A Very Brief History of Pediatrics... and Strategies for Teaching on the Wards

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(Adapted from PAS Workshop, Boston, April 30, 2012)
Conflict of Interest Disclosure

• I have no conflict of interest (COI) to disclose, pertinent to this presentation
The Challenges

• We (in this room) like to teach history
• Our trainees like learning history, but don’t know it yet
• History is not on the Boards
• There is less and less time to teach
• And when there is time, we are supposed to focus on “evidence”
What you need to teach history

• You don’t need:
  – Powerpoint
  – A lot of time
  – Definitely not a PhD!!!

• But you do need:
  – Passion
  – A very basic grasp of the history of pediatrics
  – And some clever strategies
Outline

• Framework: The History of American Pediatrics in 20 minutes
  – With references in handout

• Sample Strategies
  – Diseases
  – Therapies
  – Mishaps
  – Professionalism
American Pediatric History: A “Developmental” Scheme

- Prenatal Period: Before 1850s
- Infancy: 1850s-1880s
- Childhood: 1890s-1920s
- Adolescence: 1920s-40s
- Emerging Adulthood: 1950s-80s
- Maturation: Since 1970s
Prenatal Period (Before 1850)

- Pediatricians did not yet exist!
- Mothers responsible for much health care
- Some doctors lectured on diseases of childhood
- Common diseases: diphtheria, measles, scarlet fever, malaria
The “Infancy” of Pediatrics: 1850-1890

• Urbanization leads to high infant mortality
  – Sanitation
  – Decline of breast feeding and rise of impure milk
• Crowded cities make this mortality visible
• Medical “pioneers” begin to focus on children
Abraham Jacobi

• Socialist physician,
• Immigrant from Germany
• Founded clinic in New York to treat poor free of charge
• Champion of social reform and crusader for clean milk
“Childhood” Years: 1890-1920s

• This period is bound by founding of two pediatric societies:
  – American Pediatric Society (1887)
  – American Academy of Pediatrics (1931)

• During these years, two professional visions of American pediatrics were contested....
Vision 1: Hospital Consultants

- L. Emmett Hold, NY Babies Hospital
- Author of classic pediatric
- Small profession of hospital-based consultants
- Exemplified by American Pediatric Society (APS)
Vision 2: Preventive Pediatrics

- Developed by women physicians excluded from APS
- Example: New York’s S. S. Josephine Baker
- Invented infant public health
  - Visiting home nurses
  - Infant welfare stations providing well child care
The Infant Mortality Campaign: 1900-1920

• Main cause: gastroenteritis
• APS physicians promoted milk stations in American cities, to provide pure or pasteurized milk
• This strategy failed in practice
From Milk Stations to Well Child Care

- Milk stations were transformed into infant welfare stations providing maternal education
- Very successful... and attracted many more doctors to pediatrics (men and women)
Political Battle: 1920s

• The new generation of “preventive pediatricians” tried to work within AMA

• But their support of a modest federal infant welfare measure (the Sheppard Towner Act) led to condemnation by the AMA’s House of Delegates in 1922

• Eventually these disaffected pediatricians formed the American Academy of Pediatrics in 1931
“Adolescent” Period: 1920s-50s

- A transitional period
- Medical schools embrace laboratory science (though not yet clinical/statistical science)
- Insulin, sulfa drugs, antibiotics, polio vaccine
- Decline of mortality from infectious disease and rise of chronic diseases
- Breakthroughs and misadventures
“Early Adulthood” Years (1950s-1980s)

- Great expansion of research—propelled by NIH after WWII
- Proliferation of subspecialties
  - New “age based” specialties: neonatology and adolescent medicine
- Resurgence of general pediatrics to embrace “new morbidity” (psychosocial, developmental, etc)
Pediatrics since the 1980s: Maturity?

