2012-2013 Teaching Academy Workshops/Seminars Series

All Rush University faculty are invited to participate in the 2012-2013 Teaching Academy Workshops/Seminars Series! The Teaching Academy Series will be held every 3ʳᵈ Tuesday of the month from 12:00 – 1:00 p.m. in room 994 AAC. Lunch will be provided.

Please see tentative schedule and presentation topics below.

July 17, 2012
Library Resources/Rounds
presented by Jonna Peterson, MLIS

August 21, 2012
How to interview/
Tips for a Successful Interview
presented by Courtney L. Kammer

September 18, 2012
How to Write Letters of Recommendation
presented by
Ruth Kleinpell, Ph.D., RN, FAAN, FCCM

October 16, 2012
Gaining Visibility as a Leader presented by
Chandice Covington, Ph.D., RN, FAAN

November 20, 2012
Successfully Hiring, Retaining and
Managing Employees and Staff
presented by Jane C. Grady, Ph.D.

December 18, 2012
How to Make PubMed Work for You
presented by Jonna Peterson, MLIS

January 15, 2013
How to Structure Clinical Teaching
presented by Thomas Bleck, M.D.

February 19, 2013
Test Blue Print/ How to Write Test
Questions
presented by Rosemarie Suhayda, Ph.D., RN

March 19, 2013
Outcome Measures of Successful Teaching
presented by Rosemarie Suhayda, Ph.D., RN

April 16, 2013
Online Teaching presented by
Ningchun Han, Ph.D. and Lei Zhao, M.Ed

May 21, 2013
Competency Based Education presented by
David Shelledy, Ph.D., RRT, RPFT,
FAARC

June 18, 2013
How to Chair a Committee and a Meeting
presented by Lauren Goebel, MBA, MHSA

For more information or to RSVP

Contact Stephanie Sacriste, Project Coordinator

Office of Academic Affairs at Academic_Affairs@rush.edu or (312) 563-6395

You've Found It! Now what?
And other helpful tips…

Jonna Peterson, MLIS
Reference Services Manager
Library of Rush University Medical Center

July 17, 2012

The Use of Antiinflammatory Therapy and Macrolides in Bronchiectasis

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Plan for today

- Describe various techniques for retrieving your favorite citation
- Importance of the GetIt! button
- Importance of the EJournal List
- Ways to organize your references and projects

Library of Rush University
Rush University Medical Center - Chicago, Illinois

ExLibris SFX SFX Services for this record

Experiences when attempting to get to full text

- Have any of these scenarios happened to you????

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item unavailable

100 - No match
Please go back to the previous page
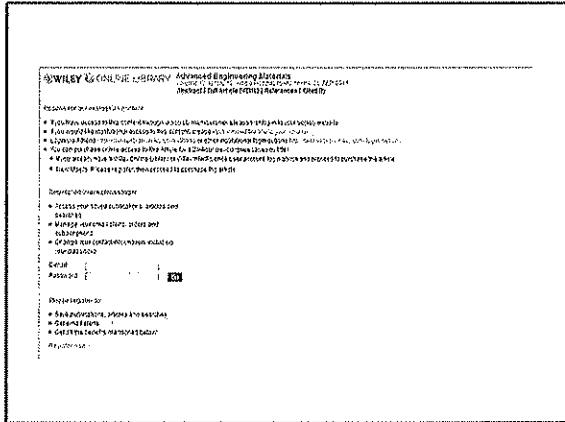
Importance of the GetIt! Button

- GetIt! is Rush's version of an open url link resolver
- Links users to our full text from a variety of sources
- For material outside our collection, Get It! provides easy linking to ILL
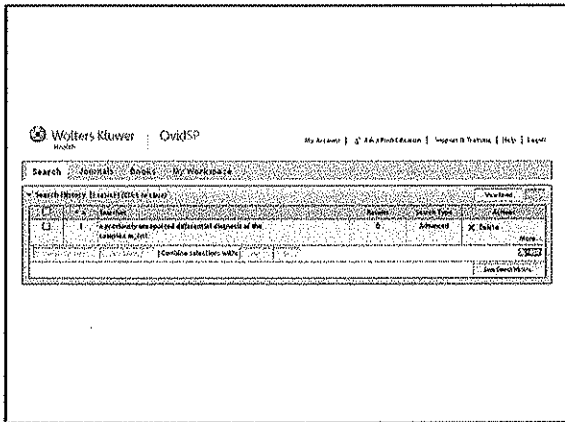
If you have a citation you need to retrieve...

- Leave out the punctuation
- Be brief
- Choose the unique words in the title
- Contact us if you need help

We can help!

- Pick up the phone
- Stop by
- Send an email
- You are not bothering us!!!

Medline Sample Citation

- Horton JD, Hofmann LJ, Hetz SP. Presentation and management of Morgagni hernias in adults: a review of 298 cases. Surg Endosc. 2008 Jun;22(6):1413-20. Epub 2008 Mar 18. Review. PubMed PMID: 18347869.

PubMed

- All purpose search box? Yes
- Citation matcher?   Yes
- Search by ID Number? Yes
- Save material? Yes
- GetIt! button enabled? Yes
- Works with RefWorks? Yes...but

Ovid Medline

- All purpose search box? No
- Citation matcher? Yes
- Search by ID number? Yes...but PMID=UI
- Save material? Yes
- GetIt! button enabled? Yes
- Works with RefWorks? Yes

PubMed Single Citation Matcher

Use this tool to find PubMed citations. You may omit any field.
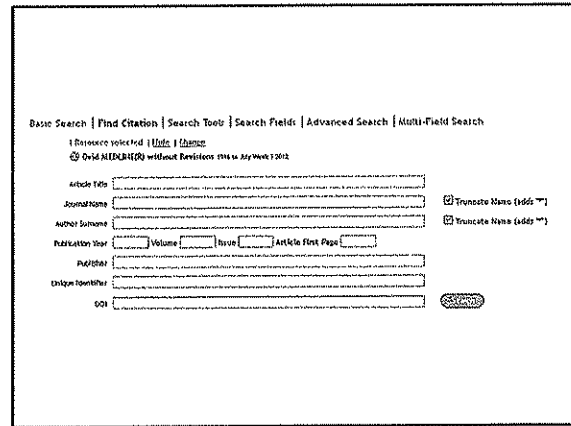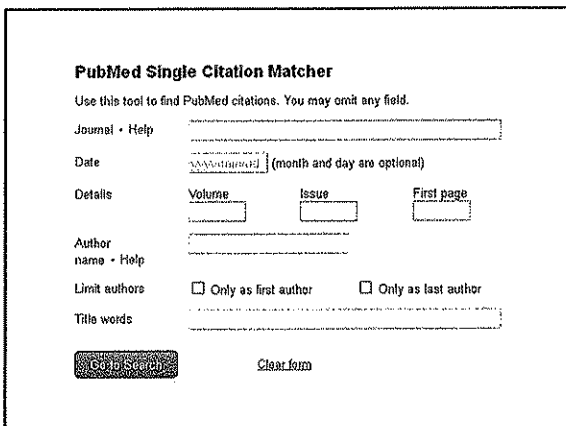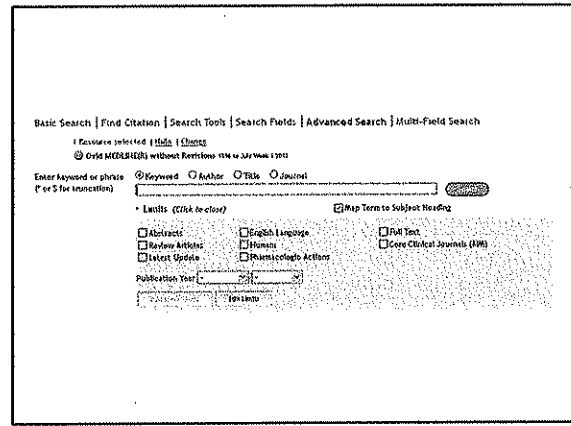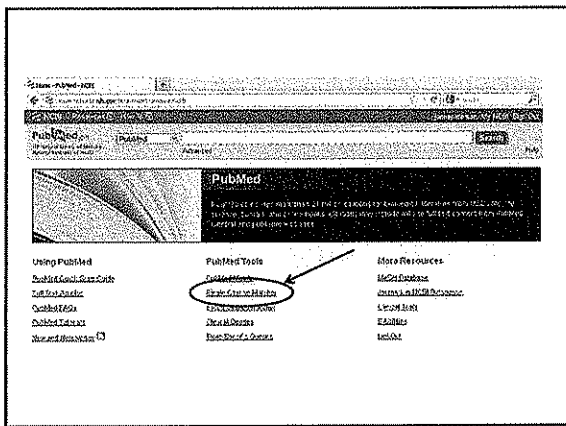
CINAHL Sample Citation

- A Previously Unreported Differential Diagnosis of the Complex Regional Pain Syndrome. Bornemann-Cimenti, Helmar; Mulzet, Doris; Archan, Sylvia; Aberer, Elisabeth; Rumpold-Seitlinger, Gudrun; Dorn, Christian; Pain Medicine, 2011 Nov; 12 (11): 1682-3 PMID: 21985021

CINAHL

- All purpose search box? No
- Citation matcher? Yes
- Search by ID number? Yes
- Save material? Yes
- GetIt! button enabled? Yes
- Works with RefWorks? Yes

PsycInfo Sample Citation

- Use of the screening suggested by the National Institute on Alcohol Abuse and Alcoholism and of a newly derived tool for the detection of unhealthy alcohol drinkers among surgical patients. Agabio, Roberta; Gessa, Gian Luigi; Montisci, Andrea; Finco, Gabriele; Contu, Paolo; Bedogni, Giorgio; Marchi, Antonio; Journal of Studies on Alcohol and Drugs, Vol 73(1), Jan, 2012. pp. 126-133.

