

Pursuing Excellence During a Global Pandemic

Professor Robert J. Pratt, Thames Valley University

Teleclass sponsored by Virox Technologies & JohnsonDiversey
www.virox.com www.johnsondiversey.co.uk

Broadcast Live From the Annual Conference of the
Infection Prevention Society
www.ips.uk.net

E.M. Cottrell Inaugural Lecture

**Pursuing excellence
during a global
pandemic**

Professor Robert J. Pratt CBE FRCN
Thames Valley University

Teleclass sponsored by
VIROX JohnsonDiversey
www.virox.com www.johnsondiversey.co.uk

A Webber Training Teleclass
www.webbertraining.com

celebrating 50 years
Infection Prevention



Pandemic

epidemic occurring widely within the same time frame
throughout a region, country, continent or globally

Pandemic criteria

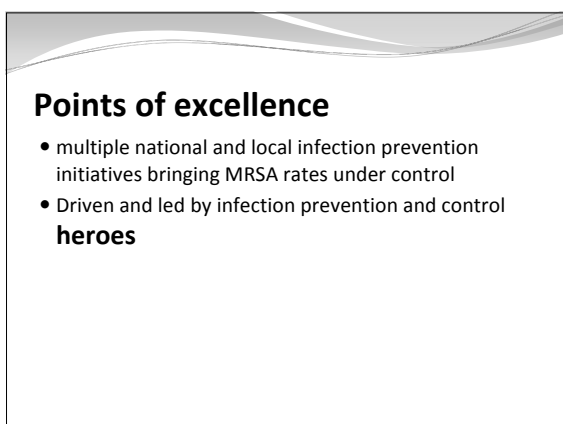
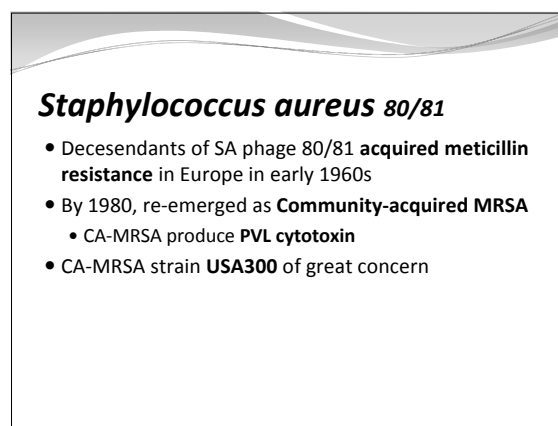
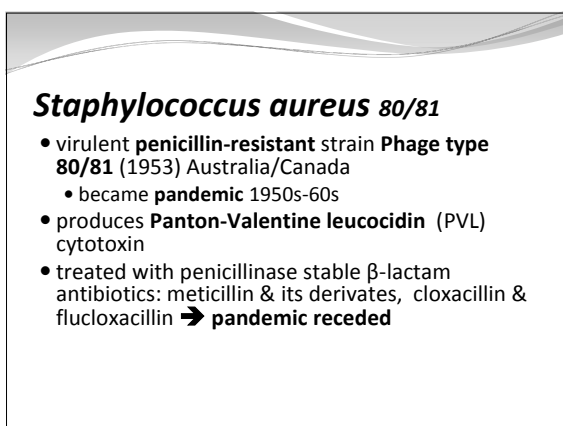
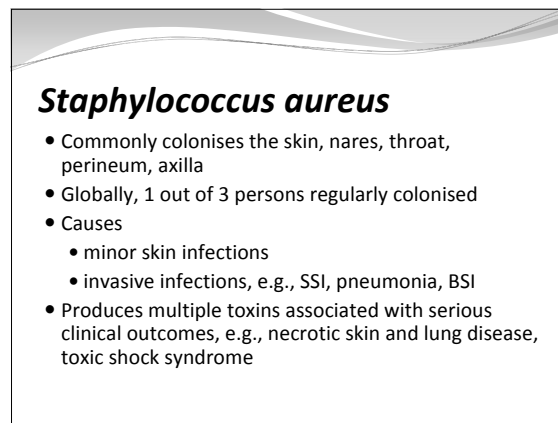
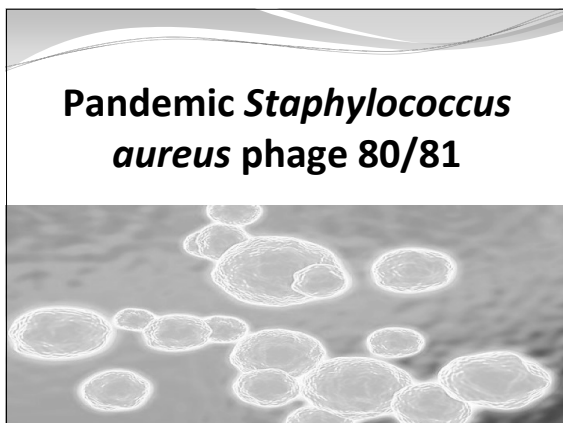
- caused by emerging or re-emerging pathogens, e.g., zoonoses
- lack of population immunity to novel infection
- able to infect people
- efficiently transmissible from person to person
- spread widely
- cause significant clinical illness in a high proportion of those infected

