

Newsletter



March 2019

History of Pathology Society Officers

President: Susan Lester
President-Elect: Henry Tazelaar
Past President: Gabriella Nesi
Secretary-Treasurer: Santo V. Nicosia

Trustees:
Daniel Kurtycz (2018-2021)
Fabio Zampieri (2018-2021)
Stephen A. Geller (2017-2020)

History of Pathology Society Meeting
Gaylord Resort & Convention Center, National Harbor, MD, USA
Sunday, March 17, 2019, 3:30-5:30 p.m.
United States and Canadian Academy of Pathology Meeting

Molecular Insights into Our Historical Past: Medical Museum Collections as Irreplaceable Biorepositories

Moderator, Susan Lester, MD, PhD, Brigham and Women's Hospital, Boston, MA

Course Description

Medical museum specimens provide a window into our historical past as revealed by information on human pathogens, inherited disease, and tumor biology. Unfortunately, the few surviving collections may be in peril due to challenges in maintaining specimens and a lack of appreciation of their value. This session will review the state of historical biorepositories in the United States, Canada, and Europe, discuss important studies on historical specimens, and suggest steps that can be taken to preserve these irreplaceable resources.

3:30	Overview of Historical Collections in the United States and Canada Julie Lemmon, MD, Sumner Regional Medical Center, Gallatin, TN
3:45	The 1918 Influenza Virus: How Understanding a Scourge of the Past Informs Our Future Jeffery Taubenberger, MD, PhD, National Institute of Health, DC
4:15	European Historical Collections and their Role in Biomedical Research Gabriella Nesi, MD, PhD, University of Florence, Italy
4:45	The Future of Our Past: A Call to Action to Preserve Our Medical Heritage Susan Lester, MD, PhD, Brigham and Women's Hospital, Boston, MA Julie Lemmon, MD, Sumner Regional Medical Center, Gallatin, TN
5:00	Business Meeting

Molecular Insights into Our Historical Past: Medical Museums as Irreplaceable Biorepositories

History of Pathology Society – 2019

Moderated by President Susan C. Lester, MD, PhD

USCAP 108TH ANNUAL MEETING

**UNLOCKING
YOURINGENUITY**

USCAP
Creating a Better Pathologist



Schedule

- **Overview of Historical Medical Museum Collections in the United States and Canada**
 - Julie Lemmon, MD
- **The 1918 Influenza Virus: How Understanding a Scourge of the Past Informs Our Future**
 - Jeffery Taubenberger, MD PhD- National Institute of Health
- **European Historical Collections and their Role in Biomedical Research**
 - Gabriella Nesi, MD PhD- University of Florence
- **The Future of Our Past: A Call to Action to Preserve Our Medical Heritage**
 - Susan Lester, MD PhD- Harvard Medical School/Brigham and Women's Hospital

Overview of Historical Medical Museum Collections in the United States and Canada

Julie Lemmon, MD

UNLOCKING
YOUR INGENUITY

USCAP

#IAMUSCAP
#USCAP2019

The Rise of Medical Museums

- Historical necessity
- Scarcity of teaching materials
- Flexner Report- 1910

UNLOCKING
YOUR INGENUITY

USCAP

#IAMUSCAP
#USCAP2019

The Fate of Medical Museums?

- Shifting focus of medical education
- Ability to reproduce and share images
- Expense of maintenance and valuable real estate

Medical Museums Today- Pilot Study

- Identify existing US and Canadian biorepositories
- Today's uses
- Future: increase accessibility, provide collaboration

Medical Museums Today- Pilot Study

- Historic museum specimens that retain biomolecules (pre-1970)
 - Primarily wet specimens (tissue in fixative)
 - Osteological specimens
 - Slides
 - Blocks

Medical Museums Today- Pilot Study

- 70 medical museums documented to exist prior to 1970s
 - Noted in Flexner Report, Billings
- Lester, Lemmon, Hall, and Wright investigated collections
- 13 still exist, at least partially catalogued

Medical Museums Today- Pilot Study

• **80%** discarded or lost to history

UNLOCKING
YOUR INGENUITY

USCAP

#IAMUSCAP
#USCAP2019

Medical Museums Today- Pilot Study

- Traditional uses
 - Teaching
 - Research
 - Community engagement
- Emerging use: historical biorepository

UNLOCKING
YOUR INGENUITY

USCAP

#IAMUSCAP
#USCAP2019

Medical Museums Today- Pilot Study

- 12 of 13 available for research
- 6 of 13 currently involved in modern biomedical research

UNLOCKING
YOURINGENUITY

USCAP

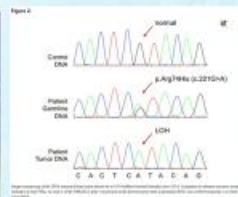
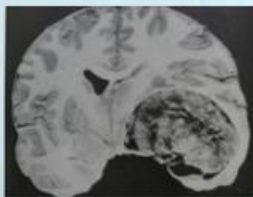
#IAMUSCAP
#USCAP2019



Harvey Cushing Treated the First Known Patient With Carney Complex

Cynthia J. Tsay,¹ Constantine A. Stratakis,² Fabio Rueda Faucz,² Edra London,² Chaido Stathopoulou,² Michael Allgauer,³ Martha Quezado,³ Terry Dagradi,⁴ Dennis D. Spencer,⁵ and Maya Lodish²

Tsay, CJ, et al, Journal of the Endocrine Society, 1:1312, 2017



Earliest documentation of a patient with Carney Complex by DNA sequencing.

Dr. Harvey Cushing Brain Collection – Yale University

UNLOCKING
YOURINGENUITY

USCAP

#IAMUSCAP
#USCAP2019

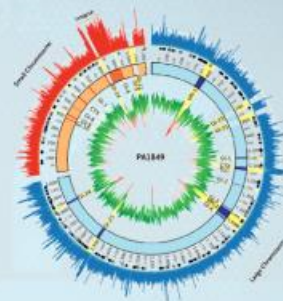


THE NEW ENGLAND JOURNAL of MEDICINE

BRIEF REPORT

Second-Pandemic Strain of *Vibrio cholerae* from the Philadelphia Cholera Outbreak of 1849

Alison M. Devault, M.A., G. Brian Golding, Ph.D., Nicholas Waglehner, M.Sc., Jacob M. Enk, M.Sc., Melanie Kuch, M.Sc., Joseph H. Tien, Ph.D., Mang Shi, M.Phil., David N. Fisman, M.D., M.P.H., Anna N. Dhody, M.F.S., Stephen Forrest, M.Sc., Kirsten I. Bos, Ph.D., David J.D. Earn, Ph.D., Edward C. Holmes, Ph.D., and Hendrik N. Poinar, Ph.D.



Devault AM, et al, New England Journal of Medicine 370:334-340, 2014.

***Vibrio cholera* DNA recovered from an intestinal specimen of a victim of the 1849 cholera epidemic demonstrated changes that could be associated with greater pathogenic capacity.**

Mutter Museum

UNLOCKING
YOUR INGENUITY

USCAP

#IAMUSCAP
#USCAP2019



The NEW ENGLAND JOURNAL of MEDICINE

Perspective
DECEMBER 13, 2018

HISTORY OF MEDICINE

Influenza Cataclysm, 1918

David M. Morens, M.D., and Jeffery K. Taubenberger, M.D., Ph.D.

Morens DM, Taubenberger JK, NEJM 379:2285-2287, 2018.

UNLOCKING
YOUR INGENUITY

USCAP

#IAMUSCAP
#USCAP2019

The 1918 Influenza Virus: How Understanding a Scourge of the Past Informs Our Future



NIH National Institute of Allergy and Infectious Diseases

Jeffery K. Taubenberger, M.D., Ph.D.



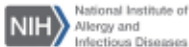
1918 Influenza Pandemic



NIH National Institute of Allergy and Infectious Diseases

1918 'Spanish' Influenza Mortality

- Total global deaths in the 9 months of the pandemic in 1918-1919 estimated to be 50-100 million^{‡,*}
- U.S. Deaths = 675,000
- Flu deaths in Philadelphia in October 1918 = 10,959.
Total flu deaths = 15,785
- U.S. Military deaths to flu = 43,000 (out of ~100,000 U.S. Troop casualties in WWI)
- Deaths in Virginia = 17,604; in Richmond = 1240 (~1% of population)



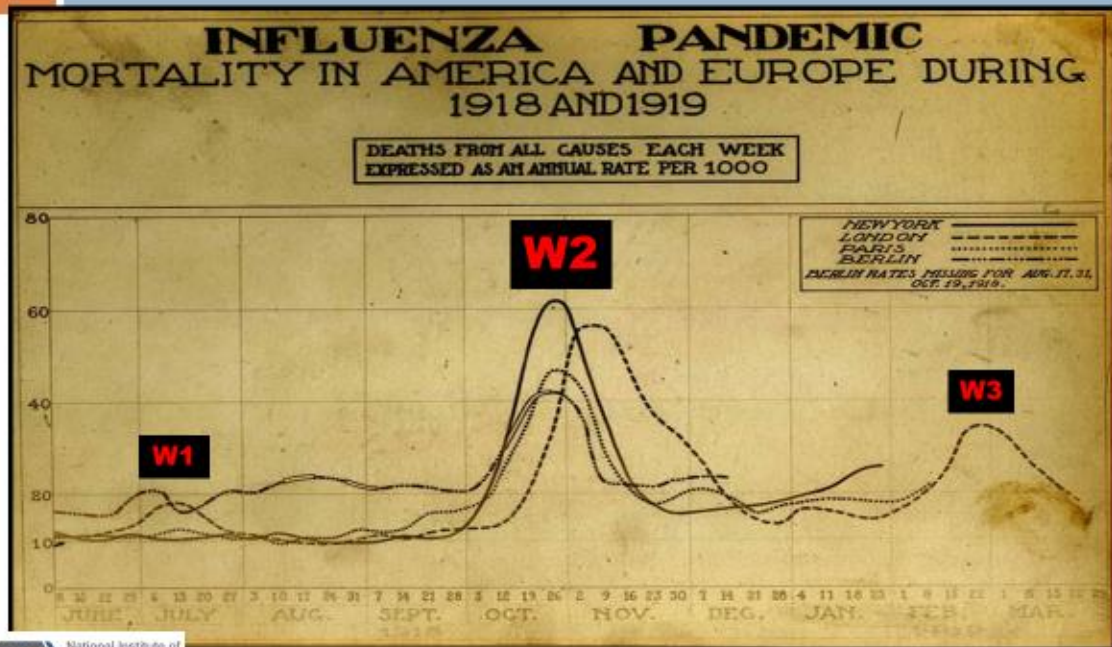
[‡]Johnson NP, Mueller J. (2002) *Bull Hist Med* 76:105-15

^{*}Perspective: ~37 million AIDS fatalities in the last 36 years

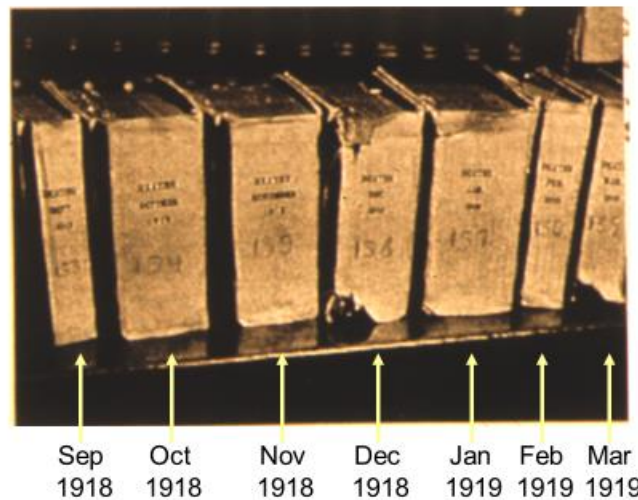
US Soldiers with 1918 Influenza, Ft. Riley, KS