PsycInfo or other Ebsco Db

- All purpose search box? No
- Citation matcher? Yes
- Search by ID number? Yes
- Save material? Yes
- GetIt! button enabled? Yes
- Works with RefWorks? Yes
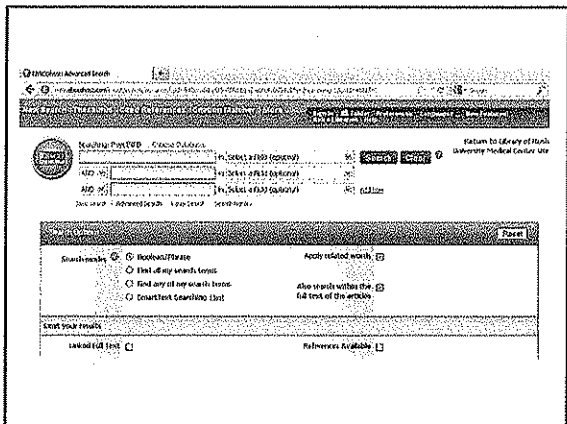
Scopus

- All purpose search box? Yes
- Citation matcher? No
- Search by ID#? Yes, only PMID in the advanced search
- Save material? Yes
- GetIt! button enabled? Yes...but it isn't Red!
- Works with RefWorks? Yes
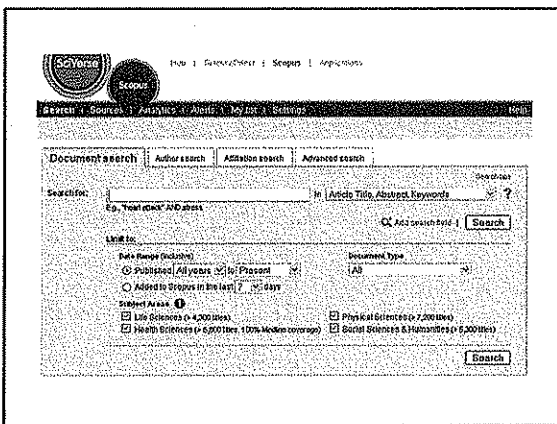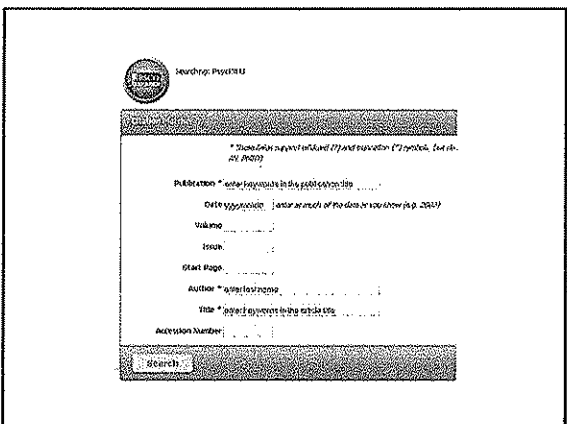
Medline Sample Citation

- Horton JD, Hofmann LJ, Hetz SP. Presentation and management of Morgagni hernias in adults: a review of 298 cases. Surg Endosc. 2008 Jun;22(6):1413-20. Epub 2008 Mar 18. Review. PubMed PMID: 18347869.

Known Troublemakers

- Cochrane Reviews (eg. PMID: 21249668)
- Anything published in a supplement (eg. PMID: 21992958)
- Clinics Series

Known Troublemakers

- Cochrane Database of Systematic Reviews
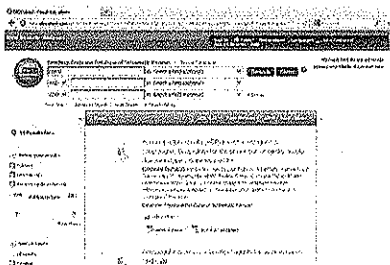
Questions?

Thank for your time!
jonna_peterson@rush.edu
312-942-2274

Known Troublemakers

- Publications from a Supplement

  Neuvonen AM, Palo JU, Hedman M, Sajantila A. Discrimination power of Investigator DIPplex loci in Finnish and Somali populations. Forensic Sci Int Genet. 2012 Jul;6(4):e99-102. Epub 2011 Oct 17. PubMed PMID: 22005117.

Known Troublemakers

- Anything from the Clinics...
- Proctor MR, Scott RM. Spinal cord abnormalities in sports. Clin Sports Med. 2012 Jul;31(3):521-33. Epub 2012 Apr 5. PubMed PMID: 22658000.

How to Interview Candidates Successfully

⟨Ⅰ⟩ RUSH

Rush is a not-for-profit health care, education and research enterprise comprising Rush University Medical Center, Rush University, Rush Oak Park Hospital and Rush Health.

Interviewing Tips

⟨Ⅰ⟩ RUSH

Know what you want

- Figure out which behaviors are associated with your most productive physicians, and make those behaviors part of the job description for which you are interviewing. You have to know what you are looking for, and it should be behaviors that add immense value to your practice

2

Interviewing Tips ⓘ RUSH

Come prepared to the interview

- Know the job requirements
- Familiarize yourself with the candidate's CV
- Arrive to the interview in a timely manner

3

Interviewing Tips ⓘ RUSH

Put the applicant at ease

- Welcome the candidate with a smile and firm handshake
- Always make eye contact when speaking
- Small talk is an easy way to start the interview and establish a connection with the candidate

4

Interviewing Tips

🕛 RUSH

Ask behavior based questions

- "Describe a situation when you did not work well with another physician. How was this issue resolved?"

- "Tell me about a time you were a part of a successful team of clinicians. What did you do to stand out? What role did you play in making your team successful?"

5

Interviewing Tips

🕛 RUSH

Probe until the entire question has been answered

- Ask questions such as "What happened next?" and "What was the outcome?"

6

Interviewing Do's & Don'ts — RUSH

- **DO** assure that all questions are related to the job requirement
- **DO** ask questions regarding the candidate's clinical and professional skills
- **DO** share the group's culture with the candidate
- **DO** evaluate whether the candidate could thrive in the required work environment

7

Interviewing Do's & Don'ts — RUSH

- **DON'T** ask the candidate's age
- **DON'T** question the candidate's marital status or sexual preference
- **DON'T** ask if the candidate has children
- **DON'T** ask about any arrests
- **DON'T** ask about place of birth
- **DON'T** ask about citizenship

8

Interviewing Do's & Don'ts ⓣRUSH

- **DON'T** ask about the candidate's religious beliefs
- **DON'T** ask about financial status

Often times, candidates will volunteer personal information on their own. This is OK. Asking a candidate personal questions directly is NOT.

9

ⓣRUSH

How to Ace Your Job Interview

Creating Your CV   ⚕ RUSH

- **Personal Information**
  - Complete name
  - Contact information - address, home/mobile phone number, email address
    - Use preferred contact information
    - Use email that will be accessible once you complete training (gmail.com vs. rush.edu)
  - Date of Birth
  - Title and Degree
- **Education and Training**
  - Begin with pre-medical college education
  - College, Medical School, Residency, & Fellowship
  - Type of training, specialty of each program
  - Complete dates of attendance for each program (July 2009 – June 2012)
- **Board Eligible or Board Certifications**
  - Dates of certifications or expected certification
  - Include other certifications – BLS, ACLS, PALS, etc.
- **Licenses**
  - All state licenses ever held
  - Include name of State, license number, issue and expiration dates and status
  - DEA registration number and expiration date

11

Creating Your CV   ⚕ RUSH

- **Professional Experience**
- **Appointments at Hospitals/Affiliated Institutions**
- **Professional Organization and Society Memberships**
- **Research Experience**
- **Grant Review Activities**
- **Editorial Activities**
- **Honors and Prizes**
- **Volunteer Experience**
- **Languages Spoken**
- **References**
- **Optional:**
  - Personal interests, presentations & publications
  - It is helpful to include a current "as of" date on your CV

12

Cover Letter and CV Do's & Don'ts ⟨T⟩ RUSH

- Include a cover letter or introduction email with your CV
- Include your specialty in the cover letter and the CV
- Do personalize the cover letter – NO general cover letters (Dear Sir or To whom it may concern)
- Tailor your letter to the reader and or advertisement
- Don't include reference letters and other credentialing documents
- Don't include irrelevant personal information or job experience
- Don't provide salary information when it is not requested
- Don't hand write ANYTHING on your CV
- Don't FAX unless requested

13

Do Your Homework ⟨T⟩ RUSH

- Research the Hospital, Medical Group, and/or Practice and have knowledge of their structure
- Ask the recruiter to give you a list of people you will be interviewing with
- Network with others who are familiar with the organization you are interviewing with

14

Dress for Success - Women   ⊕ RUSH

- A straight-forward business suit is best.
- Wear sensible pumps.
- Be moderate with make-up and perfume.
- Wear simple jewelry.
- Hair and fingernails should be well-groomed.
- Bring pen and notepad to jot down any information you may need to remember (but don't take notes during the interview).

15

Dress for Success - Men   ⊕ RUSH

- A clean, ironed shirt and conservative tie are a must.
- A simple jacket or business suit is a good idea as well.
- Shoes should be polished.
- Face should be clean-shaven; facial hair should be neatly trimmed.
- Hair and fingernails should be well-groomed.
- Use cologne or after-shave sparingly.
- Bring pen and notepad to jot down any information you may need to remember

16

Show Self Confidence

℧ RUSH

- Make eye contact with the interviewer and answer the questions in a clear voice.

17

Listen

℧ RUSH

- Communication is a two-way street. If you are talking too much, you will probably miss cues concerning what the interviewer feels is important.

18

9
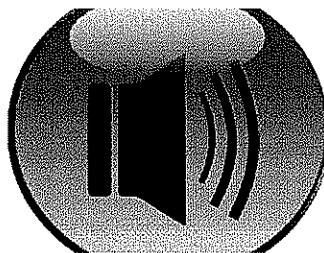
Prepare Your Own Questions ⓘ RUSH

- When it is your turn, ask the questions you have prepared in advance. These should cover any information about the company and job position you could not find in your own research.

19

After the Interview ⓘ RUSH

- Immediately send a thank-you note or e-mail to everyone you interviewed with. Notes are personal, but e-mail is faster if the position is time sensitive.

20
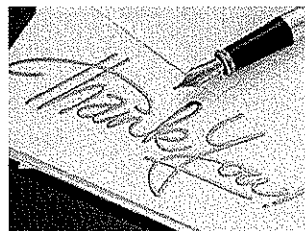
Questions?

 RUSH

Courtney Kammer

Director, Faculty Recruitment

(312) 942-7376

Courtney_kammer@rush.edu

Thank you!

21

⦿ RUSH

Behavioral Interview Questions

Give an example of an occasion when you used logic to solve a problem.
Give an example of a goal you reached and tell me how you achieved it.
Give an example of a goal you didn't meet and how you handled it.
Describe a stressful situation at work and how you handled it.
Tell me about how you worked effectively under pressure.
How do you handle a challenge?
Have you been in a situation where you didn't have enough work to do?
Have you ever made a mistake? How did you handle it?
Describe a decision you made that was unpopular and how you handled implementing it.
Did you every make a risky decision? Why? How did you handle it?
Did you ever postpone making a decision? Why?
Have you ever dealt with company policy you weren't in agreement with? How?
Have you gone above and beyond the call of duty? If so, how?
When you worked on multiple projects how did you prioritize?
How did you handle meeting a tight deadline?
Give an example of how you set goals and achieve them.
Did you ever not meet your goals? Why?
What do you do when your schedule is interrupted? Give an example of how you handle it.
Have you had to convince a team to work on a project they weren't thrilled about? How did you do it?
Give an example of how you worked on team.
Have you handled a difficult situation with a co-worker? How?
What do you do if you disagree with a co-worker?
Share an example of how you were able to motivate employees or co-workers.
Do you listen? Give an example of when you did or when you didn't listen.
Have you handled a difficult situation with a supervisor? How?
Have you handled a difficult situation with another department? How?
Have you handled a difficult situation with a client or vendor? How?
What do you do if you disagree with your boss?

HOW TO WRITE LETTERS OF
RECOMMENDATION
2012-1013 TEACHING ACADEMY SERIES

Ruth M. Kleinpell PhD RN FCCM
Rush University Medical Center; Rush University
College of Nursing
Chicago Illinois

BACKGROUND

o Almost everyone is asked to write a letter of recommendation at some time during their career.
o Common situations include:
  - Letter of recommendation for a colleague
  - Letter of recommendation for a student
  - Letter of recommendation for a specific request – ie. award applicant, research grant applicant

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CONSIDERATIONS

o It is important to be prepared to write an effective letter of recommendation.
o It's equally important to be ready to say "no" if you're not comfortable providing the recommendation letter

http://jobsearch.about.com/od/referencesrecommendations/a/referencewrite.htm

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CONSIDERATIONS

o Letters of recommendation provide insight into a person's strengths, character, accomplishments and work ethic to those evaluating the individual
  - Therefore it is important that you are able to speak to these aspects if asked to write a letter of recommendation

http://business.lovetoknow.com/wiki/Letters_of_Recommendation

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CONSIDERATIONS

o Letters of Recommendation take time to write
  - Identifying specific request
  - Gathering information about requester
  - Determining who to address and how to write the letter
  - Outlining review time as well as writing time
  - Drafting and finalizing an effective letter of recommendation
o Summary: Don't underestimate the work and time involved!