Professional Practice Memory

Points of Excellence

Hosted by the Infection Prevention Society www.ips.uk.net
A Webber Training Teleclass
www.webbertraining.com

Pursuing Excellence During a Global Pandemic
Professor Robert J. Pratt, Thames Valley University
Teleclass sponsored by Virox Technologies & JohnsonDiversey
www.virox.com www.johnsondiversey.co.uk



Hosted by the Infection Prevention Society www.ips.uk.net
A Webber Training Teleclass
www.webbertraining.com


Pursuing Excellence During a Global Pandemic

Professor Robert J. Pratt, Thames Valley University

Teleclass sponsored by Virox Technologies & JohnsonDiversey
www.virox.com www.johnsondiversey.co.uk

Heroes & Heroines


Distinguished by: courage, fortitude, outstanding achievement, noble qualities



Lance Corporal Johnson Beharry VC

Heroes & Heroines

Distinguished by: courage, fortitude, outstanding achievement, noble qualities



Florence Nightingale OM RRC

Points of excellence

- 1959 – the West Country – birth of the modern age of infection control nursing in England

Torbay Hospital - mid-to-late 1950s

- in the midst of the phage 80/81 *S. aureus* epidemic
- Widely disseminated on surfaces and fabrics and among nursing and domestic staff
- established control measures inadequate and infection surveillance unreliable

Heroes of Torbay Hospital

- Matron and Hospital Pathologist
- Hospital Infection Committee
- **E.M. Cottrell** (Theatre Sister) appointed **Infection Control Sister** in April 1959

Sister E.M. Cottrell

Responsibilities

- Hospital epidemiology and infection surveillance
- Teaching
- Clinical supervision of aseptic techniques
- Infection control research

Hosted by the Infection Prevention Society www.ips.uk.net
A Webber Training Teleclass
www.webbertraining.com

Pursuing Excellence During a Global Pandemic

Professor Robert J. Pratt, Thames Valley University

Teleclass sponsored by Virox Technologies & JohnsonDiversey

www.virox.com www.johnsondiversey.co.uk

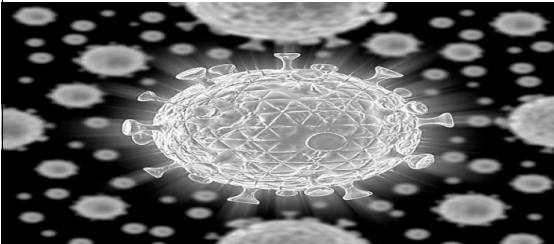
Infection Control Nurses Association

- Founded 1970
- Expanded membership, terms of reference & rebranded in 2007 as the **Infection Prevention Society**
- preeminent infection prevention professional association in Europe



