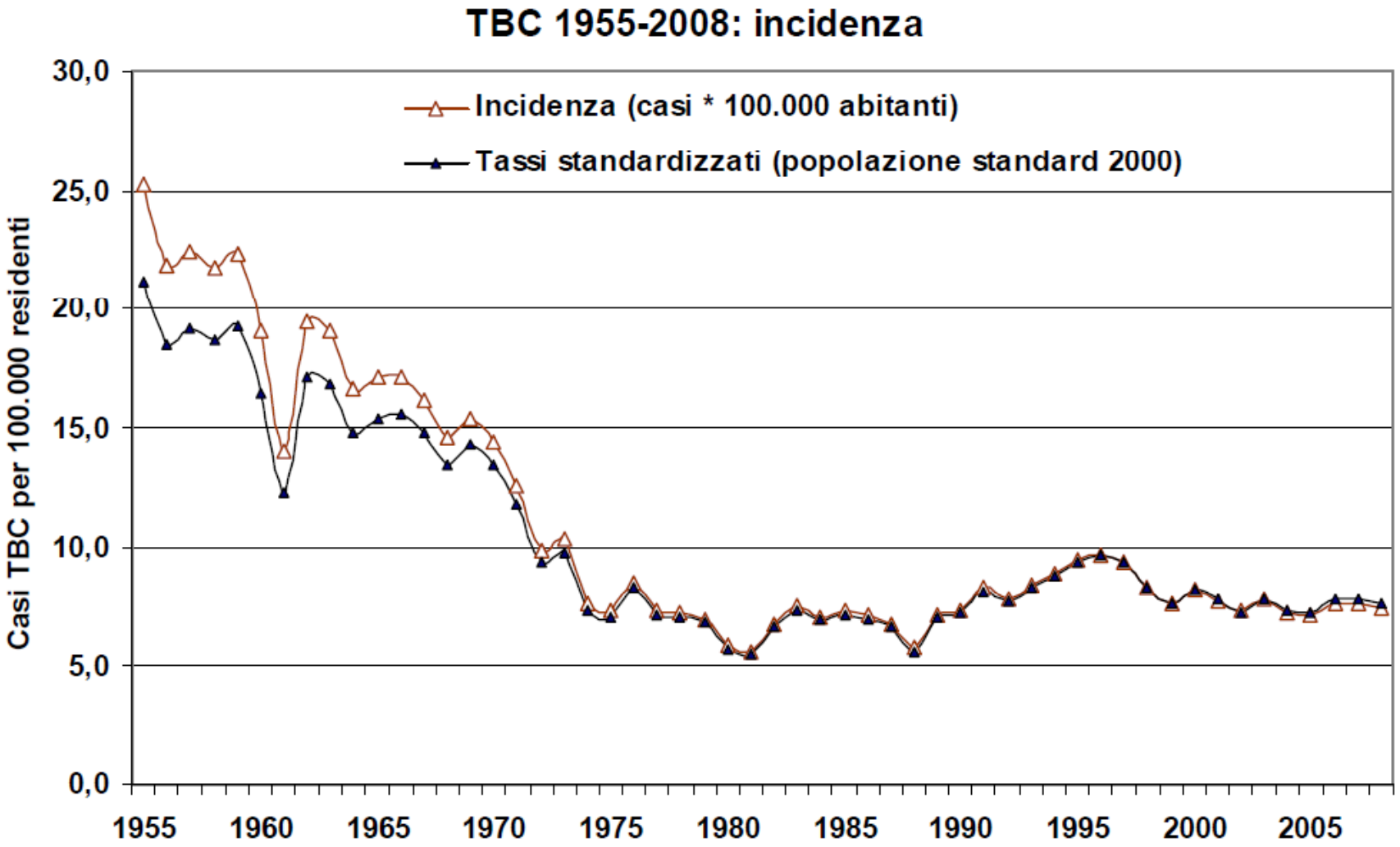


TASSO GREZZO MALATTIE INFETTIVE + HIV/AIDS

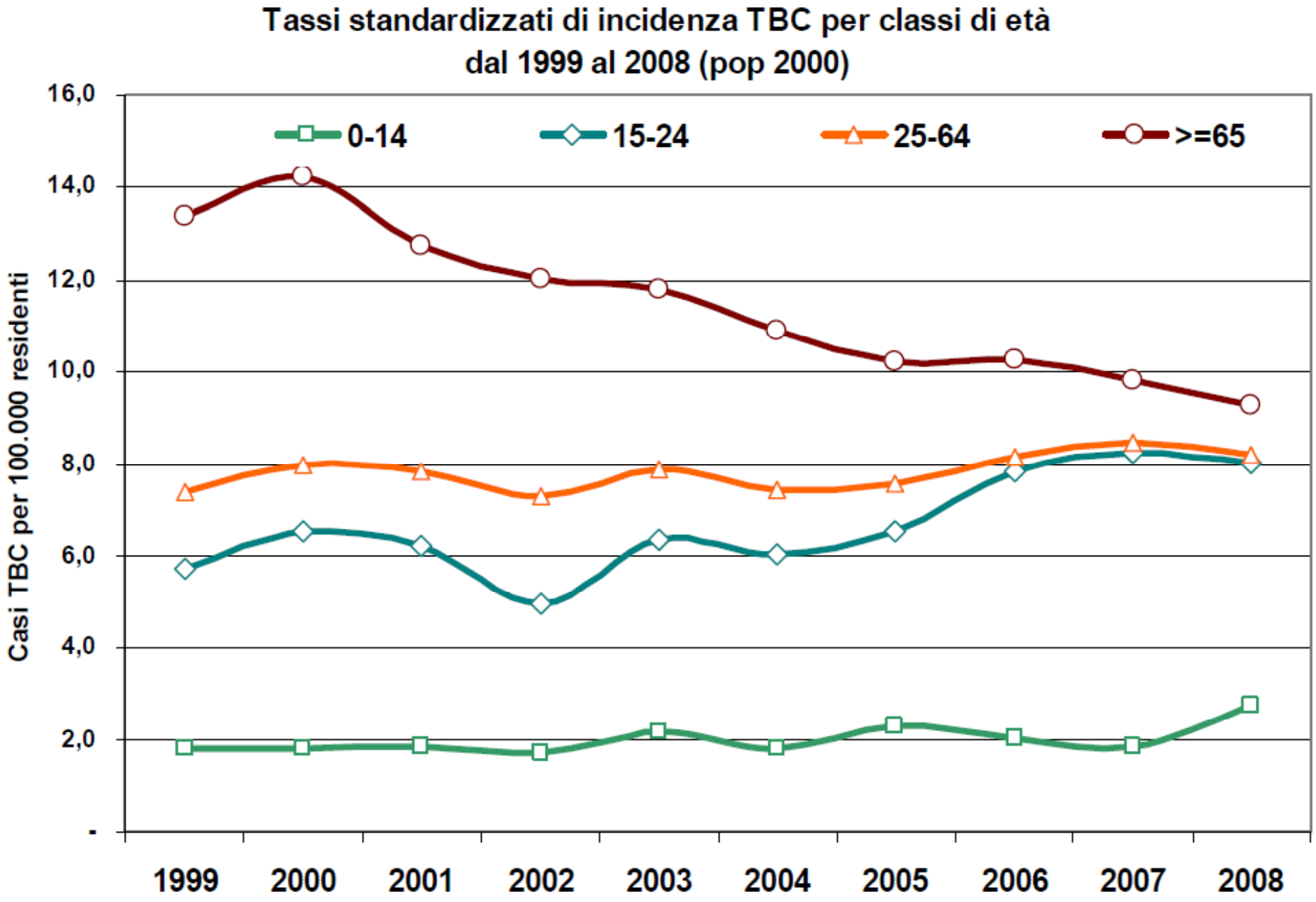


Esempi di transizione epidemiologica in Italia

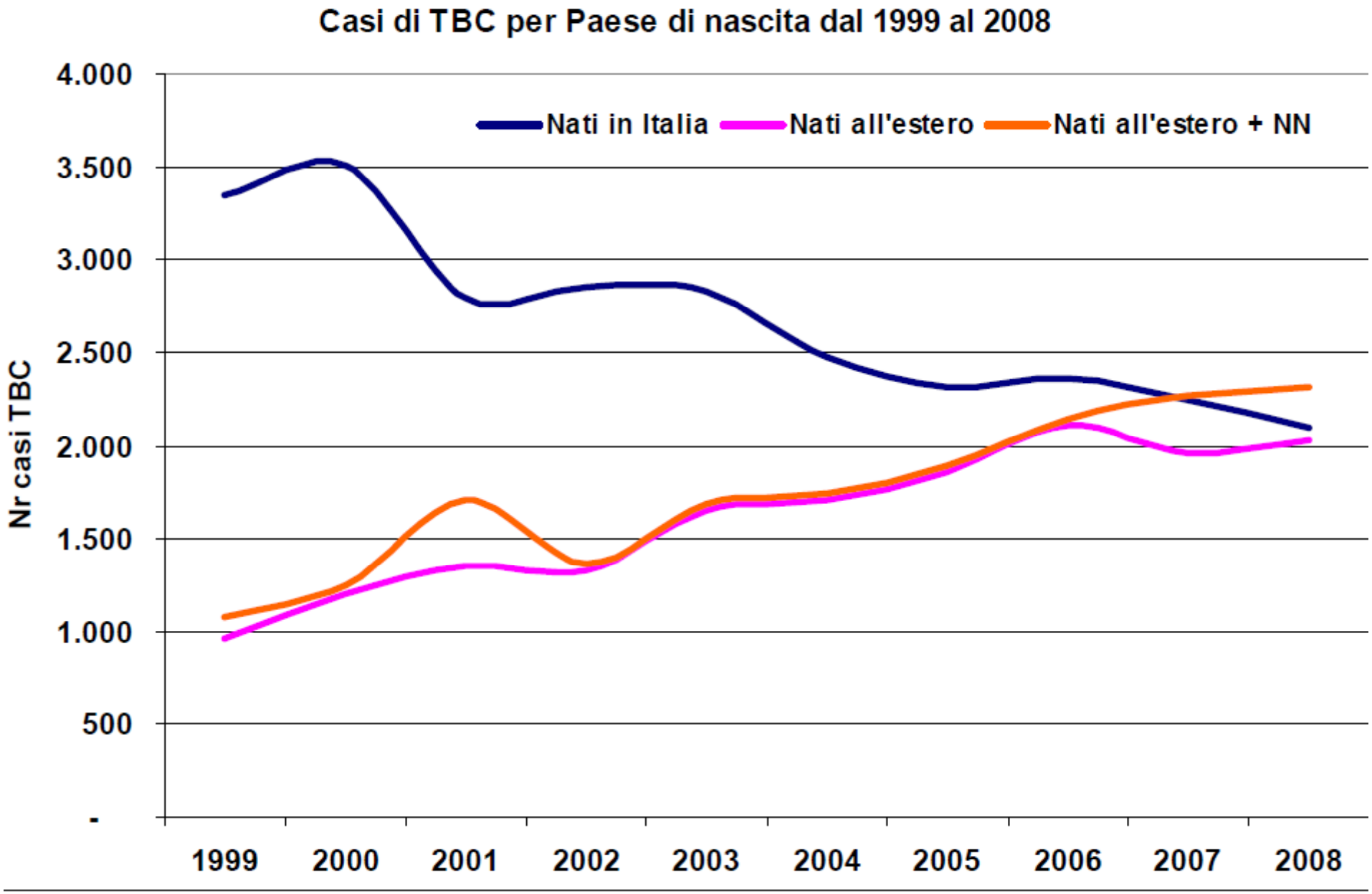
- Tubercolosi
- HIV



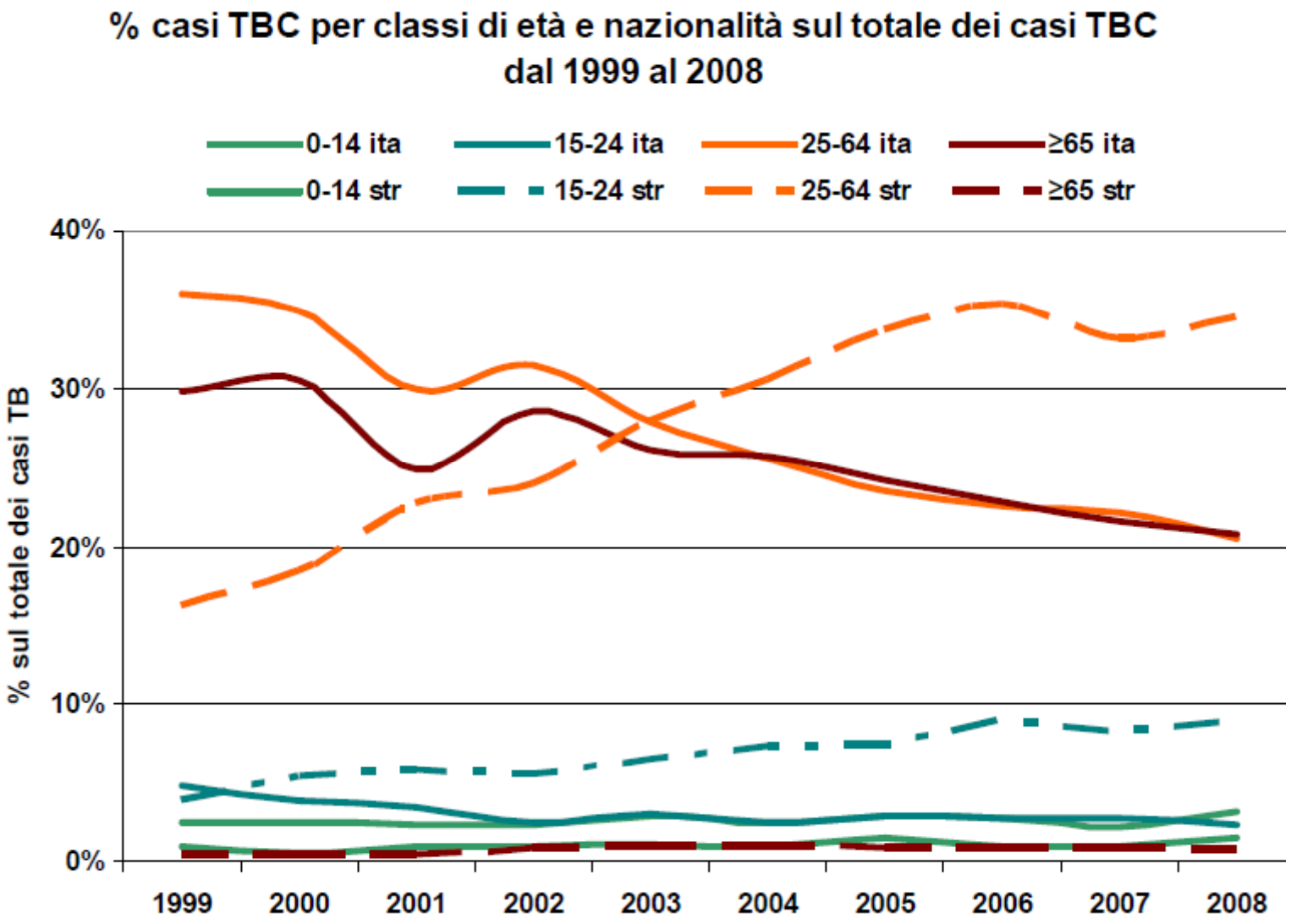
Fonte: Ministero della Salute



Fonte: Ministero della Salute



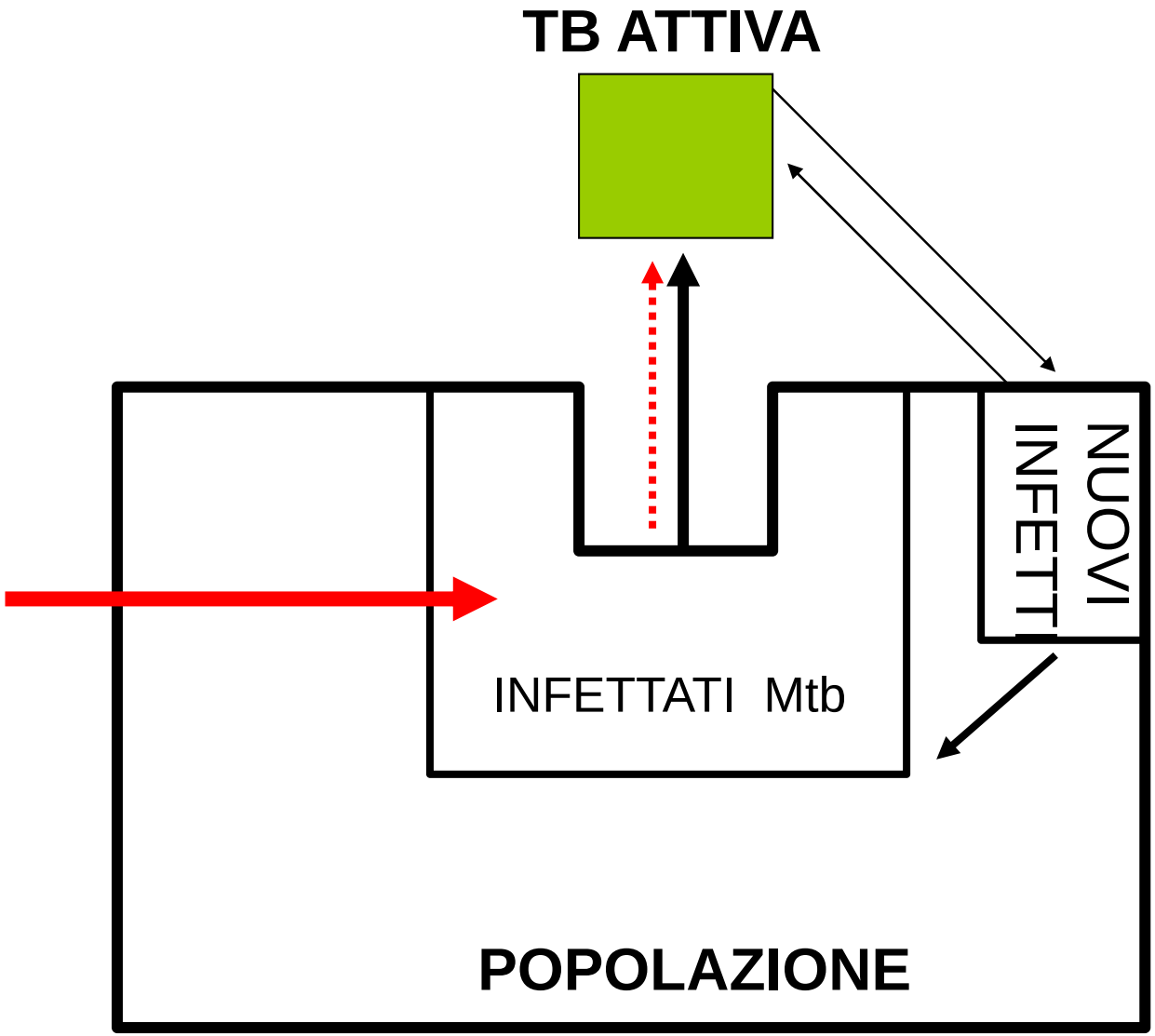
Fonte: Ministero della Salute



Fonte: Ministero della Salute

Dinamica epidemica della tubercolosi

Effetto dell'immigrazione da paesi ad alta endemia



Girardi – 2008

Ministero della Sanità
Commissione Nazionale per la lotta contro l'AIDS
Linee-guida per la prevenzione del contagio tubercolare nell'assistenza a pazienti con infezione da HIV
Ottobre 1994

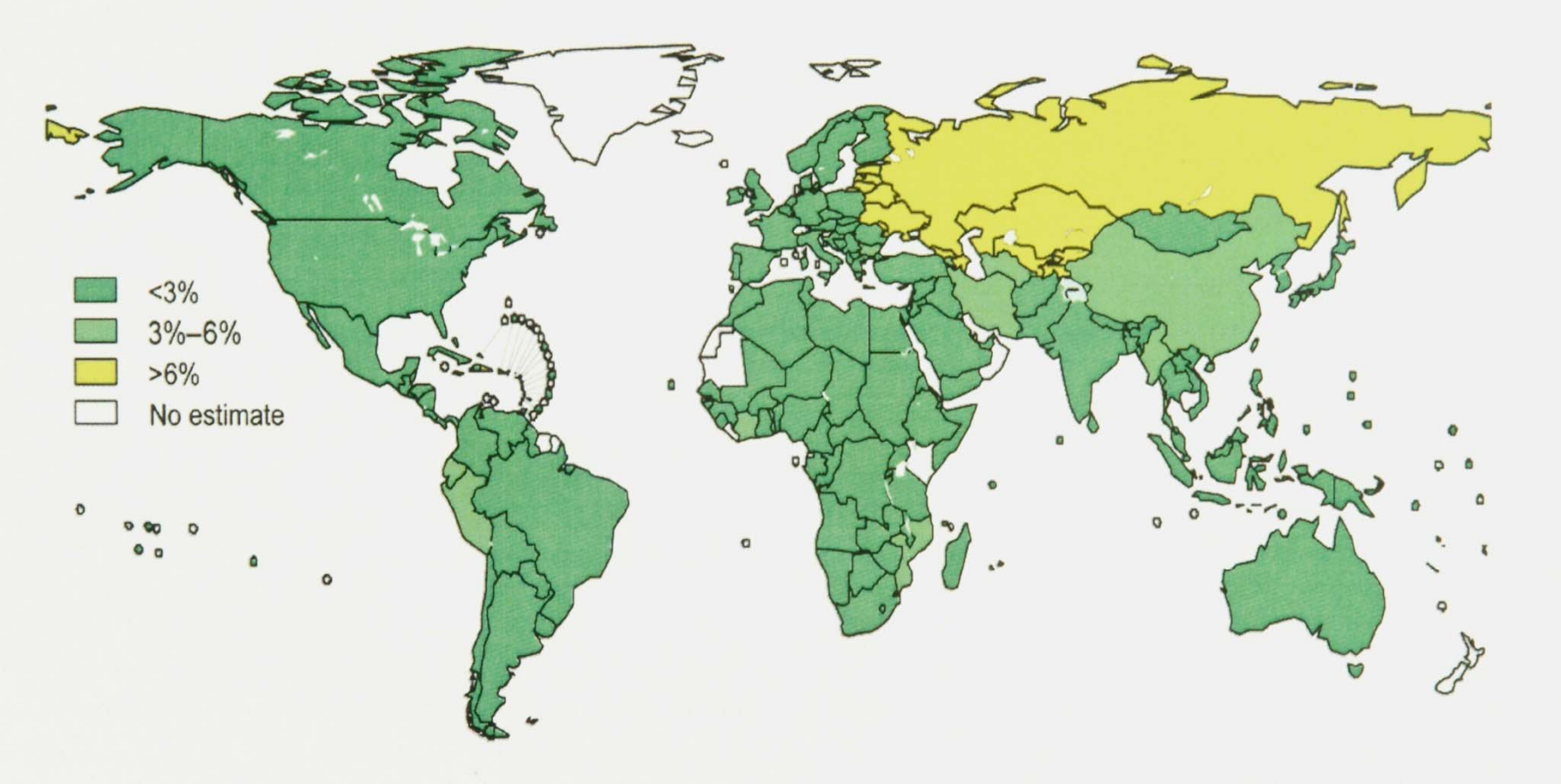
L'isolamento deve essere realizzato in ***camere singole dotate di servizi igienici propri*** e,possibilmente, di una zona filtro.

