

SOCIETÀ MEDICO CHIRURGICA DI FERRARA

8 APRILE 2017

SERVIZIO SANITARIO REGIONALE
EMILIA-ROMAGNA
Azienda Ospedaliero - Universitaria di Ferrara



**VIAGGI AEREI E MALATTIE INFETTIVE
TRASMISSIBILI
CARLO CONTINI**

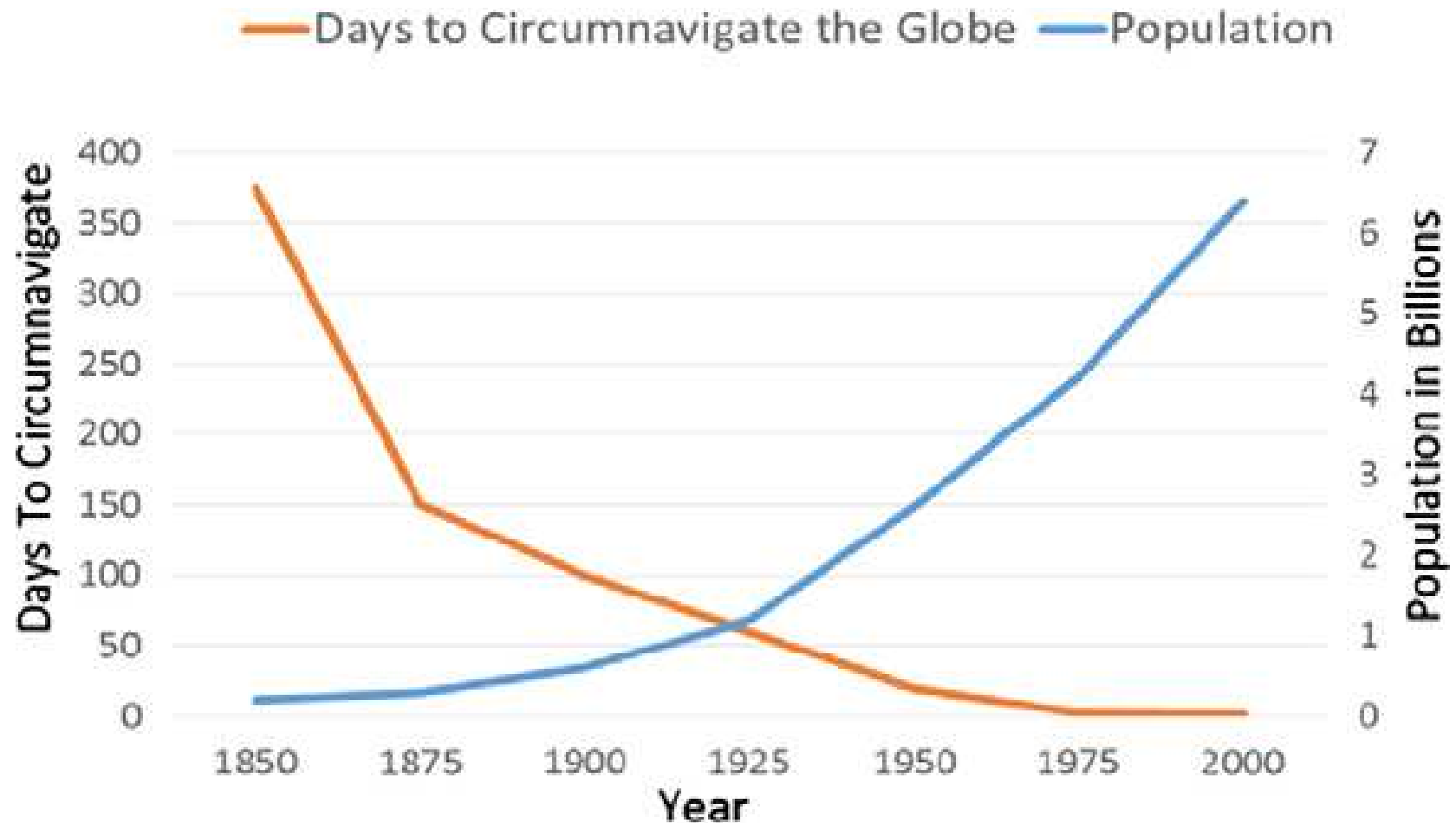
Dipartimento Scienze Mediche
Sezione di Malattie Infettive

Argomenti



- Fattori che accelerano le Malattie Infettive
- La globalizzazione e le “New Entry Infections”
- Diffusione delle Malattie Infettive e Viaggi
- Malattie Infettive potenzialmente trasmissibili coi viaggi aerei
- Dalla SARS alla MERS
- Dalla MERS agli MDR
- CIBO, ACQUA ed INSETTI quali vettori di Malattie Infettive
- Conclusioni

norme
uscita della
popolazione
insieme a tempi
percorsa
breve ha
litato
organizzazione
numerosa
malattie infettive
tassi più
bassi



Source: Rodrigue JP (2014). *The geography of transport systems*. Retrieved from <https://people.hofstra.edu/geotrans/eng/ch1en/conc1en/circumnavigation.html>

International Travelers
2014: oltre 3.3 miliardi di
viaggiatori



2014: over 3.3 billion passengers (42% of the world population) and 50 million metric tons of cargo traveled by **air** from 41,000 airports and 50,000 routes worldwide.

Significant growth is anticipated, with passenger numbers expected to reach 5.9 billion by 2030



