Social Media in Radiology Education

A. Carl Merrow, MD
Corning Benton Chair for Radiology Education
Associate Professor of Clinical Radiology
Cincinnati Children’s Hospital Medical Center
Disclosure

• Pediatrics Lead Author/Consultant for Amirsys-Elsevier
  – Royalties/Fees

• Use of various SoMe platforms for educational purposes
  – No Royalties/Fees
Disclosure

- Pediatrics Lead Author/Consultant for Amirsys-Elsevier
  - Royalties/Fees

- Use of various SoMe platforms for educational purposes
  - No Royalties/Fees
  - Not comprehensive
Other Disclosures...

- No demands that you use SoMe for education
  - MANY great ways to teach!

- Term “Social Media” grammatically challenging
Other Disclosures...

• Reserved user of social media personally & professionally

@acmerrow
Other Disclosures...
Objectives

• Discuss possible roles for social media utilization in radiology education

• Review advantages and disadvantages of various social media platforms for engaging radiology learners

• Enable attendees to leverage social media applications for their teaching goals
Outline

• Social media 101

• Ideas for educational uses in radiology

• How to get started

• Specific platforms
Social Media 101
What is it?

• Web/app-based platforms accessing networks to
  – Create content...
  – Disseminate content...
  – Consume content...
  – Facilitate interaction...

Widely & Rapidly

What is it?

Just another form of communication, but with magnified advantages & drawbacks
SoMe 101: Advantages

• Audience size can be massive, potentially global

• New information can be presented rapidly

• Permanent searchable record

• Anyone can participate
SoMe 101: Disadvantages

- Audience size can be massive, potentially global
- New information can be presented rapidly
- Permanent searchable record
- Anyone can participate
What is it?

“Social media allows learners to interact and collaborate with content generators outside the confines of physical space and time”

“Social media allows learners to interact and collaborate with content generators outside the confines of physical space and time”

Core principle

- FOAMed = Free Online Access Medical education

- Sharing of medical knowledge + interaction + collaboration benefits all
  - Learner
  - Patient
  - Teacher
SoMe 101: What is included?

- Blogs
- Microblogs
- Networking
  - Social
  - Professional
  - Theme
- Media sharing
- Wikis
- Podcast
- Curation/Filters
- RSS Reader
- Mashups
- Audience response
- Group IM
Social Media 101: Why in Medicine?
Main Professional Uses

**Purpose**
- Physician/practice promotion
- Education
- Research collaboration

**Audience**
- Patients/Families
- Colleagues
- Public
Current Usage
Purdy E et al. The use of free online educational resources by Canadian emergency medicine residents and program directors. CJEM. 2015 Mar;17(2):101-6.
Purdy E et al. The use of free online educational resources by Canadian emergency medicine residents and program directors. CJEM. 2015 Mar;17(2):101-6.
Purdy E et al. The use of free online educational resources by Canadian emergency medicine residents and program directors. CJEM. 2015 Mar;17(2):101-6.
GME program incorporations

• Expand distribution & interaction of traditional teaching methods
  – Lectures
  – Case discussions
  – Journal clubs

• Participation in creation of SoMe materials
Possibilities...

- Global journal club by ALiEM, *Annals of EM*

- 6 facilitators
  - Medical education gurus
  - Social media presence (blogs, Twitter)

- Event promotion (organizations, individuals)
Table 2. Aggregate analytic data from various social media-based discussions for the first 14 days of the event.