Ove le condizioni strutturali lo permettano, l'isolamento dovrebbe essere realizzato in stanze con caratteristiche tali da consentire la riduzione della contaminazione dell'aria e da impedire la diffusione dei contaminanti ad altri ambienti ……

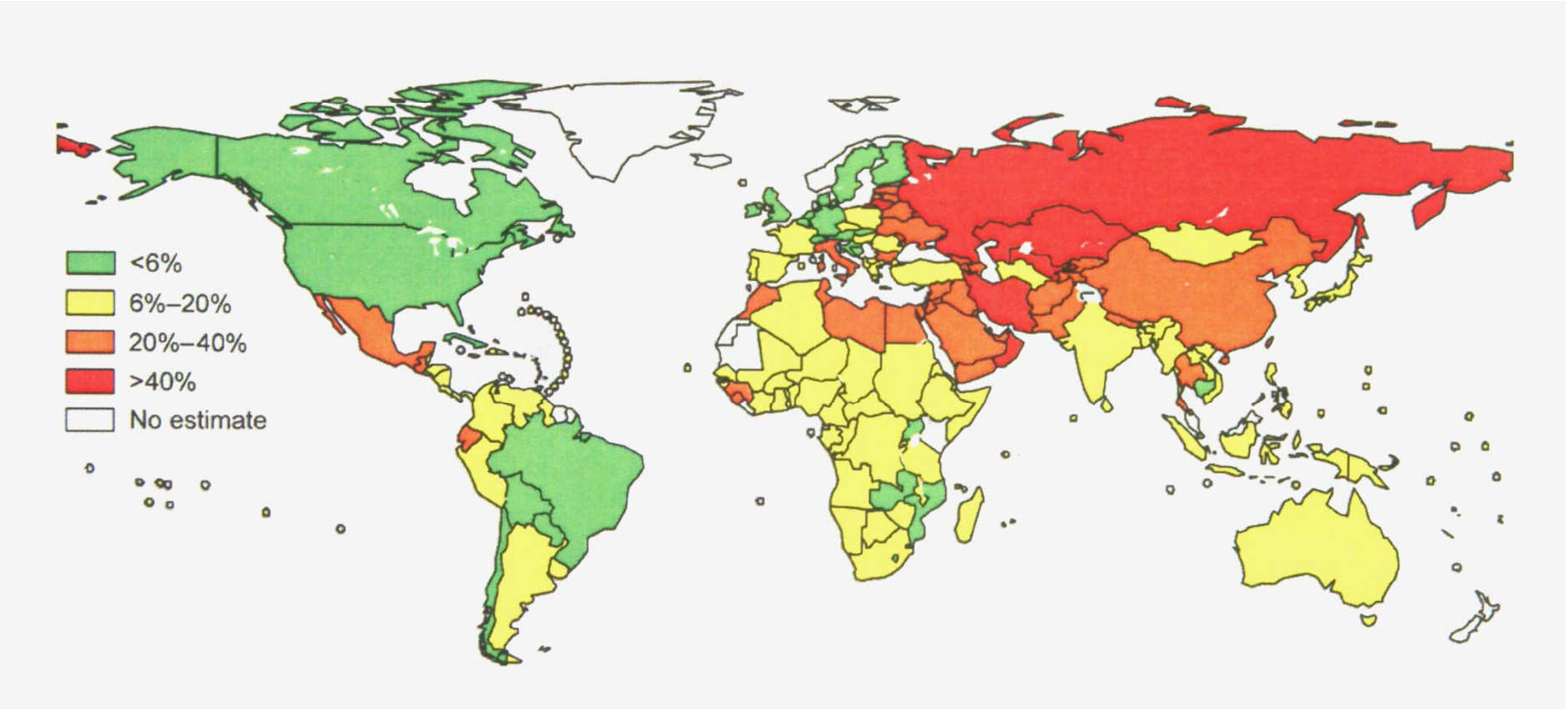
e' opportuno che vengano assicurati ***almeno 6 ricambi d'aria per ora***….. [e] una pressione lievemente più bassa rispetto ai locali adiacenti (stanze a ***pressione negativa***)



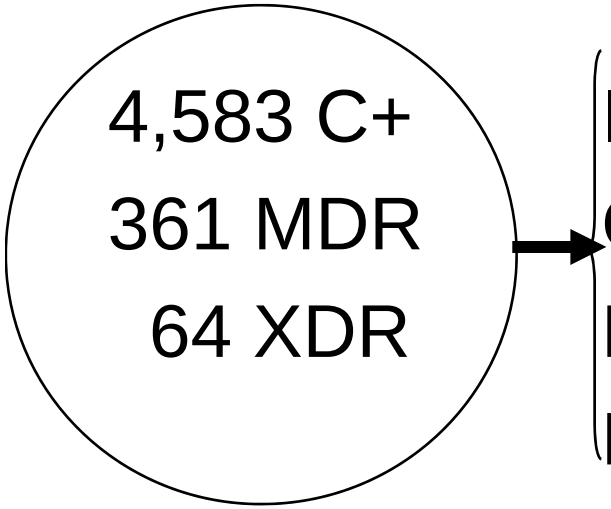
Multi-drug resistance in patients not previously treated



Multi- Drug resistance in previously treated patients



XDR vs MDR, Italy-Germany findings



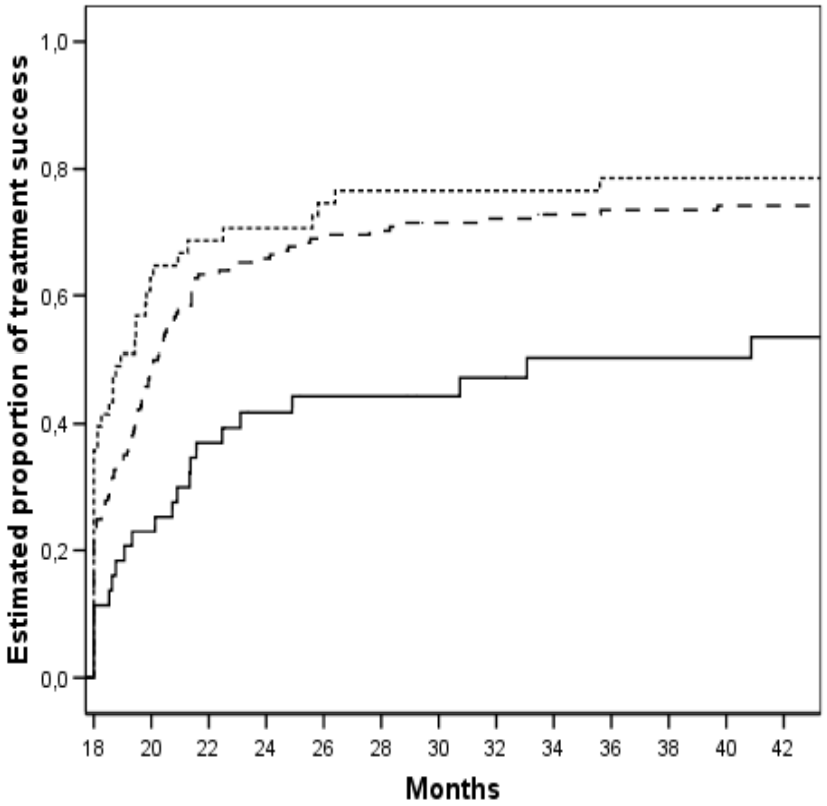
Italy:	MDR 4.2%;	XDR 0.4%
Germany:	MDR 6.1%;	XDR 0.4%
Estonia:	MDR 27.4%;	XDR 5.9%
Russia:	MDR 5.2%;	XDR 0%