1918 Influenza Pandemic Waves



Death Registry, Oregon 1918-19



1918 Flu



Camp Funston



Dartmouth College



Walter Reed



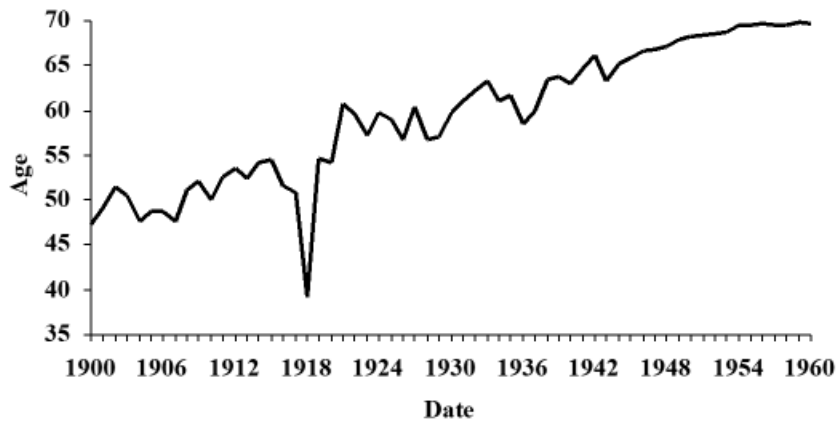
Red Cross,
Washington, DC



St. Louis



U.S. Life Expectancy 1900-1960



9N2,
?

11N1
→



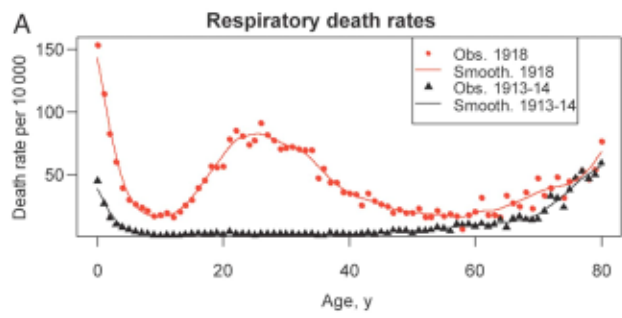
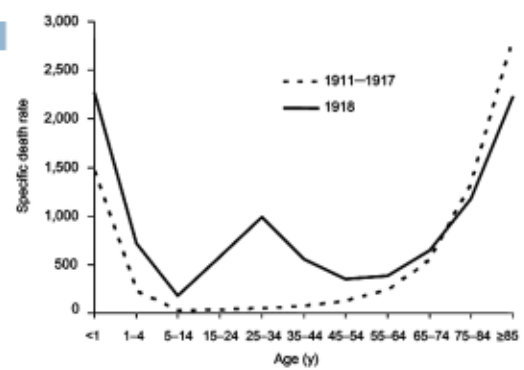
+

188
NIH National Institute of Allergy and Infectious Diseases
"Russian" Flu
NIH National Institute of Allergy and Infectious Diseases

1968
"Hong Kong" Flu

N = 4

Unique 1918 Age-Specific Mortality



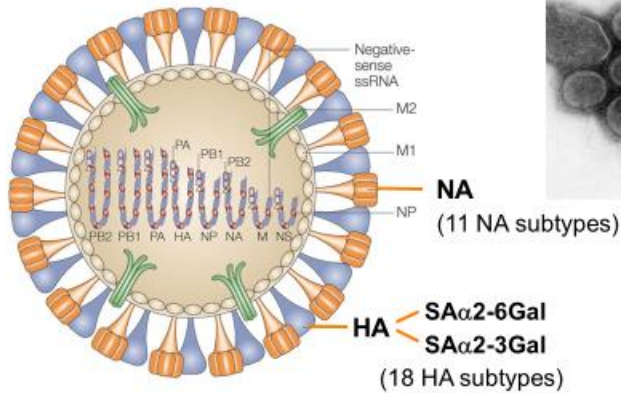
NIH National Institute of Allergy and Infectious Diseases

Viboud, et al. 2013 JID 207:721

Influenza A virus

✧ Family: *Orthomyxoviridae*

- Negative sense, segmented, single-stranded RNA genome
- 8 segments, at least 12-13 ORF's

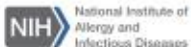


Modified from: Horimoto & Kawaoka (2005) Nat Rev Micro 3:591-600

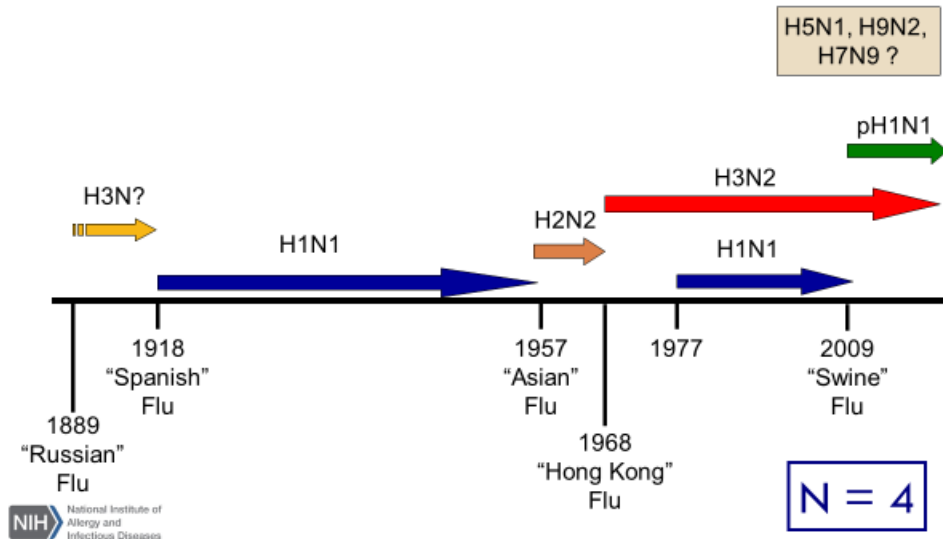


“Shift and Drift”

Influenza A Virus Host Range Quite Diverse

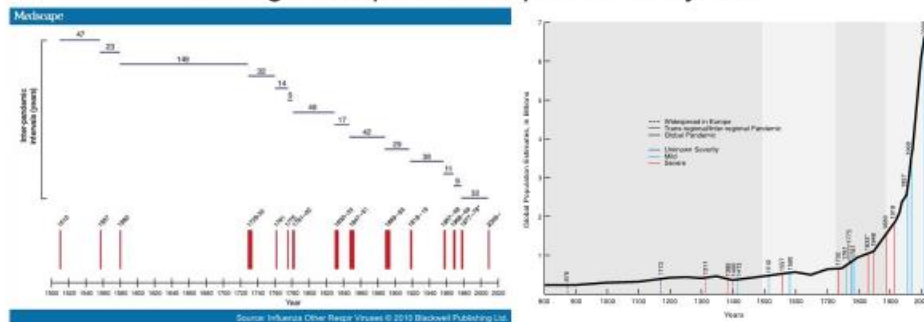


Human Influenza A Timeline



Influenza Pandemics in History

- ~14 pandemics in last 500 years
- Average interpandemic period ~36 years



Hunting for the 1918 Influenza Virus

- Concept of viruses as infectious agents still new in 1918
- No isolates of virus made during pandemic
- Influenza A viruses first isolated from pigs in 1930 and from humans in 1933

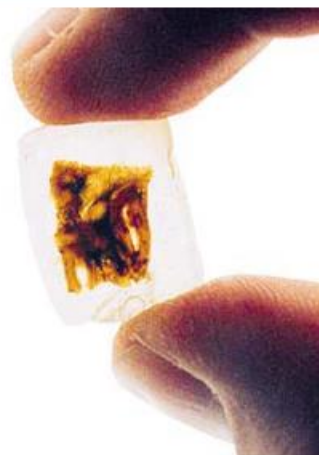


NIH National Institute of Allergy and Infectious Diseases

1918 Influenza Autopsy Cases

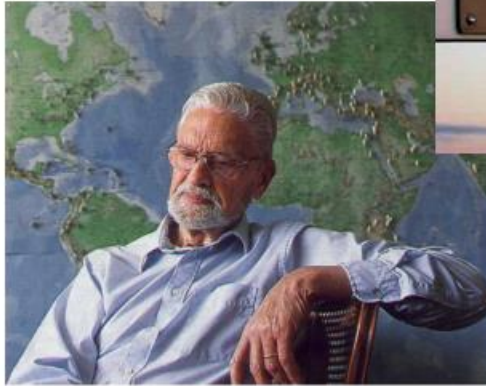


NIH National Institute of Allergy and Infectious Diseases



Taubenberger, *et al.* 1997 *Science*. 275:1793
Taubenberger, *et al.* 2005 *Nature*. 437:889

Johan Hultin, M.D.

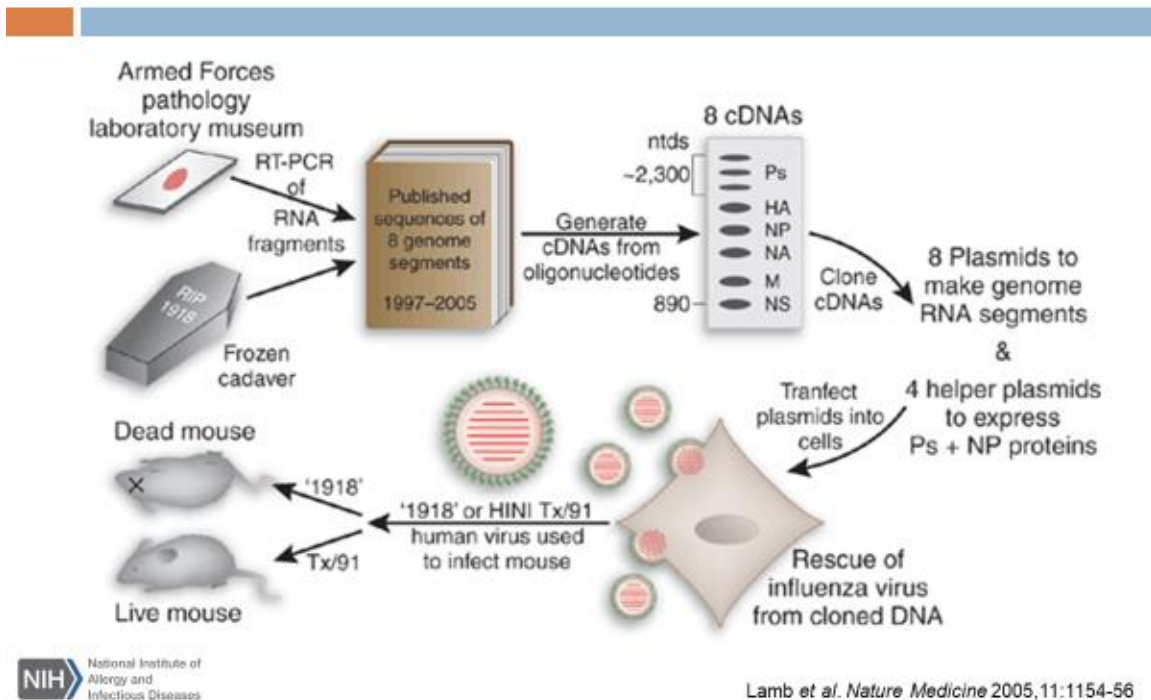


1918 Flu in Teller Mission, Alaska

- Teller Mission (now Brevig Mission) was an isolated Inuit village on the Seward Peninsula of Alaska
- Pandemic hit in November, carried by mail courier (traveling by sled dog)
- Local outbreak last 5 days
- 72 people killed (85% adult population), leaving dozens of orphans
- Johan Hultin performed an exhumation in 1951

