

# **Radiology Education: Past, Present & Future**

# 1950's-1960's

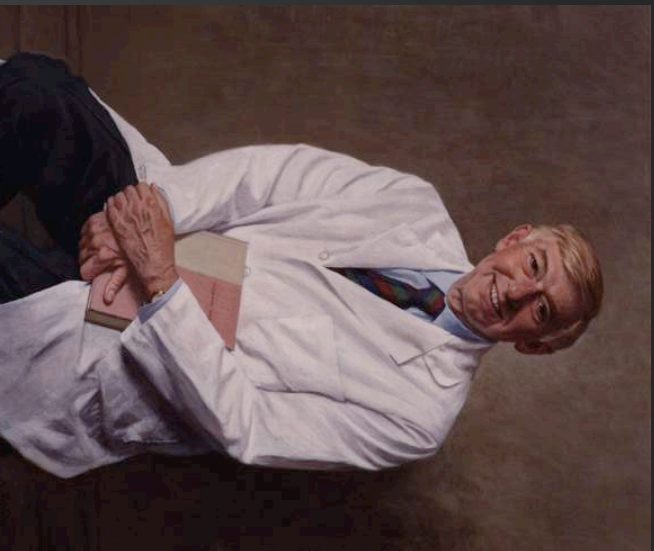


EBD Neuhauser

1 talk/1 audience/5 lbs



# 1970's-1990's



JA Kirkpatrick



2-5 talks/1 audience/2 lbs.



# 1990's-2000's



GA Taylor

20 talks/ 1 audience/ 20  
gms + 2.4 lbs (MAC)



2 TB flash drive



# 2016+ Live streaming



Google Hangouts

Messaging, Voice and Video Calls



- ADOBE CONNECT



12 months: 13 talks: 13,658 visits (since 4/15)

1950's-2000's

Goodle



Caffey 6 lbs (Amazon)

\$315

# Trends

- Local Audience → Widespread, Distant Audience
- One-time → Enduring
- Hard-copy → Electronic
- One-size fits all → Customizable
- Long-interval updates → Short interval (continuous) updates