Migliori et al ERJ 2007

4-Countries study

XDR vs ‘complicated’ MDR vs MDR

Time to treatment success



XDR

cMDR

MDR

Migliori et al ERJ 2007

Costs for 11 New TB Drugs, 2006-2015 (US$ Millions)

	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	All years	% total
Basic	5	5.2	5.3	5.5	5.6	5.8	6.0	6.1	6.3	6.5	57	1%
Lead optimization	195	201	207	213	219	226	233	240	247	254	2235	47%
Preclinical	11	11	12	12	12	13	13	14	14	14	126	3%
R&D	**211**	**217**	**224**	**231**	**237**	**245**	**252**	**260**	**267**	**275**	**2419**	**50%**
Phase1	7.0	7.2	7.4	7.6	7.9	8.1	8.4	8.6	8.9	9.1	80	2%
Phase 2	50	52	53	55	56	58	60	61	63	65	573	12%
Phase 3	150	155	159	164	169	174	179	184	190	196	1720	36%
Clinical Trials	**207**	**213**	**220**	**226**	**233**	**240**	**247**	**255**	**262**	**270**	**2373**	**49%**
Registration	0	1	0	1.1	0	1.2	0	1.2	0	1.3	6	0.1%
Regulatory	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**1**	**6**	**0.1%**
Operations	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	0.2	2	0.04%
Total	**418**	**432**	**444**	**458**	**471**	**486**	**499**	**516**	**530**	**547**	**4800**	

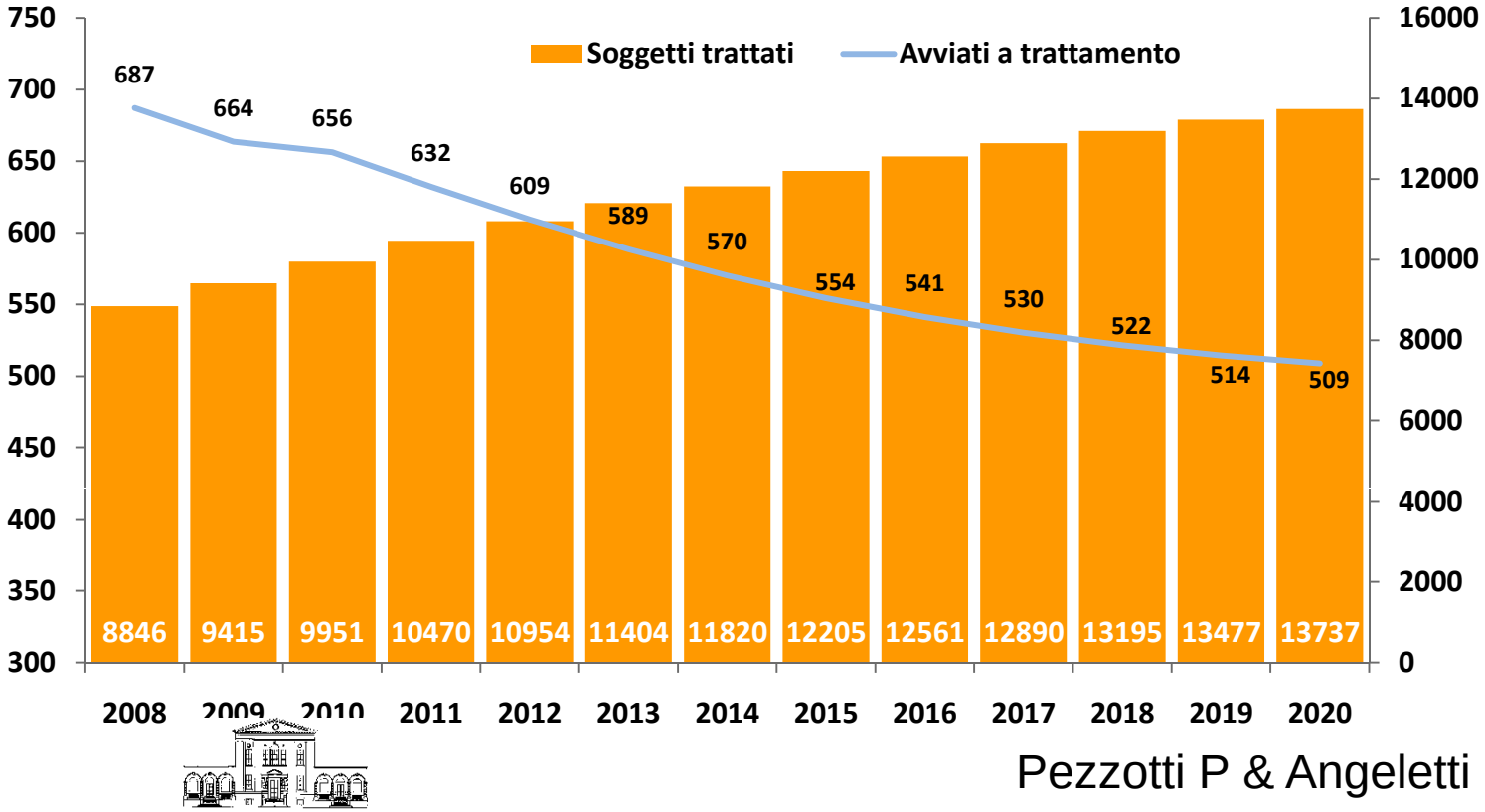
Summary: $4800 required - $620 available = $4180 funding gap

Source: The Global Plan to Stop TB 2006-2015
http://www.stoptb.org/globalplan/assets/documents/SSP_DRUGWG.pdf

HIV/AIDS

Lo Scenario Base – I soggetti avviati a trattamento

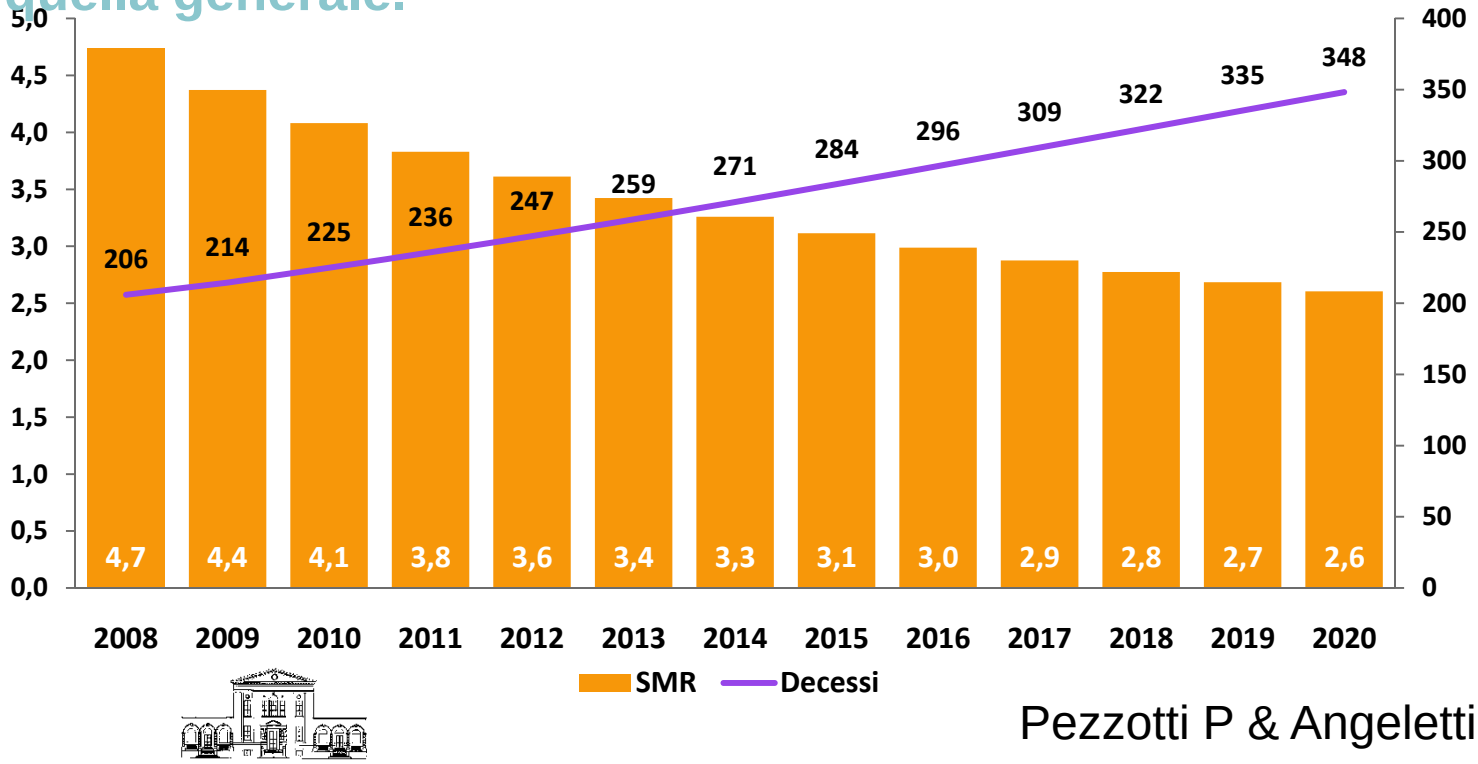
I soggetti avviati a trattamento aumentano di 4890 unità per un incremento medio annuo del 3.7%. Anche in questo caso la riduzione dei soggetti non in trattamento determina una diminuzione dei soggetti naive avviati a trattamento.



Pezzotti P & Angeletti C, 2010

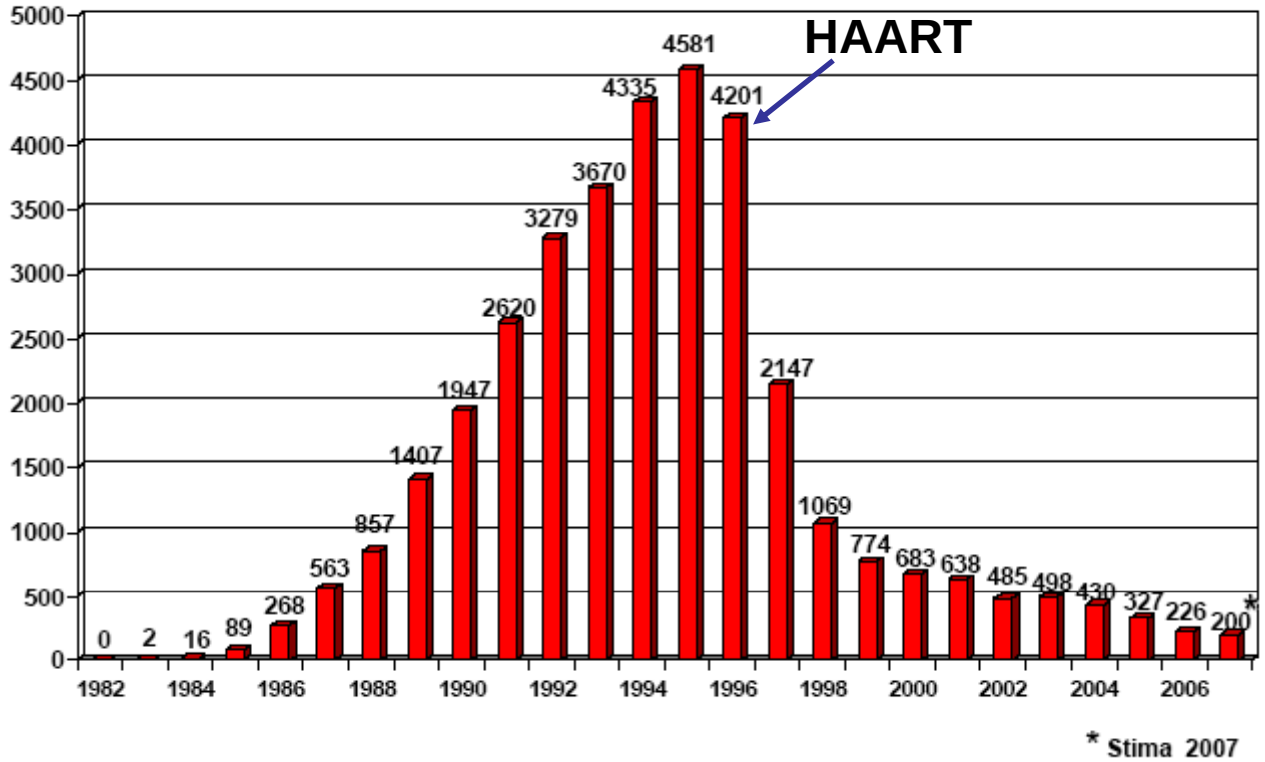
Lo Scenario Base – Decessi e SMR

I decessi aumentano del 4.5% medio annuo a seguito sia dell'aumento della prevalenza che del processo di invecchiamento della popolazione. Quest'ultimo porta anche ad una marcata riduzione dell'SMR ossia del rapporto fra la mortalità della popolazione HIV e di quella generale.