<table>
<thead>
<tr>
<th>Social Media Analytic Aggregator</th>
<th>Metric</th>
<th>Metric Definition</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Google Analytics: a free online service to track page</td>
<td>Page views</td>
<td>Number of times the Web page containing the post was viewed</td>
<td>1,222</td>
</tr>
<tr>
<td>views and other blog metrics</td>
<td>Users</td>
<td>Number of times individuals from different IP addresses viewed the site (previously termed “unique visitors” by Google)</td>
<td>1,033</td>
</tr>
<tr>
<td></td>
<td>Number of cities</td>
<td>Number of unique jurisdictions by city as registered by Google Analytics</td>
<td>325</td>
</tr>
<tr>
<td></td>
<td>Number of countries</td>
<td>Number of unique jurisdictions by country as registered by Google Analytics</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>Average time on page</td>
<td>Average amount of time spent by a viewer on the page</td>
<td>4:11 minutes</td>
</tr>
<tr>
<td></td>
<td>Number of tweets from</td>
<td>Number of unique 140-character notifications sent directly from the blog post by</td>
<td>160</td>
</tr>
<tr>
<td>page</td>
<td>page</td>
<td>Twitter to raise awareness of the post</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Number of Facebook</td>
<td>Number of times viewers “liked” the post through Facebook</td>
<td>32</td>
</tr>
<tr>
<td>post</td>
<td>likes</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Number of Google+ shares</td>
<td>Number of times viewers shared the post through Google+</td>
<td>6</td>
</tr>
<tr>
<td>ALiEM social media post widget: a Web-based tool embedded</td>
<td>Average word count per</td>
<td>Comments made directly on the Web site in the blog comments section</td>
<td>36</td>
</tr>
<tr>
<td>into each blog post, which tracks engagement metrics</td>
<td>blog comment (excluding</td>
<td></td>
<td>311</td>
</tr>
<tr>
<td>for multiple social media platforms</td>
<td>citations)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Symplur Analytics: a free online service to track metrics for Twitter engagement of health-related hashtags; used to track Twitter hashtag #ALiEMRP&lt;sup&gt;11&lt;/sup&gt;</td>
<td>Length of videocast</td>
<td>Number of views</td>
<td>Average duration of viewing</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Number of tweets</td>
<td>Number of unique Twitter participants using the hashtag #ALiEMRP</td>
<td>How many impressions or potential views of #ALiEMRP tweets appear in users' Twitter streams, as calculated by number of tweets per participant and multiplying it by the number of followers that participant has</td>
<td>25 min 54 s session</td>
</tr>
<tr>
<td>Number of Twitter participants</td>
<td>Total duration of recorded Google Hangout videconference session</td>
<td>Number of times the YouTube video was viewed</td>
<td>5 min 13 s</td>
</tr>
<tr>
<td>Twitter impressions</td>
<td>Average length of time the YouTube video was played in a single viewing</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Tweet Chat

@JACRJournal
T2: How can the #JACR and the Neiman Policy Institute promote more cross discipline collaboration? #RSNA15
1:13 PM - 30 Nov 2015

@CancerGeek
T1: Success is that the dialogue is beginning in such places as this, as open, honest, & transparent w/ physicians & patients #RSNA15 #jacr
1:13 PM - 30 Nov 2015

@CincyKidsRadiology
@grebeccahaines @RadiologyACR should help identify the players and create the table to begin discussion #RSNA15 #jacr
1:13 PM - 30 Nov 2015
The Best of #FOAMed Emergency Medicine

- ECGWeekly posted Part 3 from Amal Mattu’s ECG and lecture series on who needs to go emergently to the cath lab, from last June’s SMACC conference. [MG]
- EM Cases offers a second episode on the new ALCS guidelines, this time looking at post-arrest care. [MG]
- ALiEM has a new capsule module on the pharmacology of emergency airway management, part two. [MG]
- GEMCAST, a new podcast from geriatric emergency physician Christina Shenvi, provides clinical topics for physicians, trainees, nurses, and paramedics (everyone!) who takes care of older adults, particularly in the acute care setting. Three podcasts are currently posted: High risk medications and ADEs, Dr Tintinalli on end of life care, and Delirium in older adults. [JS]
- The November Annals of Emergency Medicine audio summary is out. [MG]
- Most people’s worst case scenario: neonatal resuscitation. Take a look at the fantastic blog from First10EM on the management of the situation. [SL]
Social Media 101: Getting Started
Initial Questions

Who are you?

vs.

Who do you want to be?
Initial Questions

What do you want to accomplish?
Initial Questions

To whom are you responsible?
Next Level

• Target audience
• Content
• Interactions with followers
• Accountability
Target Audience

- Public or private
- Broad group or focused to specific level
  - Planet Earth
  - Medically curious
  - Medical professionals
  - Physicians
  - Students
Content

- **Type**
  - Text only
    - Short teaching point vs. longer discussion
  - Static images
  - Video

- **Organization**
  - Random or curriculum based

- **Timeline**
Content

• Already created, must be adapted
• Created specifically for platform
• Created on platform
Interactions

- Passive vs. prompted
- Routine interaction? How often?
- Metrics?
Next steps

- Building following
- Planning/Creating content
- Meaningful interactions
- Platform connectivity
- Regular oversight
Bottom line: Develop & follow plan!

- Sustainability
- Professionalism
- Quality
- Impact
@CincyKidsRad

- 2012: Mission statement, planning
- 2013: Twitter, Facebook
- 2014: Blog, Instagram
- 2015: Figure 1
Radiology Department

Why Choose Us?
The Department of Radiology and Medical Imaging at Cincinnati Children’s has the largest pediatric radiology department in the country and performs more than 200,000 examinations every year.

