Is There an App for That?

Sarah Kohl
Sarah McGuinness

accurate and reliable
Is There an App for That?
Digital resource

Workshop Aims

• Introduce existing digital resources & their potential / limitations

• “Tune-up” your fake news detector by sharing a framework to assess and rate digital resources

• Build your confidence in assessing & using digital resources (case-based activity)

Who are we?

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ISTM Digital Communications Committee
Tech Corner Blog https://myistm.istm.org/browse/blogs/new-item

Is There an App for That?

No financial relationships with any commercial products or services discussed in this presentation

Please share on Social Media

#CISTM16

Twitter:
@SarahKohlMD
@drssarahmac
In 2019... we have digital information at our fingertips.

Figure: Penetration rate of mobile cellular subscriptions by region, 2000-2017 (Data source: The World Bank)

Mobile phones | Wearable Tech (e.g. smartwatch)
---|---
**Functions**
- GPS location, camera, microphone, barometer, accelerometer

Types of digital resources
- eBooks
- Web-based tools
- Clinical decision support tools
- Mobile apps

Uses of digital resources
- **For the clinician**
  - Access medical knowledge (guidelines, ref. materials)
  - Access medical records
  - Clinical decision support
- **For the traveller**
  - Access information
  - Health & safety alerts
  - Medication reminders
  - Electronic vaccine records

Linking the traveller and clinician
- Digital services: pre-/during-travel telehealth consultations & apps

**eBooks**
- Electronic version of a printed book, usually in PDF form
- Read on a computer or handheld device

<table>
<thead>
<tr>
<th>PROS</th>
<th>CONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Available offline</td>
<td>Updated infrequently (not in real-time)</td>
</tr>
<tr>
<td>Curated, evidence-based content</td>
<td>Not customisable/interactive</td>
</tr>
<tr>
<td>Source / reliability easy to identify</td>
<td></td>
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</table>
Web-based tools and resources

**PROS**
- More flexibility/customisation
- Updateable (e.g. outbreak notifications)
- Source/reliability generally easy to identify

**CONS**
- Information provided often generic
- Need to search multiple sections to compile information for a trip

![Web-based tools and resources](image)

Clinical decision support tools

**PROS**
- Aggregates data from multiple existing sources in real time (up-to-date)
- Customisable maps & patient handouts

**CONS**
- Subscription-based (cost to user)
- Requires fast & stable internet connection

![Clinical decision support tools](image)

Mobile apps

**PROS**
- Range of functions, may be customisable
- Utilise smartphone tech (e.g. GPS, camera)
- May be usable online & offline

**CONS**
- Source/reliability can be hard to identify (commercial product)
- May not be validated

![Mobile apps](image)

A cautionary tale...

App claim: "automated analysis of photographs of skin lesions to increase consumers' chances of detecting melanoma in its early stages"

![A cautionary tale](image)

Diagnostic Inaccuracy of Smartphone Applications for Melanoma Detection

JAMA Dermatology 2013; 149(3)

<table>
<thead>
<tr>
<th>App type</th>
<th>Automated algorithm (3 apps)</th>
<th>Dermatologist image analysis (1 app)</th>
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<tbody>
<tr>
<td>Sensitivity</td>
<td>6.8% – 70.0%</td>
<td>98.8%</td>
</tr>
<tr>
<td>Specificity</td>
<td>30.4% – 93.7%</td>
<td>30.4%</td>
</tr>
<tr>
<td>Positive predictive value</td>
<td>33.3% – 38.2%</td>
<td>42.3%</td>
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<tr>
<td>Negative predictive value</td>
<td>65.4% – 72.7%</td>
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Tested 4 apps with a set of digital clinical images of pigmented skin lesions (Histologic diagnosis = 60 melanoma, 128 benign control lesion)

Apps using automated algorithms classified 230% of melanomas as "unconcerning"
Fined for “deceptively claiming their mobile apps could detect symptoms of melanoma”

“Truth in advertising laws apply in the mobile marketplace. App developers and marketers must have scientific evidence to support any health or disease claims that they make for their apps.”

Regulation of digital health tools

Target: mobile apps/software that meet the definition of a medical device

Examples:
- Smartphone apps that calculate insulin doses
- X-ray image-processing software
- Software that uses patient information to make a diagnosis

2016 review of mobile apps related to travel medicine

44 mobile apps related to travel medicine, cost $0 - $15 (Limited to English/US region Apple App Store)

Purpose: general travel health recommendations, vaccine schedules, malaria risk, food & drink safety, altitude illness, emergency information, translation

8/44 (18%) developed by health organisations (e.g. CDC); majority developed by third-party organisations, private enterprise or individual practitioners

Assessing risk of harm to patients

Lower risk (e.g. accessing electronic guidelines) = clinician self-assessment

Higher risk (e.g. clinical decision support tools) = formal assessment & regulation by professional/government body

Framework to assess and rate digital resources

CONTENT

Quality
- Is the content correct, coherent, well-written, appropriate for target audience?

Quantity
- Does it strike a good balance between being comprehensive & concise? Links to other relevant information/resources?

Reliability
- Is content backed by a credible source? (e.g. government, university), is it up to date?

USER-FRIENDLINESS

Layout
- Is content logically organised / appropriately sized? Viewing on different sized screens?

Navigation
- Is process of moving between sections of site/app logical? Are interactions (e.g. buttons/links) intuitive & consistent?

Ease of Use / Performance
- Is site/app easy to use? Are there any bugs or links/buttons/functions that don’t work?
Get Phones Out

Wi-Fi:
pw:

Mumbai

Iditri 36
Healthy & breastfeeding

Ganesh 42
Healthy

All routine immunizations

Hinal 4 yrs
Inika 6 yrs
Healthy & all routine immunizations

Preetesh
7 months old
Breast fed
Pureed food
All routine immunizations


#CISTM16 @SarahKohlMD @DrSarahMac
Group 1
• Typhoid vaccination (practitioner side)
  – Which online resources can you use to make decisions about typhoid vaccination for each family member? (recommendations, indications, side effects)
  – How reliable, current, and easy to use are they?

Group 2
• Typhoid prevention & mx (patient side)
  – Which online resources can you recommend to patients regarding typhoid prevention & management?
  – How reliable, current, and easy to use are they?

Group 3
• Malaria prevention (practitioner side)
  – Which online resources can you use to make decisions about malaria prevention for each family member? (recommendations, indications, side effects)
  – How reliable, current, and easy to use are they?

Group 4
• Malaria prevention (patient side)
  – Which online resources can you recommend to patients regarding the prevention and management of malaria?
  – How reliable, current, and easy to use are they?

Group 5
• Travelers' diarrhea prevention & management (practitioner side)
  – Which online resources can you use to make decisions about travelers' diarrhoea prevention & management? (recommendations, indications, side effects)
  – How reliable, current, and easy to use are they?

Group 6
• Travelers' diarrhea prevention & management (patient side)
  – Which online resources can you recommend to patients regarding prevention & management of TD?
  – How reliable, current, and easy to use are they?
**Framework to assess and rate digital resources**

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Rate each item out of 5:
1 = inadequate  
2 = poor  
3 = acceptable  
4 = good  
5 = excellent

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**Resources**

Download from CISTM16 conference app

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**Questions?**