CONSIDERATIONS

o **Before You Write**

Writing a recommendation letter for another person is a significant responsibility and should be taken seriously.
o Before you agree to the task, make sure you have a clear understanding of what the letter will be used for and who will be reading it.
o You should also make sure that you know what kind of information is being expected from you.

http://businessmajors.about.com/od/admissionsela/WritingRecLets.htm

CONSIDERATIONS

- If you feel that you can not properly convey the necessary information, offer to sign a letter that has been drafted by the person who is requesting the reference.
- This is a very common practice and often works well for both parties.
- However, before you sign something written by someone else, make sure that the letter honestly reflects your true opinion.
- You should also keep a copy of the final letter for your records.

WHAT TO INCLUDE

- Every recommendation letter should include three key components:
  - A paragraph or sentence that explains how you know this person and the duration of your relationship with them.
  - An evaluation of the person and their skills/accomplishments. If possible offer specific examples that illustrate the person's strengths and qualifications.
  - A summary that explains why you would recommend this person and to what degree you would recommend them.

THINGS TO DISCUSS

- The content of your recommendation letter will depend upon the needs of the person who is requesting it, but there are some common topics that you can address:
  - Potential
  - Skills/Abilities/Strengths
  - Dependability
  - Consistence
  - Character
  - Contributions (to class or community)
  - Accomplishments

WRITING A LETTER OF RECOMMENDATION

- At the beginning of the letter, say how well you know the person, for how long, and how you became acquainted.
- Be specific. Don't just praise the person with generalities (such as "quick learner"), but give specific stories or anecdotes about things the person did to give you that impression.
- Differentiate. Say how this person is unlike other people: his or her specific strengths.
- Compare. When writing to someone who shares context with you, provide contrast ("In the top 5% of the class)

WRITING A LETTER OF RECOMMENDATION

- Be plausible. Don't make the person out to be perfect. Often a letter just ignores shortcomings, but then the letter lacks credibility
- If the person has shortcomings, admit them or note some ways the person can improve, particularly if the person has started to overcome those problems.
- State your own qualifications
- Justify your recommendations. Don't write a statement like "The applicant is definitely qualified for your institution/award/program"

WRITING A LETTER OF RECOMMENDATION

- Don't be too brief. One paragraph, or two short paragraphs is not beneficial
- If you don't know the person well, and don't have much to say, add a short paragraph explaining the circumstances – ie. you were asked for a letter by a former student you had in one class, or by a colleague you have not worked with directly but only on a university committee.
- Make the letter succinct and to the point. Whoever reads your letter is probably reading other letters. If your key points are not clear, your letter will not be effective.

There are many specific resources for writing letters of reference

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MAYFIELD HANDBOOK: WRITING LETTERS OF RECOMMENDATION

- Write letters of recommendation to provide relevant information and to present an individual truthfully and positively.
- **Guidelines for Writing Letters of Recommendation**
  - Before writing the letter:
  - In most cases, agree to write a letter of recommendation only if you can honestly write a supportive letter. If you cannot portray an individual positively, decline to write the recommendation.
  - Ask for a current resume and as complete a description as possible of the position or program to which the person is applying.

http://homes.cs.washington.edu/~mernst/advice/write-recommendation.html

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GUIDELINES FOR WRITING LETTERS OF RECOMMENDATION

- Assemble and review all other relevant information you may have about the person you are recommending. It is often easy to overlook some important accomplishment.
- Writing the letter:
  - Present the person truthfully but positively. A recommendation that gives an unrealistic picture of a candidate may be discounted. A recommendation that focuses on negative qualities may do more harm than intended.
  - Tailor the recommendation to the position. Speak to the candidates qualities and tailor to the purpose of the letter.

http://homes.cs.washington.edu/~mernst/advice/write-recommendation.html

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GUIDELINES FOR WRITING LETTERS OF RECOMMENDATION

- Begin the letter by describing how you know the individual you are recommending and the specific contexts upon which you are basing your evaluation.
  - In what situations have you known the individual? For how long? How closely?
- Present the individual's general qualities relevant to the position along with one or two detailed examples. This will make the recommendation much more effective.
- In most cases, a letter of recommendation should consist of three or four paragraphs and not be over one page in length, depending on the purpose.

http://homes.cs.washington.edu/~mernst/advice/write-recommendation.html

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Perfect Phrases: I am pleased to have this opportunity to warmly recommend XX for admission to the University of Texas at Austin. He is an outstanding person and a student of exceptional promise who can contribute substantially to your program

This letter represents my very strong and sincere endorsement of XX, a young person of great promise in Chicago's literary community

Out of about 100 officers I have worked with in my 30+ year career , XX rates in the top 10 percent. Of the 12 logical officers at his rank that I have worked with, he is in the top 5 percent . Among all Marines, I would definitely rank him in the top one percent.

To Whom It May Concern:

It is with great pleasure that I am recommending XXX to you. I am the Department Head of Laboratory Services at Rush University Medical Center and XX has been under my supervision from November of 2009 to the present as a laboratory technician. She recently completed her advanced laboratory certificate at Rush University and is pursuing an advanced laboratory technician position.

XX would be a great asset to any laboratory. She is one of the brightest employees that I have ever had. She also has a great drive and passion for her work and is a quick learner. Within her first two weeks, she had learned all the common laboratory testing methods. It normally takes a new lab technician at least two months to be familiar with lab testing methods

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XX's drive has led her to receive recognition within the institution. She has had the honor of receiving the "Employee of the Quarter" last year for her assistance in helping run tests during an influenza season when we were shorted staffed due to staff illnesses with influenza.

I believe that XXX will be an excellent fit for your laboratory. XXX has been nothing short of an exemplary employee.

If you have any further questions, feel free to contact me at (555) 555-555 and I'll be happy to answer any questions you have.

COMMON PROBLEMS IN RECOMMENDATION LETTERS

o Are written on plain paper rather than on letterhead
o Do not include the writers signature or contact information
o Concentrate on the writer with only a brief reference to the student/applicant
o Contain over-enthusiastic or generic endorsements instead of offering insights

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HOW TO DECLINE A RECOMMENDATION REQUEST

If someone asks for a recommendation, and you do not know the person very well, you can simply say, "I am sorry, but I do not feel that I know you well enough (or I have not worked with you long enough) to provide you with an accurate recommendation."

http://jobsearch.about.com/od/reject/qt/reject-reference-request.htm

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DECLINING REQUESTS

o The most gracious ways to decline request are to say you:
  • Do not have the time to do an effective job
  • Are not familiar enough with a candidate's work or background to do him/her justice
  • Do not have the credibility to impress the committee at that particular school/place of employment

o The best way to maintain your credibility is to be highly selective in whom you choose to support

---

HOW TO DECLINE A RECOMMENDATION REQUEST

If you know the person well, but do not feel you can give them a positive recommendation, you can simply say, "I do not feel I would be the best person to write you a recommendation," and perhaps provide a suggestion for another person they could ask.

http://jobsearch.about.com/od/reject/qt/reject-reference-request.htm

EXAMPLE

o Dear Mark

Congratulations on beginning your job search. I am sorry, but I do not feel that I am the best person to write you a recommendation.

o I recommend you contact your advisor or a professor who taught a course related to your career interests.

Best of luck with the job search.

Sincerely,

THE BENEFITS (OR NOT) OF SOCIAL MEDIA (IE. LINKEDIN)

o Dear Susie,

I am glad to hear you are interested in my company and that you follow me on Twitter.

I am sorry, but I do not feel that I know you well enough to provide you with an accurate recommendation.

I wish you the best of luck in your job search.

Sincerely,

http://jobsearch.about.com/od/reject/qt/linkedin-reference-request-rejection.htm

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EXAMPLE

o Dear Bob

I am glad to hear you are interested in a job in the hospital administration industry. I do not feel that I worked with you long enough to write you an accurate reference letter for your job search.

o However, if you have any questions about job searching for a hospital administration position, I would be happy to answer them.

Sincerely,

YourName

http://jobsearch.about.com/od/reject/qt/-reference-request-rejection-letter.htm

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CONSIDER THESE EXAMPLES

WHEN YOU NEED LETTERS OF RECOMMENDATION

o **Select the Right Person**

o This is a crucial step - Find someone who you feel confident knows you enough to highlight your best qualities in a professional manner.

o Your writer should be someone the college, employer, agency or company considers *worthy*.

o Make sure the person you request to write your letter has the time and, more importantly, the inclination to write an effective letter of recommendation.

http://business.lovetoknow.com/wiki/Letters_of_Recommendation

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CONSIDERATIONS

o Provide a draft letter of recommendation
  • Highlight the aspects that would be most beneficial to you

o Provide a copy of your resume/curriculum vitae (CV)

o Provide instructions on how/who to submit the letter to

o Provide the due date

o Follow up with a "thank you" to acknowledge their time and efforts

SUMMARY

- Writing letters of recommendation is a professional expectation
- Know when to say "yes" to a request
- Know when to say "no"
- Writing letters of recommendation take time
- Being prepared can expedite the process of writing for letters that are requested from you as well as for others writing letters for you