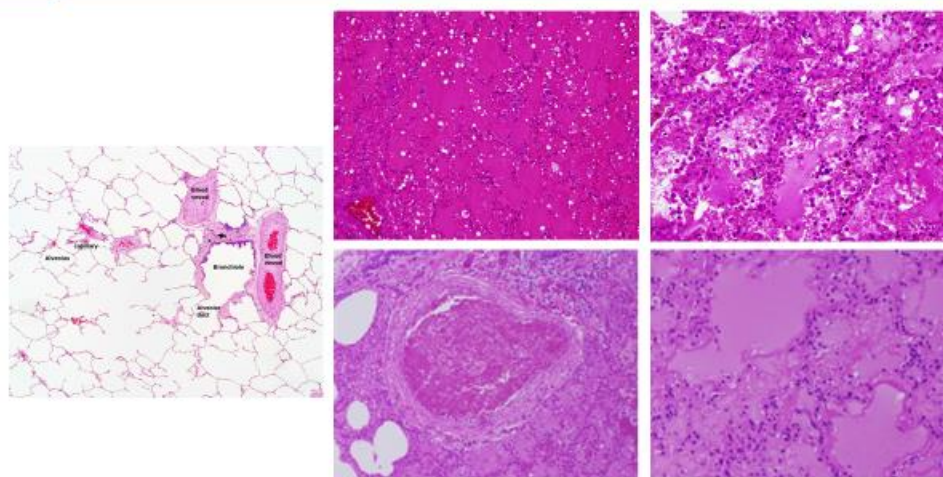


'Resurrecting' the 1918 Influenza Virus



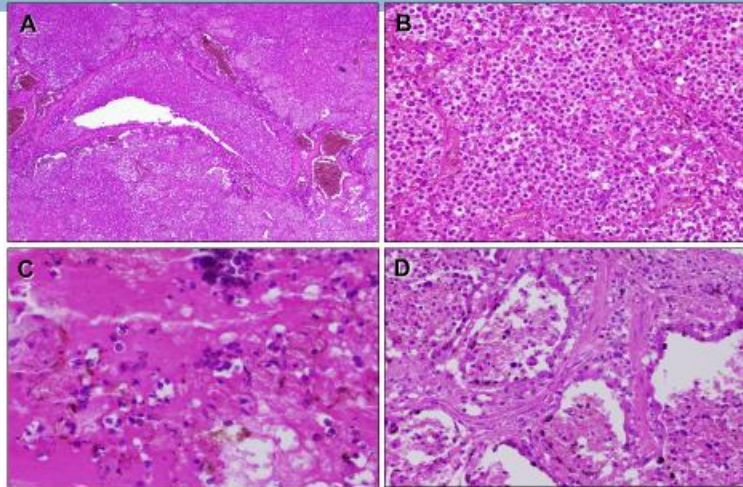
1918 Lung Pathology

Primary Viral Pneumonia: DAD with edema, alveolitis, thrombi



1918 Lung Pathology

Secondary Bacterial Pneumonia and Repair

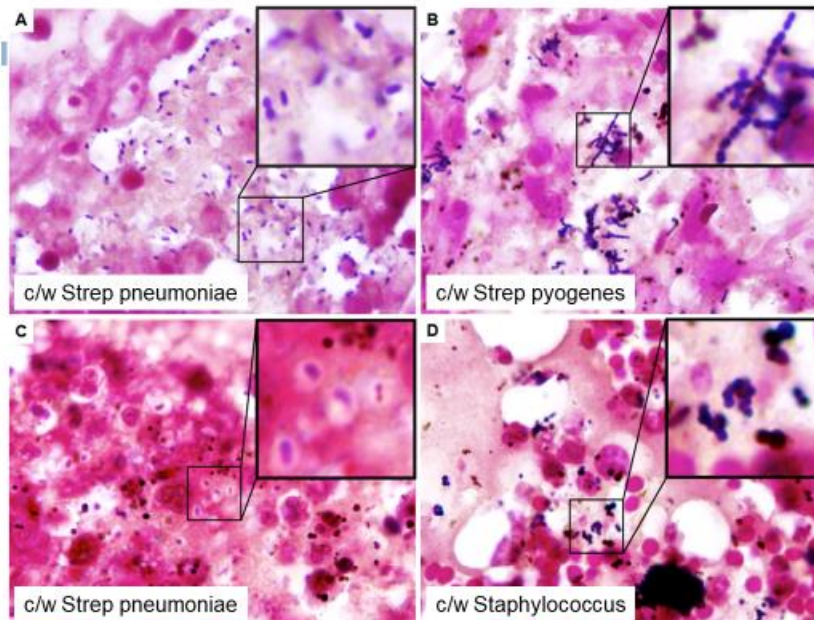


NIH National Institute of Allergy and Infectious Diseases

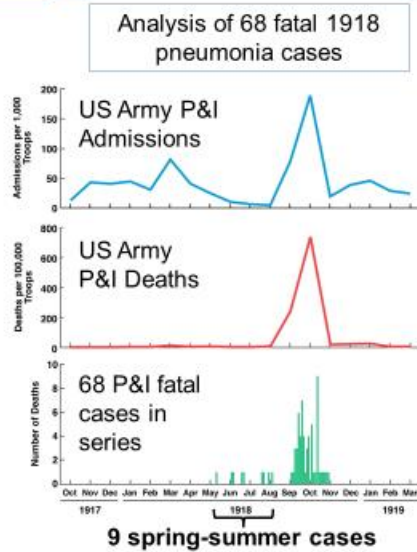
Taubenberger & Morens 2008 *Ann Rev Path* 3:499
Morens, Taubenberger & Fauci 2008 *JID* 198:962
Kuiken & Taubenberger 2008 *Vaccine* 26(S4):D59

1918 H1N1 Autopsy Study

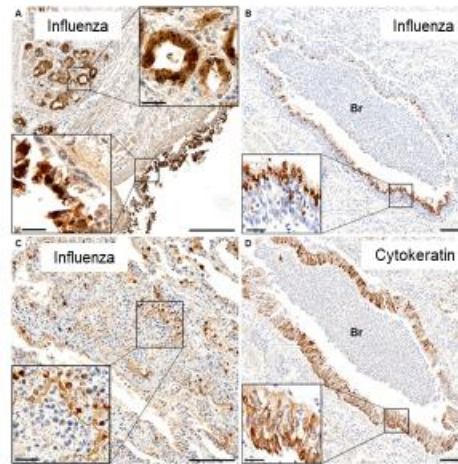
NIH National Institute of Allergy and Infectious Diseases



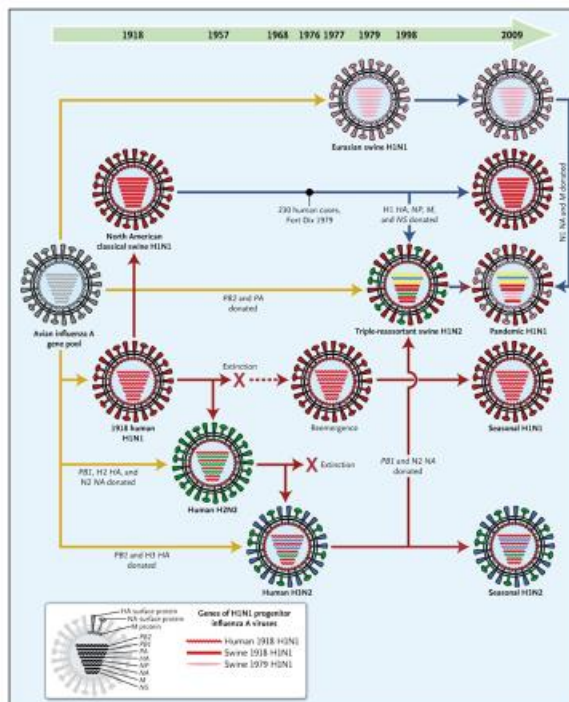
1918 H1N1 Autopsy Study



Viral Antigen Distribution



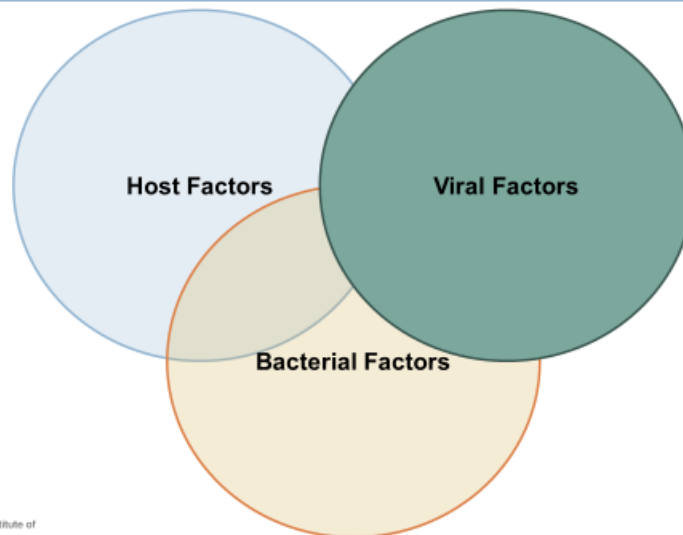
Sheng et al. 2011 PNAS 108:16416



- Since 1918 all pandemic and seasonal influenza viruses descended from the 1918 virus
- All influenza mortality in last 100 years ultimately due to one viral introduction
- Concept of 'pandemic era'

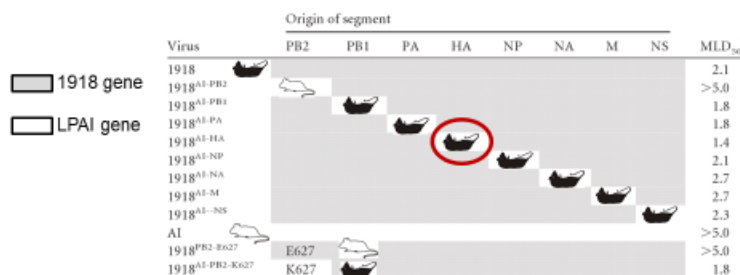
Morens, et al. 2009 NEJM. 361:225-229

Influenza Pathogenicity



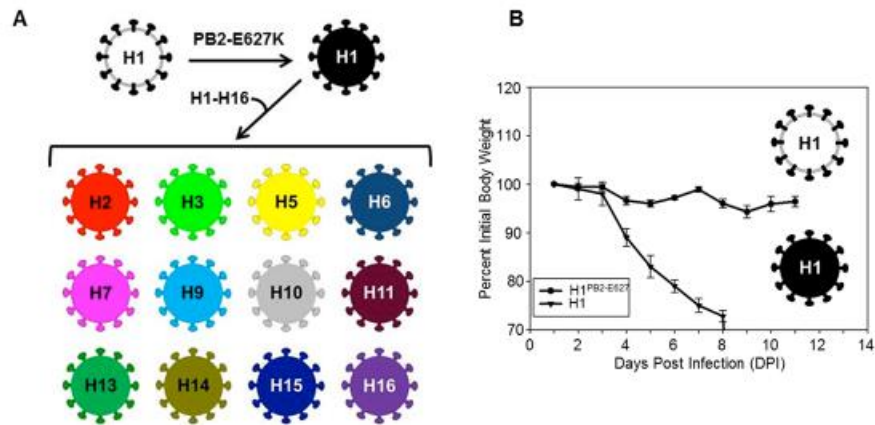
Mapping Virulence of the 1918 Influenza Virus - 1918-Avian Single Gene Reassortants