Neighborhood Locations
Anderson
Eastgate
Fairfield
Green Township
Kenwood
Liberty
Mason
Northern Kentucky
Maps and Directions

Radiology Department
Overview
Meet the Staff
Services and Modalities
Radiation Safety
What to Expect
Research
Radiology Family-Centered Care Committee
Contact / Referral

Helpful Websites
Alliance for Radiation Safety in Pediatric Imaging (Image Gently)
Society for Pediatric Radiology (SPR)
American College of Radiology (ACR)
American Academy of Pediatrics (AAP)
Radiology Information

Quick Links
Visitor Information
Assistance for Out-of-Town Families
CarePages
Child Life
Family Resource Center
Guest Services
International Patient Care Program
Medical Records Resources
On-site Facilities
Patient Services
Social Services
Special Needs Resource Directory
Survey Readiness Resource Guide
A Look Inside

Image Gently Links
Computed Tomography
Fluoroscopy
Interventional Procedures
Nuclear Medicine
Keeping Radiation Doses As Low As Possible For Your Child

By: Alex Towbin on November 19, 2015

Your child is more sensitive to the effects of radiation than you are. That's why at Cincinnati Children's, we make every effort to reduce the amount of radiation your child receives during his or her imaging study. We use state-of-the-art equipment and innovative techniques to keep the radiation dose to your child as Low As Reasonably Achievable (a concept referred to as the ALARA principle in the medical world). While most hospitals focus on applying the ALARA principle to CT scans, at Cincinnati Children's we have worked to significantly ...
Specific Platforms
Most Common in Education

- YouTube
- Podcasts
- Wiki
- Blogs
- Twitter
- Instagram

Figure 1

Lecture-based

Traditional prose
Most Common in Education

- YouTube
- Podcasts
- Wiki
- Blogs
- Twitter
- Instagram
- Figure 1
Common Features

- Short text
- Internal/external media attached
- Sent to all followers
- Interactive engagement
- Searchable by #
- Can be spontaneous
Hashtag #

- Globally searchable term
- Makes you part of discussion (live or future)
  - Conversations
  - Conferences
  - Events
Hashtag #

- #MedEd
- #FOAMEd
- #FOAMRad
- #PedsRad
- #POTD
- #Radiology
- #Pediatrics
- #HCSM
- Any key word
### Clinical Tags

<table>
<thead>
<tr>
<th>Hashtag</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>AbdRad</td>
<td>Abdominal Radiology</td>
</tr>
<tr>
<td>ChestRad</td>
<td>Chest Radiology</td>
</tr>
<tr>
<td>CTRad</td>
<td>Computed Tomography</td>
</tr>
<tr>
<td>CVRad</td>
<td>Cardiovascular Imaging</td>
</tr>
<tr>
<td>EMRad</td>
<td>Emergency Radiology</td>
</tr>
<tr>
<td>HNRad</td>
<td>Head/Neck Radiology</td>
</tr>
<tr>
<td>IRad</td>
<td>Vascular Interventional Radiology</td>
</tr>
<tr>
<td>IRonc</td>
<td>Interventional Oncology</td>
</tr>
<tr>
<td>Mammo</td>
<td>Mammography</td>
</tr>
<tr>
<td>MRI</td>
<td>MRI</td>
</tr>
<tr>
<td>MSKRad</td>
<td>Musculoskeletal Radiology</td>
</tr>
<tr>
<td>MSKUS</td>
<td>MSK Ultrasound</td>
</tr>
<tr>
<td>NeuroRad</td>
<td>Neuro Radiology</td>
</tr>
<tr>
<td>NucMed</td>
<td>Nuclear Medicine</td>
</tr>
<tr>
<td>OBRad</td>
<td>Obstetrics Radiology</td>
</tr>
<tr>
<td>oncorad</td>
<td>Oncologic Radiology</td>
</tr>
<tr>
<td>PedsRad</td>
<td>Pediatric Radiology</td>
</tr>
<tr>
<td>USRad</td>
<td>Ultrasound</td>
</tr>
</tbody>
</table>