Rush University Teaching Academy

Chandice Covington
Professor & Chair
Rush U College of Nursing
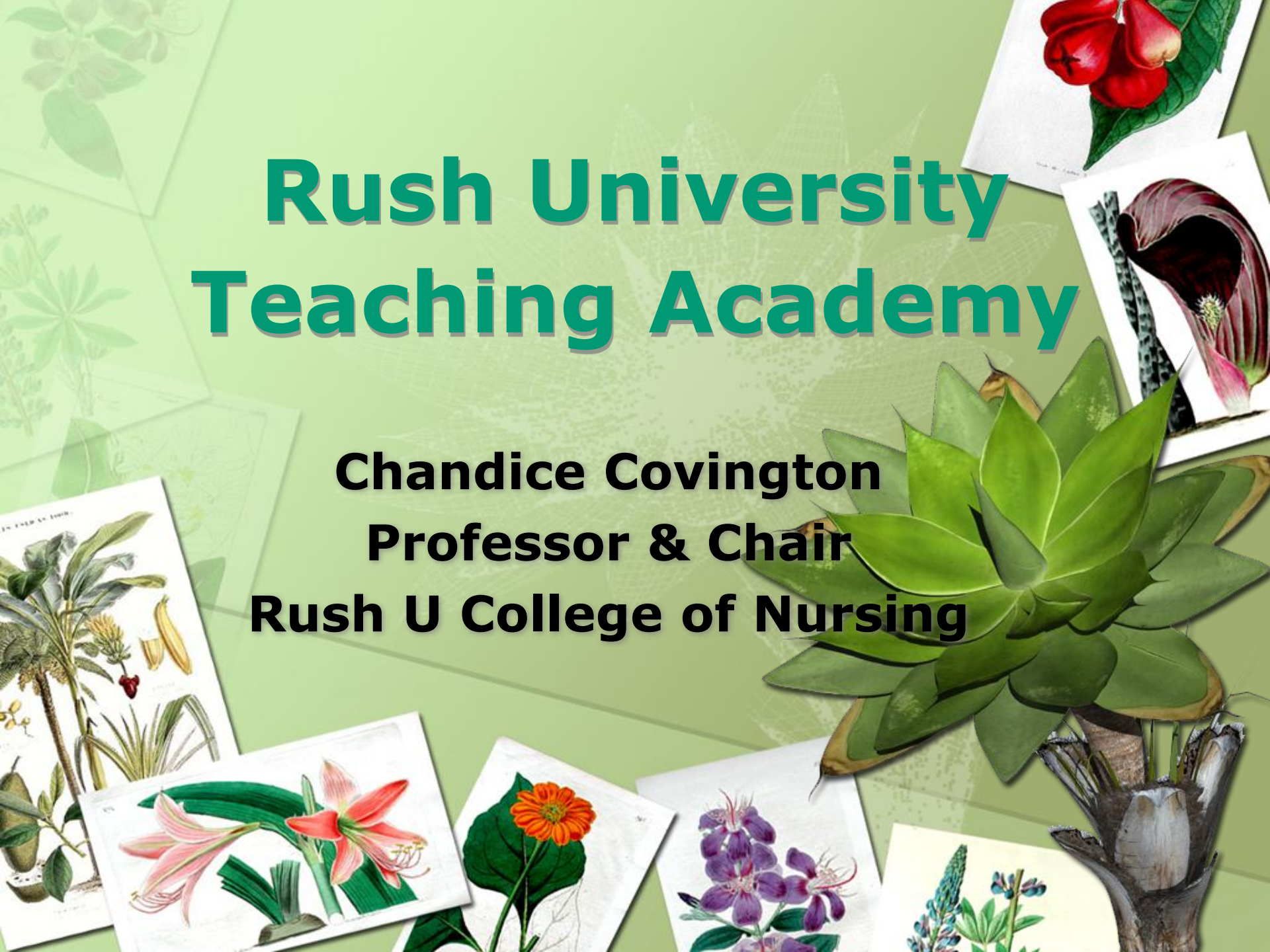
Gaining Visibility...
as a Leader

Objectives

- 1. Define leader and examine reasons for aspiring to be a leader.

- 2. Describe strategies to gain visibility as a leader at varying points in one's career.

- **What are you expectations today?**
- **Who's your favorite leader? Why?**
- **Would YOU want to be a leader like that favorite?**

Historical Foresight

Looking back to see if you are looking back at me…
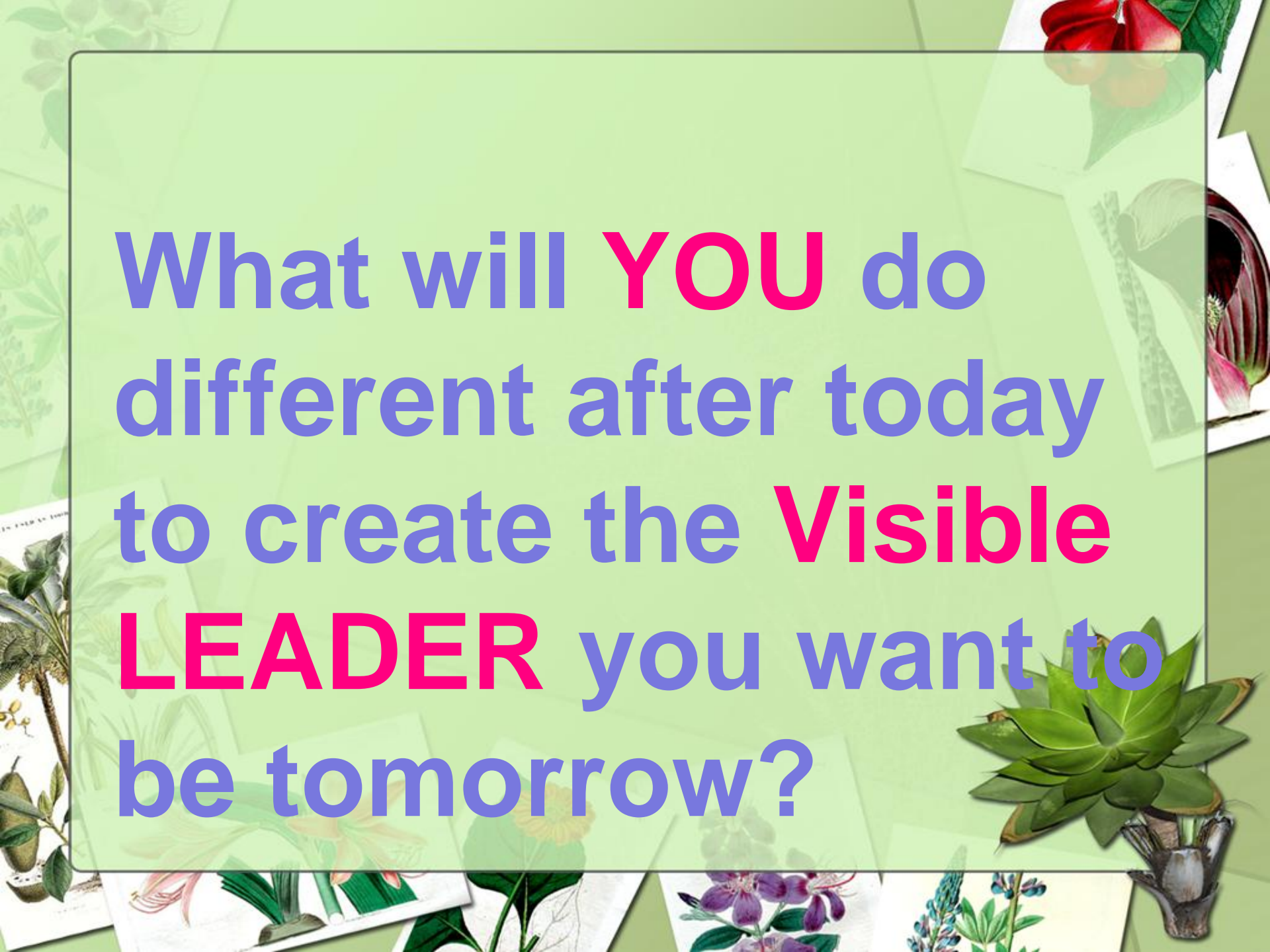
So You want to Lead?

- **21? Young leader in training**
- **30? Emerging leader**
- **40? "Sell no wine before its time" Leader**
- **50+? Follower, and that's not all bad…OR**
- **Re-invented Leader**

What will YOU do different after today to create the Visible LEADER you want to be tomorrow?

Leadership: It is not...
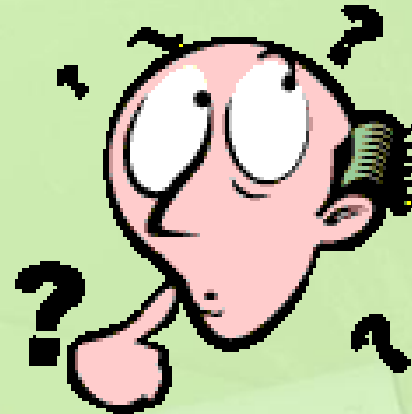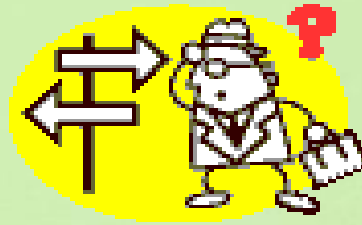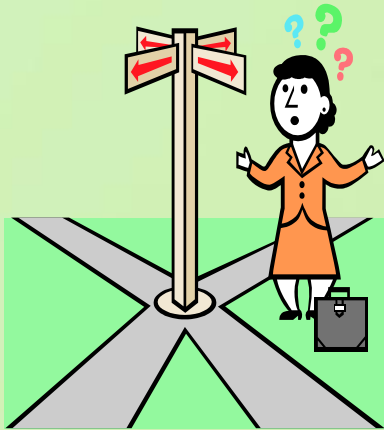
Leadership: What is it?

5 lessons on leadership from the Andy Griffith Show

1. Earned authority
2. Let others fail
3. Assume responsibility
4. Facing fear
5. Build up others

How do YOU become a leader?

- **Elusive, magical development?**
- **Course work?**
- **Gray hair?**
- **Experience?**

Some Simple Facts

Leader shortage...

AND FOR MY NEXT TRICK

I'LL NEED A VOLUNTEER

memegenerator.net

Walk the walk…

Walk like you are wearing a bikini...(or speedo...)

Look engaged...

- Head up, shoulders back
- Assurance of leader characteristics
- Strong
- Best foot forward

Talk the talk...
The Elevator Pitch
http://ww w.youtube.com/watch?v=Tq0tan49rmc

Open your lips when you talk aka…
"Honey don't mumble"

254   Lincoln's Address at Gettysburg, Nov. 19, 1863, from a painting by A. I. Keller in *Harper's Weekly*, Feb. 10, 1900

Scaffolding Self

http://www.youtube.com/watch?v=ax3B4gRQNU4

Listen in the "I-Thou" World

- **Listen intently, as if your life depends on it**

- **Do not think about what you will say back**

- **Eye contact; face squarely**

- **Lean into person**

- **Body language**

The Morale to these Truths

- "**Being there**" phenom

- People think you are the brightest person on earth

They feel "heard"
Your response is "in the moment"
You are deemed a "brilliant" leader

Mentor & Protégée Story

Is it Easy? Leaders at 5PM

Q & A

"One final question: Do you now own or have you ever owned a fur coat?"

Hiring, Managing and Retaining the Best

Rush Teaching Academy

November 20, 2012

Jane C. Grady, Ph.D.

Agenda for Today……

- Hiring

- Managing

- Retaining

- Moving on

Your Questions?

- Please take a few seconds and jot down questions you want to be sure I will address.

- Then please call them out if they are not already on the list.

Hiring

- Using the job/position description as your first step
  - Is what you had, what you still want?
  - Think about your current employees – what makes for current good performance/poor performance
  - Make necessary changes – the job description determines salary, standards, title, so it matters

Hiring… continued

- In addition to the job description…

  – What values are important – use the Rush values as a guide

  – What Competencies are needed for success in this role – "new" Rush Leadership Competencies may be helpful

Hiring… continued

- Behaviorally focused interviewing – the gold standard

- Your past behavior predicts your future behavior

- STAR

  - Situation

  - Task

  - Action

  - Result

Hiring… continued

- "Tell me about a time when……"

- Not common sense

- Takes practice

Hiring… continued

So, let's practice!

- Issue is **multi-tasking**

  - Questions, please?

Hiring… continued

Other-tools:

– In-box exercises

- Must be consistent for all applicants

- Must mirror actual work

Seriously consider the hire or re-train decision

- Hard to find skill sets
- Time spent in training or recruiting

Managing Talent

- Orientation and On-Boarding – well worth the investment – resources on HR Source

- Standards – You all have them, whether or not they are written down.
  - Think about times you were disappointed
  - Think about conflicts that arise
  - Think about things you would like to go better
  - Few, but mighty

Managing Talent… Continued

Let's Practice!

