Strategies in Cytotechnology Education: Session #1

Navigating Through Changing Times: Providing Resources and Guidance for Cytopathology Leaders During Times of Change

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Jennifer A. Brainard, MD: Cleveland Clinic
William N. Crabtree, PhD, SCT(ASCP): Indiana University School of Medicine
The speakers have **no relationships** that represent possible conflicts of interest with the content of this presentation.
Educational Objectives

• Discuss strategies for keeping Cytotechnology Programs solvent. Analyze current workload practices in the cytopathology laboratory.

• Identify pros and cons of distant learning. Apply strategies of collaborative learning when developing and maintaining the cytopathology team.

• Share examples of successful incorporation of challenging entry-level competencies into the curriculum. Evaluate current practices along with potential future practice and discuss how professional societies may support the changes.

• Describe the project for determining entry level work load guidelines for automated Pap test screening devices for Cytotechnology Program graduates.
CPRC Committee Members

- Stephanie Hamilton, EdD, MB, SCT(ASCP), Chair
- Jennifer A. Brainard, MD, Vice Chair
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- Ritu Nayar, MD, 2015 ASC Executive Board Advisor
- Deborah MaIntyre Sheldon, CPRC Cytology Education Coordinator
2014-2015 School Status

28 Total number of accredited Cytotechnology Programs in United States and Puerto Rico

25 Active programs

3 Inactive programs:

- University of Kansas Medical Center (8/1/14)
- University of North Dakota (9/1/14)
- The University of Vermont Medical Center (9/1/15)

1 New, developing program pending accreditation with “Candidacy” status – Roswell Park Cancer Institute/Daemen College, Buffalo, NY

First class – July 2015

1 Notification of Request for Voluntary Withdrawal of Accreditation

Marshfield Clinic (6/30/15)
Program Name Change:

- Fletcher Allen Health Care to 
  The University of Vermont Medical Center
Program Types

- **11** Certificate-only programs (a total of 20 programs offer a Certificate program)
- **9** Offer both Certificate program and Degree program
- **9** Degree-only programs (a total of 15 offer a Degree program - 4 offer a Masters level program)
Outcomes Data are based on % for three-year average, 2012 - 2014

- Attrition ***: 8.27%
- Student Retention (80% threshold): 91.74%
- Positive Placement (75% threshold): 90.86%
- ASCP-BOC-% Graduates Attempting (80% threshold): 94.97%
- ASCP-BOC Pass Rate/Success (80% threshold): 93.39%
- Employer Survey Return Rate (50% threshold): 69.06%
- Graduate Survey Return Rate (50% threshold): 75.31%

***Attrition: Of 28 active programs responding, 7 programs had students who withdrew.
Questions or comments?
Program Closure

• Reasons for Program Closure:
  – Low student enrollment (small program)
  – Questionable future of profession
  – Retirement of program directors
  – $$$$$$$$$MONEY$$$$$$$$$

• There’s Hope:
  – Program Directors retired, and new Program Directors appointed at Thomas Jefferson University, Old Dominion University and Cabell Huntington Hospital
  – One Program Director passed away, and a new Program Director appointed at Central Piedmont Community College
Challenges of Distance Learning

UNMC Satellite sites:

• Carle Foundation Hospital
  17 graduates – 9 years
  2 currently enrolled

• Univ. of California Davis Medical Center
  1 graduate, 1 year
  2 currently enrolled

• The Ohio State Wexner Medical Center
  Hasn’t accepted students yet (1 applicant for 2016)

• Approval for Anytime/Anywhere program and potential International Sites
### Challenges of Distance Education

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<tr>
<th>UNMC Responsibilities</th>
<th>VS</th>
<th>Satellite Responsibilities</th>
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<tbody>
<tr>
<td>Didactic coursework (Lectures, group discussions, assignments, quizzes &amp; exams (provide info and grades re: glass slide quizzes and exams)</td>
<td>Recruit applicants</td>
<td>• Didactic coursework (Lectures, group discussions, assignments, quizzes &amp; exams (provide info and grades re: glass slide quizzes and exams)</td>
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<td>mScope &amp; Blackboard access</td>
<td>Interview and make selections</td>
<td>• mScope &amp; Blackboard access</td>
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<td>Answer daily questions from satellite students or faculty – phone, email, or Vidyo connection</td>
<td>Hands-On microscopy training</td>
<td>• Answer daily questions from satellite students or faculty – phone, email, or Vidyo connection</td>
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<td>Provide student services:</td>
<td>Daily slide screening (check and review)</td>
<td>• Application, Evaluation</td>
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<td>*Application, Evaluation</td>
<td>Coordinate on-site activities/learning (Colposcopy clinic, Laboratory time, sign out with pathologist, FNA procedures)</td>
<td>*Access to UNMC’s Library</td>
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<td>*Access to UNMC’s Library</td>
<td>Available to answer questions re: glass slides</td>
<td>*Financial Aid thru UNMC</td>
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<td>*Financial Aid thru UNMC</td>
<td>Proctor exams</td>
<td>*UNMC email addresses</td>
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<td>*UNMC email addresses</td>
<td>Glass slides: study packets, teaching sets, assignment slides, testing slides, daily screening unknown slides</td>
<td>*Sites enrolled in different sections</td>
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<td>*UNMC student research forum</td>
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<td>*UNMC certificate / graduation ceremony &amp; Convocation</td>
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Challenges of Distance Learning