- 1918 HA is the main virulence factor in pathogenicity in mice, ferrets, NHP
- 1918 virus has a very avian-like genome
- Avian H1 HAs did not attenuate 1918 virus, and share virulence with 1918
- 1918 virus virulence therefore likely not pandemic virus-specific but inherited from a low path avian H1 ancestor

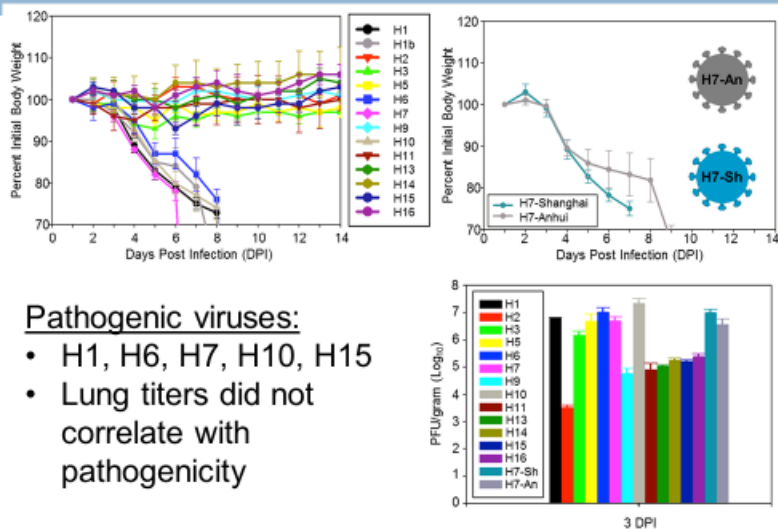


What about other low path avian influenza (LPAI) HA subtypes?

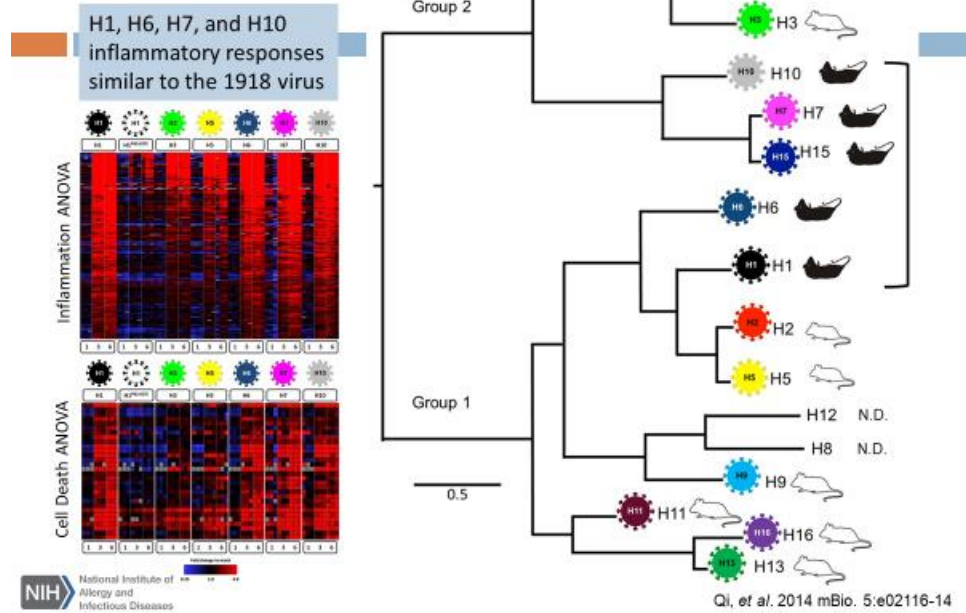
What about other LP Avian HA Subtypes?



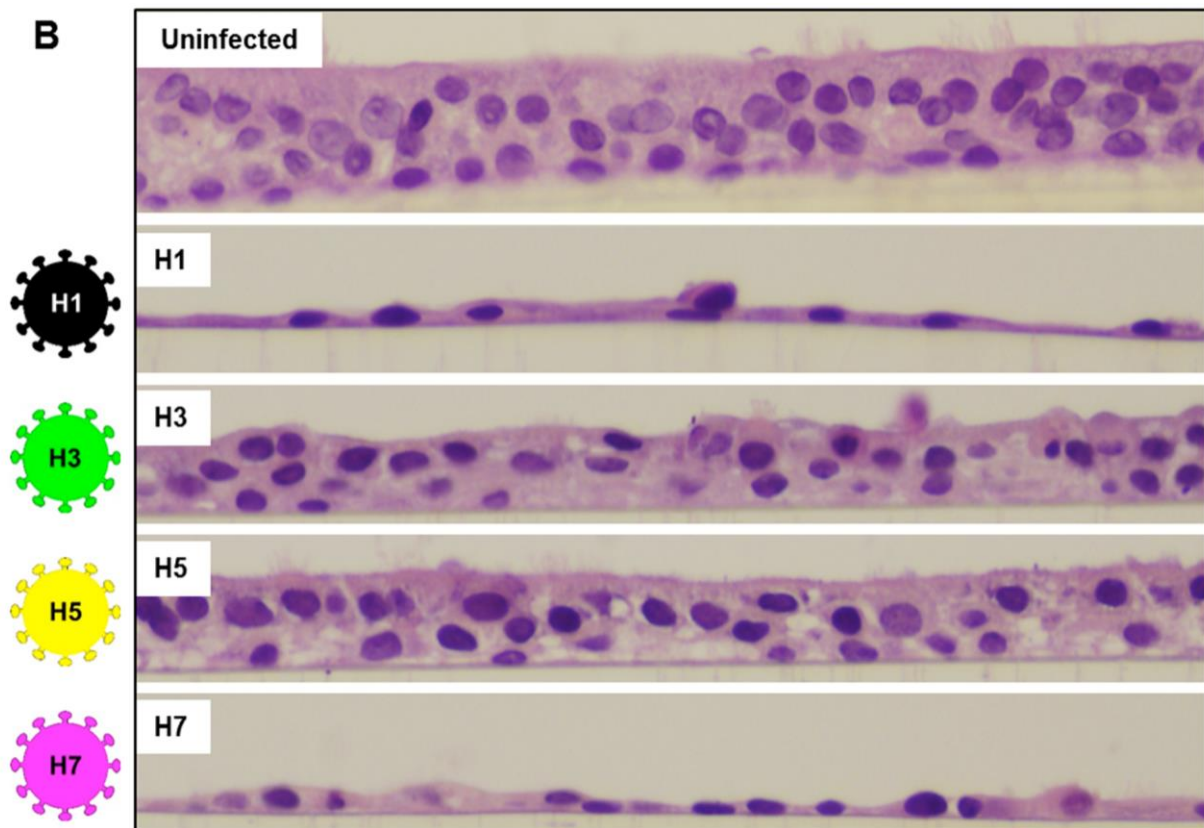
LP Avian Virus Mouse Pathogenicity



Structural/ Functional Relationship of Pathogenic Avian HA Subtypes?



B



China reports first human case of H10N8 avian flu

Filed Under: Avian Influenza (Bird Flu)
Jim Waples | Editorial Director | CIDRAP News | Dec 17, 2013

Share Tweet Email Print & PDF

A 73-year-old woman in Jiangxi province in China has died from an H10N8 avian flu infection, Hong Kong's Centre for Health Protection (CHP) said today, the first report of that strain infecting humans.



The woman, whose immune system was compromised, had an underlying illness and had visited a live animal market in Hong Kong in late October, the CHP said. She was 30, was diagnosed with pneumonia in May and has since been hospitalized.

Taiwan reports first human H6N1 infection

Filed Under: Avian Influenza (Bird Flu)
Lisa Schriming | Staff Writer | CIDRAP News | Jun 21, 2013

Share Tweet Email Print & PDF

Health authorities in Taiwan today announced the first known human infection with H6N1 avian influenza, in a 20-year-old woman who had pneumonia in May and has since been hospitalized.



The virus was identified at a time when officials were on heightened alert for H7N9. The woman's novel flu infection drew attention of Taiwanese health officials after the region had identified its first human case who had recently traveled to the area for work.

H7N9 hospitalizes 6 more in China

Filed Under: Avian Influenza (Bird Flu), H7N9 Avian Influenza
Lisa Schriming | Staff Writer | CIDRAP News | Jan 17, 2014

Share Tweet Email Print & PDF

Six H7N9 influenza infections were reported in two Chinese provinces and the city of Shanghai today, keeping the volume of new cases within striking distance of peak activity the country saw during the outbreak's first wave last spring.

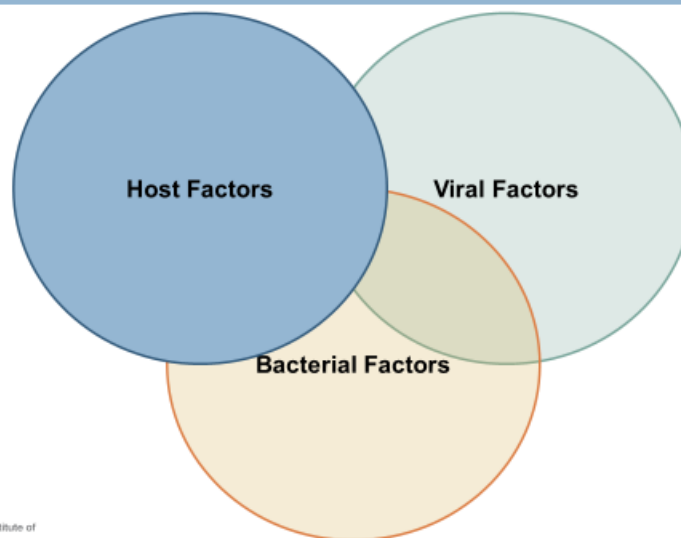
China's National Health and Family Planning Commission today addressed the quickly rising number of H7N9 cases, especially since the first of the year, according to a report today from Xinhua, the state news agency. It said 28 cases have been reported so far.