- Turn to the person on your left

- Share an area where you either

A. have a standard that works

 or

B. Would like to create a standard about

Be prepared to share with the group

Managing Talent… Continued

Feedback

- Clear

- Short

- Frequent

- Directional

- Used more on the positive than the negative

- Recipients know what you did or didn't like

Managing Talent... Continued

Let's Practice!

- Turn to the person on your right

- Give them some positive feedback

- Then ask them if the feedback met the criteria

Managing Talent… continued

Performance Reviews

- No surprises

- Brief retrospective

- Future oriented – goals focus

Acknowledge and include career development conversation

Retaining the Best

Engagement:

- Heightened connection to the work place

- Results in greater discretionary effort

➤ Work that matters

➤ Do what I'm good at

➤ Can connect with Mission and values

Counseling Out

- A progressive process

- Standards are key

- A history of feedback is essential

- Clarity is required

- Consequences all along the way

- Use HR – don't undervalue the bureaucratic steps/due process

Unanswered Questions

- Please feel free to contact Employee Relations for support

- Work with your recruiter

- Use the tools that are provided

  - Orientation checklists

  - Leap classes

  - Performance reviews

How to make PubMed work for you!

Jonna Peterson, MLIS
Reference Services Manager
Library of Rush University Medical Center
December 18, 2012

Plan for Today

- PubMed basic review
- Searching with keywords and MeSH
- PubMed Central (PMC)
- MyNCBI
- PubReader

PubMed Basics

- 22 million citations contained in MEDLINE
- Late 1940's-present
- Free search engine
- Indexed using MeSH terms

PubMed Search Box

- Anything goes!
- Difference between keyword and MeSH
  - keyword: words that appear in designated places
  - MeSH: words assigned to the articles by subject specialists

PubMed Search Box

Sample PubMed Citation

MeSH

- Medical Subject Headings
  - Allow focused searching of pre-designated headings
  - Subheadings for further narrowing
  - Entry terms and previous indexing available
  - Tree structures

MeSH Definition

Entry Terms

Entry Terms:

- Glucocorticoid Receptors
- Glucocorticoid Receptor
- Receptor, Glucocorticoid
- Receptors, Glucocorticoids
- Glucocorticoids Receptors
- Receptors, Corticoid Type II
- Corticoid Type II Receptors
- Corticoid II Receptor
- Receptor, Corticoid II
- Receptors, Corticoid II
- Corticoid II Receptors

Previous Indexing and Trees

Additional MeSH Data

Is PubMed doing what you are asking?

- Meet the "Search Details" box
- Example: blood gas: amount of CO_2 in the blood
- MeSH terms ensure PubMed is doing what you're asking

Search details

```
("blood"[Subheading] OR
"blood"[All Fields] OR
"blood"[MeSH Terms]) AND
gas[All Fields]
```

MyNCBI

- Found in the upper right corner of the page
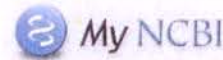
jonnapeterson   My NCBI   Sign Out

MyNCBI

- Create an account that allows you to customize certain features of your PubMed experience
  - Save searches and search strategies, alerts by email or RSS
  - Create bibliographies with out the use of additional software
  - Recent history

MyNCBI

PubMed Central

- Launched in 2000
- "NLM believes that the best way to ensure the accessibility and viability of digital material over time is through consistent and active use of the archive."
- Repository for participating publishers and manuscripts submitted according to NIH Public Access policy
- Copyright protection remains with the publishers

PubMed Central

PubReader

- Newest feature of PubMed
- Available in PubMed Central
- Designed for reading content on small screen devices

PubReader Supported Browsers

Questions?

How to structure clinical teaching

Thomas P. Bleck MD FCCM

Omar Lateef DO

Disclosures

- I am the least important bedside teacher on the team
  - Order of importance:
    1. Patients
    2. Residents
    3. Nurses
    4. Fellows
    5. Other students
    6. Attending physicians

Disclosures

- Total amount of time in 4 years of medical school and 6 years of postgraduate education devoted to teaching me to be a bedside teacher = 0.

Disclosures

- Total amount of time in 4 years of medical school and 6 years of postgraduate education devoted to teaching me to be a bedside teacher = 0.

- There were a few sessions devoted to lecture techniques, and many hours devoted to setting up the alternative curriculum in the mid 1980s.

- "I'm not here to teach you, I'm here to see that you learn."
  - Anonymous University of Chicago professor

Types of clinical teaching

- Bedside teaching, one-to-one or small groups
- Bedside teaching during rounds
- Rounds not at the bedside
- Chalk talks (marker remarks?)
- Patient-centered conferences (M&M)
- Traditional lectures that happen to be given on a floor or in a clinic

Types of clinical teaching

- Bedside teaching, one-to-one or small groups
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- ~~Traditional lectures that happen to be given on a floor or in a clinic~~

Goals of clinical teaching

- Observe history-taking and physical exam skills
- Teach history-taking and physical exam skills
- Use the bedside teaching encounter to help the patient and family understand
  - What is going on
  - What is going to happen
- Convince the students that they want to go into whatever discipline is being taught
- Make the house staff better at what we do than we are

First three rules for bedside teaching

1. Clean you hands and stethoscopes before each patient

2. No dangling clothing (e.g., ties) to transfer bacteria

3. Don't go on to the next patient with questions unaddressed

   – Sometimes the answer will have to wait, but there must be a plan to answer it

Who are the students?

- Formal students (medical, nursing, ACNP, RT, pharmacy, other)
- House officers (interns, residents, fellows)
- Nurses
- Patients
- Families
- Attending physicians
  - I have never been on service without seeing something new

Who are the teachers?

- House officers (interns, residents, fellows)
- Nurses
- Patients
- Families
- Fellow students
- Attending physicians

Style

My style of bedside teaching

- Try to make everyone relaxed
- New patients:
  - Present first outside the room
  - Try to guide the presenter to a differential diagnosis based on the history and refined by the exam
  - Labs and images presented after the differential diagnosis
  - Try to get the presenter to explain abnormal (or unexpectedly normal) findings
    - To keep things relaxed, encourage asking for help from others on the team (especially 'ringers')
  - Although I was taught to examine the patient with the team before looking at the labs and images, most families expect us to know them before going to the bedside

My style of bedside teaching

- Go to the bedside as a group
  - The many isolation patients pose a problem
  - I introduce myself as the supervisor of the group
  - I tell the patient and family that we are going to 'talk shop,' and that they should ask questions and mention anything they think is important
    - Sometimes I have to tell them that I'll come back later if this discussion gets off track
    - Sometimes I will explain what we're going to do, and suggest that it's OK to step out if they don't want to be present
    - Sometimes we need to interview the patient without the family
- Review the relevant parts of the history
  - Try to bring out points that were overlooked or unclear

My style of bedside teaching

– Have the student perform relevant parts of the exam
  - One of our major failings is insuring that students know how to elicit physical findings
  - It is NOT adequate to show them how, or to tell them to come back themselves; I have to see them do it
    – For some findings, like heart murmurs, it may be best to come back later with small groups
– Don't leave the room without asking the patient and family if there is anything we can do for them
– Everyone cleans their hands (regardless of whether they remember touching anything) and equipment

My style of bedside teaching

- Pick up loose ends after leaving the room
  - There is no patient who doesn't raise some interesting issues
- Assign one or two people to review a topic for tomorrow's rounds, based on a patient we've seen
  - They may be the only people who benefit from the discussion, but they will learn about the topic

Teachers as Learners: The Effect of Bedside Teaching on the Clinical Skills of Clinician–Teachers

Marjorie D. Wenrich, MPH, Molly B. Jackson, MD, Kamal S. Ajam, MD, Ineke H. Wolfhagen, PhD, Paul G. Ramsey, MD, and Albert J. Scherpbier, MD

Abstract

Purpose
To assess the impact on full-time faculty's own clinical skills and practices of sustained clinical skills bedside teaching with preclerkship students.

Method
This was a longitudinal, qualitative study of faculty who provide dedicated ongoing bedside clinical skills teaching for preclerkship medical students. Interviews were conducted during 2003 to 2007 with 31 faculty of the Colleges program at University of Washington School of Medicine. Content analyses of interview transcripts were performed.

Results
Teachers perceived a strong positive impact of teaching on their own clinical skills. Six themes were associated with the influence of bedside teaching on teachers' skills and practices. One related to deterrents to change (e.g., reliance on tests/specialists) that narrowed teachers' practice skills prior to starting bedside teaching. Three related to expansion of the process of clinical care resulting from bedside teaching: expanded knowledge and skills, deconstructing the clinical experience (e.g., deepening, broadening, slowing one's practice), and greater self-reflection (e.g., awareness of being a role model). Two were perceived outcomes: improved clinical skills (e.g., physical examination) and more mindful practices (e.g., self-confidence, patient-centered).

Conclusions
Teachers perceived profound positive impact on their clinical skills from teaching preclerkship students at the bedside. Further studies are needed, including comparing teaching preclerkship students with teaching advanced students and residents, to assess whether teaching at other levels has this effect.

Themes and Subthemes Identified From Qualitative Analyses Related to Effects of Preclinical Bedside Teaching on Teachers' Clinical Knowledge and Skills, University of Washington, 2003–2007

1. Change deterrents
   - Focus on one's specialty/expertise
   - Automated practice
   - Reliance on tests and specialists
2. Constructing knowledge and skills
   - Self-directed learning of knowledge/skills
   - Learning from students
   - Learning from peers
3. Deconstructing the clinical experience
   - Developing slower practice time frame
   - Reducing clinical care to a more basic level
   - Increased awareness of process of care
   - Greater breadth/depth of knowledge, skills, practice
4. Practicing with a third eye
   - Awareness of being a role model
   - Seeing/thinking about patients from students' eyes
5. Skills improvement
   - Physical examination
   - Interviewing/communication
   - Critical reasoning
6. Implementing the mindful practice
   - Self-confidence/comfort with challenges
   - More patient-centered approach
   - Greater practice enjoyment

In 1999, the Accreditation Council for Graduate Medical Education endorsed competencies for all residents in the following six areas:

- Patient Care

- Medical Knowledge

- Practice-based Learning and Improvement

- Interpersonal and Communication Skills

- Professionalism

- Systems-based Practice

Evidence-based medicine

- a system of belief that stresses the need for prospectively collected, objective evidence of everything except its own utility

Real evidence-based rating

- class 0: things I believe
  - class 0a: things I believe despite the available data
- class 1: RCCTs that agree with what I believe
- class 2: other prospective data
- class 3: expert opinion
- class 4: RCCTs that don't agree with what I believe
- class 5: what you believe that I don't

Bleck BMJ 2000;321:239

Those Who Can, Do and They Teach Too: Faculty Clinical Productivity and Teaching

Robin R. Hemphill, MD, MPH*‡
Benjamin S. Heavrin, MD, MBA†
Joy Lesnick, PhD‡
Sally A. Santen, MD, PhD*‡

* Emory School of Medicine
† Vanderbilt University
‡ Chapin Hall Center for Children at the University of Chicago

Objective: Academic emergency physicians (EPs) often feel that the demands of clinical productivity, income generation, and patient satisfaction conflict with educational objectives. The objective of this study was to explore whether the quality of faculty bedside teaching of residents correlated with high clinical productivity, measured by relative value units (RVUs). We also explored the strategies of high-performing faculty for optimal RVU generation and teaching performance.