• UNMC’s Current Set-up
  – Vidyo
    • Internet (video & voice, share screens – better engagement)
    • “Rooms” (large, small, individual)
    • Echo cancelling mics (everyone must mute)
    • Firewall issues (timing out)
  – Phone – Conference number (Back up)
    • Only voice (no video)
    • Echo cancelling mics needed (everyone must mute)
Challenges of Distance learning

• Scheduling logistics
  – Satellite sites in different time zones
    • Creation of multiple calendars
    • Trying to keep sites in-sync
  – Communication difficulties
    • Hard to reach faculty/students because of time differences
Challenges of Distance Education

• Lessons learned
  – Don’t forget the students who aren’t in front of you
  – Have a drop box, google docs, etc. for large documents (not through email)
  – Be clear about responsibilities of each party
  – Always have a back-up plan (technology)
  – Plan ahead, set up early
  – IT personnel nearby
  – Be flexible (encounter something new every day)
  – Things that work well in the classroom, not always easy to duplicate for on-line – find a different way (sometimes turn out better for both)
### Challenges of Distance Education

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<th>Anytime/Anywhere</th>
<th>VS. Satellite Site</th>
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<td>• Extensive Virtual Database</td>
<td>• Dedicated Satellite faculty</td>
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<td>↓ Time &amp; $ (digitizing, storage)</td>
<td>Time away from clinical work for hands-on teaching in lab and microscope, daily screening, proctoring tests</td>
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<td>• Curricular development &amp; implementation (E-modules)</td>
<td>• Time to develop glass slide materials</td>
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<tr>
<td>↓ Time &amp; $ (Articulate software, script, video recording, editing, etc.)</td>
<td>(Teaching, testing, daily screening, assignments – 1 year)</td>
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<tr>
<td>• Virtual microscope sessions</td>
<td>• Contract – paperwork</td>
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<tr>
<td>Recording, storage</td>
<td>• Classroom (equipped w/computer with high speed internet connection, microscope, microphone, speakers, phone, webcam, microscopes)</td>
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<td>• Students - compatible computers</td>
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<td>• Synchronous or Asynchronous?</td>
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<td>Challenges mentioned next</td>
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# Challenges of Distance Education

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<th>Synchronous</th>
<th>VS.</th>
<th>Asynchronous</th>
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<td>• Use materials previously developed</td>
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<td>• Everything happens at the same time</td>
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<td>• Student engagement at distant sites (Always take turns asking questions, playing games, have students ask each other questions)</td>
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<tr>
<td>• Questions are easily answered thru daily connection</td>
<td>• New curricular development (E-modules, stand alone assignments)</td>
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<td></td>
<td>• Student engagement?</td>
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<td>• Potential to have students in different courses</td>
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<td>• Increase Faculty time (monitoring for assignments, grading)</td>
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<td>• Questions may be harder to answer (due to time differences, no daily connection)</td>
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Challenges of Distance Education

• Next Steps for UNMC?
  – Anytime/Anywhere (US & International)
    • Asynchronous
    • Virtual Microscopy – until clinicals
Challenges of implementing ELCs in curriculum
### Summary of Challenging New ELCs

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<tr>
<th>Item</th>
<th>Number of Responses</th>
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<td>Telepathology</td>
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<tr>
<td>IHC</td>
<td>4</td>
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<tr>
<td>EBUS/EUS/ROSE</td>
<td>3</td>
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<tr>
<td>HPV/HSV</td>
<td>3</td>
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<tr>
<td>LIS</td>
<td>3</td>
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<tr>
<td>FISH</td>
<td>2</td>
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<tr>
<td>Molecular pathology</td>
<td>2</td>
</tr>
<tr>
<td>Billing/Coding</td>
<td>1</td>
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<tr>
<td>Digital pathology</td>
<td>1</td>
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<tr>
<td>Computer-assisted gyn screening</td>
<td>1</td>
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<tr>
<td>Special stains</td>
<td>1</td>
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<tr>
<td>Triage of specimens for techniques (molecular, flow, tissue banking)</td>
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</tbody>
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Challenging Areas

• Digital Imaging
• Telepathology
• FISH
• Billing/Coding
Digital Imaging

Aperio:
- standardize IHC interpretation
- share cases world-wide

VisionTek M6:
- view up to 4 slides simultaneously
- view multiple areas of same slide
Digital Imaging

ViewsIQ/Panoptiq
Telepathology

Essentials for Telepathology
1. Policy and Procedure consistent with CAP requirements
2. A Camera for the microscope such as a Leica Camera
3. Some type of Image Capture software such as Leica LAS
4. Some type of desktop sharing application such as GoToMeeting, Skype or Webex
FISH