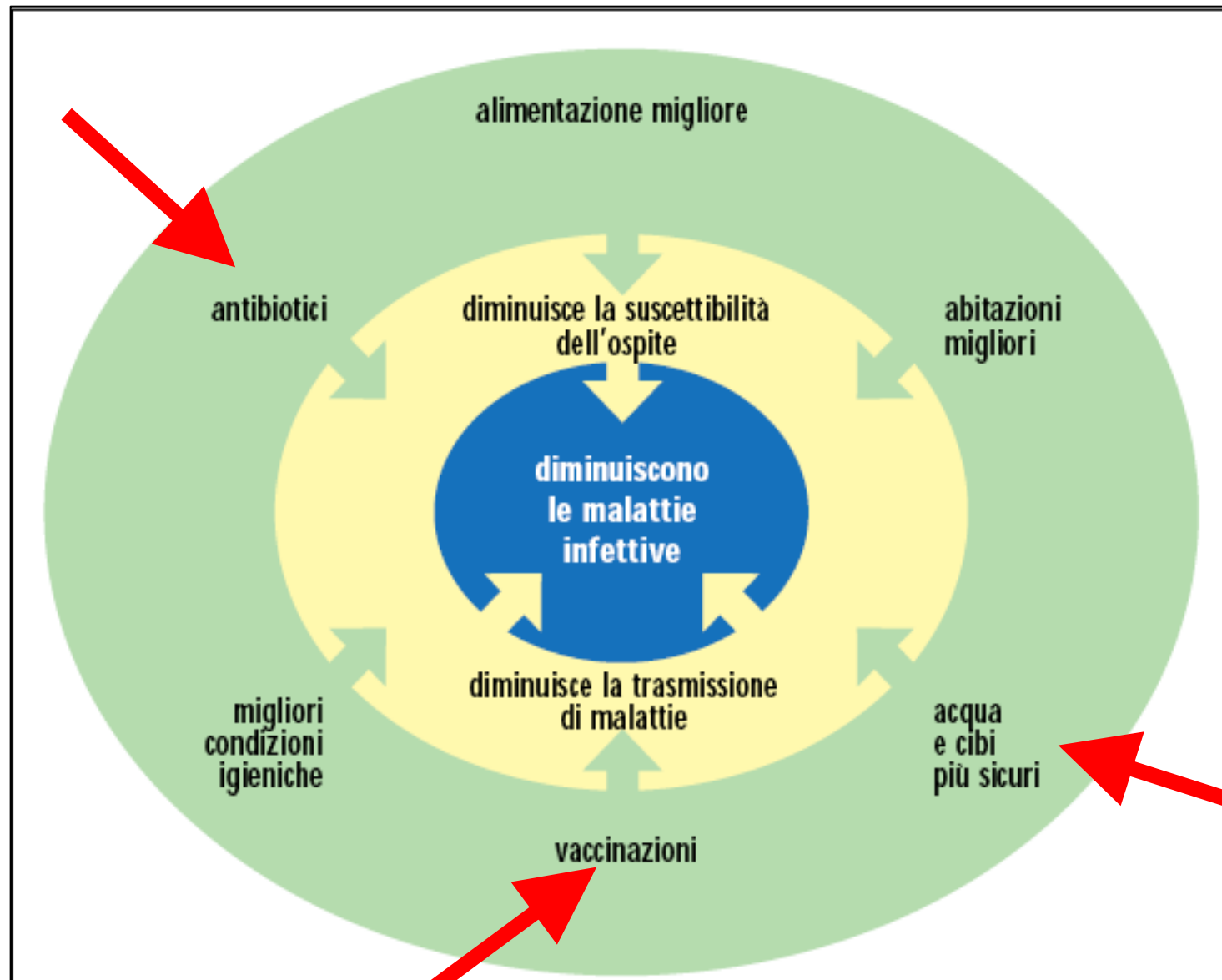
Viaggiatori Italiani

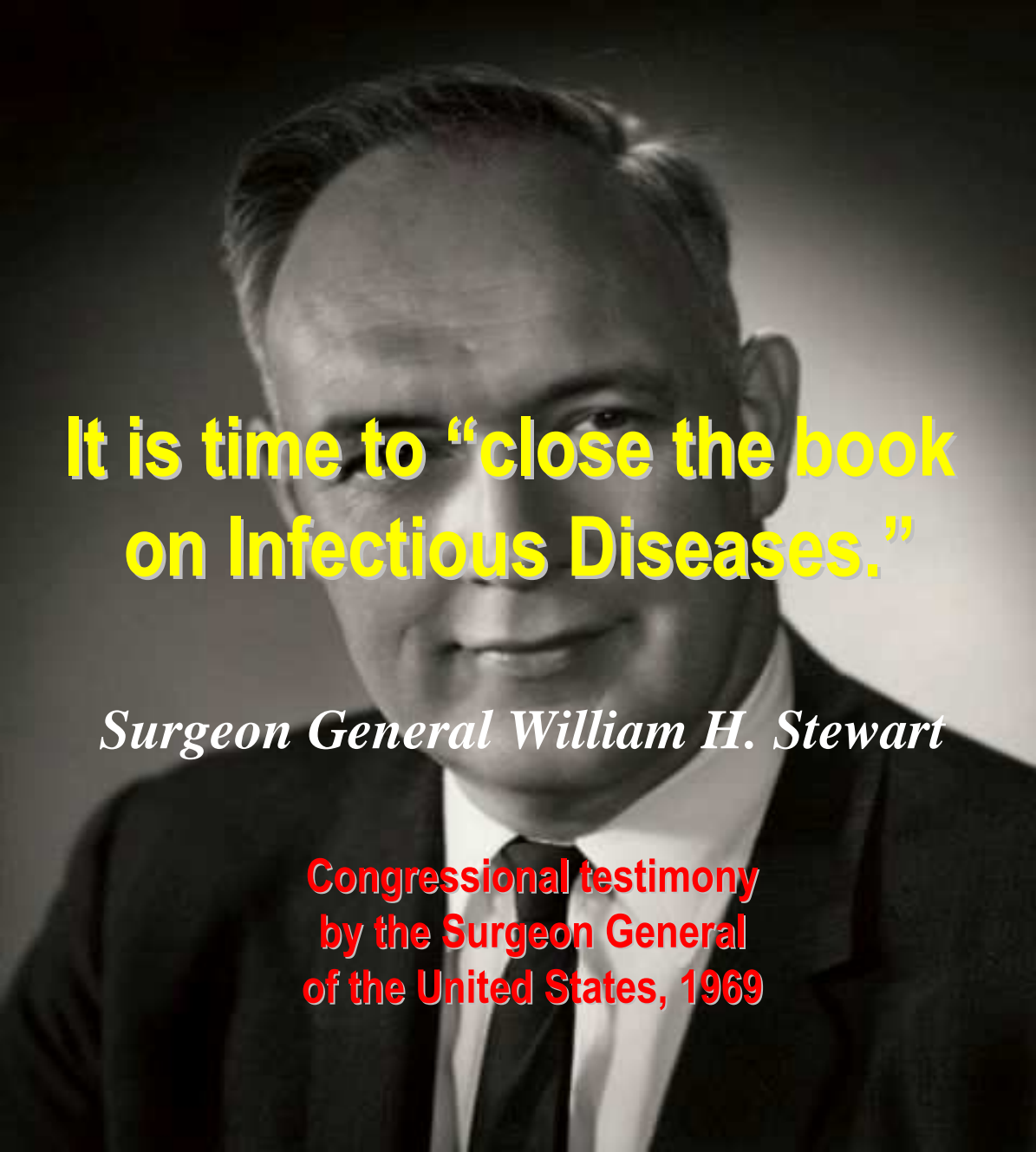


Circa il **10%** dei **18 milioni di italiani** che si recano all'estero annualmente, ha come meta Paesi tropicali e subtropicali, dove è possibile arrivare in un periodo di tempo inferiore a quello di incubazione di numerose malattie infettive, per cui una **PERSONA CON UNA MALATTIA INFETTIVA CONTAGIOSA**, viaggiando può arrivare in ogni parte del mondo in **meno di 24 h**.

L'elevata "accelerazione" di una possibile diffusione di un contagio riguarda anche merci, animali e insetti (*globalizzazione dell'insetto vettore*).

Condizioni che hanno determinato la riduzione delle Malattie Infettive nel XX° secolo



A black and white portrait of Surgeon General William H. Stewart, a middle-aged man with short, dark hair, wearing a dark suit jacket, a white shirt, and a dark tie. He is looking slightly to the right of the camera with a neutral expression. The background is a dark, out-of-focus gradient.

**It is time to “close the book
on Infectious Diseases.”**

Surgeon General William H. Stewart

**Congressional testimony
by the Surgeon General
of the United States, 1969**

Nuovi Fattori che Influenzano o Accelerano l'insorgenza di Malattie Infettive



✓ **TRADE**

✓ **CLIMATE**

✓ **TRAVEL**



✓ **MIGRATION**



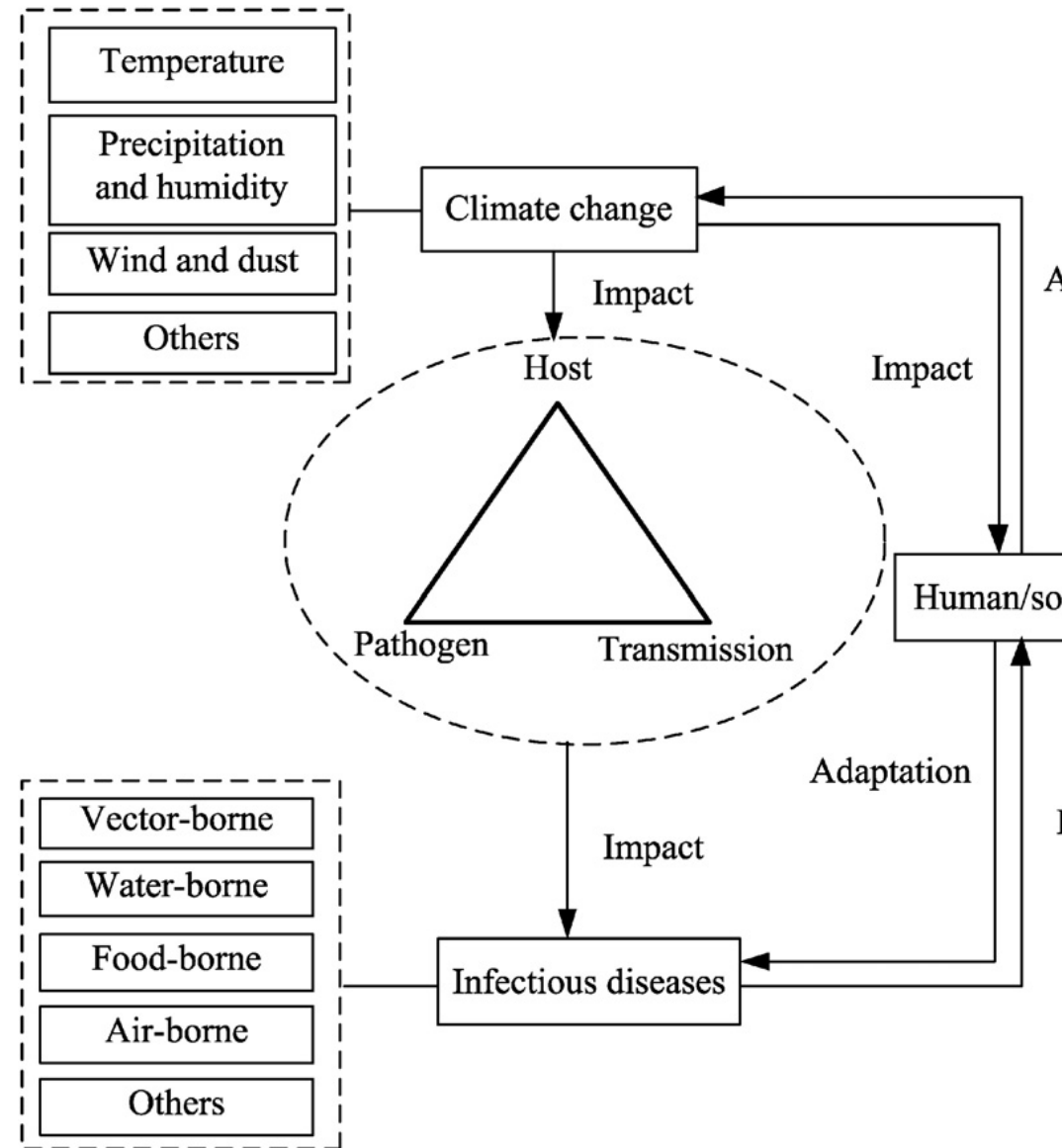
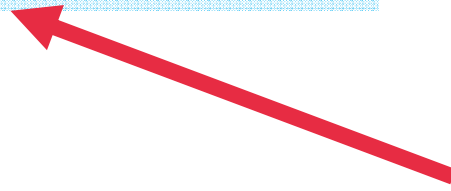


Climate change on human infectious diseases: Empirical evidence and human adaptation

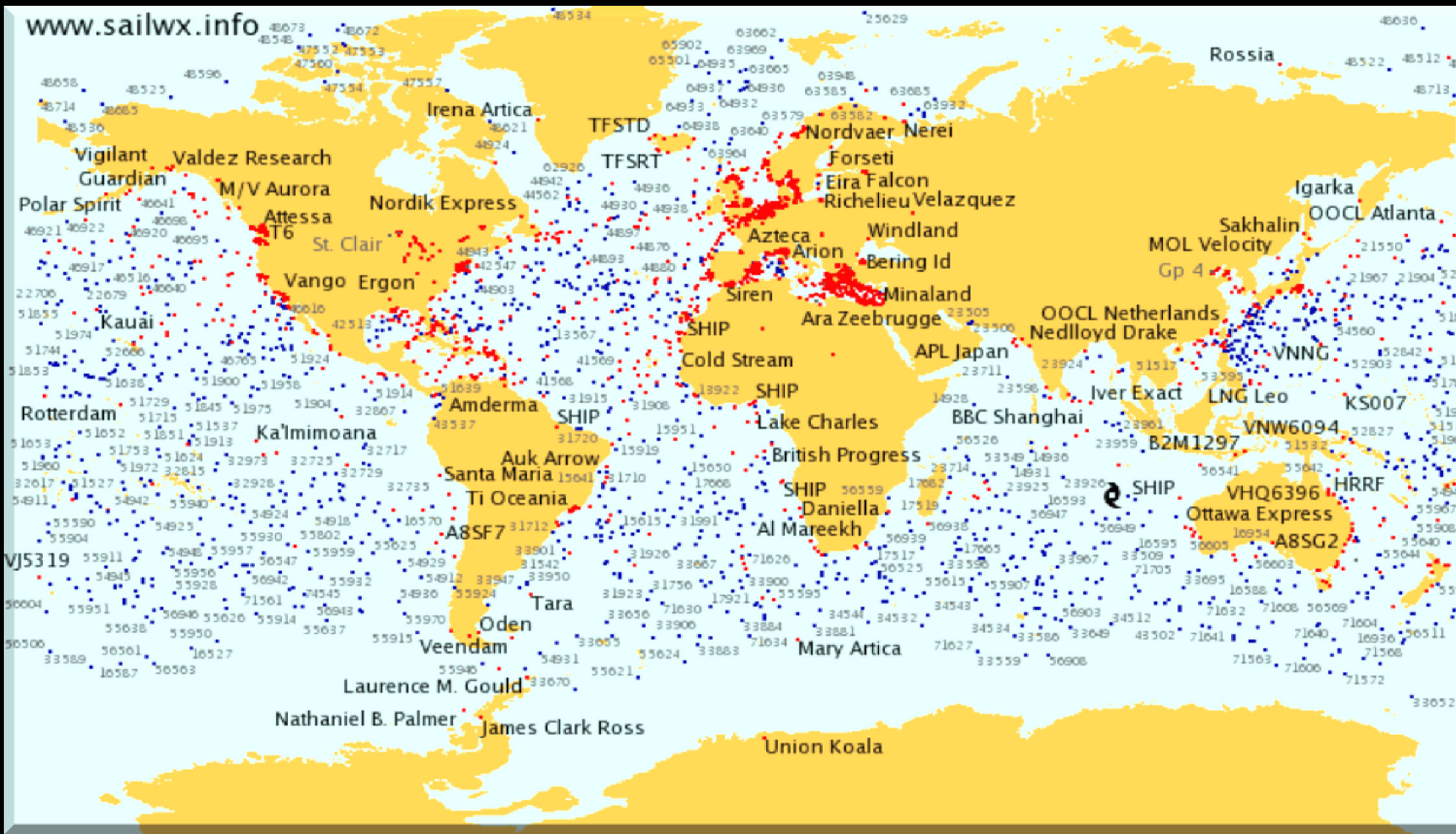


Yongmei Lu^{b,*}, Sen Zhou^c, Lifan Chen^a, Bing Xu^{a,c,d,*}

Potential Diffusion of Aesotic b ovirus (*Dengue, Chikungu- a, Toscana, West Nile*)