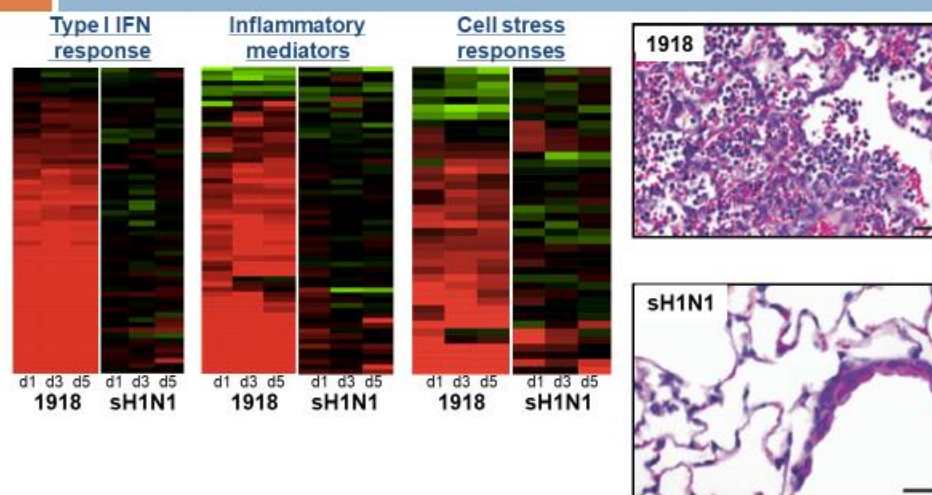
Luke Seill / iStockphoto

Recent AIVs causing severe zoonotic infections have included HA subtypes H6, H7, H10

Influenza Pathogenicity



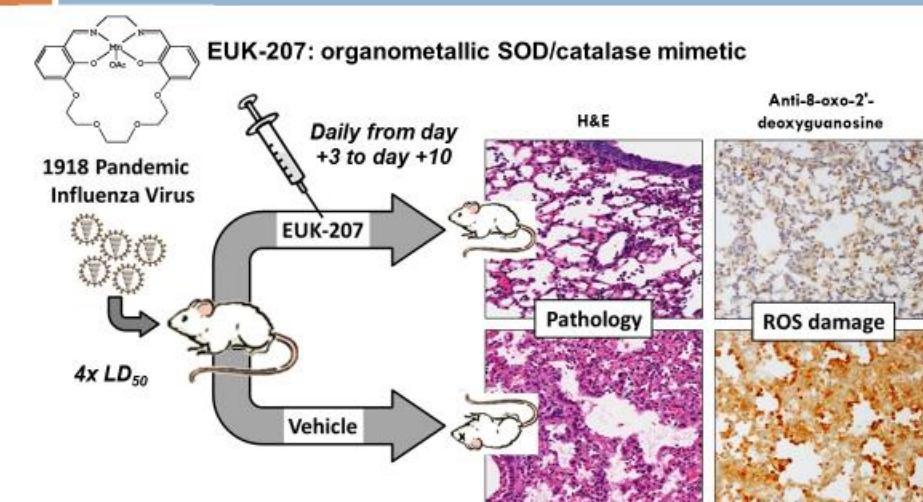
Upregulated Inflammatory Responses During 1918 Infection



NIH National Institute of Allergy and Infectious Diseases

Kash, et al. 2006 *Nature* 443:578

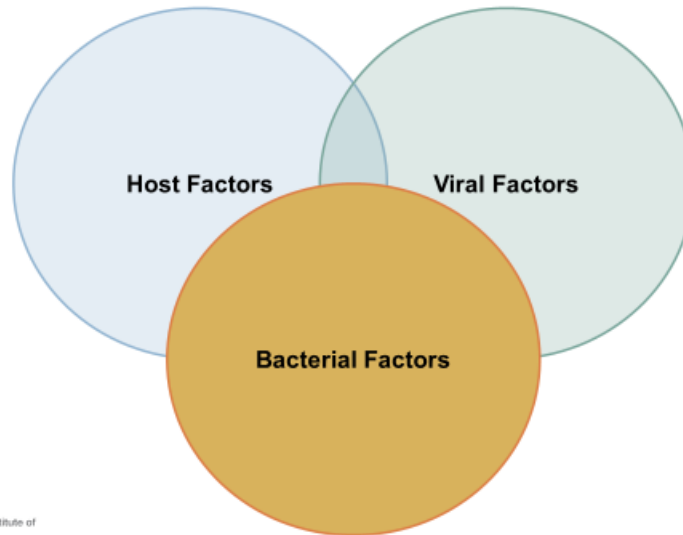
Treatment with a Catalytic ROS Scavenger Decreases Lung Damage and Increases Survival



NIH National Institute of Allergy and Infectious Diseases

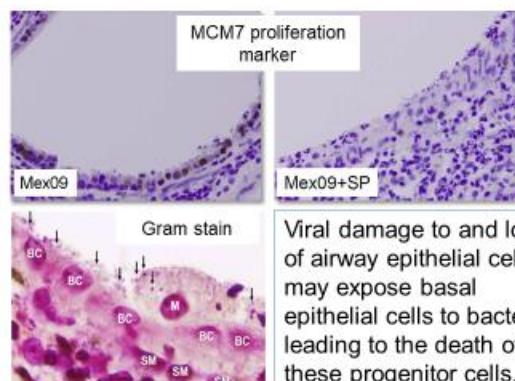
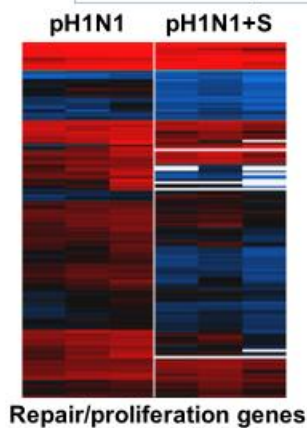
Kash et al. 2014 *FRBM* 67:235-47

Influenza Pathogenicity



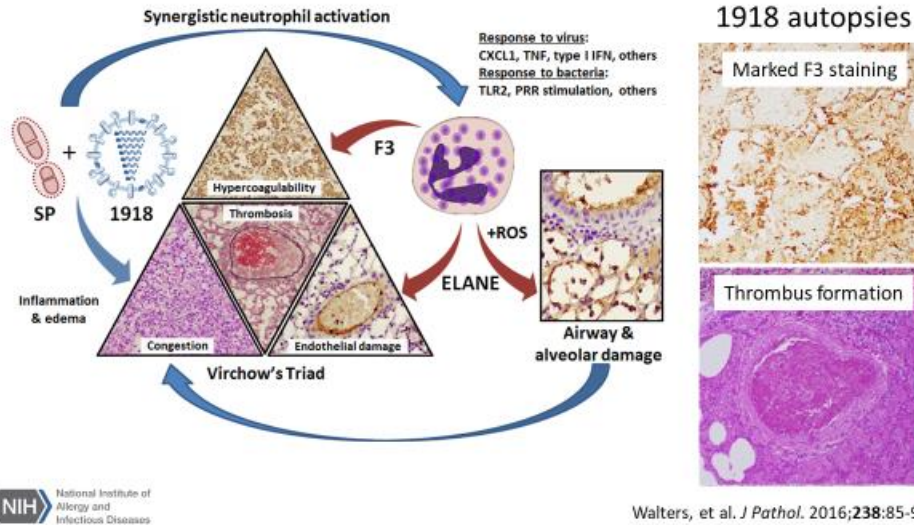
Viral & Bacterial Copathogenesis

pH1N1+SP infection associated with loss of basal cells and absence of re-proliferation and repair of airway epithelial cells

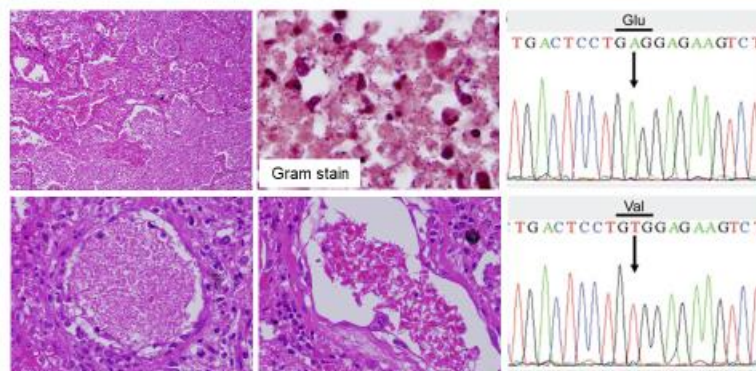


Viral damage to and loss of airway epithelial cells may expose basal cells to bacteria leading to the death of these progenitor cells, limiting re proliferation

Model of Inflammation and Pulmonary Thrombosis during 1918 & SP Co-Infection



1918 Pneumonia Case with Prominent Erythrocyte Sickling

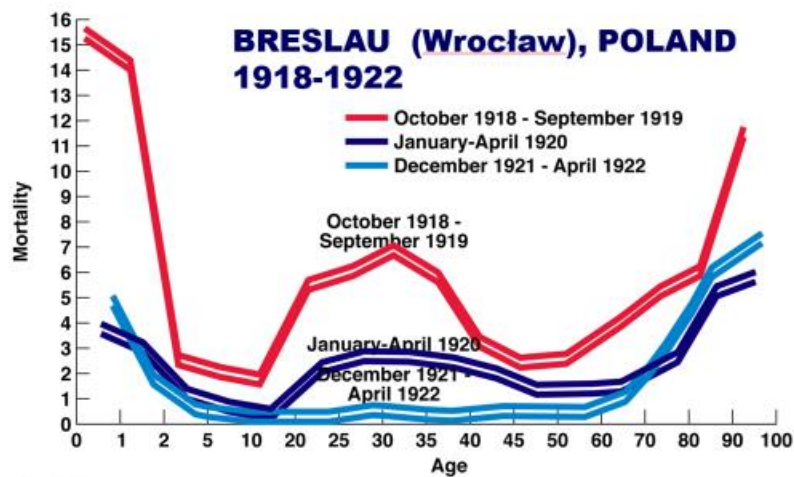


DNA sequence of the hemoglobin beta gene from the 1918 FFPE lung tissue showed **Glu6Val hemoglobin S mutation**, 4 years before term "sickle cell anemia" described

Outstanding 1918 Questions to be Addressed by Archaeovirology

- Where and when did the 1918 pandemic virus emerge?
 - ▣ Identification of pre-1918 human influenza pneumonia autopsy tissues
 - ▣ What subtype(s) of influenza circulated before 1918?
 - ▣ What was the nature of the 1889 pandemic virus?
 - ▣ Identification of spring-summer wave 1918 cases
- Studying early post-pandemic evolution of H1N1 viruses
 - ▣ Identification of post-1918 human influenza pneumonia autopsy tissues

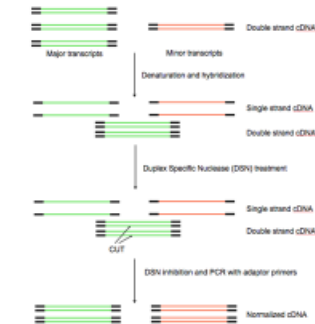
Flattening of the “W”



Next Generation Sequencing of 1918 cDNA

Development of novel enrichment protocol for FFPE high-throughput RNA sequencing

Duplex-Specific Nuclease (DSN) Normalization:



Sequenced DSN treated libraries made FFPE sample from 2009 and 1918 pandemics on Illumina GAIIx

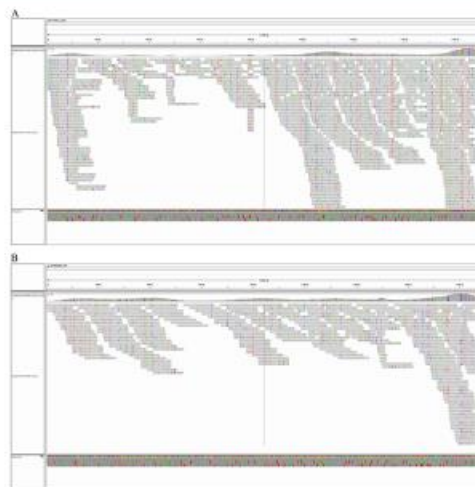
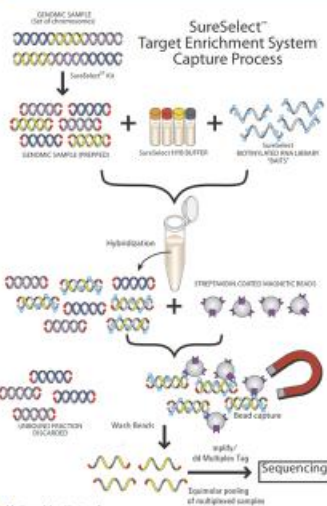