Infection Prevention Society
Inform • Promote • Sustain
www.ips.uk.net

Human Immunodeficiency Viruses types 1/2

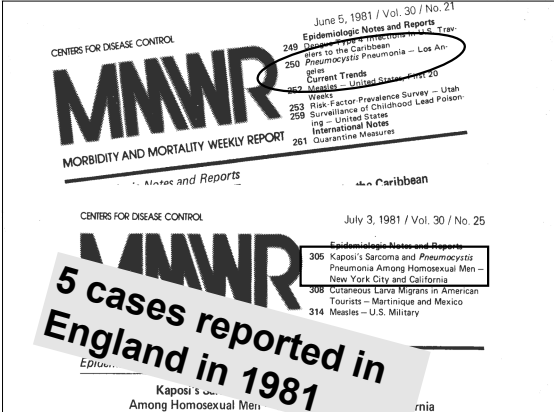


Pandemic Gathering

1970s - 2009



1980 - 1981



June 5, 1981 / Vol. 30 / No. 21
CENTERS FOR DISEASE CONTROL
MMWR
MORBIDITY AND MORTALITY WEEKLY REPORT

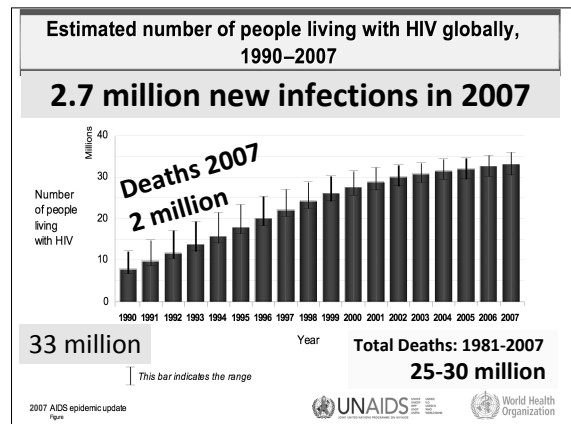
July 3, 1981 / Vol. 30 / No. 25
CENTERS FOR DISEASE CONTROL
MMWR
MORBIDITY AND MORTALITY WEEKLY REPORT

5 cases reported in England in 1981

Approximate number of known cases by the end of 1981

< 1,000 worldwide

29 years later →



Hosted by the Infection Prevention Society www.ips.uk.net

A Webber Training Teleclass

www.webbertraining.com

Pursuing Excellence During a Global Pandemic

Professor Robert J. Pratt, Thames Valley University

Teleclass sponsored by Virox Technologies & JohnsonDiversey
www.virox.com www.johnsondiversey.co.uk

308 persons will be infected every hour
 i.e., 5+ new infections every minute

Over 7,400 new HIV infections a day in 2007

- More than 96% are in low and middle income countries
- About 1000 are in children under 15 years of age
- About 6,300 are in adults aged 15 years and older of whom:
 - almost 50% are among women
 - over 45% are among young people (15 -24)



UNAIDS

2007 global HIV and AIDS estimates
Children (<15 years)

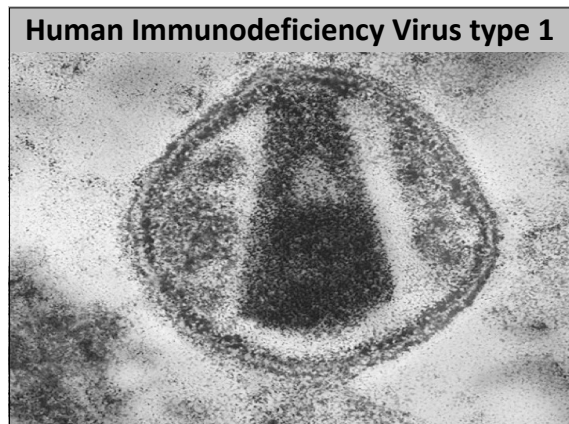
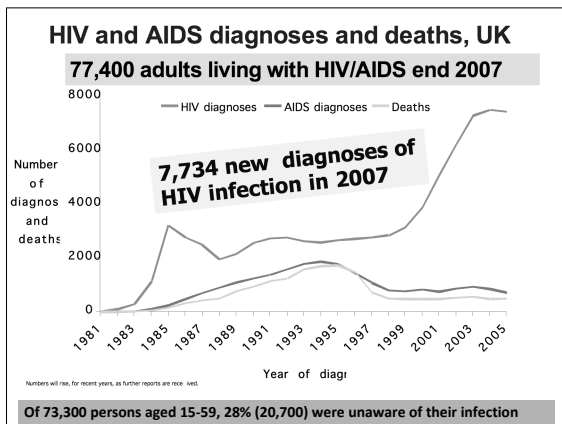
- Children living with HIV **2.0 million** [1.9-2.3 m.]
- New HIV infections in 2007 **370 000** [330 000-410 000]
- Deaths due to AIDS 2007 **270 000** [250 000-290 000]