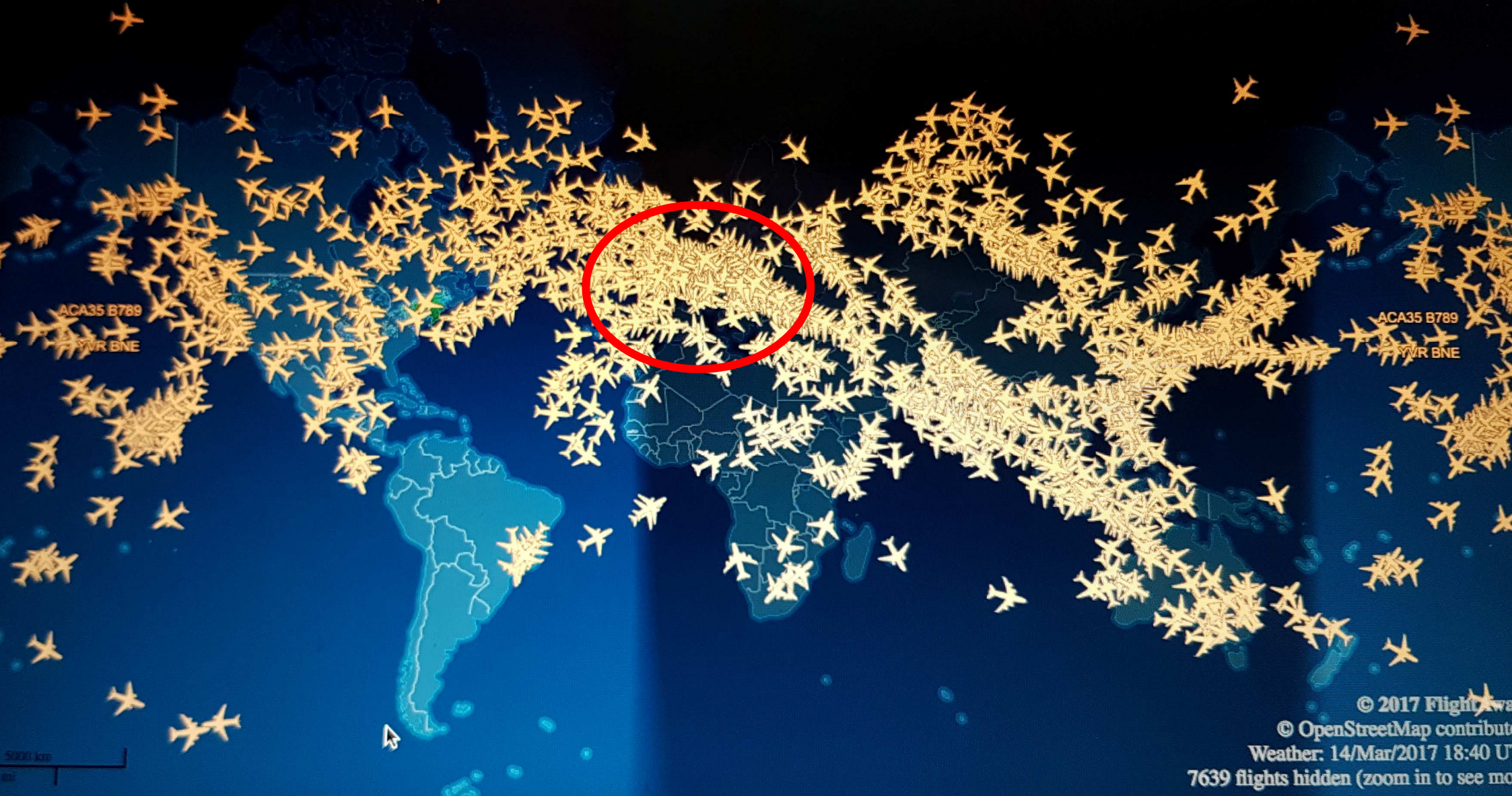


Commercial and Tourism Ship Routes



Commercial and Tourism Aircraft Flights

<https://it.flightaware.com/live/map>



TER



INSTITUT PASTEUR

Microbes and Infection 10 (2008) 942e-947

www.elsevier.com/locate/micinf



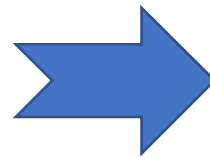
Original article

The book reopened on infectious diseases

Maria Avila, Najwane Said, David M. Ojcius*

School of Natural Sciences, University of California, Merced, CA 95344, USA

Available online 10 July 2008

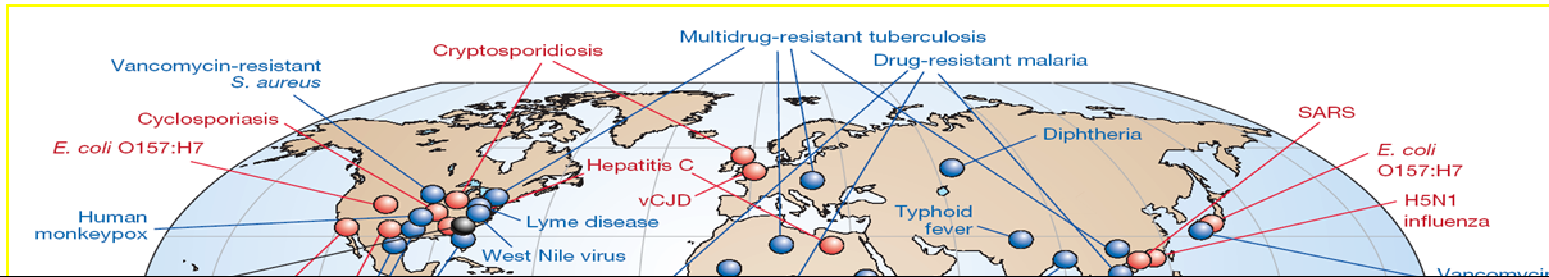


“New Entry” dal 1977
2003

Examples of pathogens discovered since 1973 and the diseases they cause

Year	Microbe	Type	Disease
1977	Ebola virus	Virus	Acute hemorrhagic fever
1977	<i>Legionella pneumophila</i>	Bacterium	Legionnaires' disease
1980	Human T-lymphotrophic virus I (HTLV 1)	Virus	T-cell lymphoma/leukemia
1982	<i>Escherichia coli</i> O157:H7	Bacterium	Hemorrhagic colitis; hemolytic uremic syndrome
1983	Human immunodeficiency virus (HIV)	Virus	Acquired immunodeficiency syndrome (AIDS)
1983	<i>Helicobacter pylori</i>	Bacterium	Peptic ulcer disease
1989	Hepatitis C	Virus	Parentally transmitted non-A, non-B liver infection
1992	<i>Vibrio cholerae</i> O139	Bacterium	New strain associated with epidemic cholera
1999	West Nile virus	Virus	Encephalitis
1996	Misfolded prion	Prion	New variant Creutzfeldt-Jakob disease
1998	H5N1	Virus	Influenza (avian flu)
2002	<i>Cryptosporidium hominis</i>	Protozoan	acute gastroenteritis and diarrhea
2003	SARS coronavirus	Virus	Acute respiratory syndrome

EMERGING AND RE-EMERGING DISEASES



1.709 AGENTI PATOGENI CHE POSSONO COLPIRE L'UOMO

832 ZONOSICI (49%)

114/ 156 MALATTIE "EMERGENTI" SONO ZONOSI (73%)



Davanti a una “nuova” malattia



può esserci un “antico” vettore

Argomenti



- Fattori che accelerano le Malattie Infettive
- La globalizzazione e le “New Entry Infections”
- **Malattie Infettive potenzialmente trasmissibili e viaggi aerei**
- Dalla SARS alla MERS
- Dalla MERS agli MDR
- CIBO, ACQUA e INSETTI quali vettori di Malattie Infettive
- Conclusioni

is on a Plane: Aircraft, International Travel, the Global Spread of Disease

avia

iatric Infectious Diseases, Departments of Pediatrics and Medicine, University of Utah, Salt Lake City

Airline Operating Realities and the Global Spread of Infectious Diseases

Cliff H. Webster, DOH, DTM&H₁

Asia-Pacific Journal of
Supplement to 22

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sagepub.com/journalsP
DOI: 10.1177/101010
http://ap

INFECTIONS WHICH MAY BE OCCASIONALLY SPREAD ON THE AIRCRAFT

THROUGH:

LOSE CONTACT (FOMITES)

RBORNE SPREAD through "Large Droplets" (SARS, INFLUENZA, COLD, MENINGITIS, MERS)

or "Droplet nuclei" (TUBERCULOSIS, MEASLES, VARICELLA)

OOD-BORNE (CHOLERA, NOROVIRUS, SALMONELLOSIS, SHIGELLOSIS)

ATER-BORNE (TRAVELER'S DIARRHEA, HAV, HEV, NOROVIRUS)

ECTOR-BORNE (MALARIA, DENGUE, WEST NILE, YELLOW-FEVER, ZYKA)

Reported infections transmitted on commercial airlines

	Number of reports	Comments
Airborne/fomites		
TB ^{29,30,39-41}	2	Positive TB skin test only. No active TB
SARS ^{31,46-49}	4	No cases since WHO guidelines.
Common cold ³⁶	0	Difficult to investigate.
Influenza ^{33,37,55}	2	None since ventilation regulations.
Meningococcal disease ³⁴	0	21 reports of ill passengers, no secondary cases
Measles ⁵⁸⁻⁶²	3	Imported cases and international adoptions
Food-borne		
Salmonellosis ^{63,64}	15	No recent outbreaks
Staphylococcus food poisoning ^{63,65}	8	No recent outbreaks
Shigellosis ⁶³	3	No recent outbreaks
Cholera ^{63,67,68}	3	During cholera epidemic
Viral enteritis ⁶⁶	1	Common on other types of transport
Vector-borne		
Malaria ^{69,70}	7	Probably underestimated
Dengue ⁷¹	1	Likely to be airport, not aircraft, transmission
Yellow fever	0	No outbreaks since disinsection of aircraft
Bioterrorism agents		
Smallpox ^{5,76,77}	1	Before eradication