Pezzotti P & Angeletti C, 2010

Andamento mortalità per AIDS in Italia per anno di calendario 1982-2007

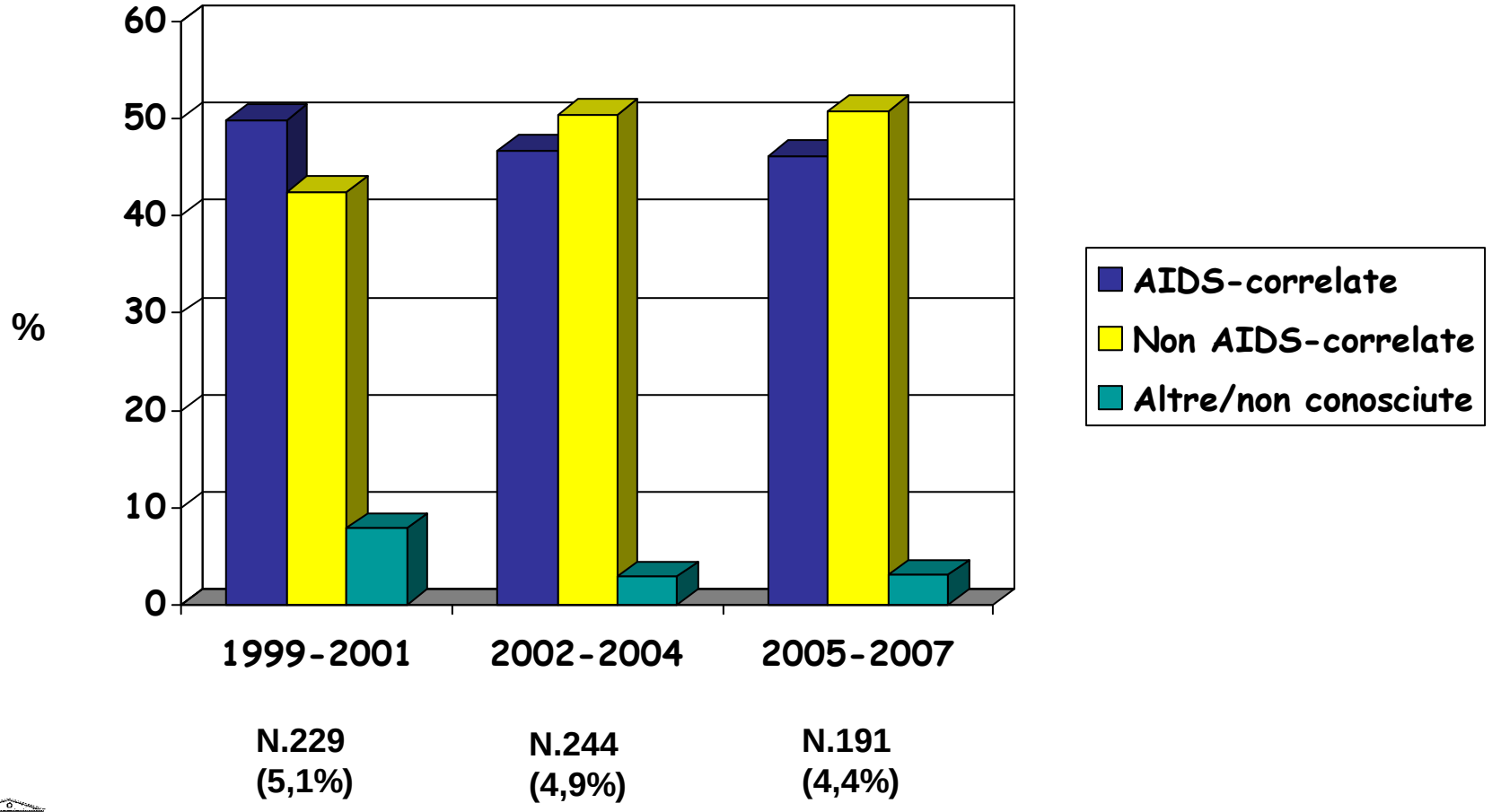


* Stima 2007

I decessi AIDS nell'INMI nel periodo 2005-2007 sono stati 124, pari al **65%** dei decessi AIDS nel Lazio (N. 190) e al **16%** dei decessi AIDS in Italia (N. 799).

Fonte ISS

Cause di morte HIV/AIDS correlate e non, INMI 1999-2007



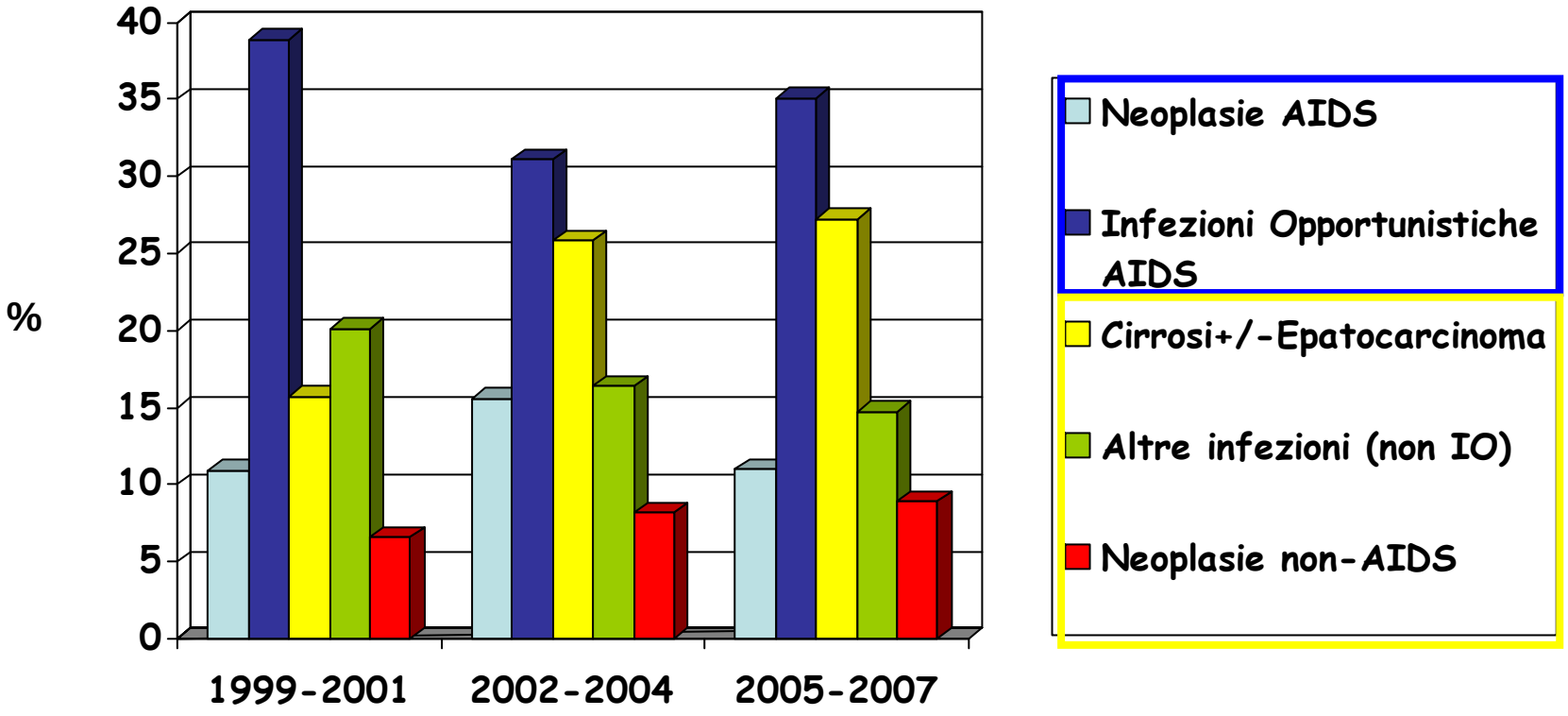
N.229 (5,1%)

N.244 (4,9%)

N.191 (4,4%)

Palmieri F. 2009

Cause di morte HIV/AIDS per categoria, INMI 1999-2007



N. 229 (5,1%)

N. 244 (4,9%)

N. 191 (4,4%)

Palmieri F. 2009

Relazione tra esperienza ed outcome

Relation Between Hospital Experience and In-Hospital Mortality for Patients With AIDS-Related PCP

Characteristic	High-AIDS-Familiarity Hospital	Low-AIDS-Familiarity Hospital	(High-Low) Difference ±1 SE	p
Total No. of HIV-related discharges	816	99		
Total No. of patients with PCP	221	36		
Mortality rate, % (all medical patients)	2.6	2.8	-0.2±0.4	NS
Mortality rate, % (patients with AIDS-related PCP only)	12.2	33.3	-21.1 ±8.2	<.01
Intensive care unit use rate, %	21.3	19.4	1.9±7.1	NS

Bennet CL et al JAMA 1989;261:2975-2979

HIV Care Quality Measures Adopted

Measure	Level of care impacted[a]	Level of evidence[b] [references]
Process of care		
1. Retention in care (seen at least twice annually at least 60 days apart)	P	Level II and QM [8, 17]
2. CD4 cell count measurement (measured at least twice annually)	P	Level II and QM [3, 8, 18, 19]
Screening		
3. Gonorrhea/chlamydia screening (at least once)	P	Level II [19–22]
4. Syphilis screening (annually)	P	Level II and QM [20, 23–27]
5. Injection drug use screening (annually)	P	Level II [19, 20, 28]
6. High-risk sexual behavior screening (annually)	P	Level I and QM [19, 20, 28]
7. Tuberculosis screening (at least once)	P	Level I and QM [19, 29–32]
8. Hepatitis B screening (at least once)	P	Level III and QM [19, 20, 26, 27, 33]
9. Hepatitis C screening (at least once)	P	Level III and QM [19, 20, 26, 33]
Immunization		
10. Influenza immunization (annually)	B	Level III [26, 34–37]
11. Pneumococcal immunization (at least once)	B	Level II and QM [38–41]
12. Hepatitis B vaccination first dose received (if appropriate)	P	Level II and QM [30, 33, 42]
13. Hepatitis B vaccination series completed (if appropriate)	S	Level II and QM [30, 33, 42]
Prophylactic therapy		
14. PCP prophylaxis if CD4 cell count <200 cells/μL	B	Level I and QM [4, 9, 43, 44]
ART prescription		
15. Appropriately prescribed ART	P	Level I and QM [3, 8, 9, 45]
Viral control (after at least 6 months post–ART initiation)		
16. Achieving maximal viral control if prescribed ART	S	Level II and QM [3, 8, 9, 45]
17. Achieving maximal viral control if prescribed ART *or* treatment plan documentation if maximal viral control not achieved	P	Level II and QM [3, 8, 9, 45]

Horberg MA et al.. Clinical Infectious Diseases 2010; 51:732–738

National and Multiagency HIV Care Quality Measures created

Measure	NQF endorsement	AMA PCPI inclusion	CPT-II code available	Beta testing (where)
1. Retention in care	Yes	No[a]	No	Yes (KP, Alliance)
2. CD4 cell count	Yes	Yes	Yes	Yes (KP, Alliance)
3. Gonorrhea/chlamydia screening	Yes	Yes	Yes	Yes (Alliance)
4. Syphilis screening	Yes	Yes	Yes	Yes (Alliance)
5. Injection drug use screening	Yes	Yes	Yes	No
6. High-risk sex screening	Yes	Yes	Yes	No
7. Tuberculosis screening	Yes	Yes	Yes	Yes (Alliance)
8. Hepatitis B screening	Yes	Yes	Yes	Yes (Alliance)
9. Hepatitis C screening	Yes	Yes	Yes	Yes (Alliance)
10. Influenza immunization	Included as part of regular immunizations	Yes	Yes	Yes (Alliance)
11. Pneumococcal immunization	Included as part of regular immunizations	Yes	Yes	Yes (Alliance)
12. Hepatitis B vaccination order	Yes	Yes	Yes	Yes (Alliance)
13. Hepatitis B vaccination completed	No	Yes	No	Yes (Alliance)
14. PCP prophylaxis	Yes	Yes	Yes	Yes (KP, Alliance)
15. Adolescents/adults prescribed ART	Yes	Yes	Yes	Yes (KP, Alliance)
16. Achieving maximal viral control (system level)	Not considered	Yes	No	Yes (KP, Alliance)
17. Achieving maximal viral control (provider level)	Yes	Yes	Yes	Yes (Alliance)

Horberg MA et al.. Clinical Infectious Diseases 2010; 51:732–738

single set of HIV care quality measures that reflect:

- retention in care, appropriate care delivery processes and interventions,
- outcome of treatment with accountability for that treatment.
- Taken together, the indicators represent the most important aspects of HIV care that impact the greatest number of HIV-infected individuals in the Western Countries today.

Determinanti dell'importanza delle malattie infettive oggi

- Transizione epidemiologica
- La situazione di reparti di malattie infettive in Italia
- Comparsa di nuovi patogeni
- Disponibilità di nuovi strumenti diagnostici e terapeutici
- Rilevanza della etiologia infettiva in altre patologie
- Eventi infettivi inattesi (epidemie) o ad elevata pericolosità

Ricoveri “impropri” al di fuori dei reparti di Malattie Infettive

- 56,9% delle malattie infettive intestinali in pediatria
- 24,1% delle malattie trasmesse da animali in medicina generale
- 23,4% delle malattie virali del sistema nervoso centrale in neurologia
- 28,9% degli esantemi virali in pediatria
- il 31,2% delle malattie Infettive trasmesse da artropodi in medicina generale
- 16,8% delle malattie da virus e clamidie in pediatria
- 25,5% delle micosi in medicina generale
- 32,9% delle elmintiasi in chirurgia generale
- 15,7% delle altre malattie infettive e parassitarie in medicina generale
- 19,7% dei postumi di malattie infettive in pneumologia.

Allegato al Decreto Commissario di Governo n 58 del 12 luglio 2010

Ministero della Salute

CCM
Centro nazionale per la prevenzione e il Controllo delle Malattie

Tutte le Regioni

Capofila: Regione Lazio

REGIONE LAZIO

Attuatore:

Istituto Nazionale per le Malattie Infettive
Lazzaro Spallanzani- Roma

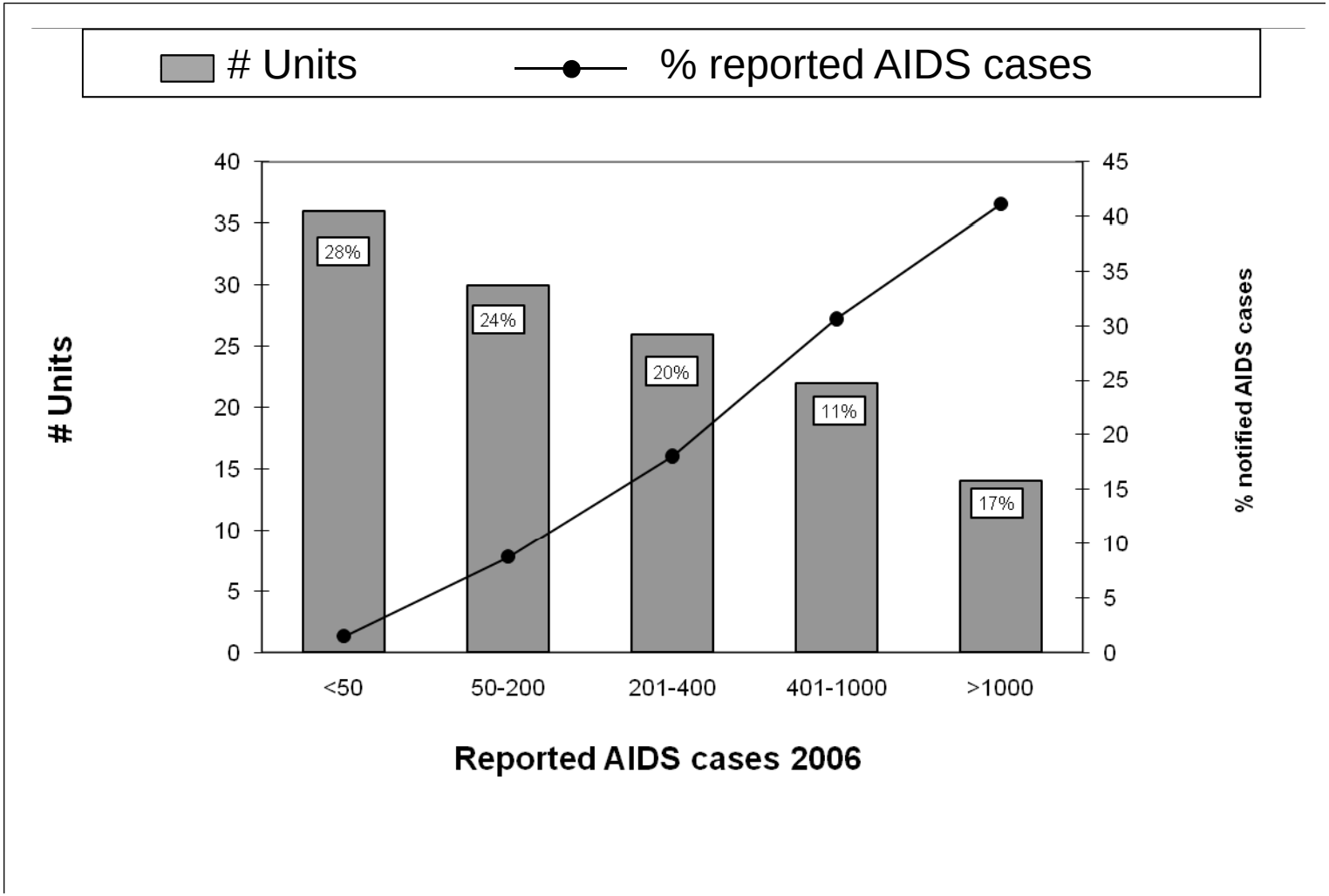
Programma italiano di valutazione delle attività sanitarie assistenziali per l'infezione da HIV/AIDS