### Scientific Disciplines

<table>
<thead>
<tr>
<th>Hashtag</th>
<th>Topic</th>
</tr>
</thead>
<tbody>
<tr>
<td>FOAMRad</td>
<td>Free and Open Access to Medical Education Radiology</td>
</tr>
<tr>
<td>FOAMus</td>
<td>Free and Open Access to Medical Education Ultrasound</td>
</tr>
<tr>
<td>GlobalRad</td>
<td>Global Radiology</td>
</tr>
<tr>
<td>HITRad</td>
<td>Radiology Informatics</td>
</tr>
<tr>
<td>MolRad</td>
<td>Molecular Imaging</td>
</tr>
<tr>
<td>POCUS</td>
<td>Research Related to Point-of-Care US</td>
</tr>
<tr>
<td>RadCME</td>
<td>CME Offerings in Radiology</td>
</tr>
<tr>
<td>RadEcon</td>
<td>Radiology Economics</td>
</tr>
<tr>
<td>RadHSR</td>
<td>Radiology Health Services Research</td>
</tr>
<tr>
<td>Radiology</td>
<td>Radiology</td>
</tr>
<tr>
<td>RadLeaders</td>
<td>Radiology Leadership</td>
</tr>
<tr>
<td>RadPhys</td>
<td>Radiology Physics</td>
</tr>
<tr>
<td>RadPolicy</td>
<td>Radiology Health Policy</td>
</tr>
<tr>
<td>RadQI</td>
<td>Radiology Quality Improvement</td>
</tr>
<tr>
<td>RadRes</td>
<td>Radiology Residency</td>
</tr>
<tr>
<td>RadSafety</td>
<td>Radiation Safety</td>
</tr>
<tr>
<td>TeleRad</td>
<td>Teleradiology</td>
</tr>
</tbody>
</table>
Important info: Ontology

http://www.symplur.com/healthcare-hashtags/ontology/radiology/
Specifics: Twitter

- Text-focused
- Brief (140 characters)
- Simple, quick
- 3rd party plug-ins
  - Scheduling
  - Organizing
- Great for supplementing other SoMe + events
Twitter Possibilities

- Meeting teaching points/discussion
- Links to web content
- Live Tweet chat, journal club
- Supplementing
  - Live webcast or lecture
  - App-based course syllabus/curriculum
Cincy Kids Radiology @CincyKidsRad · Nov 9
#WeekendReview case 6: important to check entire length of a ventriculoperitoneal shunt for fracture/discontinuity on every imaging study.

Cincy Kids Radiology @CincyKidsRad · Nov 9
#WeekendReview case 5 (cont): rhabdomyosarcoma is the most common soft tissue tumor in children. Most common location is head/neck. #PedsRad

Cincy Kids Radiology @CincyKidsRad · Nov 9
#WeekendReview case 4: obstructive hydrocephalus can be treated with a third ventriculostomy. #PedsRad #NeuroRad

Cincy Kids Radiology @CincyKidsRad · Nov 9
#WeekendReview case 3: eventration of the diaphragm is due to a congenital or acquired local weakness of the diaphragm. #PedRad

Cincy Kids Radiology @CincyKidsRad · Nov 9
#WeekendReview case 2: the striated nephrogram on post contrast MRI is not an indication of pathology goo.gl/V87wm9

SIR RFS @SIRF5 · Nov 8
RT @CincyKidsRad: Long term cancer survivors can have many late effects of life-saving therapies. goo.gl/0gejM #DoR2015 #AskCKR

Caring for Survivors of Childhood Cancer - Cincinnati.
Childhood cancer. These words can seem like a bad dream for any parent. Unfortunately, cancer is a common reality for many parents, affecting 1 in 300 children and...
cincinnatichildrensblog.org

Neil U Lall @NUlall · Nov 8
@Figure1 I'm glad we play a key role in identifying child abuse, but just seeing it is gut wrenching & you never get adjusted to it #AskCKR

Jim Rawson MD @Jim_Rawson_MD · Nov 8
Radiology Chair at @MCG_RAD in Augusta joining #Askckr

Sharon Vorona @sharonvorona · Nov 8
@NUlall @CincyKidsRad So does @Figure1! #AskCKR #DoR2015

Neil U Lall @NUlall · Nov 8
@CincyKidsRad Very true. We now have standing desks too! 😄 #AskCKR

SIR RFS @SIRF5 · Nov 8
RT @CincyKidsRad: MRI elastography helps us measure liver stiffness. Read more on our blog: goo.gl/MxzkK #DoR2015 #AskCKR
Twitter Metrics: Basic

Tweets: 6,572
Following: 577
Followers: 2,073
Favorites: 567
Lists: 1
Twitter Metrics: Advanced
Twitter Metrics: Advanced

1,292 followers as of 1/24/2015 (days shown in Pacific time)
Your Tweets earned **68.8K impressions** over this 50 day period.

During this 50 day period, you earned **1.4K impressions per day**.

**Engagement Rate:** 2.5%

On average, you earned **10 link clicks** per day.