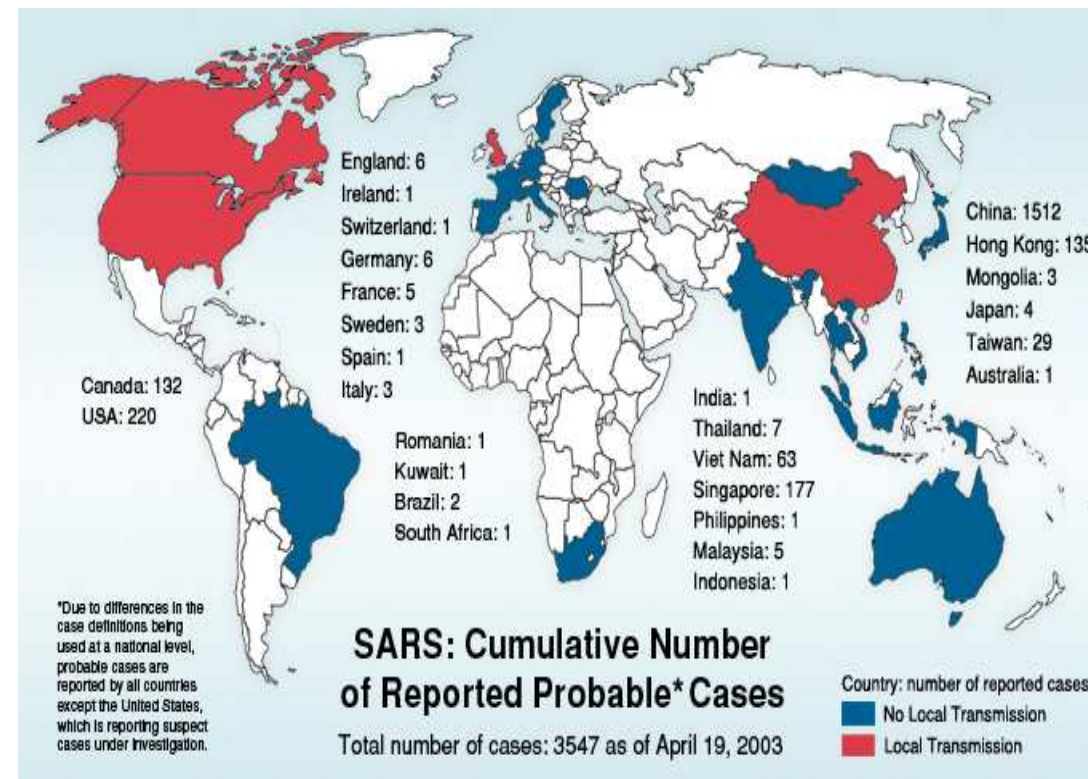
Angili A, Lancet 2005

SARS....2003

Dal sud della Cina si diffonde in 8 mesi in 29 paesi nei 5 continenti principalmente per via aerea.

circa **9.000** casi e **916** morti!

L'enorme crescita commerciale della **Cina** e la globalizzazione, hanno facilitato il movimento di agenti patogeni in tutto il mondo assieme a merci e persone





The NEW ENGLAND JOURNAL of MEDICINE

ORIGINAL ARTICLE

Transmission of the Severe Acute Respiratory Syndrome on Aircraft

40 voli studiati per eventuali passeggeri Co-Av infetti.

5/40 voli associati a probabile trasmissione in 37 passeggeri

maggior parte dei passeggeri seduti entro le cinque file dal

Caso Indice.

Olsen et al, NEJM 200

3/4-h FLIGHT

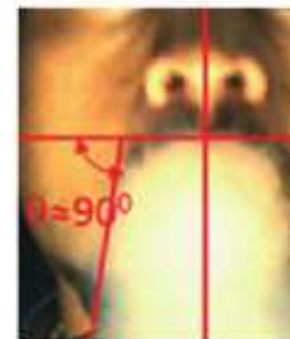
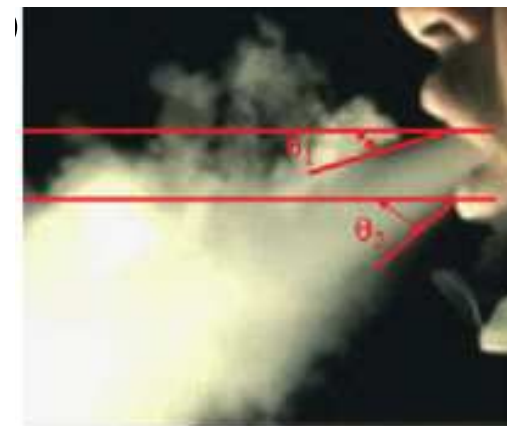
Inhalation of expiratory droplets in aircraft cabins

Counts of droplets inhaled calculated using the spatial and temporal distribution of the expiratory droplets are shown below:

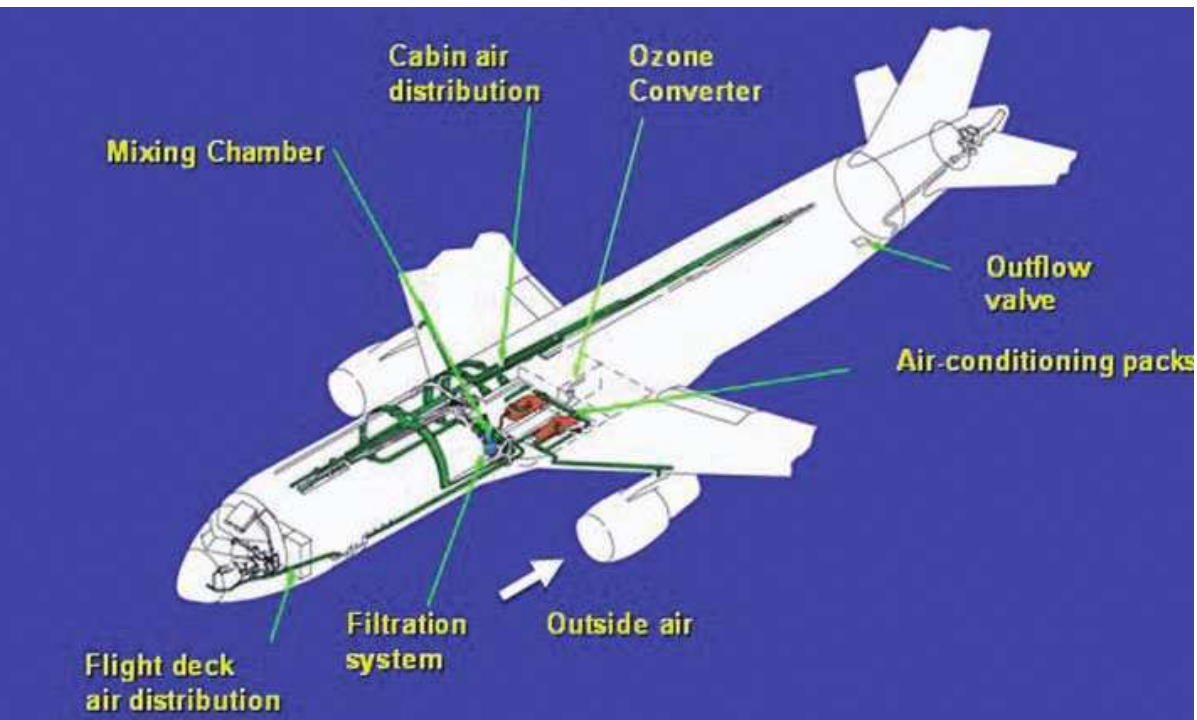
The droplets inhaled by the passengers are of the order 10^3 (breathing and talking) and of 10^5 (coughing).

The airflow and the droplet distribution can change with cabin configuration, such as the passenger class, seat region, and the location of supply air and exhausts.

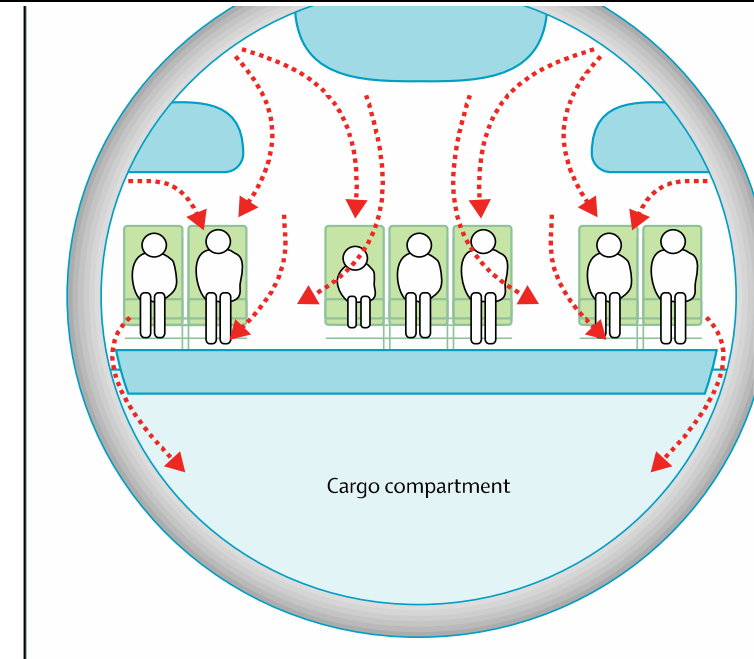
Not all these droplets contained active infectious agents.



CABIN AIR QUALITY: HOW THE SYSTEM WORKS



**...AIR MOVEMENT IS
PREDOMINANTLY TRANSVERSE
NOT FRONT TO BACK**



Capacità di Ventilazione: 4-7 L/s variabili tra 1° e 2° classe

ri HEPA utilizzati sulle linee aeree commerciali rimuovono:

Particelle (rimozione pari al 97-99% di polveri, vapori) di 0-3 μ

Batteri e funghi

Nuclei di droplets che diffondono particelle virali

COSA HA INSEGNATO LA SARS- 1

FLIGHT RISK MIGHT BE INFLUENCED BY THE FOLLOWING VARIABLES

1. Duration of the flight
2. Stage of illness and nearness to “Index Patient”
3. Espiratory droplets **from** the Index Passenger
4. Type of air-ventilation system in use in the aircraft
5. Size of the aircraft, and the number of infected persons on board
6. Host factors (patients so-called “**super- spreaders**”)

LOW RISK OF TRANSMISSION OF SEVERE ACUTE RESPIRATORY SYNDROME ON AIRPLANES: THE SINGAPORE EXPERIENCE.