## **2016+: Where Should we go??**

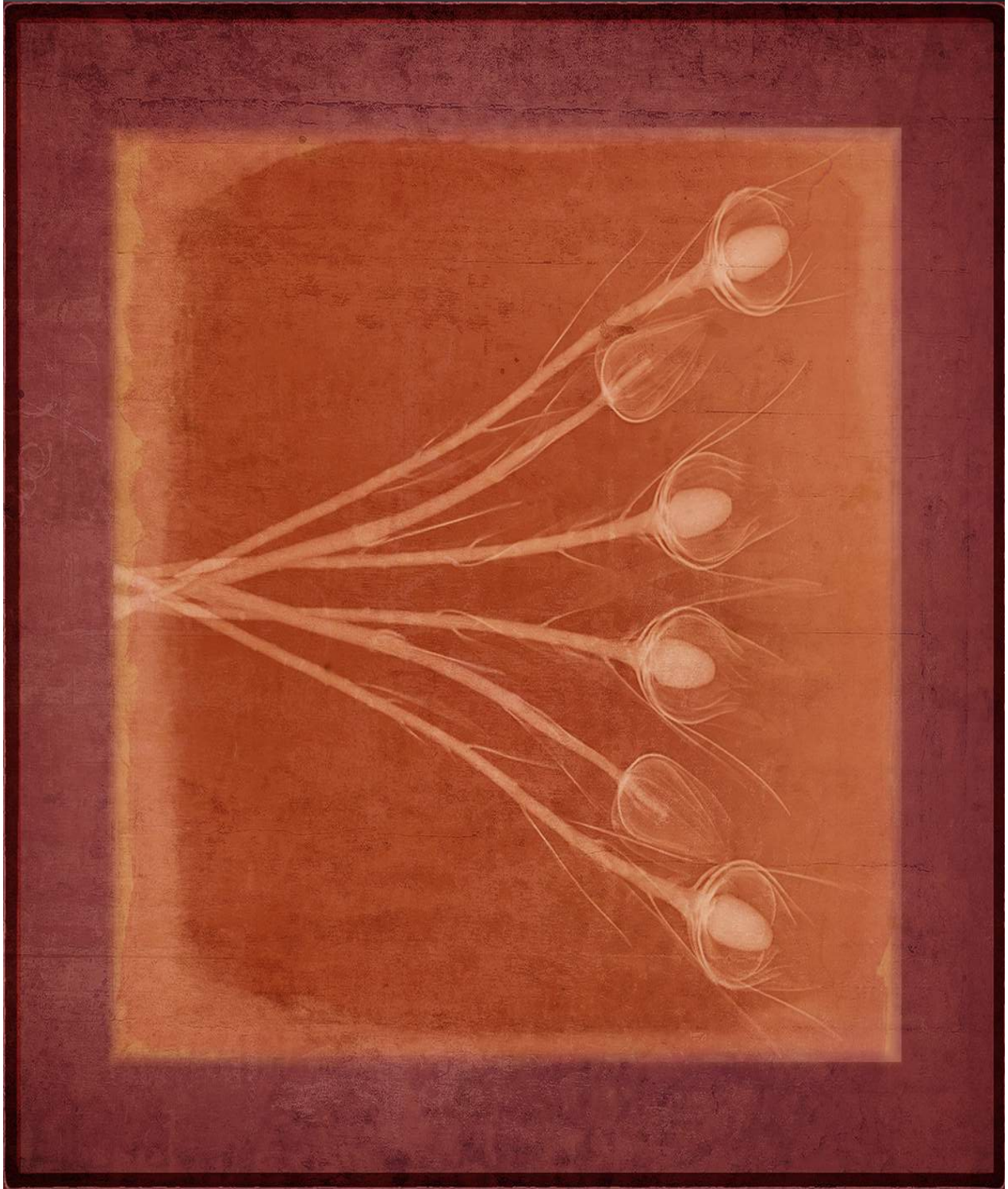
- Shorter, focused content
- Based on adult learning
- Relevant to broad range of environments
- Curated
- Current
- Several languages
- Easily accessible (web-based)

# **Initial Strategy/ What are we looking for?**

- 1. Develop high-quality, relevant and accessible content**
- 2. All areas of Pediatric Radiology/Imaging**
- 3. Keynote / Powerpoint presentations, 10 to 15 minutes in duration**
- 4. Basic to Advanced**
- 5. Resource rich and poor environments**
- 6. English y Español (inicialmente, otros a seguir)**

## **2016+: How do we get there??**

- Consider full engagement and support for web-based educational content
  - WFPPI
  - E-book self-publication
  - Sanjay