VASAIDS

2007 National survey on hospital care for HIV patients
Participating Units

Existing/ Invited	Participating			Participating Clinical Centers
	N	%	Wards	
176	**129**	**73.3**	**118**	**102**

Distribution of Units according to notified AIDS cases as December 2006 and relative percentage of reported cases

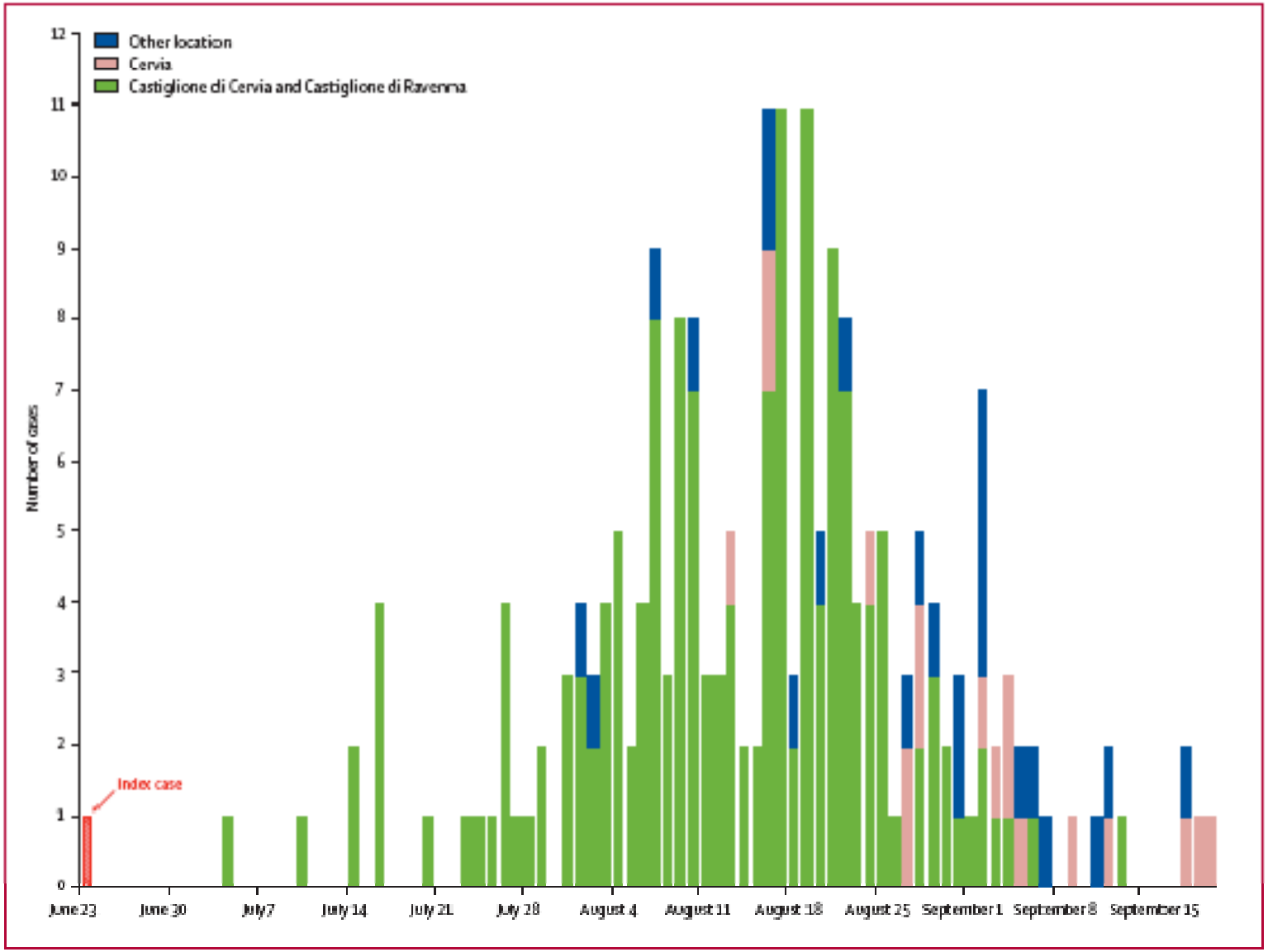


2006 data

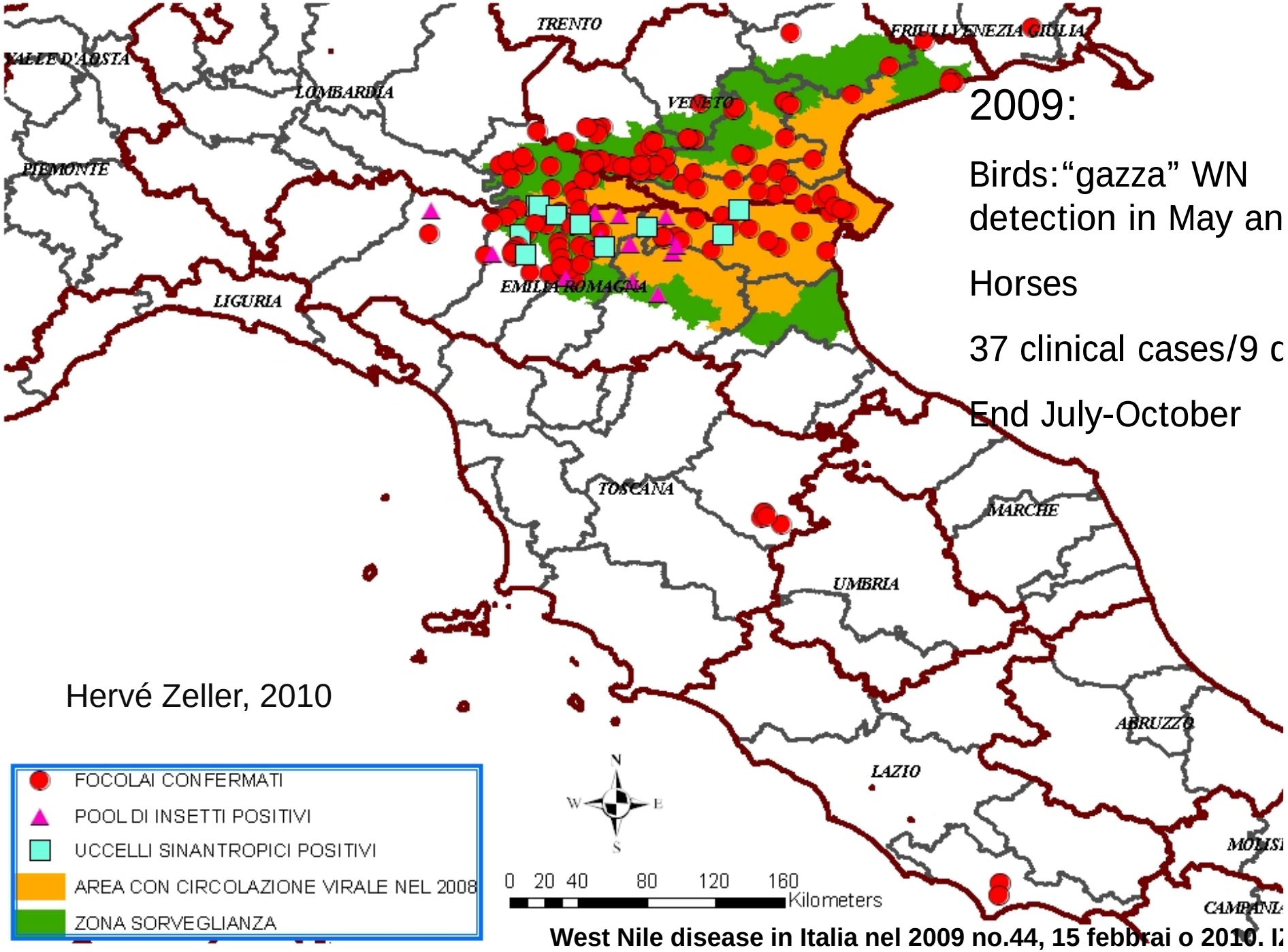
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- Rilevanza della etiologia infettiva in altre patologie
- Eventi infettivi inattesi (epidemie) o ad elevata pericolosità

Distribution of dates of onset of symptoms for CHIKV cases by presumed place of infection



Rezza G et al. Lancet 2007; 370:1840-6



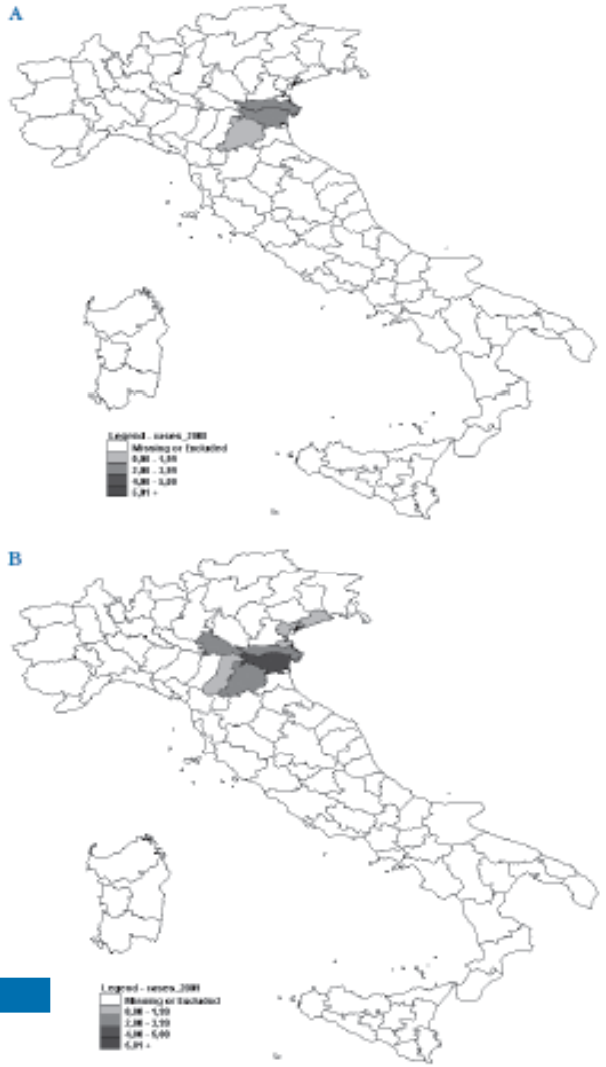
West Nile disease in Italia nel 2009 no.44, 15 febbrai o 2010. I

WNV in Italy: an already established new diseases?

- First cases among equines in 1998;
- First human cases in 2008;
- Up to now 16 human cases of neuro-invasive WNV disease have been reported in Italy;
- Several cases of non-neuro-invasive WNV disease probably went undiagnosed;
- A sero-prevalence from 1.5 to 3.1% has been detected among farm workers in Veneto and Emilia-Romagna.

FIGURE 2

Geographical distribution of human cases of West Nile neuroinvasive disease (WNND), Italy, 2008 (A) and 2009 (B) (n=24)



Rapid communications

WEST NILE VIRUS TRANSMISSION WITH HUMAN CASES IN ITALY, AUGUST - SEPTEMBER 2009

Not only West Nile – Usutu virus in Italy

- USUTU virus (USUV) is a flavivirus of the Japanese encephalitis virus complex;
- It has been firstly detected in 2007 in chicken, after a system of active surveillance;
- Evidence of sero-conversion or virus isolation in several countries in Central Europe.



Fig. 1. Locations of USUTU virus seroconversion in Italy and birds migrating routes from Northern Europe to Africa.

Emergence of a new antibiotic resistance mechanism in India, Pakistan, and the UK: a molecular, biological, and epidemiological study

Karthikeyan K Kumarasamy, Mark A Toleman, Timothy R Walsh, Jay Bagaria, Fathana Butt, Ravikumar Balakrishnan, Uma Chaudhary, Michel Doumith, Christian G Giske, Seema Irfan, Padma Krishnan, Anil V Kumar, Sunil Maharjan, Shazad Mushtaq, Tabassum Noorie, David L Paterson, Andrew Pearson, Claire Perry, Rachel Pike, Bhargavi Rao, Ujjwayini Ray, Jayanta B Sarma, Madhu Sharma, Elizabeth Sheridan, Mandayam A Thirunarayan, Jane Turton, Supriya Upadhyay, Marina Warner, William Welfare, David M Livermore, Neil Woodford

Summary

Background Gram-negative Enterobacteriaceae with resistance to carbapenem conferred by New Delhi metallo-β-lactamase 1 (NDM-1) are potentially a major global health problem. We investigated the prevalence of NDM-1, in multidrug-resistant Enterobacteriaceae in India, Pakistan, and the UK.