Children orphaned as the result of the HIV-related deaths of one or both parents →

AIDS Orphans

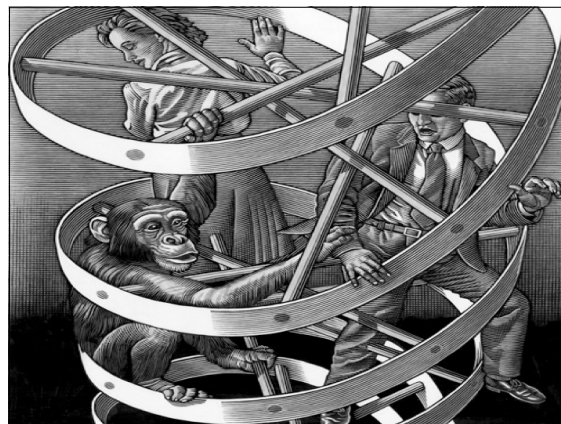
12 million AIDS orphans in sub-Saharan Africa

2007



Hosted by the Infection Prevention Society www.ips.uk.net
 A Webber Training Teleclass
www.webbertraining.com

Pursuing Excellence During a Global Pandemic
Professor Robert J. Pratt, Thames Valley University
Teleclass sponsored by Virox Technologies & JohnsonDiversey
www.virox.com www.johnsondiversey.co.uk



Exposure & Transmission

Bloodborne virus

- Sexual exposure
- Mother-to-child transmission
- Injecting drug use
- Healthcare practices and techniques

Points of excellence


- New approach emerged for preventing exposure to bloodborne pathogens
 - Blood & Body Fluid Precautions
 - Universal Precautions
 - Body substance isolation
- **Standard Infection Prevention and Control Precautions**

Points of excellence

- Early fears of contagion quickly receded
- HIV-infected patients not stigmatised or discriminated against
- A powerful lobby of patient groups campaigned for better services, swifter access to drugs, more involvement

Heroes

Distinguished by: courage, fortitude, outstanding achievement, noble qualities



Richard Wells FRCN 1950-1993

Hosted by the Infection Prevention Society www.ips.uk.net
A Webber Training Teleclass
www.webbertraining.com


Pursuing Excellence During a Global Pandemic

Professor Robert J. Pratt, Thames Valley University

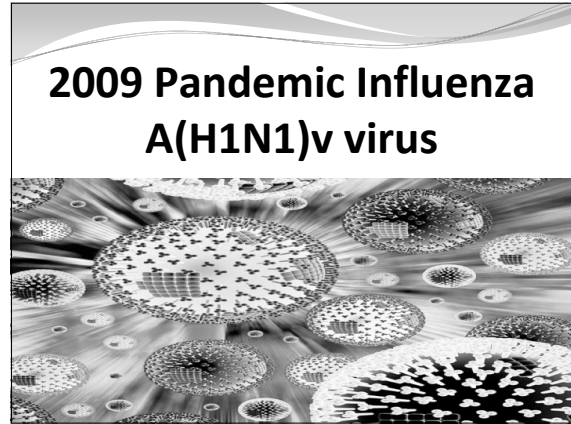
Teleclass sponsored by Virox Technologies & JohnsonDiversey
www.virox.com www.johnsondiversey.co.uk

Heroes

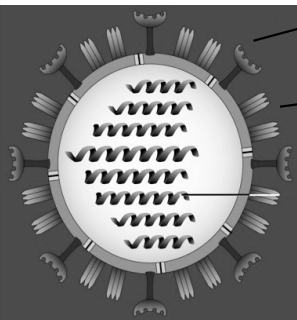
Distinguished by: courage, fortitude, outstanding achievement, noble qualities



Jonathan M. Mann MD 1947-1998




Influenza A virus - subtypes



- haemagglutinin 16 subtypes
- neuraminidase 9 subtypes
- RNA segmented genome 8 segments containing a total of 10 genes

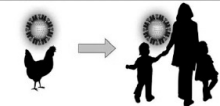
Emergence of New Human Influenza Subtypes

Drift (minor mutations)