# Digital education and WFPI – opportunity knocks

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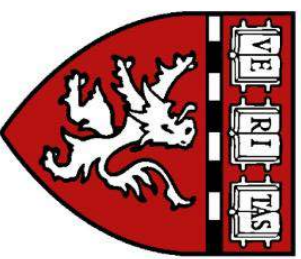
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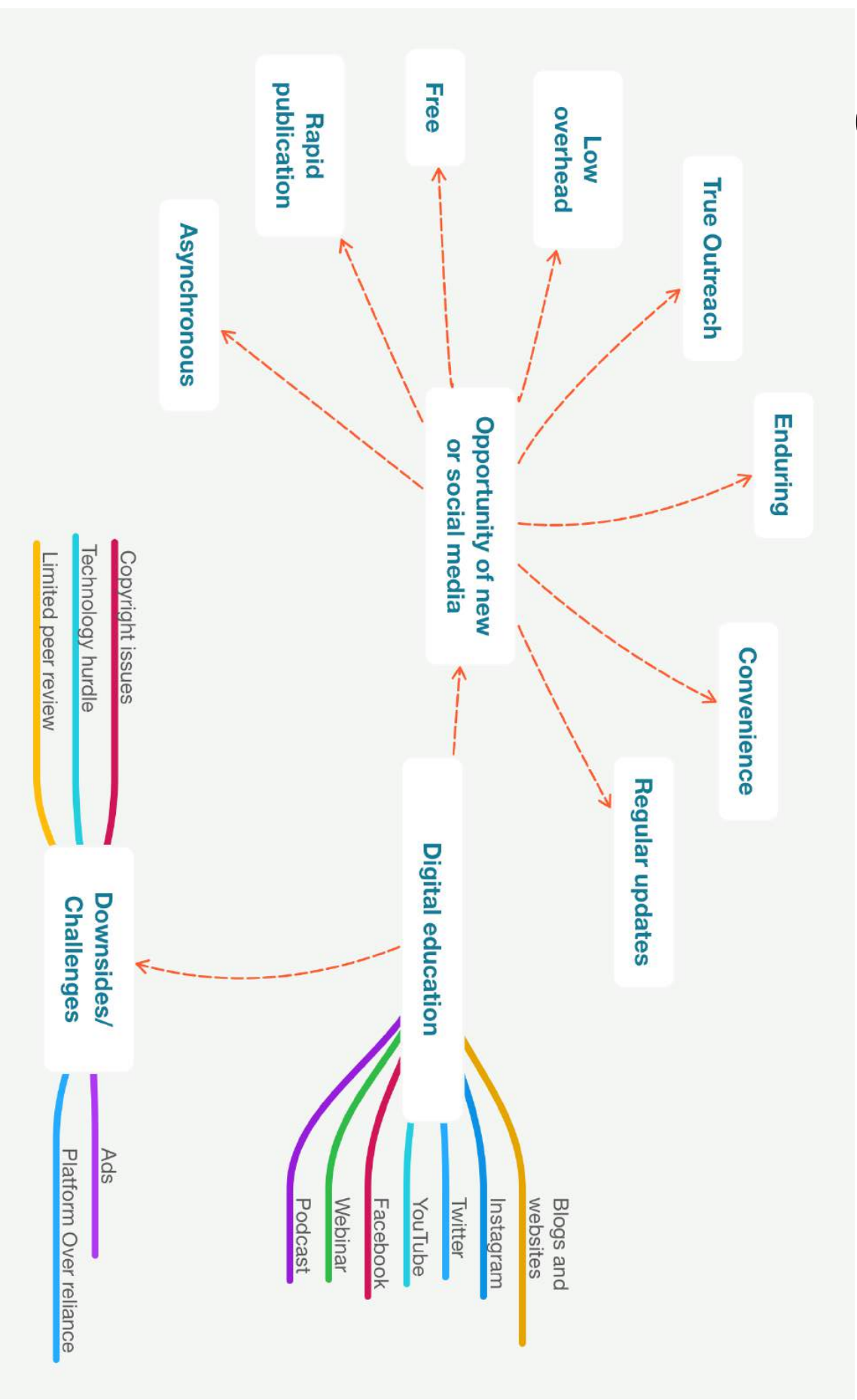
# Disclosures

- No financial disclosures
- Self-confessed technology geek/nerd
- On various social media platforms for education
- WFPJ webmaster

# Outline

- What constitutes “Digital education”
- Why now?
- Why WFPF?
- Challenges and.... Solutions
- How do we do this?
- What do we need to accomplish this?

# Digital education in a nutshell...





# Why now?

- Low cost web/app platforms for content creation and consumption
- Access to web universal (...almost)
- Feedback and metrics readily available
- Wide global reach without large overhead
- Low bar to entry
- Interactive
- Readily updatable
- Generation X and Y audience demands it!

# **Why WFP?**

- **Global reach**
- **Ability to break barriers**
- **Social media following**
- **Potential to be non US-centric**
- **Bring up issues important to non-US audiences**
- **Willingness to innovate**
- **Altruism at the core of the WFP**

# Challenges and solutions

- Creating content- who, how and why?
- Reliance on a platform e.g. Facebook
- Peer review
- Curation of comments
- Content management
- Broad target audience- positives and negatives

# **What kind of content are we looking for?**

- Anything you teach residents and fellows
- Anything new you saw or learnt on a day or during the week (e.g. my “TIL” book)
- Anything you wish someone told you when you were young!
- Summary of literature



# Social media and education- mixing in the education with the “entertainment”



Opportunity is knocking...so .....