Kumarasamy KK et al. Lancet Infect Dis 2010; 10: 597–602

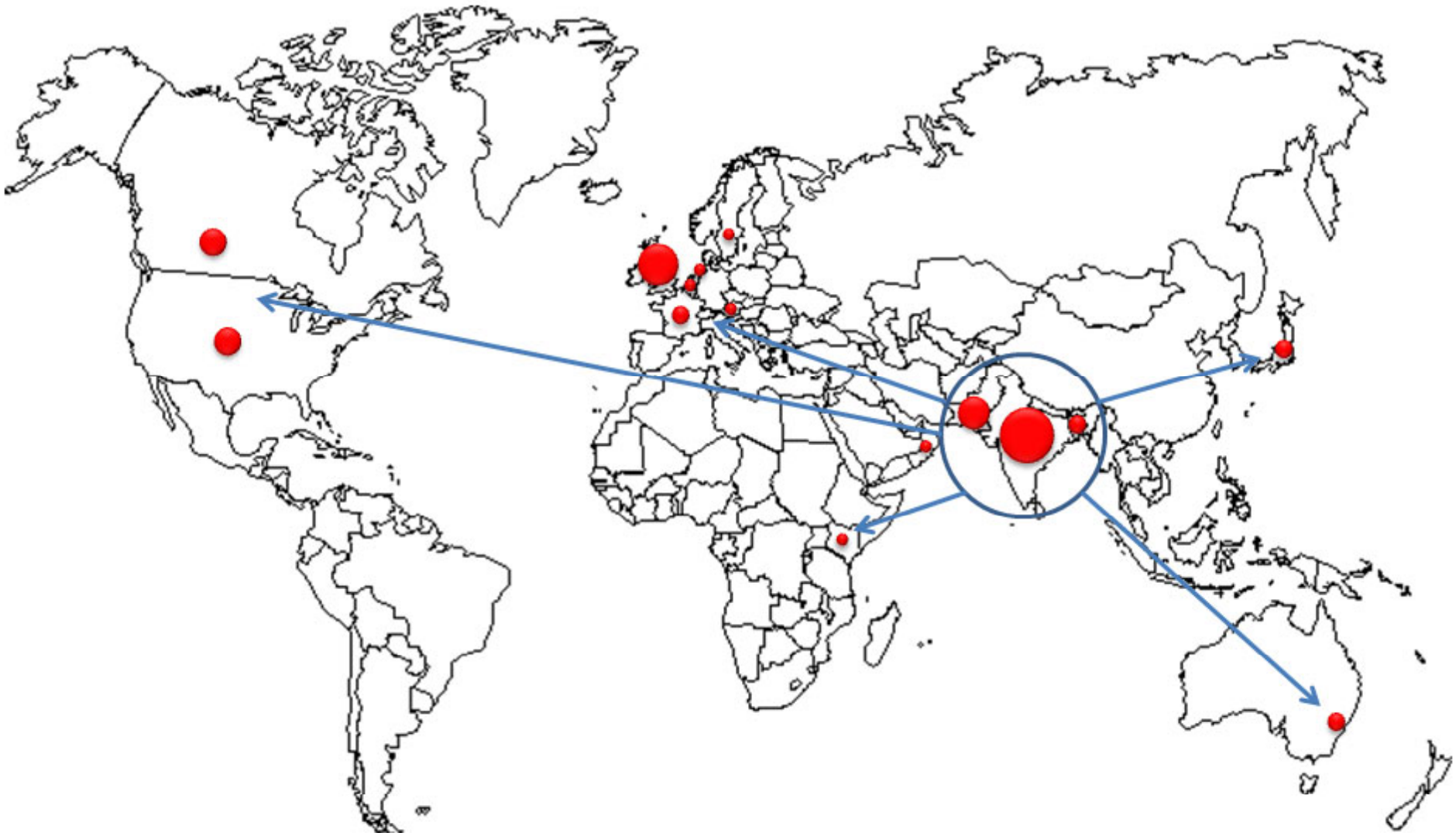
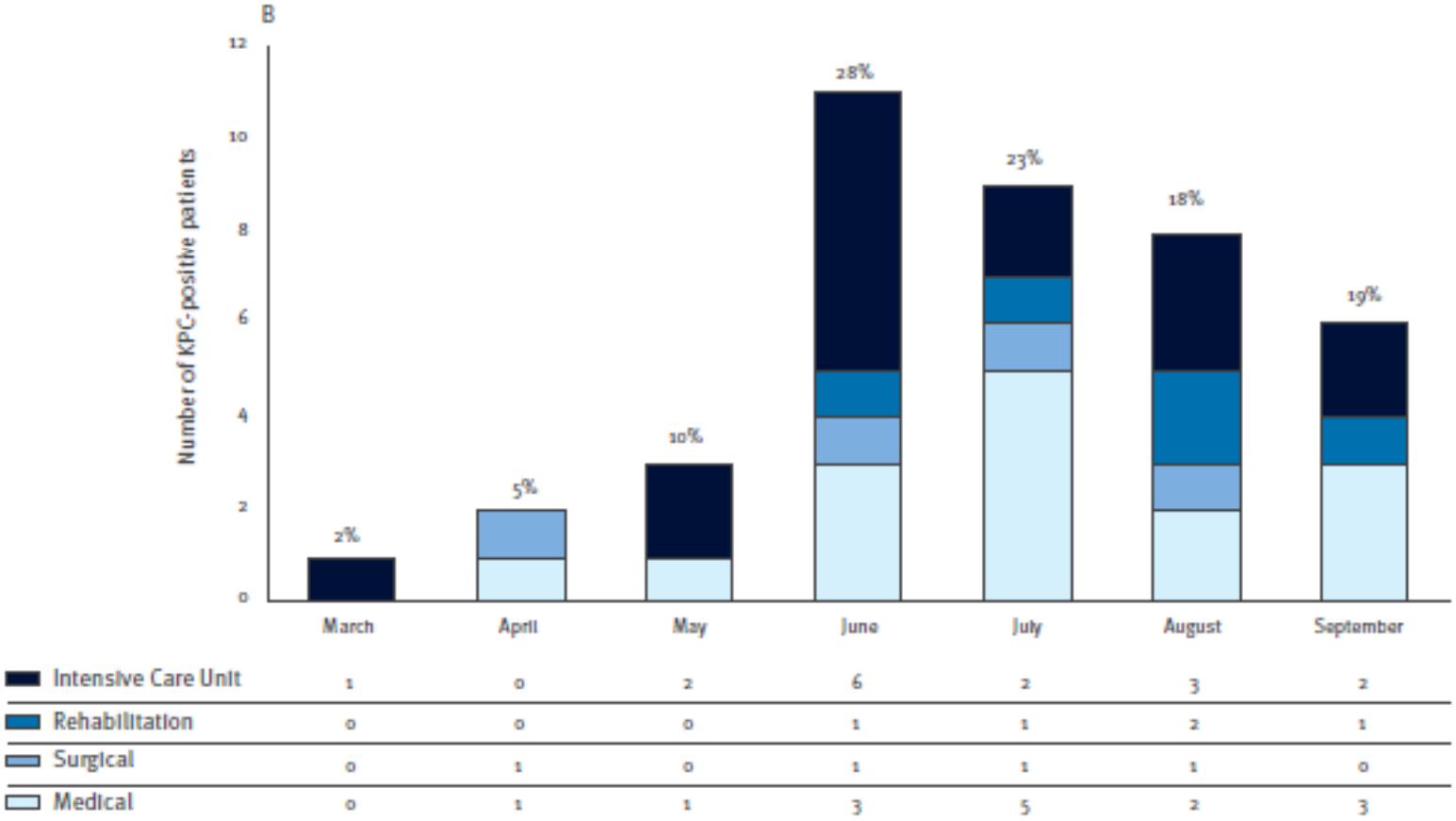


Fig: Global spread of the New Delhi metallo-beta-lactamase encoding gene (NDM-1).

Rapid increase of carbapenemase-producing Klebsiella pneumoniae strains in a large Italian hospital: surveillance period 1 March – 30 September 2010

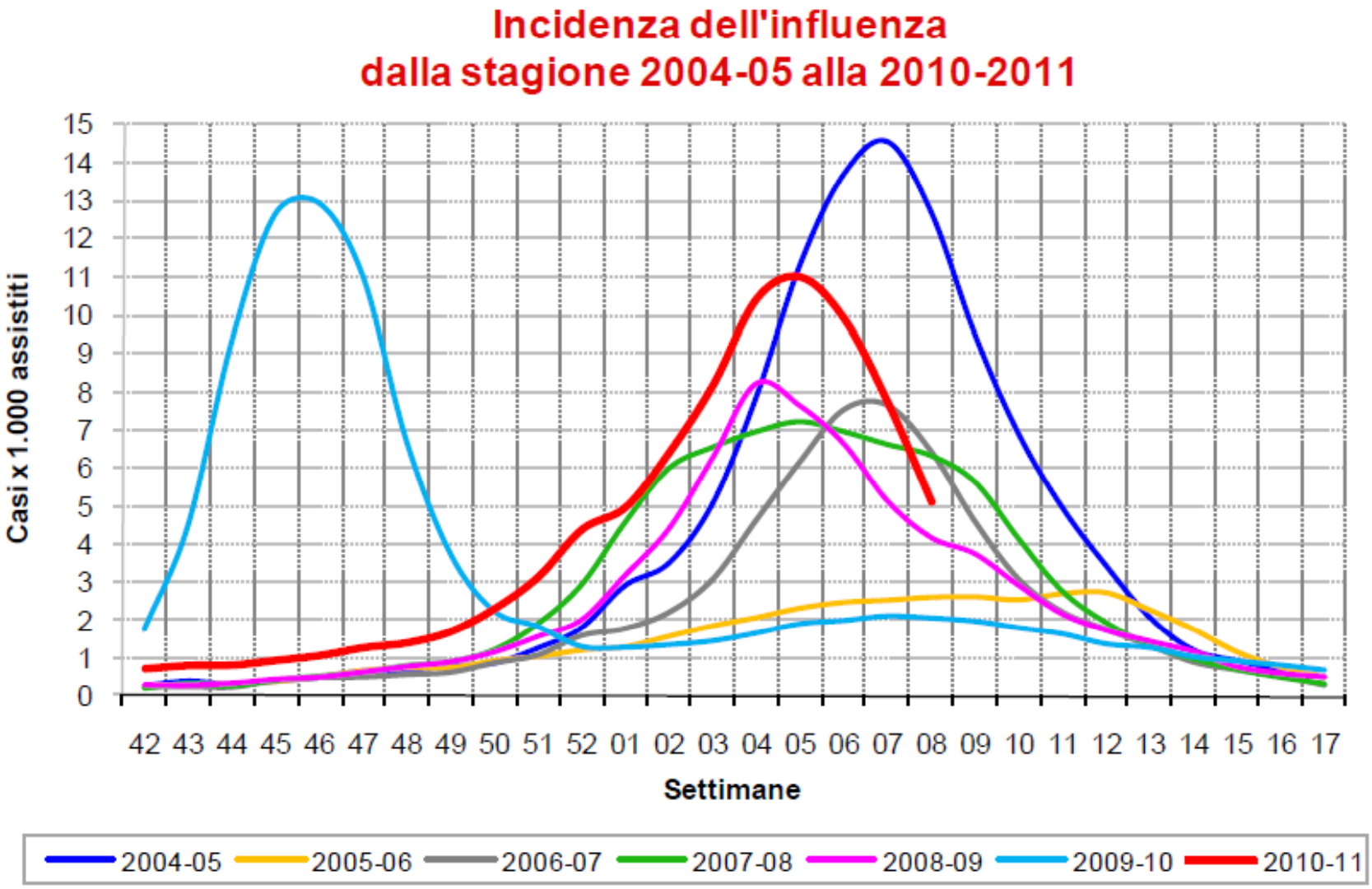
P Gaibani[1,2], S Ambretti[2,3], A Berlingeri[3], F Gelsomino[1], A Bielli[3], M P Landini[1,3], V Sambri (vittorio.sambri@unibo.it)[1]



Eurosurveillance 24 February 2011

Determinanti dell'importanza delle malattie infettive oggi

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- Rilevanza della etiologia infettiva in altre patologie



Influnet 27 febbraio 2011



Vaccinate for the next H2N2 pandemic now

An old influenza strain still circulating in birds and swine could easily jump back to humans now that immunity to it has dropped, warn Gary J. Nabel and his colleagues.

The emergence of a new strain of H1N1 influenza virus in 2009 took the world by surprise. The public-health community had assumed that a pandemic strain would arise from a major genetic reshuffling of RNA from a seasonal strain recombined with RNA from a virus that had never circulated in humans before.

As it turned out, the virus bore a remarkable resemblance to one that had already caused a pandemic — 90 years earlier. The major surface protein from the 2009 H1N1 was strikingly similar to the same type of protein from the 1918 H1N1 Spanish flu virus[1–4], which killed about 50 million people worldwide. Indeed, last year, researchers discovered that antibodies able to prevent the 1918 strain from entering cells in mice had the same effect on the 2009 H1N1[1,2].

Although the 1918 virus has long since evolved into widely divergent seasonal strains, a version with a very similar surface protein has circulated in pigs for nearly a century. It was therefore poised to cross back into humans and cause a new pandemic when broad protective human immunity had waned.

This unexpected source of the 2009 H1N1 pandemic is a cautionary tale for the public-health community. Another subtype of influenza, H2N2, looms as a public health threat[5–7], and could re-emerge in a similar way. Governments, regulatory agencies and industry should develop a pre-emptive vaccination programme for H2N2.

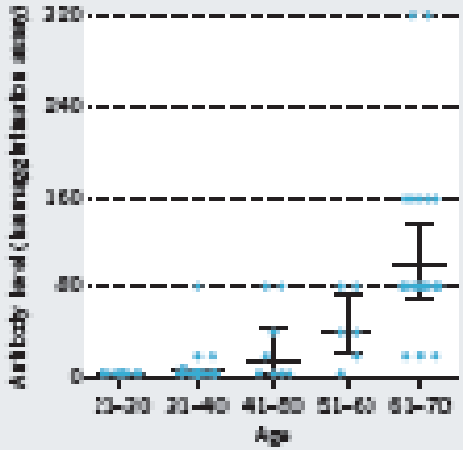
Like the 1918 virus, H2N2 influenza has already demonstrated its ability to cause a pandemic. From 1957 until 1968, an H2N2 strain caused between 1 million and 4 million deaths worldwide. Also like the 1918 strain, H2N2 viruses have not circulated in humans for several decades, but continue to do so among birds and swine[8]. The ▸

NATURE.COM
See Nature's swine-flu special: nature.com/swineflu

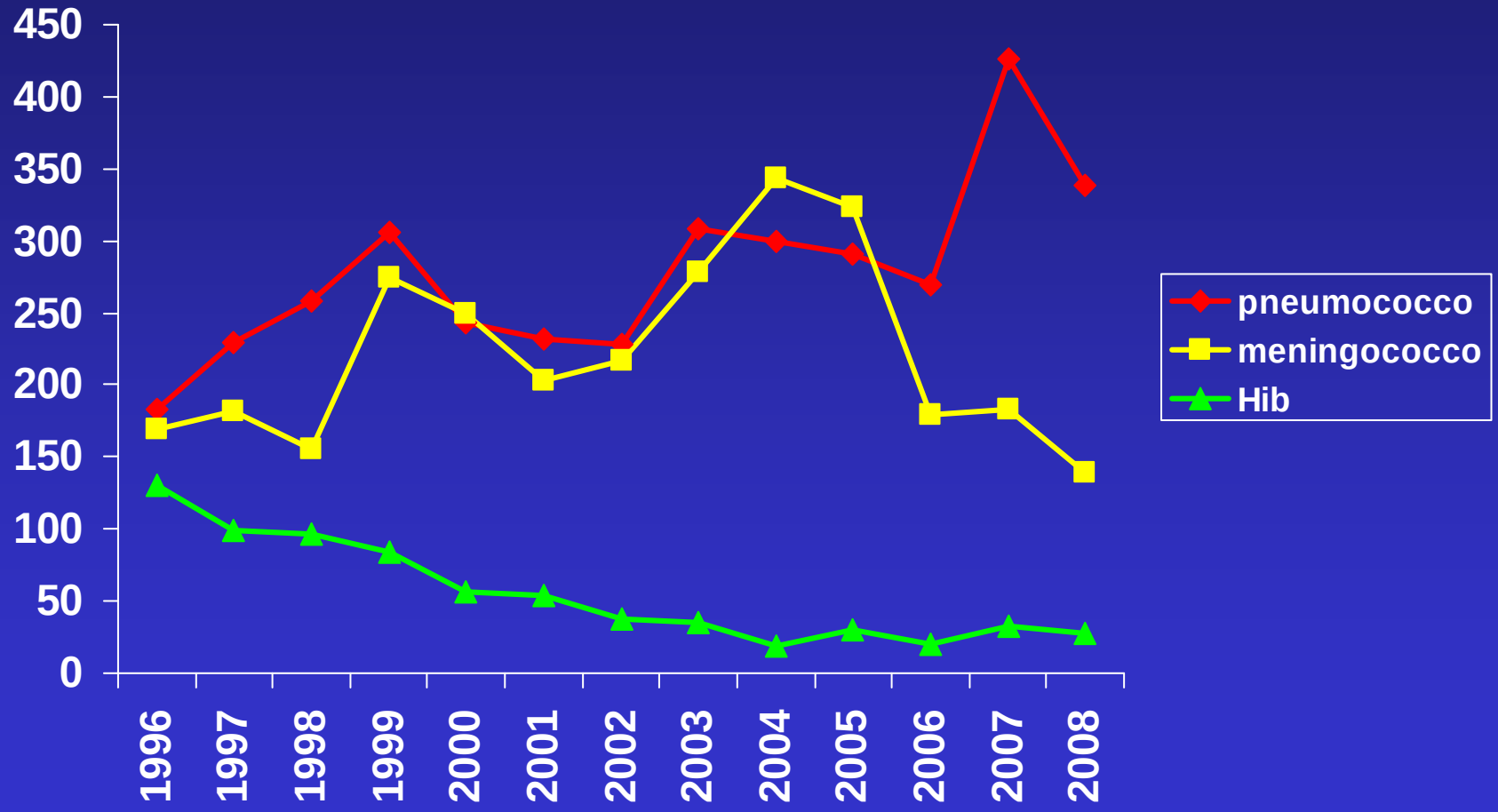
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VULNERABILITY OF YOUTH

Vaccination against H2N2 ended in the late 1960s, so people younger than 50 have little immunity to the virus (mean antibody counts shown with 95% confidence intervals).