Methods: We performed a mixed method study using quantitative and qualitative methods to analyze the relationship between RVUs, patient satisfaction, and teaching performance. We examined the relationship between teaching performance ratings, patient satisfaction, and RVUs per hour using correlations. Following this initial analysis, we conducted semi-structured interviews with the eight faculty members who have the highest clinical (RVU) and educational productivity ratings to learn more about their strategies for success. Our Institutional Review Board approved this study.

Results: We correlated resident evaluations of faculty with RVUs billed per hour. We conducted semi-structured interviews of faculty who led in both RVU productivity and resident evaluations. From these interviews, several themes emerged. When asked about how they excel in billing, most said that they pay attention to dictating a thorough chart on every patient and try to "stay busy" throughout their entire shift. When asked how they excel at resident education, most leading faculty said that they try to find a "teaching moment" and find small "clinical pearls" to pass along. Nevertheless, all eight leading faculty members believe that as the emphasis on billing productivity increases, resident and student education will suffer.

Conclusion: Contrary to the opinion of some physicians, faculty can excel at both clinical productivity and resident education. This study found that highly efficient clinical productivity correlated with excellent resident teaching. This high level of performance did not appear to be at the expense of other important measures such as patient satisfaction or student teaching. [West J Emerg Med. 2011;12(2):254-257.]
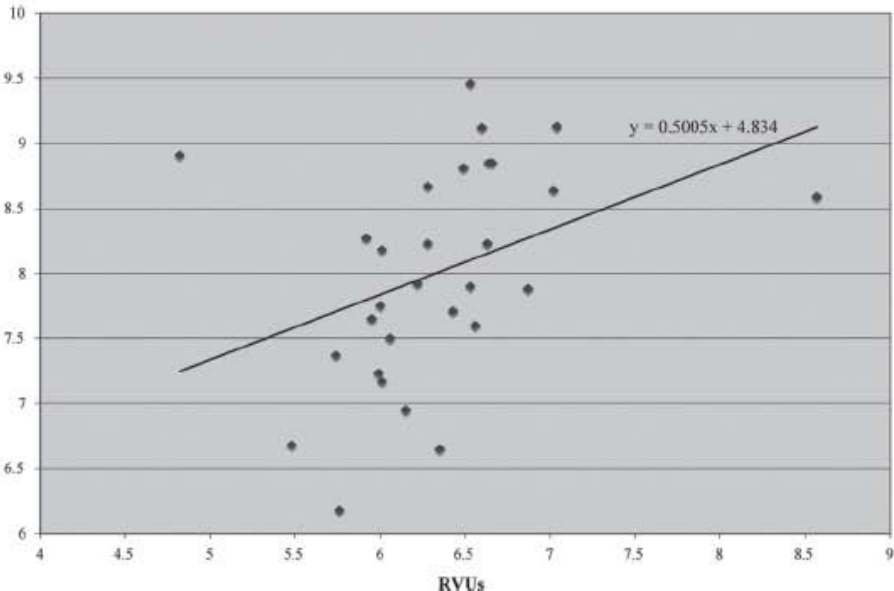
Figure 1. Faculty relative value units (RVU) generation measured against resident bedside teaching scores.

average RVUs per hour as the dependent variable. This portion of the study was determined to be Institutional Review Board (IRB) exempt.

To learn more about how successful faculty members balance the dual responsibilities of teaching and patient care/

Table 2. Correlation Matrix.

	Resident Evaluations (R)	Satisfaction (R)	Student Evaluations (R)
Relative value units	0.38*	0.15	0.34
Resident evaluations	X	0.02	0.57*
Satisfaction	X	X	-0.16

* Significant at the 0.05 level

0.38^2 = 0.14
0.57^2 = 0.32
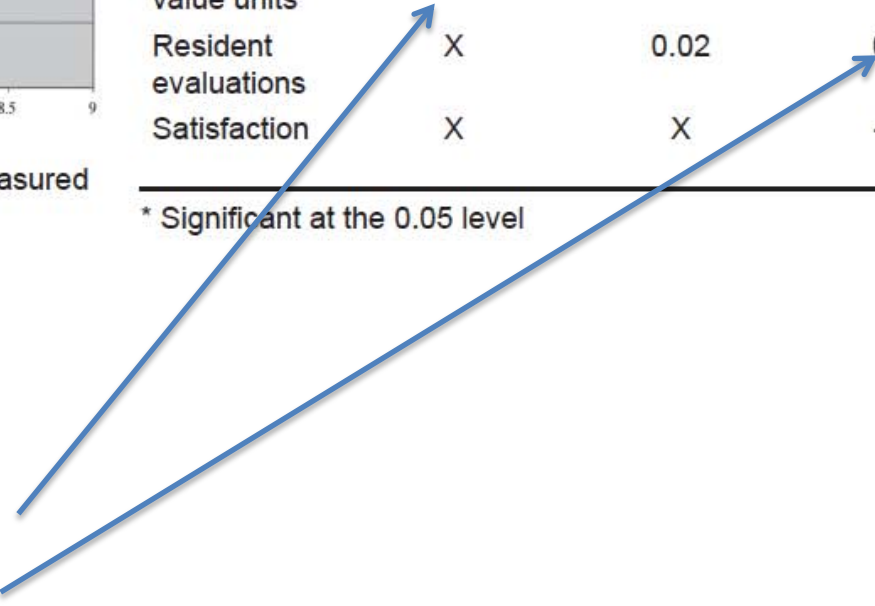
No relationship between measures of clinical efficiency and teaching effectiveness for emergency medicine faculty

Tomer Begaz,[1] M Chris Decker,[1] Robert Treat,[2] Matthew Tews[1]

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ABSTRACT

Objectives Emergency medicine (EM) doctors affiliated with academic institutions experience professional tension between providing excellent, timely care for patients and high-quality bedside instruction for residents and medical students. The goal of this study was to assess the relationship between measures of faculty clinical efficiency and teaching effectiveness.

Methods This was a retrospective review of data from a single academic institution with an annual census of 55 000. Faculty clinical efficiency was measured by two variables: the relative value unit (RVU)/h ratio and average 'door to discharge' time. Teaching effectiveness was estimated by determining the average 'overall teaching' scores derived from anonymous EM resident and senior medical student evaluations. Relationships were assessed using the Spearman's correlation coefficient.

Results There was no statistically significant relationship ($p > 0.050$) between measures of faculty clinical efficiency and teaching effectiveness.

Conclusion These data replicate previous findings that clinical productivity has no correlation with teaching effectiveness for emergency medicine faculty doctors.

Three sad truths and their rebuttals

- In most teaching circumstances, clinical work will be slower with students
  - But the encounter is often more thorough, and certainly more enjoyable
- Most physician faculty are not paid to teach
  - But most of us value our roles as teachers
- Medical student notes don't exist in the eyes of CMS
  - No rebuttal for this one

Most unusual transcribed note

- A resident, trying to be genteel, commented that a subarachnoid hemorrhage patient had developed the worst headache of his life while making love to his paramour
- The typewritten version returned with the statement that he was making love to his power mower.

Inpatient teaching

- Models for rounding:
  - Rounds at bedside, examine each patient as a group
  - Rounds at bedside, talk about patient, see only selected patients as a group
  - Start rounds in a conference room to review data, then see patients as a group
  - Rounds in a conference room, selected staff see patients before rounds

Does teaching change behavior?

Eliminating Amylase Testing from the Evaluation of Pancreatitis in the Emergency Department

Kathryn A. Volz, MD
Daniel C. McGillicuddy, MD
Gary L. Horowitz, MD
Richard E. Wolfe, MD
Nina Joyce, MPH
Leon D. Sanchez, MD, MPH

Beth Israel Deaconess Medical Center, Department of Emergency Medicine, Boston, MA

Background: Alterations in serum biomarkers have been used to evaluate for pancreatitis in the emergency department (ED). Studies have shown lipase to be as sensitive and more specific than amylase in diagnosing pancreatitis and that amylase plus lipase does not improve accuracy over lipase alone.

Objective: To determine effects of interventions to decrease ordering of amylase in the evaluation of pancreatitis.

Methods: We conducted a pre- and post-cohort study. The number of amylase and lipase tests ordered in the ED was recorded prior to intervention to establish a baseline. We introduced an educational intervention to order lipase without amylase. A second intervention involved removing amylase from bedside order entry forms. We introduced a third intervention that included deleting amylase from trauma order forms, and decoupling amylase and lipase in the computer ordering system. We recorded the number of lipase and amylase tests in weekly aggregates for comparison to the baseline. Data analysis using students t-test, standard deviation and p values are reported.

Results: Before interventions 93% of patients had both tests ordered. Educational interventions resulted in a decrease to 91% (p=0.06) of co-ordering. Further interventions decreased the percentage of patients evaluated with both tests to 14.3%. This translates into a decrease in patient charges of approximately $350,000 a year.

Conclusion: Using simple structured interventions in the ED can reduce amylase ordering. Educational programming alone was not effective in significantly decreasing amylase ordering; however, education plus system-based interventions decreased amylase ordering. [West J Emerg Med. 2010; 11(4):344-347.]

Didactic education

Intervention 1   Intervention 2   Intervention 3

Lipase — Amylase — Percentage Amylase/Lipase
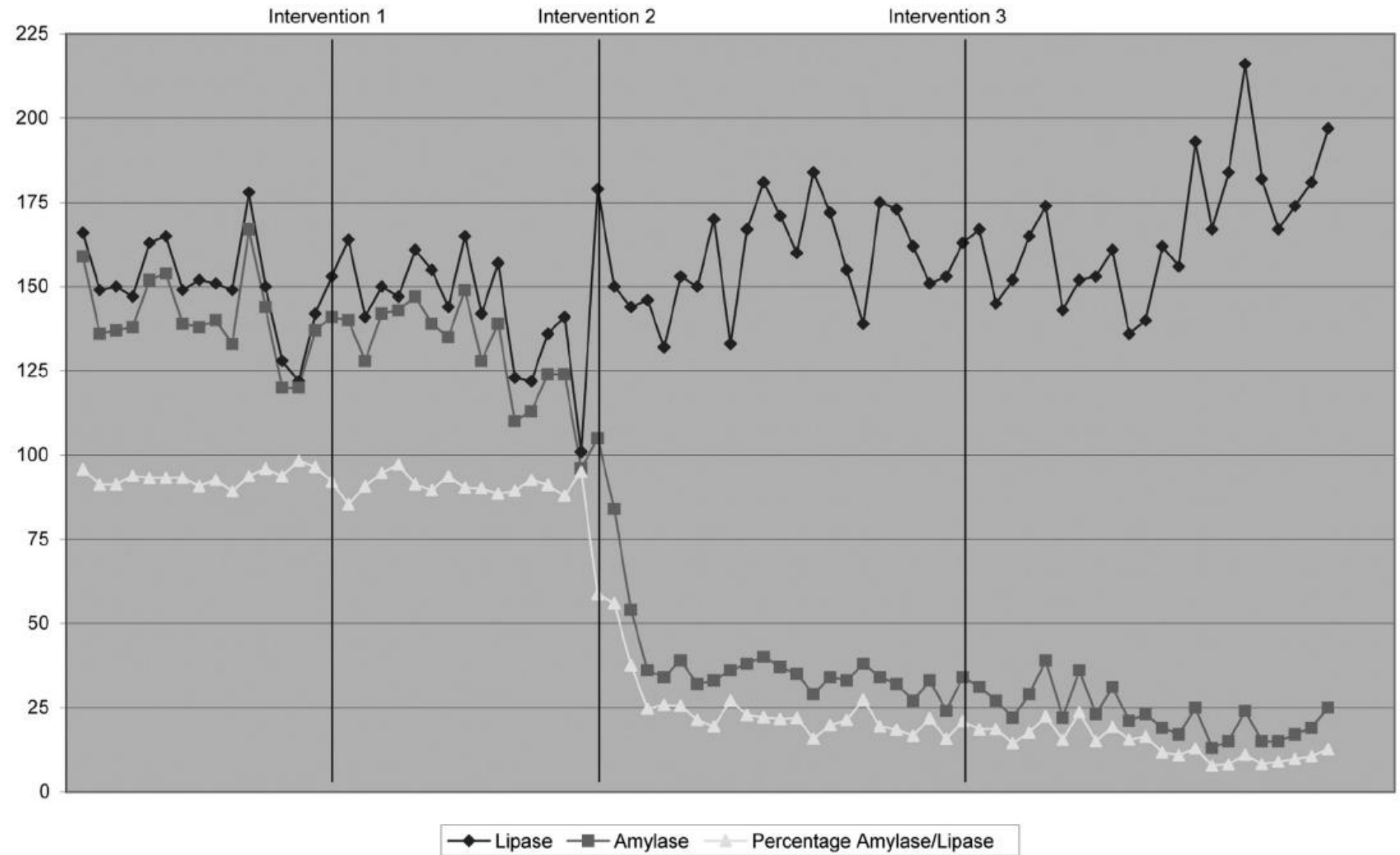
Didactic education