**LEAN IN**

# **Creating a Community of Practice for the WFPI Through**

## **Leveraging + Preserving Our Present**

**Michael P. D'Alessandro, M.D.**

**University of Iowa College of Medicine / University of Iowa Children's Hospital**

# Radiopaedia

- Successful media strategy
- Radiology textbook Web site is content hub
- Social media used to promote cases / topics + drive users to Web site

The screenshot displays the Radiopaedia.org website. At the top, there is a navigation bar with the following items: ENCYCLOPEDIA (with a sub-link 'Overview for Admin or Editors'), Add Article, PATIENT CASES (with a sub-link 'Overview for Editor or Admin'), Add Case, and Quiz Mode. The main content area features a 'Case of the Day' section with a chest X-ray image and a description of Ewing sarcoma. Below this, there are statistics: '22096 cases' and '9387 articles'. A 'Recent News' section includes a tweet from Radiopaedia.org. At the bottom, there is a 'Recently Published Cases' section with a list of articles, including one about Sarcoptes scabiei.

**Radiopaedia.org**  
22096 cases 9387 articles

**Case of the Day**  
**Ewing sarcoma**  
Contributed by [Dr Hani Al-Salam](#)  
Tumour represents a Ewing sarcoma of the chest wall (formerly known as Askin family of tumours). [See Ewing sarcoma family of tumours.](#)  
[View Previous Cases](#) [View Case](#)

**What is Radiopaedia.org?**  
Radiopaedia is a rapidly growing open-[edit](#) educational radiology resource which has been primarily developed by radiologists. The [Radiopaedia](#) team's mission is to create the best radiology reference, and to make it available for free. [Forever... read more.](#)

**How to get involved**  
If you are new to Radiopaedia.org or interested in contributing or collaborating for the first time, we recommend familiarisation with a few initial steps:

- general guide: basic principles in understanding the workings and structure of this site
- getting started: simple ways in which you can look after this site
- where your role or expertise may be most needed
- how to create a new article
- case: how to upload an ideal case and maintain under your own individual case file

The following YouTube screencast tutorials cover the very basics in creating articles and cases:

- editing an article
- creating a case

If you just want to have a practice on how editing works, do have a play in our "sandbox" page.

**Editorial projects**  
Our editors are always hard at work creating and refining site content. You can find a list of current and past editorial projects [here](#).

**More...**  
Radiopaedia.org is more than just a reference site.

**22096 cases 9387 articles**

**Recent News**  
Education *like never before, for the whole world!*  
**RADIOPAEDIA ON DEMAND COURSES**  
WELCOME TO ON DEMAND PERSONALISED COURSES

**Tweets by @radiopaedia**  
Radiopaedia.org  
Q: What is your diagnosis? ANSWER: BILYUTUMOUR! #FOAMed #FOAMed

**Recently Published Cases**  
Sarcoptes scabiei, 6 Aug 2016  
Yoshida there is a broad differential of nodular pulmonary infiltrates that...  
Baker's nipple sign, 29 Aug 2016  
circumscissorial frenulum, more suggestive of a...  
Embryonal Ewing's Body, 29 Aug 2016  
for [Ewing's sarcoma](#)...  
[View on Twitter](#)

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# WFPI Textbook of Pediatric Imaging

- Successful media strategy
- Pediatric radiology textbook Web site is content hub
- Social media used to promote cases / topics + drive users to Web site

The screenshot shows a Wikipedia article on 'Congenital pulmonary airway malformation'. The browser address bar shows 'en.wikipedia.org'. The article text discusses the condition, its classification, and diagnosis. A table lists ICD-10 and ICD-9 codes. A 'Classification and external resources' box includes a chest CT scan image and a table of codes. A 'Diagnosis and treatment criteria' section is also visible.