• Blackboard curriculum with didactic content and simulations:
  – Virtual stage w/ X & Y axis scales
  – Fluorescence microscope with multiple filters
• Flash design embedded into HTML with .jpeg images linked via remote server
• Benefits:
  – Realistic FISH experience
  – Can standardize education/training
  – Doesn’t interfere with clinical work
Microscope Controls

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<th>Coordinates</th>
<th>Close</th>
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<tr>
<td>Control A:</td>
<td>3.1</td>
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<tr>
<td>Control B:</td>
<td>133.6</td>
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</table>

A: 3.2
B: 133.6
Submit
• **https://eduonline.mayo.edu**

• Lessons learned:
  – Substantial time and resource commitment
  – Ongoing maintenance
  – Technical issues/glitches
    • Compatibility
  – Does not replace real-time experience, combination of simulation and live case screening works best
• **https://www.aapc.com/icd-10/codes**

• Michele Smith
  – Good news:
    • Basics of billing and coding remain the same
      – Only the codes have changed
    • 2015: 1 to 1 crosswalk for the most part
    • Internet crosswalk links are great, when in doubt go through CMS
– Education and Training Changes:
  • Not much really
    – The basics of coding and billing remain the same
  • What about ICD9?
    – Need to remember that new techs are going to be working with old techs and old clinicians
    – Historical perspective, not unlike changes to the Bethesda System; Dysplasia vs CIN; and the old Pap class system
  • Training
    – Start with ICD10 and crosswalk back
    – Links are great in CMS
Best Practices of ELC

• Any other participants to share?
MLPP/APP

• Mid-level or Advanced Pathology Professional
• Subcommittee of CPRC
• Accomplishments:
  – Drafted ELC’s
  – Vetted by co-sponsors
  – Interest already expressed by some Programs
• “Hot Topic” tonight
• ASC/ASCP Workgroup:
  – Subgroups: Education, Trending Data, Practice
  – Held Advanced Cytopathology Education Course
  – Developing other on-line courses
Questions or Comments?
Determining Entry Level Work Load
Guidelines for Automated Pap test
Screening Devices for Cytotechnology
Program Graduates:
Centers for Disease Control and Prevention
(CDC)
William N. Crabtree, Ph.D., SCT(ASCP)
Project Director
Cytology Workload Measurement
Participant Screen

Slide Number: 17  
Case Setup Start: 10:51:12 AM  
Case Setup End: 10:51:17 AM  

FOV Start: 10:51:17 AM  
FOV End: 10:51:21 AM  

I will perform FMR  
FMR Start: 10:51:21 AM  
FMR End: 10:51:33 AM  

PAUSE

Interpretation:
- UNSAT: Unsatisfactory: include extremely scant cellularity, scant squamous component, obscuring inflammation, predominantly WBC's, excessive blood.
- NILM: Negative for Intraepithelial Lesion or Malignancy: includes benign endometrial cells, reactive and reparative changes, organisms such as Candida, Trichomonas, Herpes, etc.
- ASC-US: Atypical Squamous Cells of Undetermined Significance: includes ASC-H
- AGUS: Atypical Glandular Cells of Undetermined Significance: includes atypical endocervical and endometrial cells, atypical endocervical cells suggestive of AIS
- LSIL: Low-grade Squamous Intraepithelial Lesion
- HSIL: High-grade Squamous Intraepithelial Lesion
- MALIGNANT: Squamous cell carcinoma, adenocarcinoma, other malignant neoplasms
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<tr>
<th>Institution</th>
<th>Business</th>
<th>Equipment</th>
<th>Slide Number</th>
<th>Measurement Date</th>
<th>Case Setup Start</th>
<th>Case Setup End</th>
<th>Last Setup Time (Minutes)</th>
<th>FOV Start</th>
<th>FOV Stop</th>
<th>FOV Time (Minutes)</th>
<th>FMH Start</th>
<th>FMH Stop</th>
<th>FMH Time (Minutes)</th>
<th>Case Complete Time</th>
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Average per slide:
- Total Slides: 20,000
- Average: 2,000
- Total Time (minutes): 96,000
- Average Time per Slide: 4,800
- Total Case Setup Time (minutes): 55,983
- Average Case Setup Time: 2,800
- Total FOV Time (minutes): 65,918
- Average FOV Time: 3,200
- Total FMH Time (minutes): 50,674
- Average FMH Time: 2,500
- Total FOV + FMH Time (minutes): 116,592
- Average FOV + FMH Time: 5,800
- Total Case Complete Time Time (minutes): 0
- Average Case Complete Time: 0
- Average time per slide - FOV: 2,340
- Average time per slide - FMH: 1,240
- Average time per slide - FOV + FMH: 3,580
Strategies in Cytotechnology Education: Session #2

ASCT Companion Session

Keisha Brooks, MS, MB, CT(ASCP): The University of Tennessee Health Science Center
Catherine Smith, MEd, CT(ASCP)CM: University of Arkansas for Medical Sciences
Michele Smith, MS, SCT(ASCP): Wisconsin State Laboratory of Hygiene