Andamento delle meningiti batteriche per agente eziologico in Italia 1996-2008



SIMI (Sistema Informatizzato Malattie Infettive) ISS

LASSA FEVER, IMPORTED - SWEDEN: (LINKOPING) ex WEST AFRICA

- ProMED
  Date: Tue 8 Mar 2011

  A Swedish woman is being treated at the intensive care unit of Linkoping University Hospital in eastern Sweden after being diagnosed with the deadly disease Lassa fever. The woman was infected in West Africa, where she had been working for a humanitarian aid organization. She is the 1st patient ever to be treated for Lassa fever in Sweden.

  The woman's condition is stable, but she will remain isolated for another few weeks, according to infectious disease specialist Britt Akerlind. The woman, who is in her 30s, was flown home on a medical transport flight and arrived in Sweden on Monday [7 Mar 2011] morning.
  "She tested positive for the disease in Africa. We have since conducted some tests here, but the results are not in yet. We are treating this as a serious illness,"

Response to Imported Case of Marburg Hemorrhagic Fever, the Netherlands

Aura Timen, Marion P.G. Koopmans, Ann C.T.M. Vossen, Gerard J.J. van Doornum, Stephan Günther, Franchette van den Berkmortel, Kees M. Verduin, Sabine Dittrich, Petra Emmerich, Albert D.M.E. Osterhaus, Jaap T. van Dissel, and Roel A. Coutinho[1]

Rapid communications

A fatal case of Lassa fever in London, January 2009

A Kitching (Aileen.Kitching@hpa.org.uk)[1,2], S Addiman[3], S Cathcart[3], L Bishop[2], D Krahé[4], M Nicholas[4], J Coakley4, G Lloyd[5], T Brooks[5], D Morgan[6], D Turbitt[3]

1. European Programme for Intervention Epidemiology Training, European Centre for Disease Prevention and Control, Stockholm
2. Health Protection Agency, London Region Epidemiology Unit, London, United Kingdom
3. Health Protection Agency, North East and North Central London Health Protection Unit, London, United Kingdom
4. Homerton University Hospital NHS Foundation Trust, London, United Kingdom
5. Health Protection Agency, Novel and Dangerous Pathogens (NaDP) Laboratory, Centre for Emergency Preparedness and Response (CEPR), Porton Down, United Kingdom
6. Health Protection Agency, Gastrointestinal, Emerging and Zoonotic Infections (GEZI) Department, Centre for Infections, Colindale, United Kingdom

Rapid communications

The first case of Lassa fever imported from Mali to the United Kingdom, February 2009

S Atkin (Sara.Atkin@hpa.org.uk)[1], S Anaraki[1], P Gothard2, A Walsh[3], D Brown[4], R Gopal[4], J Hand[4], D Morgan[3]

1. Health Protection Agency, North East and North Central London Health Protection Unit, London, United Kingdom
2. Hospital for Tropical Diseases, University College London Hospitals NHS Foundation Trust, London, United Kingdom
3. Health Protection Agency, Gastrointestinal, Emerging and Zoonotic Infections (GEZI) Department, Centre for Infections, Colindale, United Kingdom
4. Virus Reference Dept (V.R.D), Centre for Infections, Colindale, United Kingdom

Marburg virus in the Netherlands

- Marburg infection diagnosed in a Dutch patient returning from Uganda;
- Exposure most likely occurred in the Python Cave (Maramagambo Forest), which harbors bat species;
- The patient died after 6 days of intensive care for cerebral edema;
- In total, 130 contacts were identified (66 classified as high risk and 64 as low risk) and monitored for 21 days after their last possible exposure.

Imported cases of VHFs: the experience of INMI with 2 suspected cases

- Two suspected VHFs cases have been managed at Spallanzani Institute recently;
- One suspected CCHF patient from Nepal and one suspected Lassa fever patient from Senegal, both initially admitted in Turin and then referred to Spallanzani;
- The first one was a fatal case of systemic HSV-1 infection;
- The second is a Dengue patient, who completely recovered.

May 3 2007- Italian patient (58ys) returning from Nepal showed severe hemorragic syndrome. History of tick bite. Suspect CCHF



Determinanti dell'importanza delle malattie infettive oggi

- Transizione epidemiologica
- La situazione di reparti di malattie infettive in Italia
- Comparsa di nuovi patogeni
- Eventi infettivi inattesi (epidemie) o ad elevata pericolosità
- Disponibilità di nuovi strumenti diagnostici e terapeutici
- Rilevanza della etiologia infettiva in altre patologie

- Thanks to HIV research new pathogens can be detected using molecular and immunological techniques

- Infection is amplified in the recipient with immune suppression and there are often atypical presentations of disease

POPOLAZIONE IN STUDIO

- Pazienti provenienti **da 3 centri trapiantologici**:
  - Ospedale “S. Orsola-Malipghi”, Bologna n=88
  - “Istituto Regina Elena”, Roma n=23
  - Policlinico “Umberto I” n=15
- Trapianti effettuati aprile 2005 – aprile 2006

- Follow-up 1 anno

- 126 pazienti 74.6% maschi
  - Età mediana 54.3 anni (range interquartile 46.1-60.1)

- 124 fegato (5 vivente), 2 fegato+rene

- Follow-up 116.5 Anni Persona AP (range 10-365 giorni)

Eventi infettivi in 126 trapiantati: 124 fegato (5 vivente), 2 fegato+rene

INFEZIONI		n. pazienti	%	n. isolati	IR/100 AP	IC 95%
Tutte		84	66.7	**260**	223.2	196.0-250.3
Batteriche	**Tutte**	55	44.4	**163**	**139.9**	118.4-161.4
	Gram+	31	24.6	***59***	50.7	37.7-63.6
	Gram-	44	34.9	***92***	79.0	62.8-95.1
Virali	**Tutte**	**64**	**50.8**	**77**	**66.1**	**51.3-80.9**
	Nuove infezioni	5	4.0	***5***	4.3	0.5-8.1
	Ri-attivazioni	61	48.4	***72***	61.8	47.5-76.1
Fungine		**15**	**11.9**	**20**	**17.2**	**9.6-24.7**

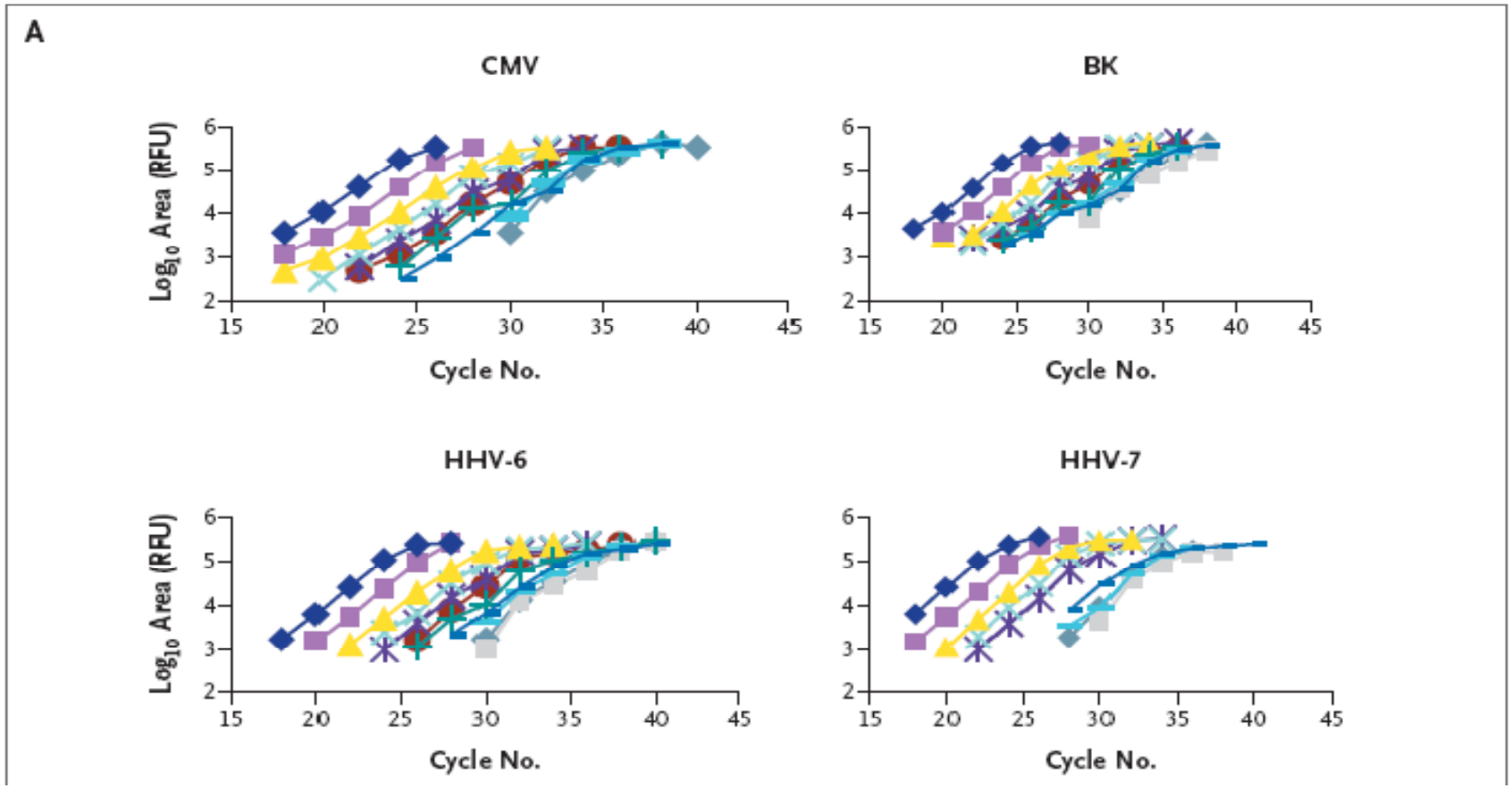
Piselli P et al. *Transplantation Proceedings*, 39, 1950–1952 (2007)

N Engl J Med 2007;357:2601-14.

MEDICAL PROGRESS

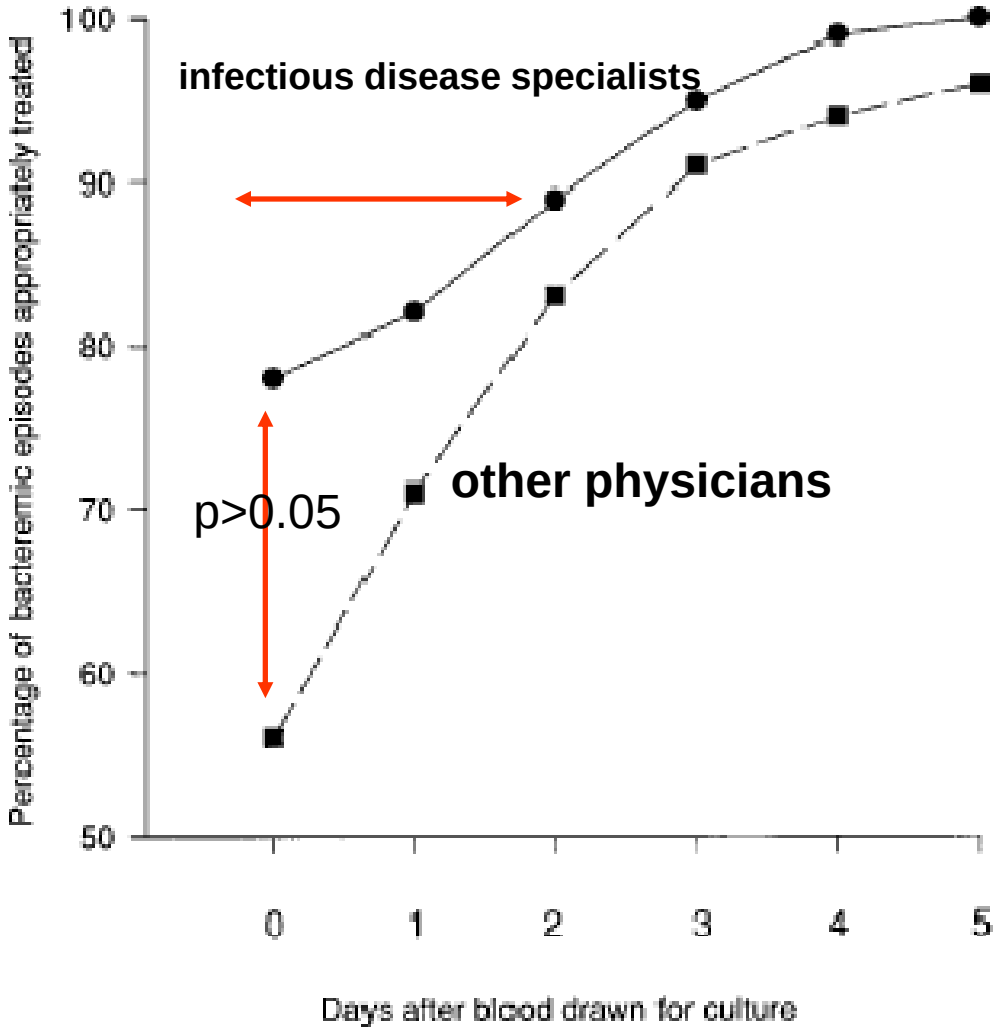
Infection in Solid-Organ Transplant Recipients

Jay A. Fishman, M.D.



Multiple simultaneous quantitative (multiplex) assays can be performed in a single sample with the use of polymerase chain reaction.