Remove amylase from order forms
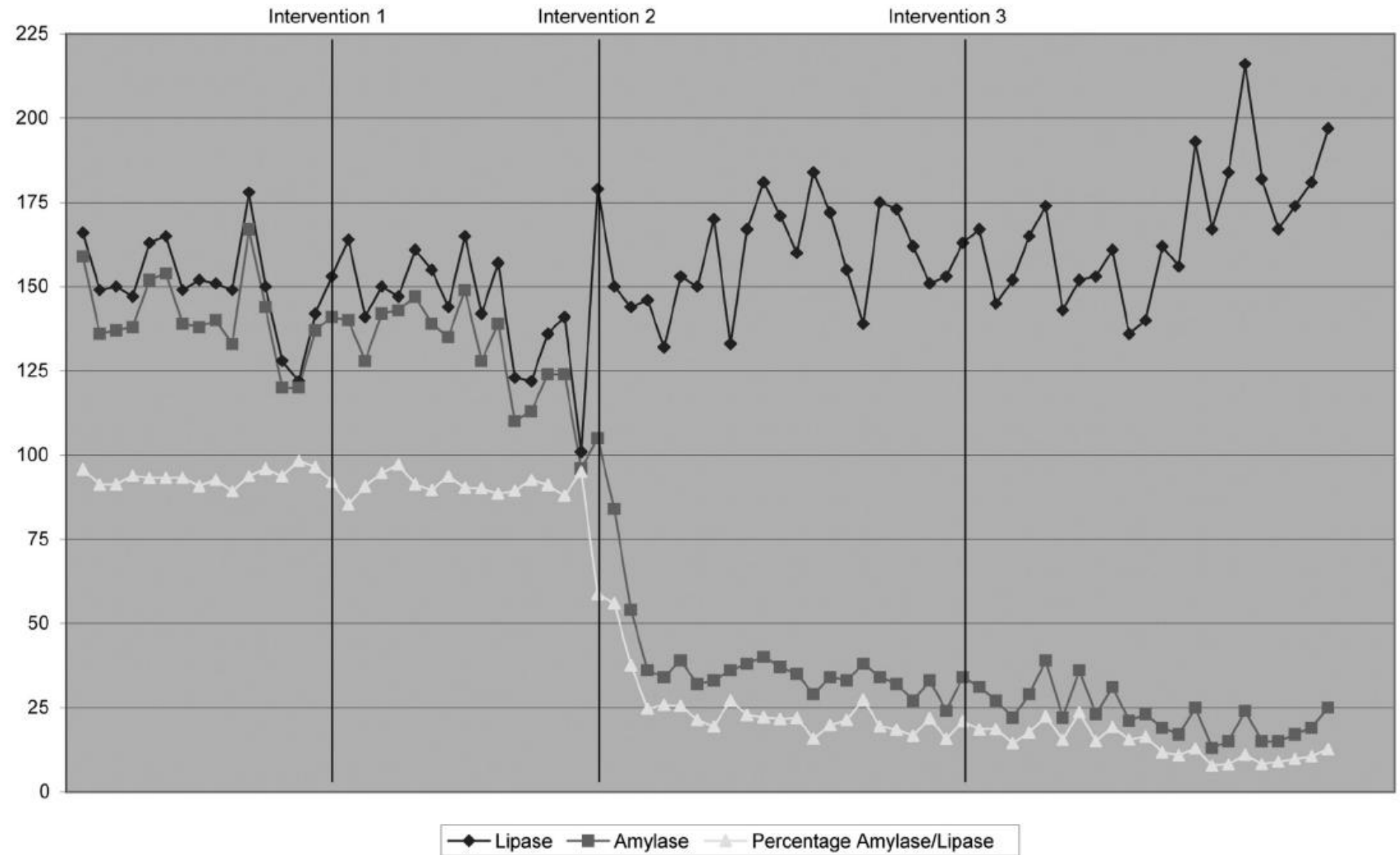
Didactic education | Remove amylase from order forms | Uncouple amylase and lipase orders in computer
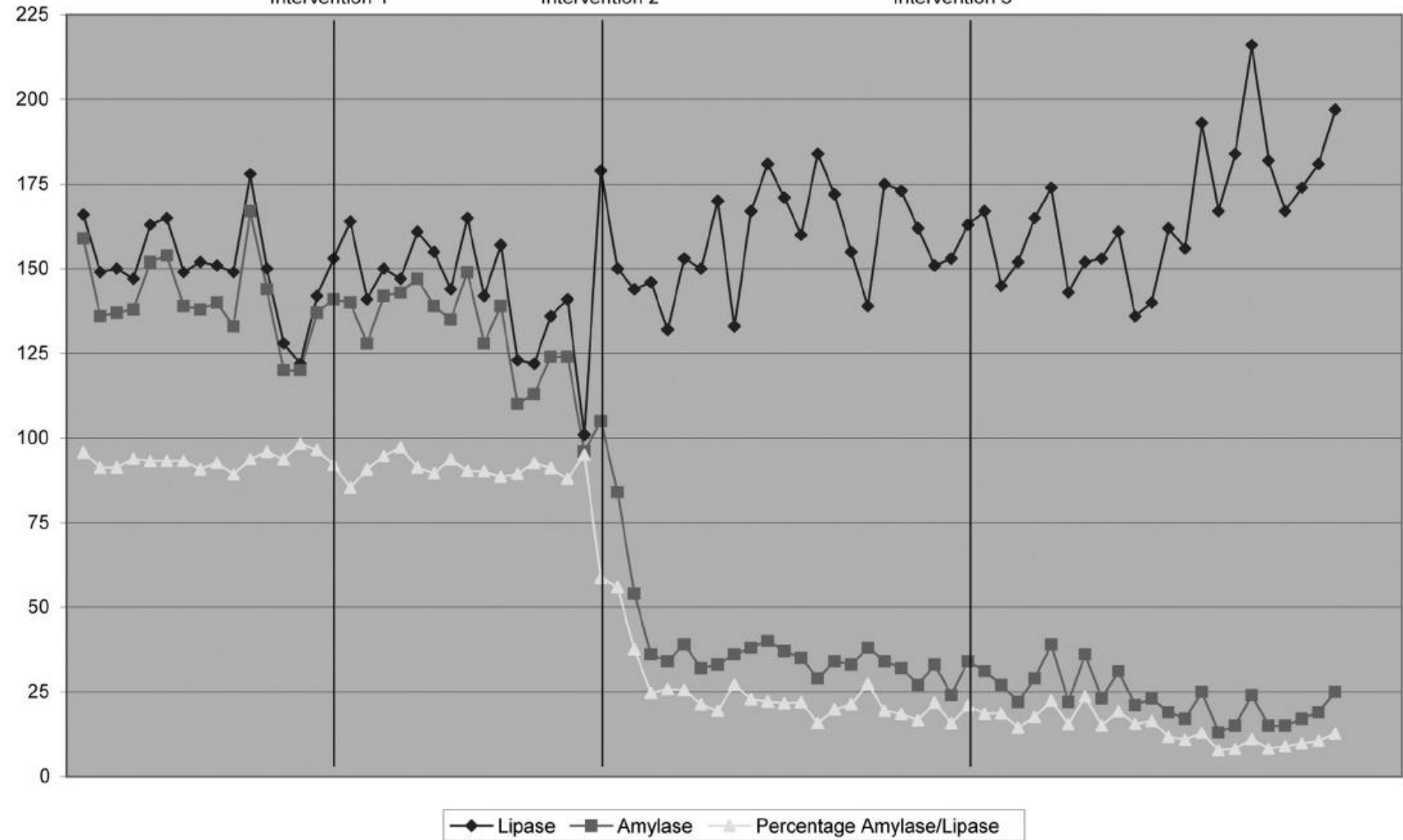
CLINICAL TEACHING

OMAR LATEEF, DO

IN GENERAL

Know who your audience is and what they want to learn→

Create an inviting environment (Percy et al) so they can accomplish their goals!

7 Principals of good teaching

What the academia experts have taught us!!!

CATER TO YOUR AUDIENCE

Diversity of the crowd can make this difficult

Any given day the crowd on rounds changes each with a different agenda

Goals and objectives of the learners

Differs on days and nights

Differ based on department

Differs on the trainees perception of their responsibility

3 rd year vs 4 rth year student

Every individual on a rotation has something they want to get out of it

Understanding and to a reasonable extent catering to that will improve their learning

Dealing with the person who has nothing to learn

Overwhelming error, catering to that person!

Example form this morning's morning report

CREATE AN INVITING ENVIRONMENT (PERCY ET AL)

Understand what influences students attitudes towards a course (Curren et al)

Fear of this rotation versus excitement of that rotation

Common perceptions should be broken if not accurate

Events of 2010 in the MICU at Rush

2 learners left and an additional learner committed suicide

Word on the street and rumor

Combat with truth and information

Facilitate conversation which will improve attention (Rosen et al)

Student in classes where participation was emphasized were more likely to prepare and rated their enjoyment higher despite the extra effort

SEVEN PRINCIPALS- AMERICAN ASSOCIATION OF HIGHER LEARNING

Encourage contact between learners and faculty

   Engaged people will learn more

Develop cooperation among student → Teams learn together

Encourage active learning → Real time discussion, Discussion after a death

Give prompt feedback → simplest and most forgotten way to affect change

Emphasize time on task

Communicate high expectations

Respect diverse talents and ways of learning

**Provide time to get refreshed

         Old school versus new school rounds !!