1918 sample library sequenced:

- Complete viral genome at 3000x coverage, including UTRs
- Host gene and bacterial genes well represented in library
- High bacterial representation of Streptococcaceae (Postmortem lung culture pos. for *Strep pneumoniae*) & Pasteurellaceae (*H. influenzae*)
- 1918 sample significantly enriched for genes related to host defense and cell death responses as compared to a 2009 pandemic autopsy sample

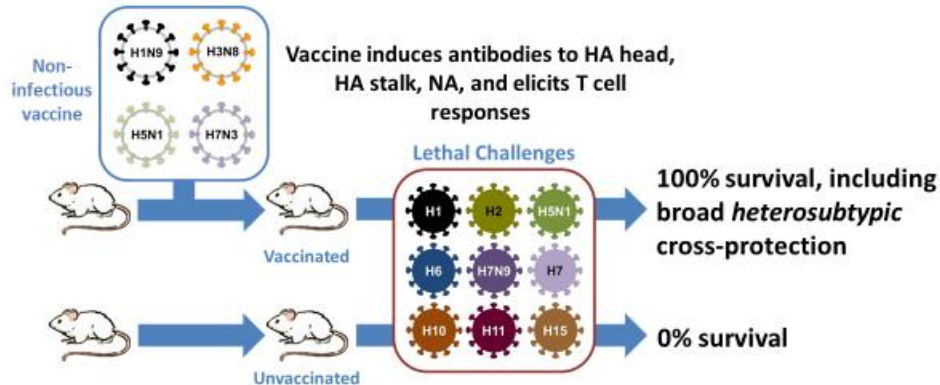
Xiao et al. 2013 J Pathol 229:535

Positive Enrichment Strategies for Influenza Archaeovirology



Xiao et al. 2018 Virology 524:182-191

Tetravalent Vaccine Provides Broad Protection



Park, et al. Unpublished - Confidential

Acknowledgements and Funding

Viral Pathogenesis and Evolution Section, Laboratory of Infectious Diseases, NIH/NIAID

Clinical Studies Unit

Matt Memoli, MD, MS
Rani Athota, PhD
Rachel Bean, MD
Adriana Cervantes-Medina
Jason Cleath
Lindsay Czajkowski, RN, NP
Kristina Edwards
Luca Giurgea
Alison Han, MD
Dana Neitzey
Susan Reed

NIH Collaborators

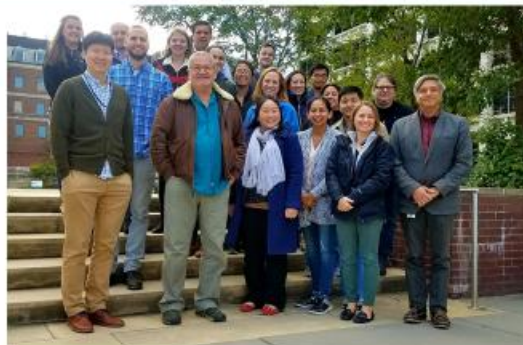
Richard Davey, NIAID DCR
Anthony Fauci, NIAID Director
Peter Jahrling, NIAID IRF
Rodney Levine, NHLBI LB
David Morens, NIAID, OD
Cecile Viboud, FIC

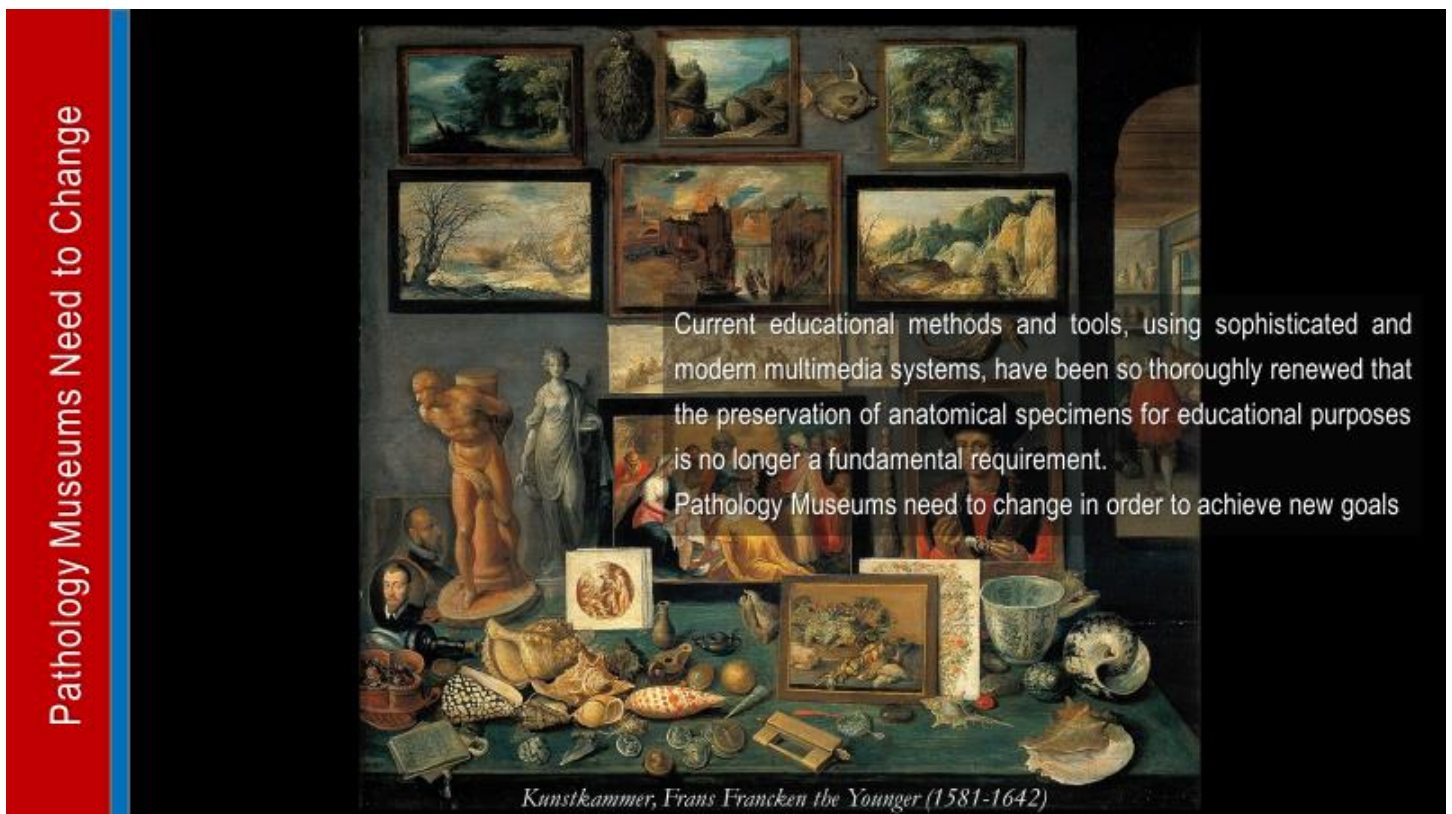
Pathogenesis Group

John Kash, PhD
Sharon Fong, BS, RLATG
Jae-Keun Park, DVM, PhD
Qi Li, PhD
Mitchell Ramuta
Luz Angela Rosas, MS
Zong-Mei Sheng, MD, PhD
Stephanie Williams
Yongli Xiao, PhD
Xingdong Yang, PhD
Kathie Walters, PhD (ISB)
Kelsey Scherler (ISB)

Non-NIH Collaborators

Felice D'Agnillo, FDA
Paul Digard, Univ. Edinburgh
Susan Doctrow, Boston Univ
Maryna Eichelberger, FDA
Kevan Hartshorn, Boston Univ
Emanuel Petricoin, GMU





Creation and Revamping



The creation as well as the revamping of a Museum should be based on the use of multimedia and interactive systems. These should include the possibility to offer to scholars collections of pictures of rare and peculiar cases together with historical-documentary information



Collecting and Safeguarding

Museums should be responsible for collecting and safeguarding anatomical specimens of particular interest from a historical and epidemiological point of view



Myocardial Hypertrophy

Pathology Museum of the University of Florence

Breast Cancer

Pathology Museum of the University of Florence

The History of Pathology Working Group Survey



The results will be used to improve our knowledge of history, location, institutional status, audiences and policies of Pathology Museums across Europe

Preservation of anatomical specimens and facilities is neither easy nor uncostly, and calls for patronage. In order for it to develop, a European Pathology Museum Network should aim to promote the study, access and divulgation of antique collections

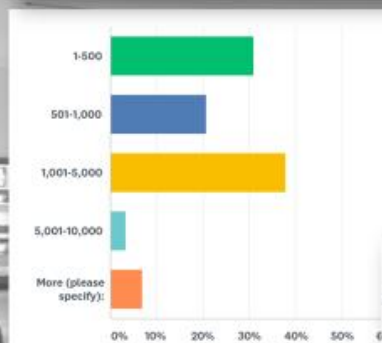


PRELIMINARY RESULTS

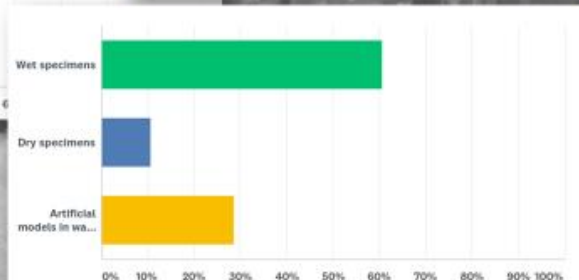


AUSTRALIA
AUSTRIA
AZERBAIJAN
CZECH REPUBLIC
GERMANY
HUNGARY
IRAQI KURDISTAN
ITALY
REPUBLIC OF MOLDOVA
THE NETHERLANDS
POLAND
PORTUGAL
ROMANIA
SPAIN
TURKEY
UKRAINE
UNITED KINGDOM

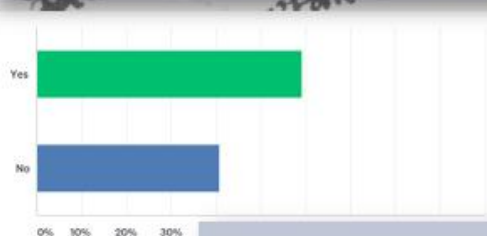
Q9 How many objects are there in the collections? Exclude inaccessible collections such as archives or bulk finds.



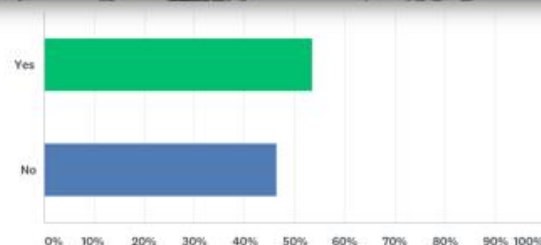
Q10 Genre of objects:



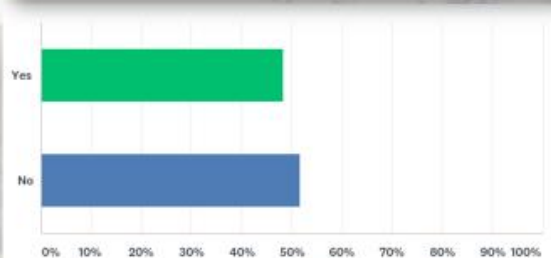
Q11 Are the collection specimens documented by original clinical records?