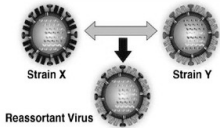
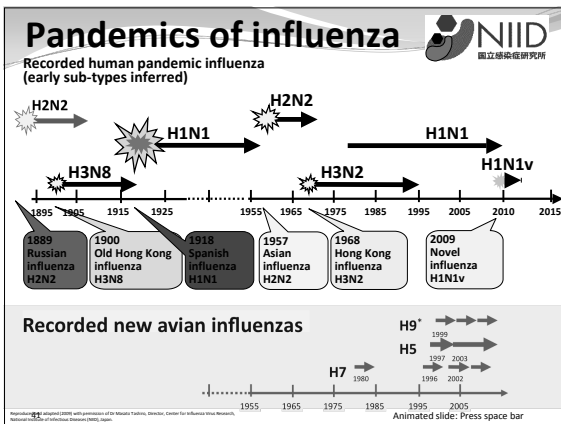


Shift (major change)

Jumping Species



Reassortment

2009 influenza A(H1N1)v virus

- March-April 2009 – novel influenza A virus identified as the cause of influenza outbreaks in the US, Canada & Mexico - quickly spread globally
- WHO declared a global pandemic on 06 June 2009
- New strain has a genetic composition not seen previously
- **First wave** of the pandemic completed by end of the northern summer
- **Second wave** expected mid-autumn (may be starting now)

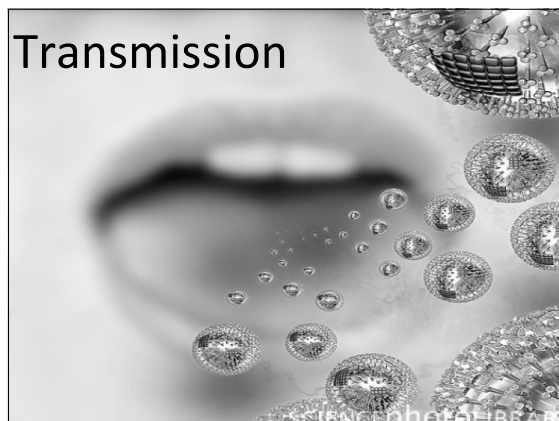
Hosted by the Infection Prevention Society www.ips.uk.net
 A Webber Training Teleclass
www.webbertraining.com

Pursuing Excellence During a Global Pandemic

Professor Robert J. Pratt, Thames Valley University

Teleclass sponsored by Virox Technologies & JohnsonDiversey
www.virox.com www.johnsondiversev.co.uk

UK Government Planning Assumptions September 2009 to mid-May 2010	
Clinical Attack Rate	Up to 30% of population
Peak Clinical Attack rate	Nationally, up to 6.5% of population per week Locally, 4.5%-8% of population per week
Case Complication Ratio	Up to 15% of clinical cases
Case Hospitalisation Ratio	Up to 1% of clinical cases, of whom up to 25% could require intensive care at any given time
Case Fatality Ratio	Up to 0.1% of clinical cases
Peak Absence Rate	Up to 12% of workforce



Droplet Transmission


- Principal method of transmission is via large respiratory droplets.
- Requires close personal contact as these droplets are too large to remain suspended in the air & can only travel short distances through the air (not more than a metre)

Contact Transmission

- Direct or indirect contact can easily transfer virus by hands contaminated as a result of:
 - Shaking hands with an infected person
 - Touching inanimate objects in patient environment, e.g., counter tops, plastic washing-up bowls that have been contaminated by droplets
 - Banknotes !!!
 - Light switches, door knobs

Aerosol Transmission

- Aerosol-generating procedures, e.g., ET intubation, suctioning, nebuliser treatment, bronchoscopy 'may' increase risk of droplet nuclei
- There is no significant evidence that in any other circumstances, small particle aerosols are significantly involved in influenza virus transmission



Prevention & Treatment



The image shows a medical professional in full personal protective equipment (PPE), including a white lab coat, gloves, and a face shield. The professional is holding a syringe. To the right, a hand is shown holding a box of Tamiflu 75 mg capsules. Below that, a blister pack of Relenza capsules is shown. The background is a blurred clinical setting.