Wilder-Smith A, Paton NI, Goh KT

The incidence was estimated to be 1 out of 156 passengers. The risk of in-flight transmission of SARS appears to be far lower than that reported for influenza, but may be increased with **SUPERSPREADERS** on board.

Trop Med Int Health. 2003

COSA HA INSEGNATO LA SARS- 2

Nell'età della GLOBALIZZAZIONE nessun paese può permettersi di trascurare o nascondere l'emergere di un'epidemia. Dalla Cina, teatro dei primi casi di SARS dove si diffuse senza che se ne avesse notizia, si registrò poi in altri Paesi. E solo allora l'epidemia venne riconosciuta.

L'esperienza SARS ha consentito la rapida identificazione e segnalazione dei primi casi di influenza aviaria H5N1 (2003 e 2004) e suina H1N1 (2009).

I sistemi di sorveglianza della salute negli animali giocano un ruolo chiave nel prevedere, rilevare e contenere le epidemie e dovrebbero essere sempre più integrati con i sistemi di sorveglianza della salute umana.

Importanza del Reservoir

olo un Reservoir “Noto” per la SARS?

Wang et al, 2007



**DETECTION OF SARS-LIKE
VIRUSES IN WILD ANIMALS**
(Palm-civet) in aircraft

TUBERCOLOSI

ANCE AND OUTBREAK REPORTS

ctious diseases among travellers and migrants in
ope, EuroTravNet 2010

J P Cramer², V Field³, E Caumes⁴, M Jensenius⁵, E Gkrania-Klotsas⁶, P J de Vries⁷, M P Grobusch⁷, R Lopez-Velez⁸,
P Schlagenhauf⁹, H Hervius Askling¹¹, F von Sonnenburg¹², D G Lalloo¹³, L Loutan¹⁴, C Rapp¹⁵, F Basto¹⁶,
Connor¹⁷, L Weld¹⁸, P Parola (philippe.parola@univ-amu.fr)¹, for the EuroTravNet Network¹⁹

The New England Journal of Medicine

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APRIL 11, 1996

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MISSION OF MULTIDRUG-RESISTANT *MYCOBACTERIUM TUBERCULOSIS* DURING
A LONG AIRPLANE FLIGHT

JMAS A. KENYON, M.D., M.P.H., SARAH E. VALWAY, D.M.D., M.P.H., WALTER W. IHLE, M.D.,
IDA M. ONORATO, M.D., AND KENNETH G. CASTRO, M.D.

1992: Index Case was a flight attendant; 2 documented tuberculin skin test conversions occurred during 5 months in passengers near Index Case(1992).

1996: Index Case was a passenger with pulmonary tuberculosis MDR+ travelling from Honolulu to Chicago and then from Chicago to Baltimore. 4/15 passengers seated within two rows of the Index passenger had positive tuberculin skin test conversion.

Systematic review on tuberculosis transmission on aircraft and update of the European Centre for Disease Prevention and Control risk assessment guidelines for tuberculosis transmitted on aircraft (RAGIDA-TB)

2016

Kotila ¹, L Payne Hallström ¹, N Jansen ², P Helbling ³, I Abubakar ⁴

¹ European Centre for Disease Prevention and Control (ECDC), Solna, Sweden

² RIVM Tuberculosis Foundation, The Hague, Netherlands

³ Federal Office of Public Health, Division of Communicable Diseases, Bern, Switzerland

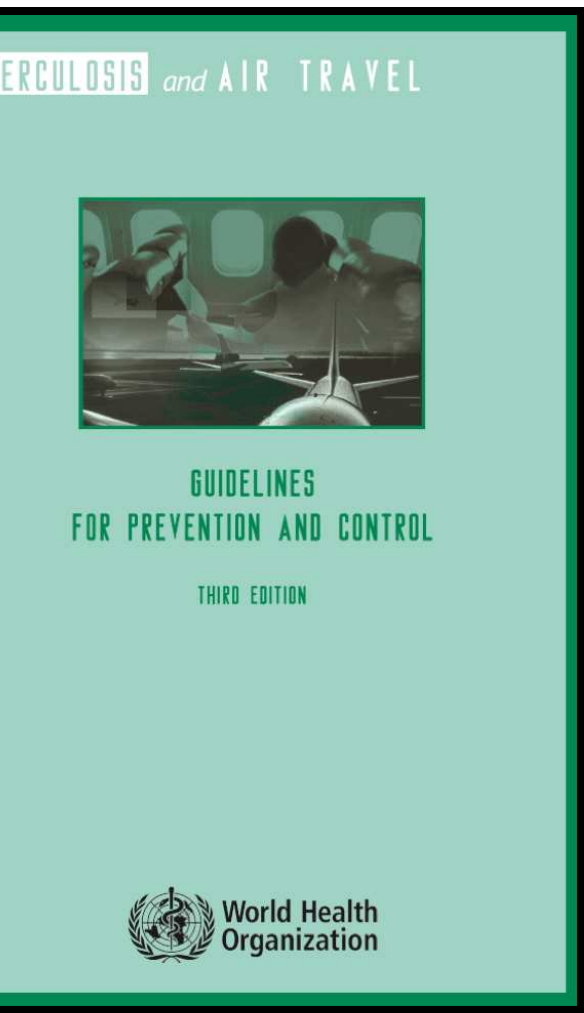
⁴ Public Health England, London, United Kingdom

Correspondence: Saara M. Kotila (saara.kotila@ecdc.europa.eu)

7/21 studi hanno fornito scarse evidenze di possibile trasmissione della TB in volo su un aereo.

Tutti i voli erano durati più di 8 ore.

POSSIBLE FACTORS FAVORING THE TRANSMISSION OF MYCOBACTERIUM TUBERCULOSIS ABOARD A COMMERCIAL AIRCRAFT



1. TB worldwide epidemic
2. Increased air travel and Long flight (> 8 h)
4. Highly infectious passengers immigrated from high TB incidence countries
5. Close proximity of contacts to the Index Patient (highest risk [0.1-1-3%] among passengers seated within **two rows** of the Index Case) and Time of exposition

Influenza

asso rischio

Solo 3 outbreaks riportate nel 1979, 1989, 1999

Influenza Transmission on Aircraft *A Systematic Literature Review*

Katrin Leitmeyer and Cornelia Adlhoch

Epidemiology, September 2016

Associazione tra posto passeggero e vicinanza col caso indice?

Impossibile rintracciabilità del “passeggero contatto” dopo la potenziale trasmissione dell'influenza a bordo dell'aereo.

Influenza Aviaria

Sottotipi H5N1, H7N3 e H7N9 → HPAI

H7N7, H9N2 e H7N2 → LPAI



Basso rischio

Raccomandazioni OMS

Evitare paesi in cui sono segnalati focolai di influenza aviaria

Non recarsi negli allevamenti avicoli o in zone dove si macella il pollame

Non entrare in contatto con uccelli vivi/superfici contaminate da feci di pollame o
di animali nei mercati.

lavarsi frequentemente le mani con acqua e sapone.

Attenzione e sicurezza degli alimenti.

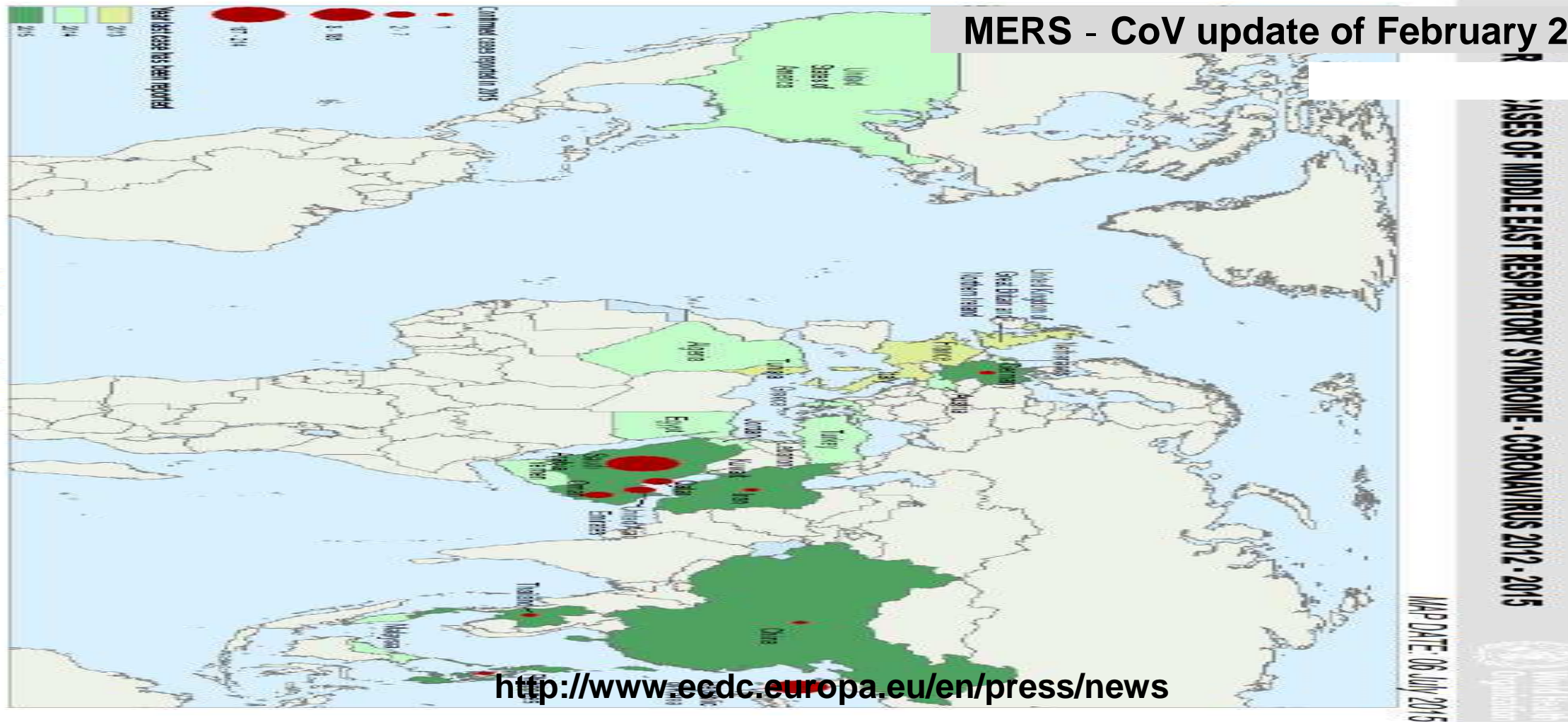
Meningite

Rischio potenziale

- **21 segnalazioni** di sospetta malattia meningococcica associata al viaggio aereo dal 1999 al 2001 (CDC).
- In nessun caso, la persona indice era contagiosa, e non sono stati segnalati casi secondari della malattia.