Q13 Is there a member of staff or an independent scholar conducting research on the collections?



Q14 Can the public access the stored collections?



ANSWER CHOICES

- ▼ Visible storage as part of normal displays
- ▼ Advertised visits for the public or for groups
- ▼ Pre-booked visits for groups
- ▼ By appointment – visitors can work with objects in store
- ▼ By appointment – objects are brought to visitors
- ▼ In a specially designed workspace for visitors

RESPONSES

33.33%

13.33%

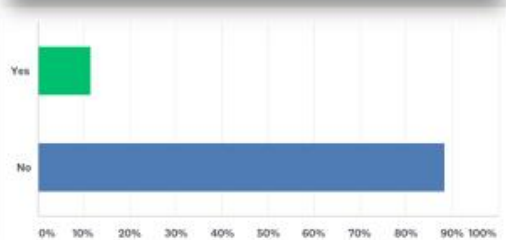
26.67%

13.33%

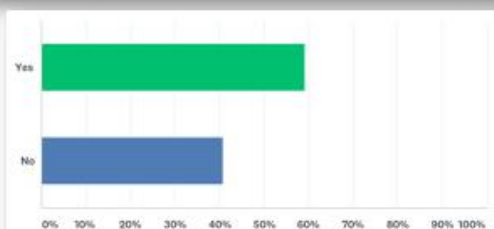
6.67%

6.67%

Q18 Are the collections listed online?



Q19 Do you have plans to implement collection information online?



On 15 June 1888, the German Emperor, Kaiser Friedrich III, died of laryngeal cancer. Three biopsies of his laryngeal lesion had been taken by the British laryngologist, Morel Mackenzie, in 1887 and diagnosed by Rudolf Virchow as "pachydermia verrucosa laryngis", confirming Mackenzie's assessment that the Kaiser's disease was benign. A fourth specimen coughed up by the patient was considered by Virchow to be nondiagnostic. A further specimen expectorated by the patient 3 months before his death was diagnosed as carcinoma by Wilhelm Waldeyer.

The autopsy revealed squamous carcinoma in the larynx with a cervical lymph node metastasis. The discrepancies between the initial diagnoses and the final outcome of the Kaiser's disease gave rise to a never-ending medical controversy. Our investigations on this historical case were limited to the official German documents and publications and their English translations and to subsequent literature sources of the time, after having received confirmation that the histological slides and Virchow's original reports had been lost. Based on current surgical pathology knowledge, we propose that the tumour that challenged the diagnostic skills of the founder of pathology was hybrid verrucous carcinoma (HVC), an extremely rare, metastasizing variant of verrucous carcinoma (VC) composed of pure VC mixed with clusters of conventional squamous cell carcinoma. As we see it now, Virchow was therefore not totally wrong. Our retrospective evaluation suggests that Virchow's detailed description of the Kaiser's cancer preceded the paper that contributed to the full understanding of HVC of the larynx by 110 years

The Kaiser's cancer revisited: was Virchow totally wrong?

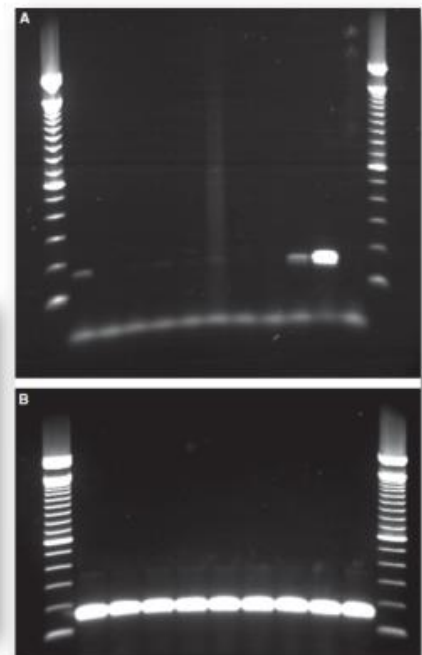
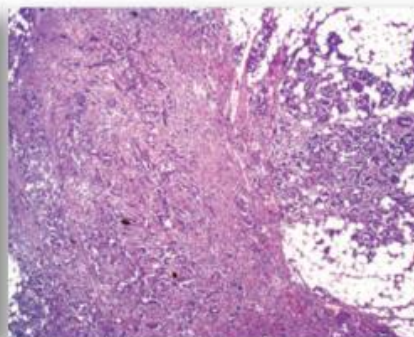
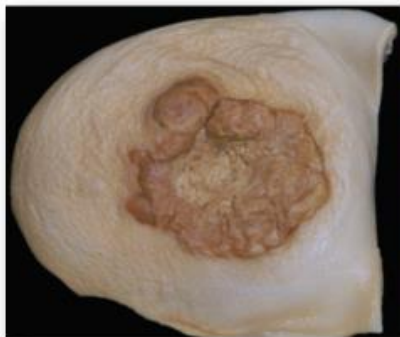
Antonio Cardesa • Nina Zidar • Lucia Alos •
Alfonso Nadal • Nina Gale • Günter Klöppel



Virchows Arch 2011;458:649-57

KRAS mutations in historical tumour specimens of the Viennese Museum of pathological anatomy

Sedivy R, Kalipciyan M, Patzak B, Mader RM

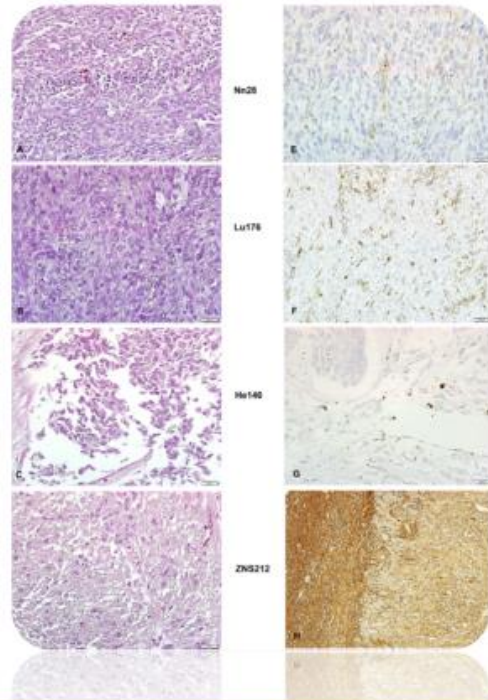
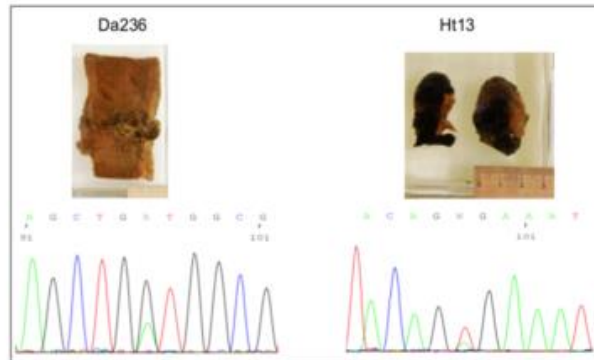


Histopathology 2011;58:792-807

RESEARCH ARTICLE

Molecular and Immunohistochemical Characterization of Historical Long-Term Preserved Fixed Tissues from Different Human Organs

Maja Hühns*, Paula Röpenack, Andreas Erbersdobler



PLoS One 2015;10:e0135297

Museum of the Royal College of Surgeons,
Hunterian Museum, London, United Kingdom



Pathology Museums at St Bartholomew's Hospital,
London, United Kingdom



The Gordon Museum of Pathology,
King's College, London, United Kingdom



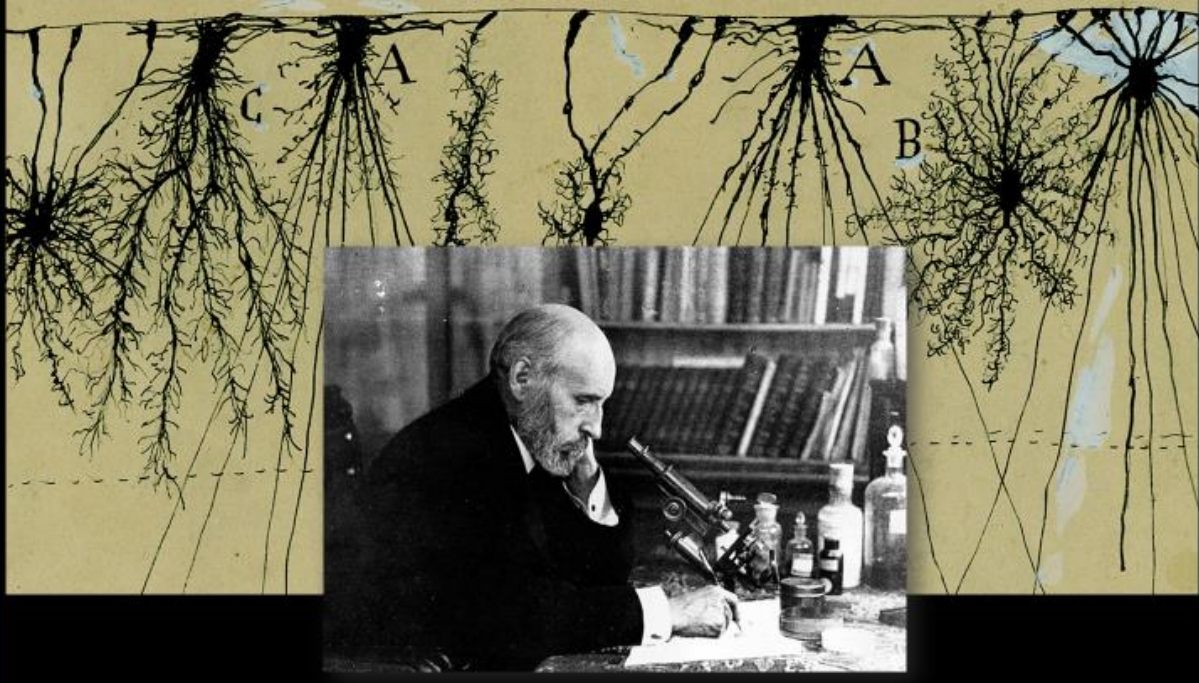
The Federal Pathologic-Anatomical Museum,
Vienna, Austria



The Medical Historical Museum
in the Charité Hospital, Berlin, Germany



The Museum in the Cajal Institute,
Madrid, Spain



The Pathology Museum of the University of Florence,
Florence, Italy





"Norwegian scabies" in a wax model at the Pathology Museum of the University of Florence

Nesi G, Santi R, Sestini S, De Giorgi V, Taddei GL

The reproduction in wax of anatomic specimens is considered a glorious Italian tradition, particularly in Florence. Indeed, the work of wax masters which was cultivated for ex-votos and statuary models, together with the development of anatomic studies under the guidance of Paolo Mascagni at the end of the eighteenth century, gave origin to several collections of waxes, among which the collection of the Museum of Anatomic Pathology holds undoubted interest. The so-called "leper", a full-scale reproduction by Luigi Calamai of a man affected with Norwegian scabies, a rare skin disease, is considered the symbol of the Museum

