Using Smartphone and Open Source Web Technologies to Automate Academic Regularly Scheduled Series

Presented at:
• 2011 Annual Medbiquitous Conference

Presented by:
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Disclosures

- Zalman Agus, Rodman Campbell, and Mila Kostic have no interest in selling a technology, program, product or service to CME professionals.

- Jeremy Lundberg has an interest in selling a technology, product or service to CME professionals.
Setting the Stage: 2003-2010

- 10 FTEs
- Developed large online presence housed in separate content management system (CMS).

**2009**
- 5,431 activities
- 734,815 certificates issued
- Leased new database - Eventually replaced by another as program grew.

**2010**
- 89 RSS
- Database administered manually.
- Attendance collected using barcode scanning.
2010: The RSS Problem

- 90 weekly sessions.
- 112,500 attendees to be recorded.
- 6 month backlog to enter attendance into database.
- 2 FTEs required to:
  - Review applications
  - Monitor disclosures and handouts
  - Conduct onsite visits
  - Enter attendees into database
  - Training and approvals
  - Monitoring peer-review process
EthosCE LMS

- Full-featured, open source content-learning management system.
- Designed specifically for continuing medical education.
- ACCME PARS compliant.
- No licensing fees or user restrictions.
- Organizations retain complete access to source code.
- Personalized learning environment.
- Automates and streamlines “back office” administration.
- Role-based permissions and security protocols.
- Flexible outcomes and compliance reporting engine.
- Integrates with 3rd party applications.
Technology Development Process

- Interviewed key UPenn stakeholders to analyze current “pain points” and workflow.
- Recommended new automated workflow using mobile text messaging (SMS) technology.
- Configured EthosCE Attendance Tracking Module.
- Modified Drupal SMS Module, Mobivity.
- Created custom API between SMS and Attendance Tracking Modules.
Mobile SMS Attendance Tracking Workflow

1. RSS Session created by Department RSS Coordinator
2. Course Reviewed & Approved by CME RSS Coordinator
3. SMS short code generated and posted at RSS session
4. Attendees send short-code text message from mobile phone
5. Registered vs. Non-Registered Attendee Workflow enabled
6. CME Transcript and Reporting Updated
7. ACCME PARS Reporting

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Grand Rounds Activity Coordinator (GRAC) creates a new “Grand Rounds Event” from Series Dashboard.
Creating RSS Workflow

Sessions are moved through each step in the online CME approval process by clicking the “Workflow” button and advancing to the next state (can also leave Comments at each state change).
### RSS Audit Dashboard

<table>
<thead>
<tr>
<th>Series</th>
<th>Title</th>
<th>Date</th>
<th>State</th>
<th>Disclosure</th>
<th>Handout</th>
<th>Presentation</th>
<th>Additional Disclosures</th>
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**Presentation Review**

**PLEASE ANSWER THE FOLLOWING QUESTIONS:**

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<th>Question</th>
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<td>This presentation is based on acceptable scientific principles that are generally accepted as valid by the profession.</td>
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<tr>
<td>This presentation’s content and clinical recommendations are based on the highest available levels of evidence that are accepted in the general medical community.</td>
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<tr>
<td>Scientific research referred to in this presentation conforms to generally accepted standards of experimental design, data collection and analysis.</td>
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</tr>
<tr>
<td>The content of this presentation does not promote recommendations, treatments, or manners of practicing medicine that are (1) not within the ACCME Definition of CME, (2) known to have risks or dangers that outweigh benefits, or (3) known to be ineffective.</td>
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**ACGME Definition of CME**

“Continuing medical education consists of educational activities which serve to maintain, develop, or increase the knowledge, skills, and professional performance and relationships that a physician uses to provide services for patients, the public, or the profession. The content of CME is that body of knowledge and skills generally recognized and accepted by the profession as within the basic medical sciences, the discipline of clinical medicine, and the provision of health care to the public.”

**PLEASE RATE THE LEVEL OF YOUR AGREEMENT WITH THE FOLLOWING STATEMENT:**

<table>
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<tr>
<th>Rating</th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Agree</th>
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<td>This presentation was free from commercial bias</td>
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2010: UPenn Pilot Study

- UPenn conducted pilot study of RSS participants during September-December 2010
- 736 Attendance Records
- 78.5% of HCPs used Mobile SMS text messaging
  - 17.2% have smart phone, but no text messaging service
  - 2.4% do not have mobile/smart phone.
2010: UPenn Pilot Study

- Positive adoption rates and feedback from HCPs regarding new RSS mobile system.
- Allows for instant RSS attendance credit to “My CME” transcripts and ACCME PARS.
- CME office staff and series-level coordinators see RSS Online Workflow screens as “very useful”.
- RSS workflow enables complete attendance management for registered and non-registered HCPs.
2010: UPenn Pilot Study (cont’d)

- Study participants asked to rate the following on a 5-point Likert scale (1=Poor, 5=Excellent)
  - **Ease of Use**: 4.5 average rating.
  - **Clarity of Instructions**: 4.5 average rating.
  - **Credit Monitoring**: 4.6 average rating.
Lessons Learned

- After many pathways... go with an integrated LMS system.
  - One point of entry for all activities, all users, and links to internal and external resources.
  - One, integrated CME administrative process.
  - Activity application, disclosures, approval submissions and documentation approvals prospective for all types of activities including RSS, easy access to multiple users.
  - All educational formats built by staff and faculty, displayed uniformly to learners.
  - Allows learners easy access from registration to certificate /transcript.
  - Easy data collection and reporting to ACCME, annual program and mission reviews.

Continuing Medical Education

Penn Medicine
Lessons Learned (cont’d)

Significant Savings

- Automated attendance records controlled by learners
  - Less room for error
  - Instant availability of records on transcript
  - Instant reporting capabilities for administrators and coordinators
  - Value added to other regulatory bodies at departments and institution-level
- Less issues with session documentation approval timelines
  - Time and effort savings
  - Can provide limited administrative privileges to internal and external collaborators
  - Peer-review process
  - CME Coordinator
- Easy assessment and evaluation data collection, analysis and reporting
- Will be appreciated during the ACCME reaccreditation process and annual reports