Centers for Disease Control and Prevention.
MMWR Morb Mortal Wkly Rep 2001; 50: 485–89.

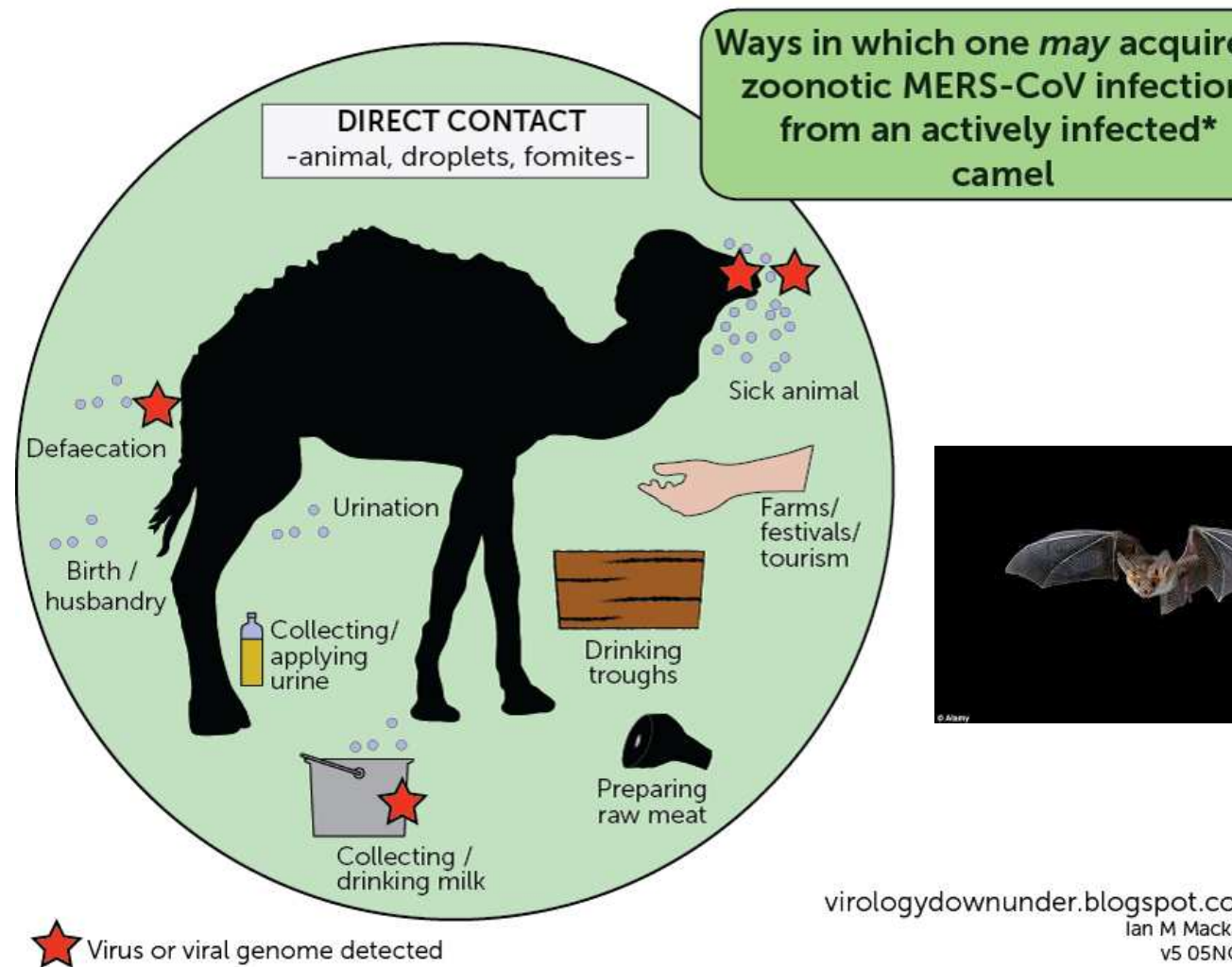
MERS: attuale distribuzione mondiale



Marzo 2017: 1905 casi di MERS Co-V notificati dall'OMS e più di 677 decessi

rischio estremamente basso di contrarre la MERS per un viaggiatore che ha evitato contatti stretti con **secreti respiratori, urine, latte non pastorizzato, carne poco cotta di cammelli e/o dromedari**

Researchers Scramble to Understand Camel Connection to MERS



Argomenti



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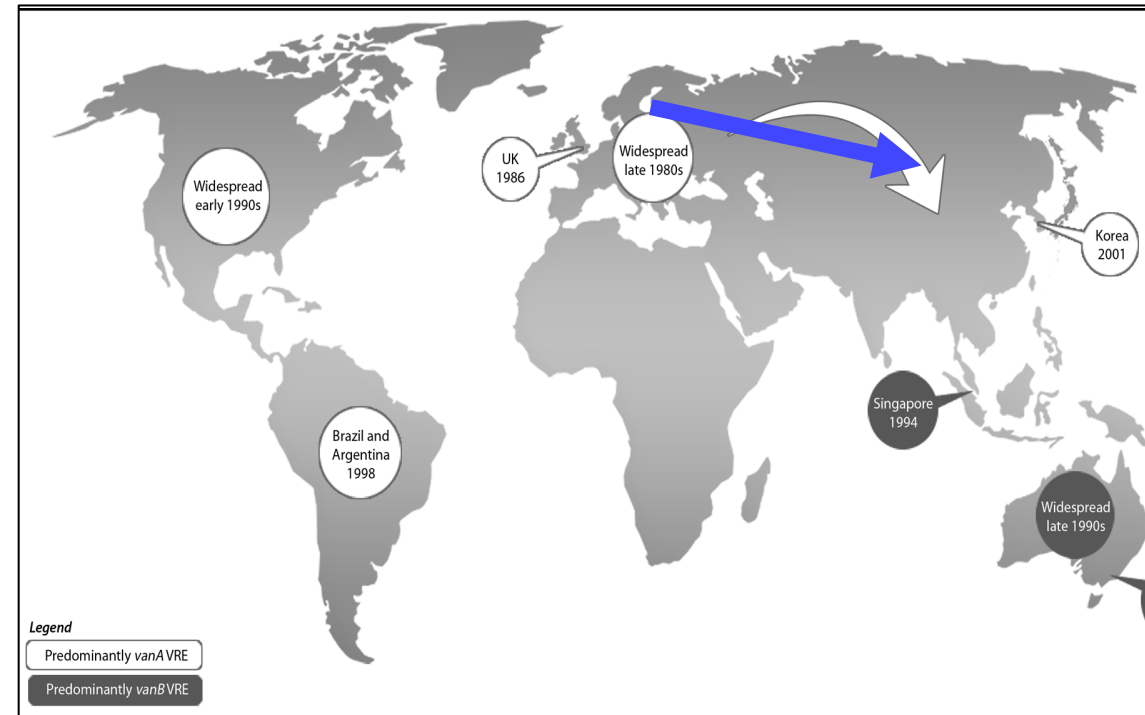
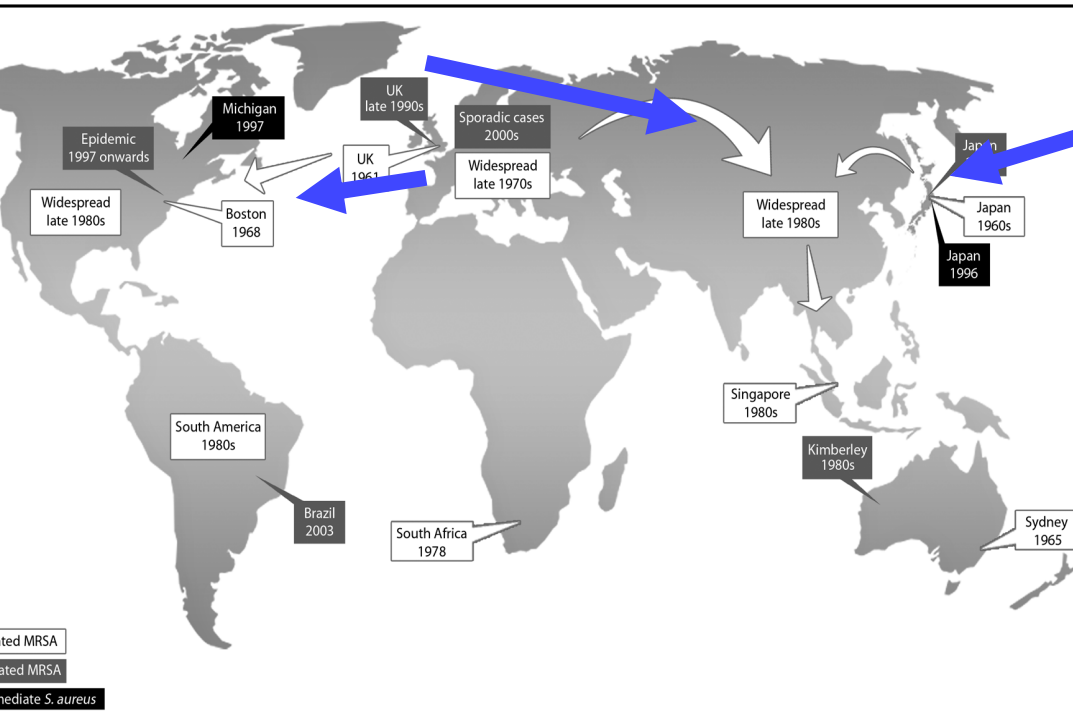
A. Weinstein, Section Editor

The Global Spread of Healthcare-Associated Multidrug-Resistant Bacteria: A Perspective From Asia

James S. Molton,^{1,2} Paul A. Tambyah,^{1,2} Brenda S. P. Ang,³ Moi Lin Ling,⁴ and Dale A. Fisher^{1,2}

¹Division of Infectious Diseases, National University Health System; ²Department of Medicine, Yong Loo Lin School of Medicine, National University of Singapore; ³Department of Infectious Diseases, Tan Tock Seng Hospital; and ⁴Department of Infectious Diseases, Singapore General Hospital, Singapore

GLOBAL DISSEMINATION OF METHICILLIN-RESISTANT STAPHYLOCOCCUS AUREUS (MRSA) AND VANCOMYCIN-INTERMEDIATE STAPHYLOCOCCUS AUREUS (VISA)



MRSA and VISA spread from the UK and North America across Europe and then Asia over more than a decade.