Hosted by the Infection Prevention Society www.ips.uk.net
A Webber Training Teleclass
www.webbertraining.com

Pursuing Excellence During a Global Pandemic

Professor Robert J. Pratt, Thames Valley University

Teleclass sponsored by Virox Technologies & JohnsonDiversey
www.virox.com www.johnsondiverseys.co.uk

Immunisation for pandemic influenza

- Vaccine available mid-October 2009
- Priority groups for vaccination identified
- **Vaccine is safe; serious adverse reactions uncommon**
- Vaccination for seasonal influenza is still required in addition to pandemic influenza immunisation

Immunisation for pandemic influenza

- **Frontline health and social care workers will be encouraged to be vaccinated as:**
 - they are at increased risk of infection and transmitting that infection to susceptible patients
 - If they become ill, their absence from work will further stress health and social care services

Point of excellence

- An increased uptake of pandemic and seasonal influenza vaccination amongst health and social care staff

Reflections

- Irregular occurrences of pandemic diseases are a **feature of human life on earth**
- **Quality preparedness strategies offer the most effective means of amelioration**
- **Striving for excellence in practice is a *sine qua non* of professionalism**
- **Excellence is not accidental; it is achieved one step at a time**

The Pursuit of Excellence

IPS Annual Research Awards

IPS Research Strategy

- Influence the national research agenda
- Generate high quality research for practice
- Secure resources for the Society's research programme
- Engage in collaborative research
- Develop research capability and capacity
- Enhance members' understanding and use of research in practice

Prieto *et al.* 2007

Hosted by the Infection Prevention Society www.ips.uk.net
A Webber Training Teleclass
www.webbertraining.com

Pursuing Excellence During a Global Pandemic

Professor Robert J. Pratt, Thames Valley University

Teleclass sponsored by Virox Technologies & JohnsonDiversey
www.virox.com www.johnsondiversev.co.uk

“Curiouser and curiouser!”
cried Alice

Loveday *et al* (2009).
Indulging curiosity -
researching infection
prevention. *Journal of
Infection Prevention*
10(5):166-170.



IPS Research Priorities

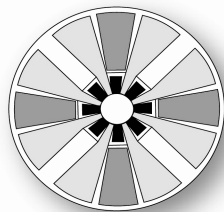
- **Human behaviour**
 - staff, patient attitudes
 - knowledge and perception
 - communication and compliance
 - psychological and social impact of infection
- **Infection prevention interventions**
 - isolation,
 - Decontamination
 - hand hygiene
 - use of protective equipment.

IPS Research Awards

- **Individual Post-doctoral Awards** - £3,000 p.a. for 2 years
- **Collaborative Small Project Awards** for Teams of ≤5 researchers - £5,000 for 1 year
- **Novice Investigator Awards** - £1000 p.a. for 3 years

Further Information

- JIP article (Loveday *et al*, 2009)
- Oral Poster during Conference
- Heather Loveday available at Conference or by email (heather.loveday@tvu.ac.uk)
- IPS Branch Representatives available for support
- Application packs available from the IPS website
- **Closing date: Friday, 15 January 2010**



Infection Prevention Society

Inform • Promote • Sustain

www.ips.uk.net

21 Sep. 09	(Free British Teleclass) <i>Live Broadcast from the Infection Prevention Society Conference</i> Fifty Years of Resistance Speaker: Prof. Gary French, Guy's & St. Thomas' Hospital, England
22 Sep. 09	(Free British Teleclass) <i>Live Broadcast from the Infection Prevention Society Conference</i> The Pursuit of Excellence During a Global Pandemic Speaker: Prof. Robert Pratt, Thames Valley University
23 Sep. 09	(Free British Teleclass) <i>Live Broadcast from the Infection Prevention Society Conference</i> Hot Off the Press - A Review of the Evidence Speaker: Dr. William Jarvis, President, Jason and Jarvis Associates
23 Sep. 09	(Free British Teleclass) <i>Live Broadcast from the Infection Prevention Society Conference</i> Moving on from Audit - Quality Improvement Tools for Infection Prevention Speaker: Dr. Neil Wigglesworth, Salford Royal NHS Trust

www.ips.uk.net

Hosted by the Infection Prevention Society www.ips.uk.net

A Webber Training Teleclass

www.webbertraining.com