**Retweets:** 119

On average, you earned **2 Retweets per day**.

**Favorites:** 143

On average, you earned **3 favorites per day**.
Specifics: Instagram

- Image-focused
- Generous character limit on captions/comments
- More time consuming
- Few 3rd party apps
Supine abdominal radiograph in a 6-week-old with projectile nonbilious emesis. What abnormalities are seen in this image? What is the name of the corresponding fluoroscopic sign for this appearance? What is the most likely diagnosis and how should it be made in the current era? Another image & answers to follow. Comment below with your thoughts!

Paucity of small and large bowel gas with a caterpillar sign on the stomach. Usually seen with pyloric stenosis. Patient should have an ultrasound to eval pyloris.

HPS with caterpillar sign
Double bubble sign, usually seen in a newborn with duodenal atresia
Pylorospasm

US showed persistent thickening of the pyloric muscle (white), elongation & closure of the pyloric channel (yellow), & gastric distention (orange), typical of hypertrophic pyloric stenosis. US is the preferred modality for this diagnosis. The prior image showed a distended stomach with hyperperistalsis (a static representation of the fluoroscopic “caterpillar” sign) & no bowel gas.
Instagram Metrics
Specifics: Instagram

- Launched 8/2014
- Posts to date: 496
- Followers:
  - 7560 (12/2015)
  - 1288 (1/2015)
  - 473 (10/2014)
Specifics: Instagram
Specifics: Figure 1

- Image-focused
- Multiple images per post
- Limited character limit on captions/comments
- Posts appear on common wall
- Focused on med ed
- Engaged user community
CincyKidsRad #Chest radiograph shows a circular calcification (arrow) along the left heart border. Corresponding coronal CT shows calcification of the left ventricular wall and papillary muscles. Calcification in the setting of myocarditis is a marker of severe myocardial damage. #ThoraxThursday

Cardiology | Circulation | Heart | Lungs | Mediastinum | Pediatrics | Radiology and Nuclear Medicine | Thorax
International Day of Radiology – Join Grand Rounds with @CincyKidsRad

Join @CincyKidsRad today as it reviews some of its most compelling pediatric radiology cases. Check this event feed every 10 minutes for new cases, and join the #idor2015 discussion with... Read More
Specifics: Figure 1

- Launched 1/2015
- Posts to date: 276
- 9,500,000 impressions
Specifics: Read by QXMD

- “Flipboard for medical lit”
- Feeds new article listings
- Quick, full access with institution
- Easy to forward, create lists
Other measures?
Quality

• Traditional peer review lacking

• 2014 International Conference on Residency Education: Social Media Summit
  - Multidisciplinary panel reviewed 151 “indicators”
  - Applied to just blogs, podcasts
  - Found > 90% agreement on 13

Quality Indicators

- Creator lists conflict(s) of interest?
- Identity of author clear?
- Clearly distinguish fact from opinion?
- Presented information accurate?
- Cite references?
- Consistent with references?
- Employ universally available technologies?

Quality Indicators

• Differentiate content vs. advertisement?
• Content of good quality?
• Content professional?
• Useful/relevant for intended audience?
• Author well-qualified to write on this topic?

Scholastic merit

- 2014 International Conference on Residency Education: Social Media Summit

- Authorship judged by ICMJE: “Authentic identity”

- “Evidence of transparent critical appraisal”

Scholastic merit

<table>
<thead>
<tr>
<th>Consensus statement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Social media-based scholarship in health professions education must:</td>
</tr>
<tr>
<td>➤ Be original</td>
</tr>
<tr>
<td>➤ Advance the field of health professions education by building on theory, research or best practice</td>
</tr>
<tr>
<td>➤ Be archived and disseminated</td>
</tr>
<tr>
<td>➤ Provide the health professions education community with the ability to comment on and provide feedback in a transparent fashion that informs wider discussion</td>
</tr>
</tbody>
</table>

Scholastic merit

• **Document! How many...**
  - Posts
  - Comments
  - Impressions
Effectiveness

• Hard to measure in all educational arenas
  – Pre/post test
  – Survey of engagement
  – Long-term outcomes

• More so in SoMe: No captive audience
Is it worth the plunge?

• Does it have clinical impact?
• Is there sustainable infrastructure?
• Is there network proliferation?
• Is it personally & professionally satisfying?
Conclusion

• Excellent teaching comes in many flavors

• SoMe open up unique opportunities for content
  – Distribution
  – Interaction/Engagement
  – Collaboration

• Careful planning/maintenance required!
Thank you!