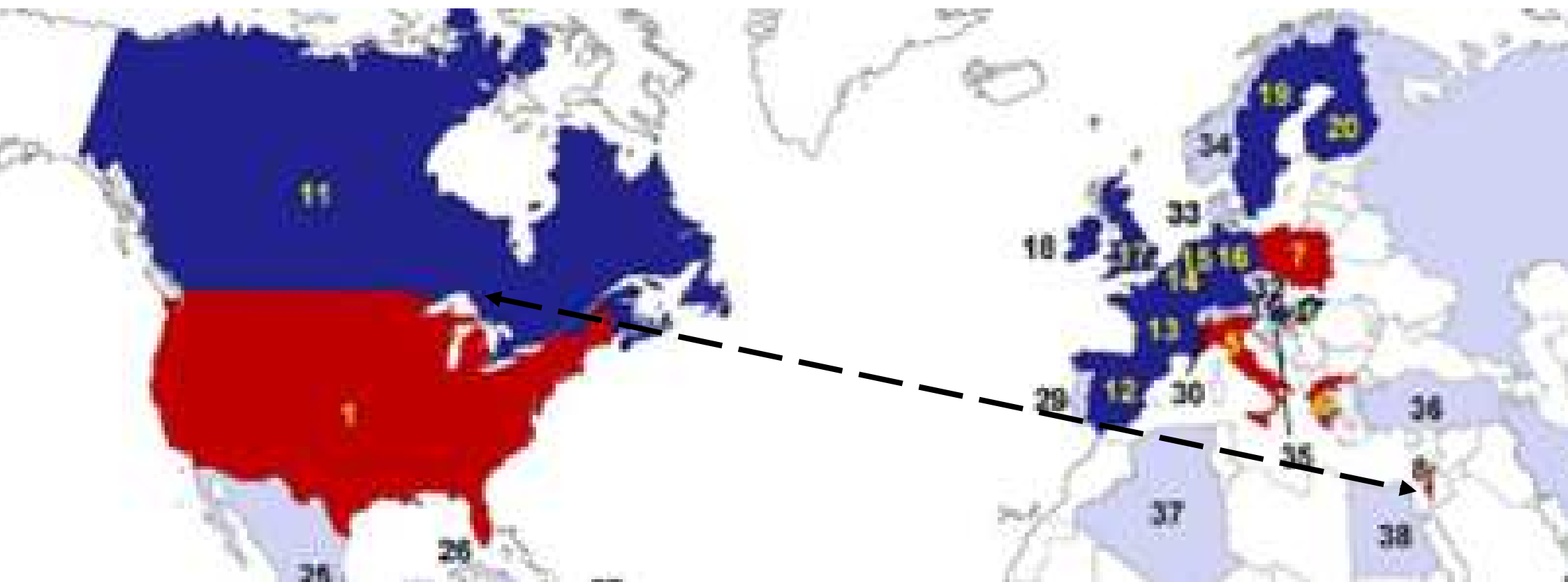
ORIGINAL ARTICLE

High Rate of Multidrug-Resistant Gram-Negative Bacilli Carriage and Infection in Hospitalized Returning Travelers: A Cross-Sectional Cohort Study

Loïc Epelboin, MD,^{*†} Jérôme Robert, MD, PhD,^{‡§||} Ellina Tsyryna-Kouyoumdjian, PharmD,^{*} Sonia Laouira, PharmD,^{||} Vanina Meyssonier, MD, PhD,^{*} Eric Caumes, MD,^{*†} and The MDR-GNB Travel Working Group^{*¶}

PC: 2006 emerge in Israele

Leavitt A, 2007

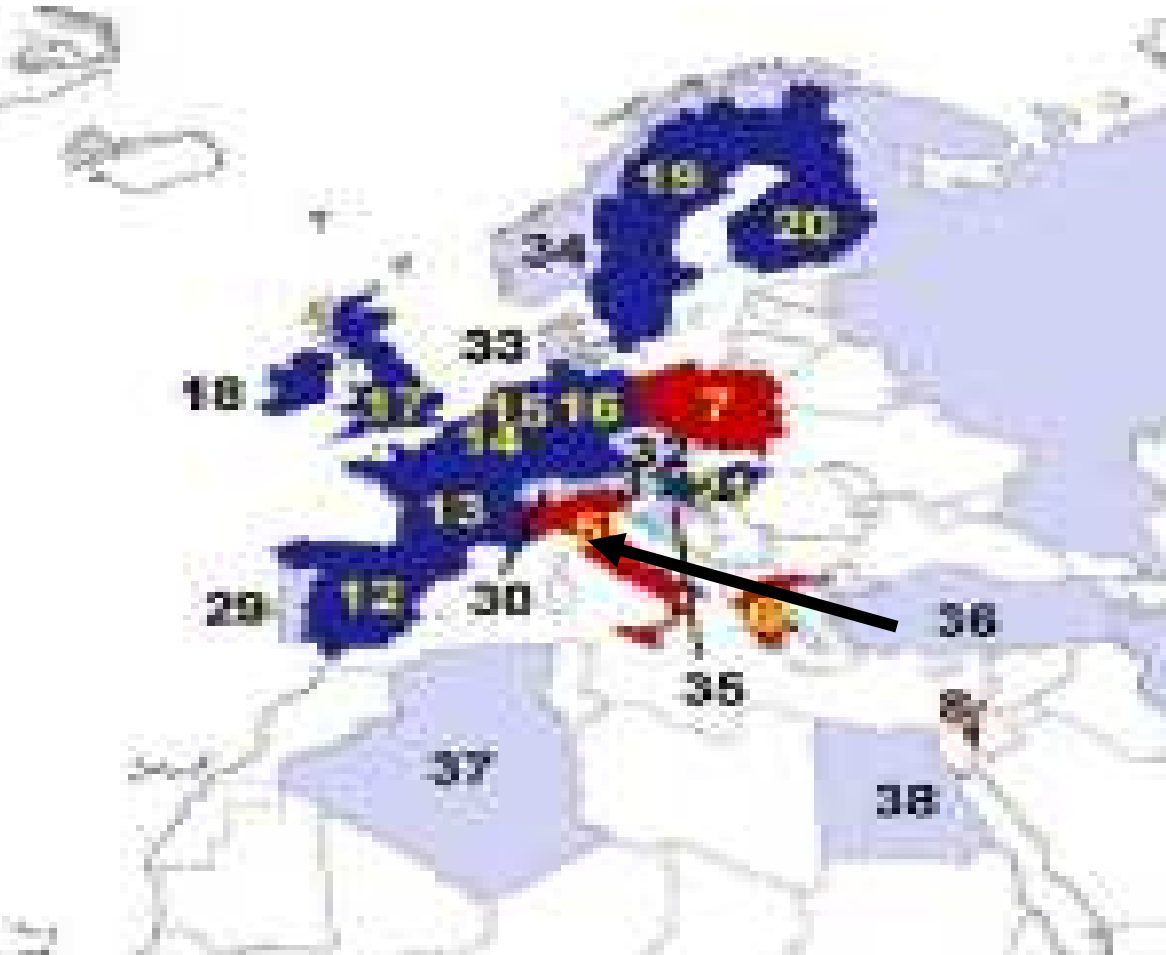


KPC 2009

Primo caso isolato in Italia

JOURNAL OF CLINICAL MICROBIOLOGY, Nov. 2009, p. 3793–3794
0095-1137/09/\$12.00 doi:10.1128/JCM.01773-09
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Emergence in Italy of *Klebsiella pneumoniae* Sequence Type 30
Producing KPC-3 Carbapenemase[∇]



A rischio:

- Visiting Friends and Relatives
- Migranti
- Viaggiatori che prendono la Cloroquina
- Fattori predisponenti (diabete, ricovero all'estero)

Giani T et al 2009., 2015

Il trasporto aereo globale facilita la rapida diffusione MDR.

Gli strumenti contro la diffusione di MDR-resistenti a antibiotici sono:

.Screening per tutti i pazienti e viaggiatori che hanno subito un ricovero, di ritorno da aree endemiche per MDR al fine di prevenire la disseminazione.

.Antimicrobial Stewardship.

Jordi Vila Editore

J Trav Med 20

is on a Plane: Aircraft, International Travel, the Global Spread of Disease

Pavia

iatric Infectious Diseases, Departments of Pediatrics and Medicine, University of Utah, Salt Lake City

Airline Operating Realities and the Global Spread of Infectious Diseases

Asia-Pacific Journal of
Supplement to 22

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DOI: 10.1177/1010

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INFECTIONS WHICH MAY BE POTENTIALLY SPREAD ON THE AIRCRAFT THROUGH:

LOSE CONTACT (FOMITES)

RBORNE spread through “Large Droplets” (SARS, INFLUENZA, COLD, MENINGITIS, MERS, e

Droplert nuclei” (TUBERCULOSIS; MEASLES, VARICELLA)

OOD-BORNE (**SALMONELLOSIS, CHOLERA, NOROVIRUS,, SHIGELLOSIS**)

ATER-BORNE (TRAVELER’S DIARRHEA, HAV, HEV, NOROVIRUS)

ECTOR-BORNE (MALARIA, DENGUE, YELLOW-FEVER, ZYKA)

INTRODUCTION

In January 1991, epidemic cholera appeared in America for the first time in the 20th century. By the end of 1991, the epidemic had spread to 14 countries in Latin America, with nearly 400,000 cases and more than 4,000 deaths reported [2]. During the

epidemic, cholera associated with travel in Latin America was reported in the United States [3].

On 19 February 1992, the Los Angeles Department of Health Services and the California Department of Health Services received reports that *Vibrio cholerae* O1 had been isolated from stool samples of five hospitalized persons with cholera.

CHOLERA

75/336 PASSENGERS IN U.S.A HAD CHOLERA. 10 WERE HOSPITALIZED AND ONE DIED.