**Classification and external resources**

Specialty	medical genetics
ICD-10	Q32.810 (EUROCAT Q32.80)
ICD-9-CM	752.410
ICD-9-CM	302.04
MeSH	D001561.510 [edit on Wikidata]

**Diagnosis and treatment criteria** [ edit ]

CPAMs are often identified during routine prenatal ultrasonography. Identifying characteristics on the sonogram include: an echogenic (bright) mass appearing in the chest of the fetus, displacement of the heart from its normal position, a flat or everted (pushed downward) diaphragm, or the absence of visible lung tissue. CPAMs are classified into three different types based largely on their gross appearance. Type I has a large (>2 cm) multiloculated cysts. Type II has smaller uniform cysts. Type III is not grossly cystic, referred to as the "adenomatous" type. Microscopically, the lesions are not true cysts, but communicate with the surrounding parenchyma. Some lesions have an abnormal connection to a blood vessel from an aorta and are referred to as "hybrid lesions."

**Imaging** [ edit ]

The earliest point at which a CPAM can be detected is by prenatal ultrasound. The classic description is of an echogenic lung mass that gradually disappears over subsequent ultrasounds. The disappearance is due to the malformation becoming filled with fluid over the course of the gestation, allowing the ultrasound waves to penetrate it more easily and rendering it invisible on sonographic imaging. When a CPAM is rapidly growing, either solid or with a dominant cyst, they have a higher incidence of developing venous outflow obstruction, cardiac failure and ultimately *hydrops fetalis*; if *hydrops* is not present, the fetus has a 95% chance of survival. If it is seen, the fetus will die without *in utero* surgery, or delivery if it develops after 32 weeks. The greatest period of growth is during the end of the second trimester, between 20-26 weeks.

A measure of mass volume divided by head circumference, termed cystic adenomatoid malformation volume ratio (CVM) has been developed to predict the risk of *hydrops*. The lung mass volume is determined using the formula (length x width x anteroposterior diameter ÷ 2), divided by head circumference. With a CVM greater than 1.6 being considered high risk. Fetuses with a CVM less than 1.6 and without a dominant cyst have less than a 5% risk of *hydrops*. After delivery, if the

# Where Do You Get the Content?

- Educational posters of meetings from 13 member societies
- Submitted in MediaWiki format (rather than PowerPoint)
- Peer reviewed by educational poster session reviewers
- Edited by authors
- Published online for meeting + then forever after
  - Readers send corrections + comments to authors
  - Editing restricted to authors + site editors
- Content serves as basis of next year's social media campaign

The screenshot shows a Wikipedia article titled "Congenital pulmonary airway malformation". The article text describes CPAM as a congenital disorder of the lung where a non-working piece of lung tissue is present. It details the classification into Type 1 (most common) and Type 2 (with medium-sized cysts), and mentions that Type 1 has a better prognosis. A table of "Classification and external resources" lists ICD-10 codes (Q84.8, Q84.9), ICD-9-CM codes (762.4, 762.5), MeSH terms (D015015), and a Wikidata link (Q115015). Below the text is an ultrasound image of a fetal chest with a caption: "CPAM on chest radiograph in a newborn. Large cystic changes in the left lung, leading to a mediastinal shift to the right due to their mass effect." The article also includes a "Diagnosis and treatment criteria" section and an "Imaging" section.

# Advantages

- **Authors get educational poster + textbook chapter in CV**
  - Receive altmetrics yearly for chapter (pages read, users)
  - Receive impact of chapter in social media measured by ImpactStory
- **Great project for**
  - Senior radiologists to select poster / chapter topics + oversee
  - Junior radiologists to write chapters, do tech + social media
  - Users – free textbook of pediatric imaging
- **Start small – partner at first with one member society**
  - Could be multilingual as you partner with more societies
- **Cost – almost nothing**
- **Takes advantage of pre-existing content workflow in form of educational posters + preserves it**
- **Result is tangible – permanent pediatric imaging reference**
  - Build community of practice of members (authors/editors) around it