• Diversification of workforce
• “High tech” medicine associated with children’s hospitals:
  – Intensive care, bone marrow transplantation, oncology, cardiac surgery
• Evidence-based medicine
• Electronic medical records
5- Minute Teaching Strategies

Diseases
Turning Points
Setbacks and Errors
Ethics and Professionalism
Diseases

• In pediatrics, students need to know about diseases they will never see!
  – Diseases prevented by vaccination
  – Diseases prevented by screening or early identification
  – Diseases we see only as positive laboratory tests (ie, congenital syphilis)
Exercise: Historical Textbook Consultation

• Send a student to the library to look up how a disease used to present....

• Handout provides list of textbooks; many available in med center libraries

• You can learn a lot from an old textbook: vivid descriptions of natural history; how diseases and treatment change over time
Example: Congenital Syphilis
Example: Rickets

- Early signs: enlarged head with wide anterior fontanelle
- Beading of ribs
- Enlargement of epiphyses of wrists and ankles
Disease in History: More “Advanced” Points

• A disease’s “natural history” changes with time and place
  – Biology: microbes themselves can change
  – Social context: poverty, nutrition; at what point do parents bring child to doctor?
  – Professional: Specialists see different population from primary care

• Diseases don’t just “exist” – they must be defined
  – And definitions matter!
Turning Points
Innovation

• Physicians are often fascinated by priority disputes: who was “first” to make a discovery?

• The more relevant questions:
  – Why did one person think of an idea that their peers did not?
  – Was this a matter of individual genius? Serendipity? Some other factor about their context?
Who Discovered Penicillin?

- Alexander Fleming in 1928
- Story of mold contaminating the agar plate
- Hard to produce, unstable
- Fleming moved on...
Howard Florey:
The Rediscovery of Penicillin

• Headed team at Oxford during WWII
• Found Fleming’s paper
• Addressed production problems
• First human treated 1941
• Available for war 1943-44
Take Home Point:

Penicillin was an old idea that was rediscovered. Through a historical literature search!
Treatments: More Advanced Points

• What is the meaning of “breakthroughs”? How often do real breakthroughs happen?
• As a culture, are we (Americans) especially prone to think we are always on the verge of a new breakthrough, a new “medical miracle”?
Insulin: 1922

- Discovered by Canadian GP Frederick Banting and student Charles Best 1921-22
- Banting’s idea: ligate dog pancreas to extract insulin
- Bitter dispute: Nobel prize given to Banting and JJR Macleod of Toronto
- Captured public imagination: the “resurrection” drug
The Other Meanings of Insulin

• In retrospect, insulin did not “cure” diabetes; rather, it transformed it into a chronic illness
• See Chris Feudtner’s book, *Bittersweet*
• Ask students to think of other examples
Setbacks
Why discuss stories where things went wrong?

- We don’t want students just to learn “public relations history” that just accentuates the positive
- Stories of tragedy help build character traits in students such as caution and skepticism....
- Many such stories come from the “adolescent period” of pediatrics, 1920s through 50s, when scientific hopes exceeded reality
Examples

- Oxygen and prematurity (1940s-50s)
- Thymus irradiation (1930s-40s)
- The Cutter Incident (contaminated polio vaccine 1956)
- Thalidomide (early 1960s)
Ethics and Professionalism
Using History to Teach Professionalism

• Ask: does pediatrics have an distinct values as a specialty?
• Emphasis on prevention and education
• And on professional duties to the poor
• Jacobi’s example
Another Example: Women and Pediatrics

• Most learners assume entry of women into pediatric profession is a recent phenomenon
• Many are fascinated to learn that women played an integral role in the founding of pediatrics
Take Home Point

• A strong social justice thread runs through the heart of pediatrics... integral to our professional identify
Ethics

• Historical examples can get students to think about research ethics, and the status of children

• Example:
  – Fernald school irradiation studies
  – Fernald School Irradiated Food Studies
Pediatricians and Infant formula

- Another cautionary tale: the intertwined story of the pediatric profession and formula companies
- Nice parable to discuss conflict of interests
Conclusion

• History can enliven teaching and make it more effective
• Involve the students
• Make it relevant