*«Impetigine scabida complicata da rogna»
Wax Master: Luigi Calamai (1796-1851)*

Med Secoli 2008;1:339-49



"N. Ordine 1881 Questo preparato eseguito dal Sig. Egisto Tortori sotto la direzione del prof. Augusto Michelacci è il ritratto fedele di una giovane di 25 anni che fu ricoverata nell'ospedale delle malattie cutanee di Firenze nell'anno 1865. Essa era da molti anni ammalata delle scrofulidi che sono rappresentate nel preparato"

Text from the Original Catalogue of the Museum

*"Scrofulide tubercolare verrucose e flemmonosa della faccia",
A Case of Cutaneous Tuberculosis,
Wax Master: Egisto Tortori (1829-1893)*



*"Degenerazione cornea della cute del torace, del collo e del viso",
A Case of "Darier's Disease"
Anonymous Wax Master*



The execution of Lady Jane Grey, Paul Delaroche (1797-1856)

Art and the teaching of pathological anatomy at the University of Florence since the nineteenth century

Gabriella Nesi • Raffaella Santi • Gian Luigi Taddei

In 1840, the University of Florence was the first university in Italy to confer a Professorship in Pathological Anatomy. The origin of this teaching post is linked to the history of the Pathology Museum founded in 1824 by the Florentine *Accademia Medico-Fisica*. The Museum houses anatomical specimens and wax works depicting pathological conditions in the nineteenth century. Both the need to instruct medical students in pathology without resorting to corpse dissection and the difficulty of the lengthy preservation of anatomical preparations made it necessary to produce life-sized wax duplicates of diseased parts of the body. Through the history of the Pathology Museum of Florence, we describe how pathology developed and, in particular, how pathologists from a literary circle laid the foundations of modern surgical pathology in Italy. Museum visits for the medical students guided by lecturers are still today a component of the course of Pathological Anatomy

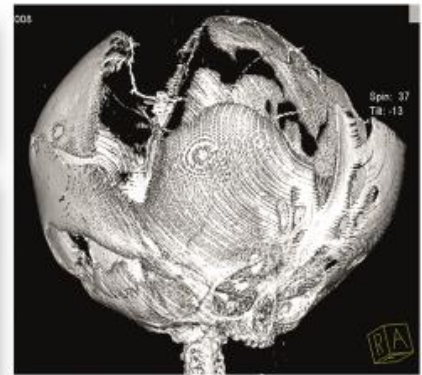


*Univentricular Heart in a Newborn Infant
Wax Master: Egisto Tortori (1829-1893)*

The antiquity of hydrocephalus: the first full palaeo-neuropathological description

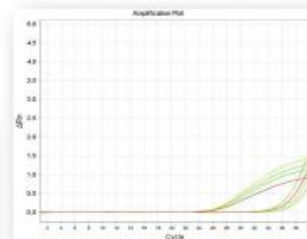
Raffaella Santi¹ • Piera Rizzolo² • Michele Pietragalla³ • Virginia Valentini² • Veronica Zelli² • Francesco Maria Galassi⁴ • Laura Ottini² • Gabriella Nesi¹

cella fabbrica idrocefalica e signor Dr. Capocchi che pre all'ospedale. L'idrocefalo in corallo era disteso a membra libbre di fluido e le relazioni acque e quelle di tutto il corpo. La testa voluminosa e difera mostra il preparato in cera, e osatissimamente rappresento misurata in diversi punti della circonferenza ha dato quante circonferenza presa di centro frontali, parietali ed occipitali, pollici, altra circonferenza dal monte al vertice e di qui a vertebrale lunga 34 pollici, dalla sommità di un padiglio quello dall'altro lunga 23 pollici, altra misura presa dalla radice mezzo agli angeli interni degli

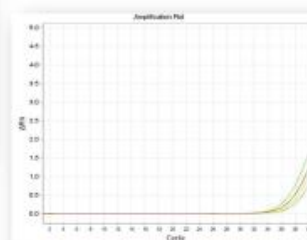


Neurol Sci 2018 [Epub ahead of print]

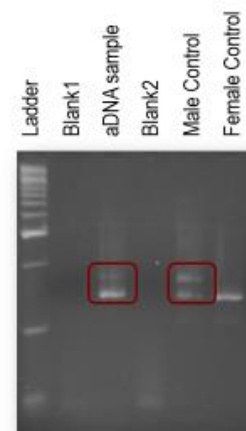
Ancient DNA (aDNA) Extraction



Standard curve

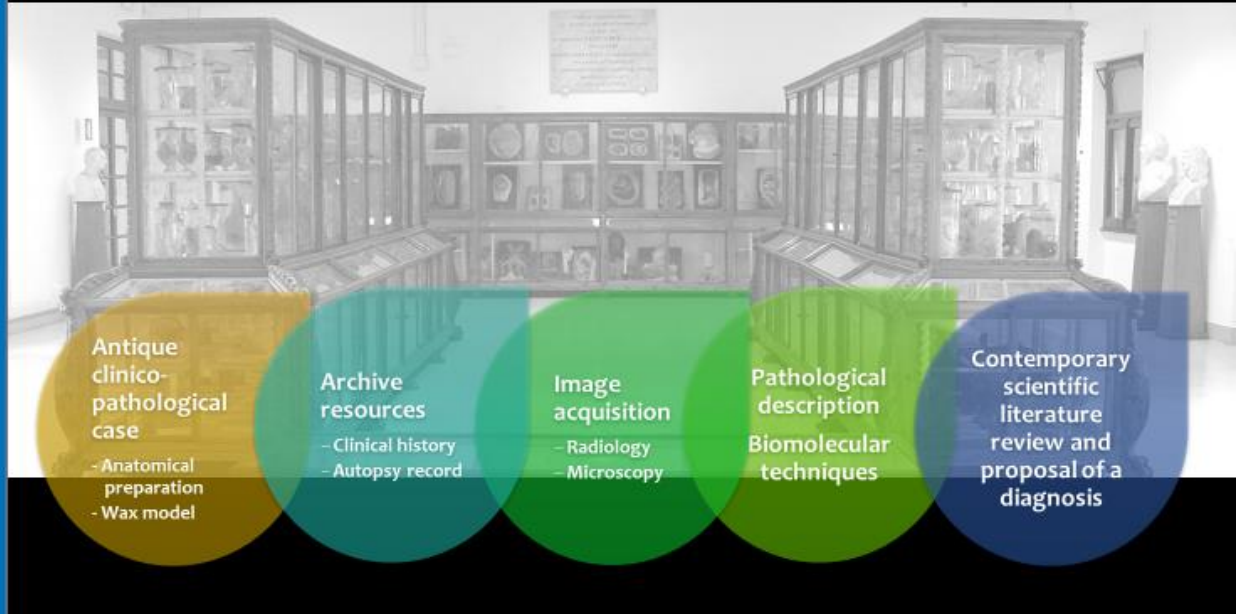


aDNA



Neurol Sci 2018 [Epub ahead of print]

Flow-chart for Antique Clinico-Pathological Cases



History of Pathology Working Group of the European Society of Pathology (ESP)
**6th INTERNATIONAL ANNUAL MEETING ON
 HISTORY OF PATHOLOGY AND MEDICINE**
 Vienna, 30 May - 1 June 2019

**Roland Sedivy
 Eduard Winter**
Local Organizers

Invited Talks on the Topic
Free Papers

Abstracts should be sent to:
 Prof. Roland Sedivy
roland.sedivy@univie.ac.at
 or to the Chairperson of the
 Working Group
 Prof. Gabriela Nosi
gabriela.nosi@univie.ac.at

To encourage interest in the
 historical aspects of Medicine, the
 History of Pathology Working
 Group proposes grants and waived
 registration for a limited number
 of active participants (635 total).
 Application for a grant together
 with the abstract of the proposed
 presentation should be sent to the
 Chairperson of the Working Group,
 Prof. Gabriela Nosi:
gabriela.nosi@univie.ac.at
 by April 1, 2019

**The Roots of the
 Vienna Medical School:
 Influence of Neighbouring
 Countries and Sciences**

Venue:
 Pathological-Anatomical Collection of the Museum
 of Natural History, Naturhistorisches Museum, Vienna

Special Events:

- Microscopy under "antique" microscopes
- Night tour of the Museum of Natural History with get-together on the roof of the museum and view over the famous "Ringstraße"
- Visit to the "Fool's Tower": the Federal Pathological-Anatomical Museum
- Tour of the Museum of Forensic Sciences

The Future of Our Past: A Call to Action to Preserve our Medical Heritage

**Susan C. Lester, MD PhD
Julie Lemmon MD**

UNLOCKING
YOUR INGENUITY

USCAP

#IAMUSCAP
#USCAP2019

SOS

Save our Specimens

UNLOCKING
YOUR INGENUITY

USCAP

#IAMUSCAP
#USCAP2019

Outlook for existing collections

- Funding at risk
- Dedicated space difficult to maintain
- Underappreciated and underutilized

What can we do?

Identify

Support

Brainstorm

Join

Remaining Collections in United States

Collection	Location	Contact
Warren Anatomical Museum – Harvard Medical School	Boston, MA	Dominic Hall MA ALM, Curator
The Mutter Museum	Philadelphia, PA	Anna Dhody, Curator
The National Museum of Health and Medicine	Silver Spring, MD	Brian Spatola, Curator
Mayo Clinic	Rochester, MN	Joseph J. Maleszewski, Director of Tumor Registry Gary L. Keeney, Chairman of Pathology
Dr. Harvey Cushing Brain Collection – Yale University	New Haven, CT	Melissa Grafe, Curator
Old Red Medical Museum – University of Texas	Galveston, TX	Paula Summerly, Research Project Manager
Gordon R. Hennigar Pathology Museum – Medical University of South Carolina	Charleston, SC	Evelyn T. Bruner, MD
University of Maryland	Baltimore, MD	Adam C. Puche
Indiana Medical History Museum	Indianapolis, IN	Sarah M. Halter, Executive Director
Monroe Moosenick Collection – Transylvania University	Lexington, KY	Jamie Day, PhD

Remaining Collections in Canada

Collection	Location	Contact
Maude Abbott Museum – McGill University	Montreal, QC	Richard Fraser, MD- Director
Boyd Pathology Museum – Manitoba Medical College	Winnipeg, MB	Gabor Fischer
William Boyd Collection – University of British Columbia	Vancouver, BC	Helen Dyck, Curator

IDENTIFY

If you know of other existing collections, let us know –

Julie.Lemmon@gmail.com

UNLOCKING
YOUR INGENUITY

USCAP

#IAMUSCAP
#USCAP2019

SUPPORT

Advocate – If you are associated with an institution with a historical tissue collection, take opportunities to show your support.

Visit – Many collections are open to the public.

Funding – Consider opportunities to help collections catalog and preserve their holdings.

UNLOCKING
YOUR INGENUITY

USCAP

#IAMUSCAP
#USCAP2019

BRAINSTORM

Are there other interesting research projects that could be done with historical specimens?

Are there researchers who may not be aware of existing specimens?

Are there are other ways to help preserve these collections?

UNLOCKING
YOUR INGENUITY

USCAP

#IAMUSCAP
#USCAP2019

JOIN

- Coalition of curators, researchers, pathologists
 - North America
 - Europe- European Society of Pathology History of Pathology Working Group
 - All other locations- similar groups??
- Website to connect and serve as resource
- Collection description, scope, and point of contact
- Resource for research scientists
- Increase visibility
- Send contact information to Julie.Lemmon@gmail.com

UNLOCKING
YOUR INGENUITY

USCAP

#IAMUSCAP
#USCAP2019