(b) Items served between Lima and Los Angeles

Seafood salad	26/30 (87)	27/75 (36)	11.6 (3.3–44.0)
Turkey sandwich	16/29 (55)	21/67 (31)	2.7 (1.0–7.4)
Ham and cheese sandwich	25/31 (81)	42/69 (61)	2.7 (0.9–8.5)
Bottled water	15/31 (48)	20/75 (27)	2.6 (1.0–6.8)
Chicken sandwich	16/31 (52)	22/68 (32)	2.2 (0.9–5.9)
Drink without ice	10/30 (33)	15/74 (20)	2.0 (0.7–5.7)
Cheese	15/31 (48)	30/79 (38)	1.5 (0.6–3.9)
Iced drink	19/30 (63)	43/74 (58)	1.3 (0.5–3.3)
Fresh fruit	5/23 (22)	16/66 (24)	0.9 (0.2–3.1)

SALMONELLOSI: 15 epidemie documentate tra il 1949-1999 con oltre 4000 casi e 7 decessi

Isolates submitted:

Of the 100 passengers with laboratory evidence of infection with *V. cholerae* O1, 52 had only positive vibriocidal titres, 22 had only isolates confirmed as toxigenic *V. cholerae* O1, and 26 had both elevated titres and confirmed isolates. Of the 48 isolates, 34

Los Angeles, February 1992 (28 cases, 0 deaths)

Food or drink*	Adjusted OR
Seafood salad	17.9 (4.0–81.0)
Bottled water	2.0 (0.6–6.8)
Turkey sandwich	1.6 (0.4–6.8)

Phillips Eberhart et al, 1992

BO, ACQUA E INSETTI QUALI VETTORI DI MALATTIE INFETTIV

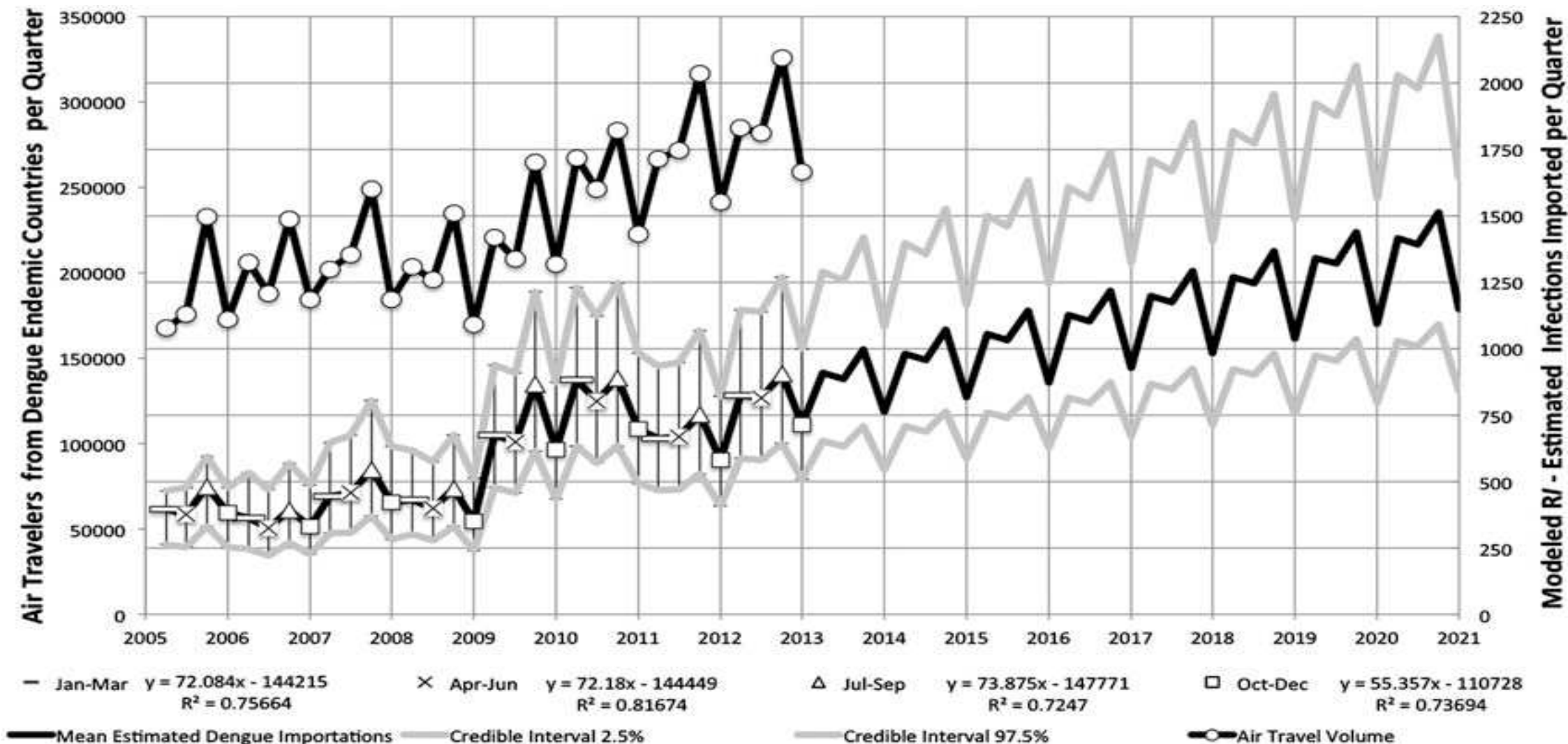
Malaria

Rischio potenziale

AIRPORT MALARIA. There is evidence that malaria-carrying mosquitoes can be imported on aircraft.

A total of 87 cases of airport malaria reported, 75 in Europe.⁷

ALTHOUGH INTERNATIONAL HEALTH REGULATIONS RECOMMEND DISINFECTING AIRCRAFT TRAVELLING FROM COUNTRIES WITH MALARIA AND OTHER VECTOR-BORNE DISEASES, ONLY FIVE COUNTRIES DO SO



GLOBAL ARRIVALS AND ESTIMATED IMPORTATIONS OF DENGUE INFECTIONS INTO ROME'S FIUMICINO-LEONARDO DA VINCI INTERNATIONAL AIRPORT (FCO) FROM DENGUE-ENDEMIC DEPARTURE COUNTRIES.

CONCLUSIONI

Trasmissione di Malattie Infettive in aereo bassa (sottostimata?)

Dati statistici non sufficientemente “robusti” per malattie potenzialmente trasmissibili mediante “droplets” (INFLUENZA, TB)

Difficoltà nella rintracciabilità dei “passeggeri contatto” dopo la potenziale trasmissione di malattie da droplets a bordo dell’aereo.

Nessun pericolo per INFLUENZA AVIARIA

Potenziale pericolo per FOOD AND WATER BORNE diseases

Allerta per VECTOR –BORNE DISEASES (**DENGUE**)

I viaggiatori hanno un rischio di colonizzazione da MDR-GNB 10 volte più elevato rispetto a pazienti ricoverati non-viaggiatori.

Prevalence and Outcome of Fever in Travelers Who Stay in the Tropics

de Meester, MD; Jan Clerinx, MD; Ward Schrooten, MD, PhD; Erwin Van den Enden, MD;
Liesbeth De Weert, MD; Marjan Van Esbroeck, MD; Tony Vervoort, MD; Hendrik Demey, MD;
Liesbeth De Weert, MD, PhD; Alfons Van Gompel, MD; Jef Van den Ende, MD, PhD

**Fever is the most
frequent symptom**

AFTER A TRAVEL TO AFRICA

1. Malaria (35%, mainly *Plasmodium falciparum*)
2. Rickettsial infection (4%) as the leading diagnoses;

AFTER A TRAVEL TO ASIA

1. Dengue (12%)
2. Malaria (9%)
3. Enteric fever (4%)

AFTER A TRAVEL IN LATIN AMERICA

1. Dengue (8%)
2. Malaria (4%)

INFEZIONI, VIAGGI E PERIODO DI INCUBAZIONE

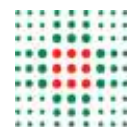


Insorgenza febbre	Possibili forme infettive insorgenti dopo un viaggio in relazione al periodo di incubazione*
2 settimane	<u>Dengue</u> e Chikungunya, encefaliti da arbovirus, febbre tifoide, infezione acuta da HIV, influenza, legionellosi, leptospirosi, <u>rickettsiosi esantematiche</u> , <u>malaria da P. falciparum</u> o da P. vivax/ovale, febbri emorragiche (Lassa, Marburg, Ebola)
6 settimane	<u>Malaria</u> , epatiti virali (HAV, HEV), Febbre tifoide, Leptospirosi, febbre Q, Schistosomiasis acuta o (febbre di Katayama), Tripanosomiasi africana, Febbri emorragiche inclusa quella da virus Ebola
6 settimane	<u>Plasmodium vivax/ovale</u> , epatite virale B ed E, ascesso amebico epatico, tubercolosi, leishmaniosi viscerale, altro.

Un microbo che ha colpito un bimbo in un continente lontano **IERI**, può raggiungere **OGGI** il vostro e scatenare una pandemia globale domani



J Lederberg



SERVIZIO SANITARIO REGIONALE
EMILIA-ROMAGNA
Azienda Ospedaliero - Universitaria di Ferrara



UNIVERSITÀ
DEGLI
STUDI DI FERRARA
- DE LAURO

AZIENDA OSPEDALIERO-UNIVERSITARIA DI FERRARA
DIPARTIMENTO MEDICO
UNITA' OPERATIVA COMPLESSA DI MALATTIE INFETTIVE UNIVERSITARIA
DIRETTORE: PROF. CARLO CONTINI



**INFORMAZIONI SANITARIE PER I
VIAGGIATORI INTERNAZIONALI**

SINTOMATI/SEGNI ASSOCIATI A FEBBRE IN RAPPORTO ALLE PRINCIPALI PATOLOGIE INFETTIVE/TROPICALI DOPO UN VIAGG

Febbre associata ai seguenti segni/sintomi clinici	Principali Patologie Tropicali e Infettive
Esantema maculo-papuloso non pruriginoso	Rickettsiosi, Dengue, Chikungunya, morbillo, tifo, infezione acuta da HIV
Manifestazioni emorragiche	Dengue ed altre febbri ad impronta emorragica da arbovirus, sepsi meningococchi, leptospirosi, rickettsiosi
Eosinofilia: varia in rapporto all'associazione con sintomi respiratori, gastroenterici, neurologici, cutanei	Schistosomiasi*, strongiloidiasi, ascaridiasi, teniasi, anchilostomiasi, Isosporiasi, idatidosi, fascioliasi, toxoplasmosi, amebiasi, malaria, EBV, HIV, aspergillosi, coccidiomicosi, scabbia, TBC, febbre Q
Sindrome simil-mononucleosica (ubiquitaria)	Mononucleosi infettiva, infezione da CMV, Infezione da HIV, toxoplasmosi *
Dolore addominale, diarrea, vomito	Febbre tifoide, gastroenteriti febbrili
Alterazioni stato di coscienza	Malaria cerebrale, meningiti batteriche e virali, tripanosomiasi africana umana (TA), Tripanosoma Brucei Gambiense.
Febbre associata ad infiltrati polmonari (radiografia)	Infezioni batteriche e virali, febbre Q, legionellosi, Schistosomiasi acuta
Leucopenia	Febbri emorragiche virali, malaria, rickettsiosi, Chikungunya, febbre tifoide.