Proportion of bacteremic episodes appropriately treated by infectious disease specialists and other physicians over time.

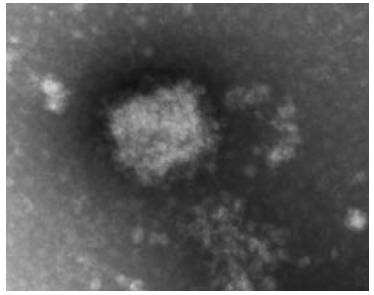


Byl B et al. CID 1999;29:60–6

2 cases of OPX zoonosis (January 2006 and May 2007)

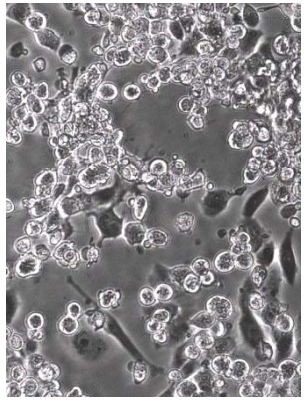




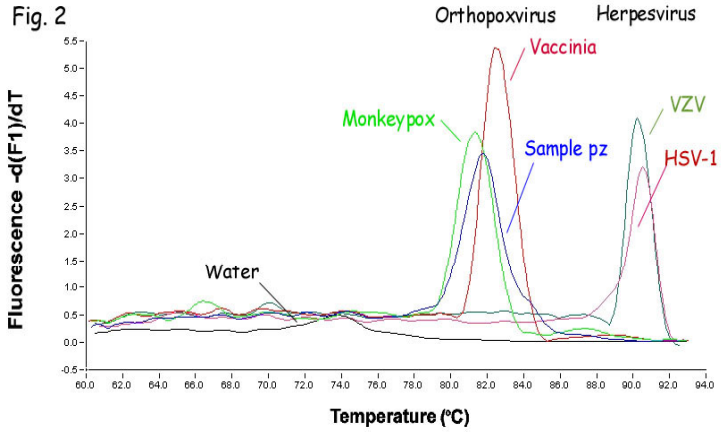


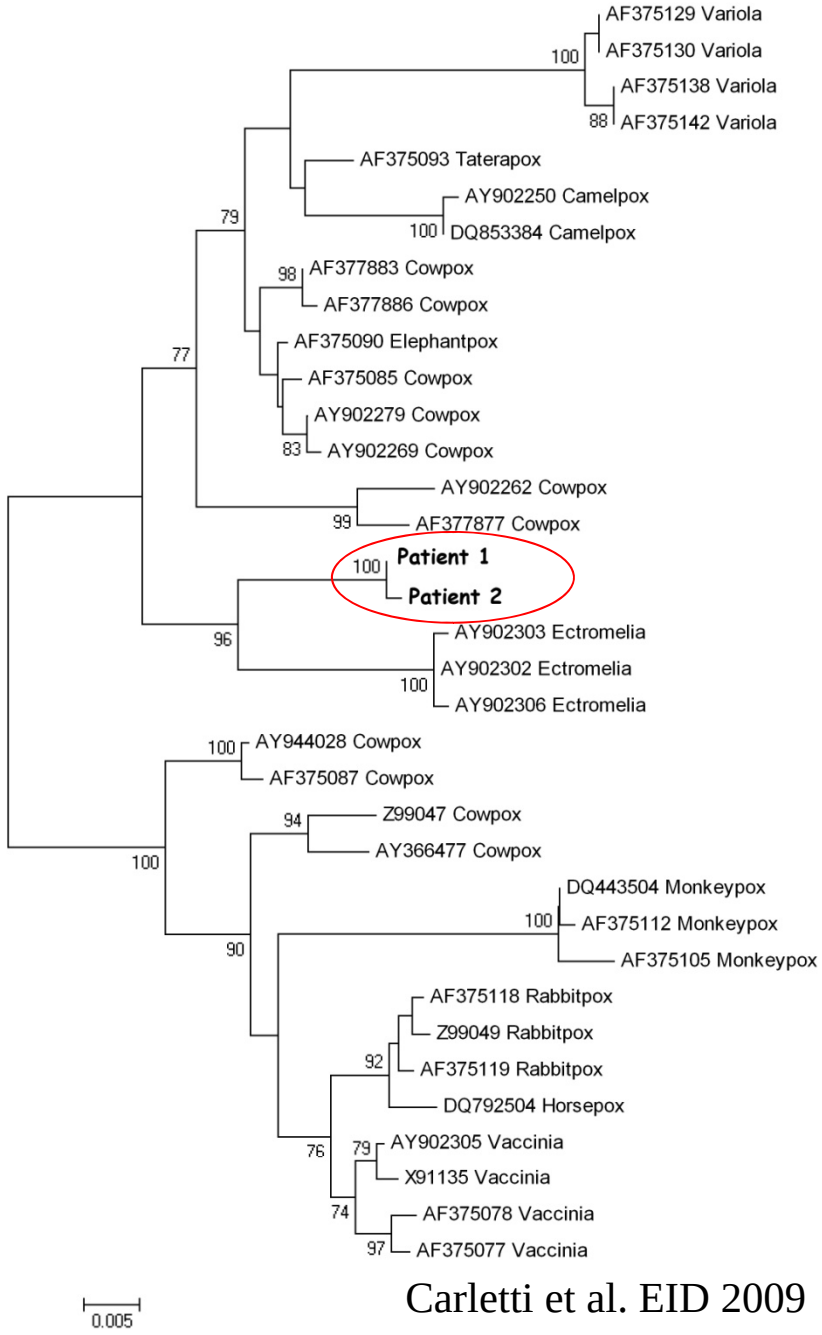


Negative staining



Virus isolate
on Vero cells

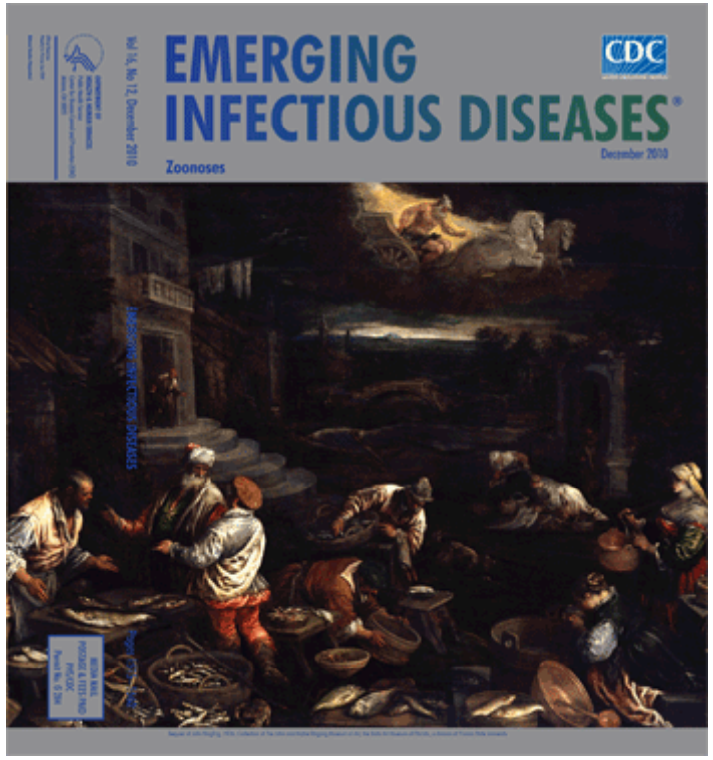




Carletti et al. EID 2009

Alkhurma Hemorrhagic Fever in Travelers Returning from Egypt, 2010

Fabrizio Carletti, Concetta Castilletti, Antonino Di Caro, Maria R. Capobianchi, Carla Nisii, Fredy Suter, Marco Rizzi, Alessandra Tebaldi, Antonio Goglio, Cristiana Passerini Tosi, and Giuseppe Ippolito



Two travelers returning to Italy from southern Egypt were hospitalized with a fever of unknown origin. Test results showed infection with Alkhurma virus. The geographic distribution of this virus could be broader than previously

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Human cancers attributable to infection

Agent	Cancer	% lifetime risk in carriers	Annual cases	% all cancers	Main transmission route
H. pylori	Stomach	~10.0	592,000	5.8	Oral
	Lymphoma (MALT)		11,500		
HPV	Cervix (HPV-16, 18)	~3.0	492,800	5.1	Sexual
	Ano-genital		53,880	0.5	
	Mouth, pharynx		14,500	0.1	
	Skin (HPV-5)	<0.01	~1,000	<0.01	Contact
HBV and HCV	Liver	~15.0	535,000	5.5	Parenteral
EBV	Nasopharynx	<1.0	78,100	1.0	Oral
	Hodgkin lymphoma		28,600	0.3	
	Burkitt lymphoma		6,700	0.06	
KSHV (HHV-8)	Kaposi sarcoma	<1.0	66,200	0.9	Oral
	NHL		16,100		
Schistosome	Bladder	<1.0	10,600	0.1	Water, snails
HTLV-1	ATL	~1.2	3,300	0.03	Milk
Opisthorchis	Gall bladder	~5.6	2,500	0.02	Water, raw fish
Merkel PyV	Skin	<0.01	~1,500	<0.01	Contact

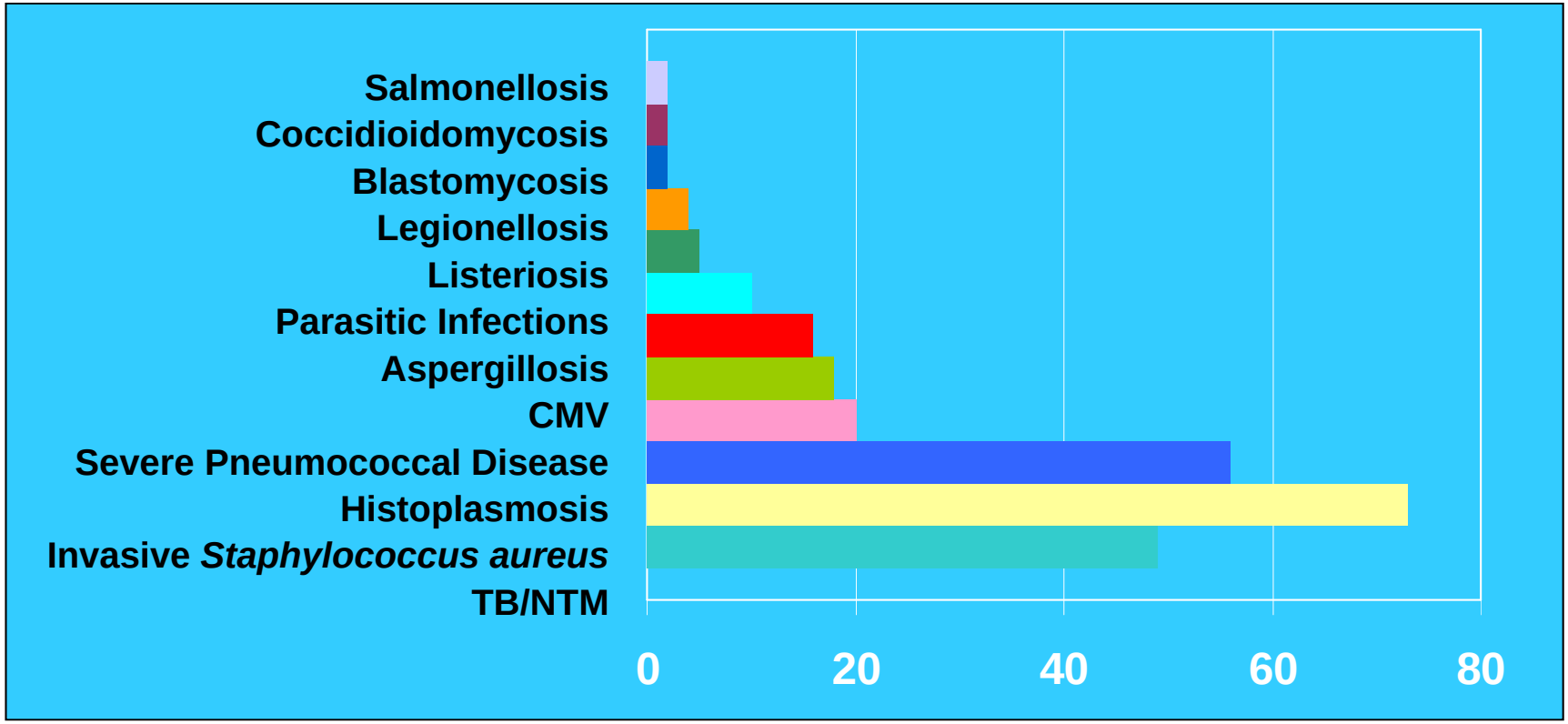
(Adapted from Parkin, 2006)

Cervical Cancer Rates related to HPV

Cervical Cancer	100 %
Vaginal Cancer	91–94 %
Anal Cancer	88–94 %
Vulvar Cancer	40 %
Penis Cancer	40 %
Pharinx Cancer	25 %
Oral cavity and Laringeal Cancer	10 %

Muñoz et al Vaccine 2006

US Reported Infections Associated With Biologic Drugs



.

Winthrop KL et al. *Clin Infect Dis.* 2008;46:1738-1740.

French Active Surveillance for Tuberculosis

- 69 TB cases over 3 years
- SIR compared to background French population
  - Adalimumab 29.3 (20.3-42.4)
  - Infliximab 18.6 (13.4-25.8)
  - Etanercept 1.8 (0.7-4.3)
- Case-control with etanercept as reference
  - Adalimumab OR 17.1 (3.6-80.6)
  - Infliximab OR 13.3 (2.6-69.0)

Kevin L. Winthrop, 2010

Management trends in IDs

Parameters		Impact on cost
Increase in detected/infected ratio	→	Increase
Reduction in excess mortality	→	Increase
Probable increase in cost of diagnostics and drugs	→	Increase
Total impact on costs	→	**Increase**

Il profilo dell'infettivologia del futuro

- HIV, Tubercolosi, Epatiti
- nonché :
  - area dell'emergenza (malattie infettive in ps e rianimazione)
  - infezioni associate a procedure assistenziali
  - malattie da importazione e la patologia del viaggiatore
  - Infezioni prevenibili con vaccini
  - Patologie originariamente non infettive correlate ad agenti infettivi
  - infezioni nei trapianti/candidati a trapianto, immunodepressi, etc.
- attraverso
  - modello di coinvolgimento delle strutture ospedaliere e territoriali
  - competenza in ricerca di trasferimento e la capacità di interfaccia della clinica con i laboratori sia diagnostici che di ricerca.

Conclusioni

- l’AIDS ha spostato il centro dell’attenzione delle malattie infettive ed è la prima voce di spesa
- Molte malattie infettive sono ancora un problema clinico e di sanità pubblica
- Le infezioni ospedalere costituiscono la principale causa di mortalità per infezione nei paesi sviluppati
- È necessario perseguireun nuovo modello di inquadramento e gestione delle malattie infettive
- È necessario che gli infettivologi si riapproprino della leadership su temi infettivologici e si integrino in rete tra loro e con altre specialità.


IL PUNTO D'ARRIVO DELLA TRADIZIONE È IL PUNTO DI PARTENZA DEL PROGRESSO