CONCLUSION

Understanding and engaging people on rounds to create an environment where everyone has a role as part of the team will enhance learning and dramatically improve care

Purposes of Testing

- Communicate to students what material is important

- Identify areas of deficiency in need of remediation or further learning

- Identify areas where the course/curriculum is weak

What should be tested

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- Exam content should match course / clinical / clerkship objectives

- The sample of items should be representative of the instructional goals

- Important topics should be weighted more heavily than less important topics

- The testing time devoted to each topic should reflect the relative importance of the topic

National Board of Medical Examiners

Basic steps in developing test items

- Determine the outcomes to be measured
- Develop a test blueprint
- Write the test items
- Review, critique and edit the items
- Pilot the items
- Obtain reliability and validity data
- Revise, reuse and report

Categories of test items

- Subjective items -- permit the student to organize and present an original answer
- Objective items-require students to select a correct response from several alternatives or to supply a word or short phrase to answer the question

Strengths of essay items

- Effective in measuring higher level cognitive objectives

- Less time consuming to construct

- Discourage memorization of facts and encourage broader understanding of complex ideas

- Present a more realistic task to the student

Limitations of essay items

- Sample less content

- Require long time to grade

- Difficult to score objectively and reliably

Writing good essay items

- Clearly define the task
  - Poor: discuss Karl Marx's philosophy
  - Better: compare Marx and Nietzche in their analysis of underlying problems of their day in the 19th century Europe.
- Use a relatively large number of questions requiring short answers
- Avoid use of optional questions on an essay test

RUSH   Rush is a not-for-profit health care, education and research enterprise comprising Rush University Medical Center, Rush University, Rush Oak Park Hospital and Rush Health

8

Writing good essay items

- Indicate for each question the number of points to be earned for the correct response
- Avoid writing essay items that only require students to demonstrate certain factual knowledge

Scoring Essays

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- Develop a grading rubric
- Grade papers anonymously
- Read and score the answers to one question before going on to the next
- Shuffle the papers after each item is scored to reduce context effect
- Decide in advance how to treat grammar, writing style, irrelevant responses
- Write comments on students' answers

Strengths of multiple choice items

- Versatility in measuring all levels of cognitive skills

- Permit a wide sampling of content and objectives

- Provide highly reliable test scores

- Can be machine-scored quickly and accurately

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- Difficult and time-consuming to construct

- Depend on student's reading skills and instructor's writing ability

- Tend toward low level knowledge items vs. higher level thinking

- May encourage guessing

Components of multiple choice items

- Stem—text of the question
- Options—choices provided
  - Key—correct option
  - Distracters—incorrect options

Writing multiple choice items

- Include items that measure students' ability to comprehend, apply, analyze, and evaluate as well as recall
  - Multilogical thinking
    - Must know more than one fact to logically and systematically apply concepts
    - If you can find the answer on one page of a textbook it probably is not a critical thinking item

Not a critical thinking item

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1. The antidote for magnesium toxicity is

   a) Calcium gluconate

   b) Naloxone

   c) Protamine sulfate

   d) Vitamin K

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1. A pre-eclamptic woman receiving an infusion of magnesium sulfate presents with respirations of 6/minute and absent deep tendon reflexes. The health care provider should

   a) Administer oxygen 2 liters per minute

   b) Administer naloxone

   c) Administer calcium gluconate

Measuring higher level objectives

- Present practical or real world situations to the students

- Present students with a diagram, picture, charts, sound and ask for application, analysis or evaluations

- Present actual quotations published sources and ask for the interpretation or evaluation of the quotation.

Technical item flaws

- Grammatical cues
    1. The correlation coefficient is called a
        a) Validity coefficient
        b) Index of reliability
        c) Equivalence coefficient

Technical flaws

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- Absolute terms such as "always" or "never" are used as an option

  1. In patients with advanced dementia, Alzheimer's type, the memory defect

     a) Can be treated adequately with phosphatidyl-choline (Lecithin)

     b) Could be a sequela of early parkinsonism

     c) Is never seen in patients with neurofibrillary tangles at autopsy

     d) Is never severe

 RUSH   Rush is a not-for-profit health care, education and research enterprise comprising Rush University Medical Center, Rush University, Rush Oak Park Hospital and Rush Health

Technical flaws

- Long correct answer
  1. Secondary gain is
     a) Synonymous with malingering
     b) A frequent problem in obsessive-compulsive disorder
     c) A complication of a variety of illnesses that tends to prolong progress and recovery
     d) Never seen in organic brain damage

Technical flaws

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- Word repeats

    1. A 58 year old man with a history of heavy alcohol use and previous psychiatric hospitalization is confused and agitated. He speaks of experiencing the world as unreal. This symptom is called

        a) Depersonalization

        b) Derailment

        c) Derealization

        d) Focal memory deficit

Technical Flaws

- "None of the above" or "all of the above" are used as options

Technical flaws

- Items with implausible distracters
    1. If living cells were found on another planet without molecular oxygen, which cell part would most likely be absent?
        a) Cell membrane
        b) Mitochondria
        c) Nucleus
        d) Cellulose

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- Stem contains extraneous reading
    1. Peer review committees in HMO's may move to take action against a provider's credentials to care for participants of the HMO. There is an associated requirement to assure that the physician receives due process in the course of these activities. Due process must include which of the following?

Items with irrelevant difficulty

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- Options are long, complicated or double
  1. Due process must include
     a) Notice, an impartial forum, council, a chance to hear and confront evidence against him/her
     b) Proper notice, a tribunal empowered to make the decision, a chance to confront witnesses against him/her, and a chance to present
     c) Reasonable and timely notice, impartial panel empowered to make a decision, a chance to hear evidence against himself/herself and to confront the witness

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- Numeric data are not stated consistently
  1. Following a second episode of infection, what is the likelihood that a woman is infertile?
     a) Less than 20%
     b) 20%-30%
     c) Greater than 50%
     d) 90%
     e) 75%

Arrangement of options

- Arrange options
  - Alphabetically
  - In order of magnitude if numerals
  - In temporal sequence
  - Length of response

Items with irrelevant difficulty

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- Avoid multiple multiples

Which vaccines can safely be administered during the first trimester of pregnancy?

1. Influenza
2. Hepatitis B
3. Tetanus

A. 1 only
B. 1 and 2
C. 2 and 3
D. 1, 2 and 3

Items with irrelevant difficulty

- Frequency terms are vague
  1. Severe obesity in early adolescence
     a) Usually responds dramatically to dietary regimens
     b) Often is related to endocrine disorders
     c) Usually responds to pharmacotherapy and intensive psychotherapy

Basic rules for multiple choice items

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- Include words in the stem that would otherwise be repeated in each option
  - Poor: Sociobiology can be defined as
    - The scientific study of humans and their relationships within the environment
    - The scientific study of animal societies and communication
  - Better: Sociobiology can be defined as the scientific study of
    - Humans and their relationships within environments
    - Animal societies and communication

Basic rules for multiple choice items

- Each item should focus on an important concept

- Each item should assess application of knowledge, not recall
  - Don't waste time assessing knowledge of trivial acts.

Basic rules for multiple choice items

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- Provide a minimum of three but not more than five plausible and attractive options.
  1. The recent (1989) research suggesting that controlled nuclear-fusion could be effected in a laboratory experiment at room temperature was conducted by:
     a) Watson and Crick
     b) Pons and Fleischmann
     c) Koch and Jenner
     d) Fermi and Bohr

Basic rules for multiple choice items

- Make sure there is only one correct or best response
  - Poor: The function of the hypothesis in a research study is to provide
    - Tentative explanation of a phenomena
    - Proven explanation of a phenomena
    - Framework for interpretation of the findings
    - Direction for the research
  - Better: According to the lecture, the most important function of the hypothesis is to

Basic rules for multiple choice items

- Avoid minor distinctions and "hair splitting"

- Make all options for an item approximately homogeneous in content, form and grammatical structure.

Basic rules for multiple choice items

- Use negatively stated stems sparingly
- Randomly distribute the correct response among the alternative positions throughout the test
- Make items independent of other items
- Avoid language that students won't understand
- Avoid the use of names and cute scenarios

Basic rules for multiple choice items

- Avoid humor
  - Good test questions are NOT funny, creative, cute
  - Exams are not funny
  - Exams are a serious undertaking and impact a student's short and long term future
  - Humor does not work on an exam!

Basic rules for multiple choice items

- Group questions on related content
- If an exam is going to include information on 4 modules, put the information about each module together

Test item housekeeping

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- There are no absolute rights and wrongs about the format of a test item
  - Consistency, however, is very important

Test item housekeeping

- The STEM
  - Colons are *not* used at the end of a completion
    - It is best for the provider to . . .
  - No blank line between the stem and the choices

Test item housekeeping

- The OPTIONS
  - Options that follow a question begin with a capital letter
  - Options that follow a completion begin with a lower case letter
  - All options should end in a period if they
    - Complete a sentence
    - Are a sentence

Test item housekeeping

- The present tense should be used when possible

- Drugs are written with the generic name first, with a lower case letter. Trade names are capitalized and placed in parentheses

Test reliability

- A measure of the consistency of test scores

- Assessed as internal consistency
  - Inter-item consistency or correlation

Test reliability

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- Reported as a correlation coefficient
- Specific type of reliability coefficient
  - *Kuder-Richardson-20*
- Analogous to *Cronbach's alpha*

Test reliability

- The correlation coefficient can vary from 0.1-0.99

- Higher is better

- Ideal reliability for "teacher-made" test is 0.7 or higher

- Reliability is lower for tests in schools with high admission criteria, so 0.6 is acceptable in those schools

How to improve test reliability

- Lengthen the test
- Improve the discrimination of individual items

Basic item analysis

- Three essential statistics
  - Response frequency
  - Difficulty level
  - Item discrimination

Response frequency

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- The number of students that choose each response

Difficulty level

- Also called the "Difficulty index"

- Reported as the "P-value"

- It is simply the percentage of students who answered the question correctly

- If the P-value is .63, that means that 63% of the students answered the question correctly

Difficulty level

- Ideal Difficulty Level for
  - 3 alternative = 0.67
  - 4 alternatives = 0.63
  - 5 alternatives = 0.60

Difficulty level

- Lower limit of an acceptable Difficulty Level is 0.30

Difficulty level

- Upper limit of acceptable Difficulty Level is usually 0.90

- Schools with high admission standards may see higher (>0.90) Difficulty Levels

- Criterion-referenced (competency) testing should have perfect or near-perfect scores

- Ideally, the proportion of items above 0.90 should be small to allow better discrimination

Item discrimination

- Class is usually divided into quartiles (upper 25%, lower 25%) based on the exam score (high scorers, low scorers)

- Point biserial correlations are performed using the upper and lower quartiles

- The individual student performance for each item (correct/not correct) is correlated with their quartile (high score/low score)

Item discrimination

- Reported as a correlation coefficient
- Varies from -1.00 to +1.00

Item discrimination

- A correlation of zero means equal numbers of high and low scoring students selected the correct answer (did not discriminate)

- A positive correlation occurs when students in the high scoring group selected the correct answer (discriminated)

Item discrimination: Point biserial

- Interpretation
  - 0.30 or above – very good item
  - 0.20 to 0.29 reasonably good item
  - 0.09 to 0.19 marginal item
  - 0.08 and below—review and rewrite; may need to be nullified

What to do with a problem item

- Do not throw out an item . . . It is unfair to students

- Options are to
  - Accept more than one answer
  - Nullify the item. . . Everyone gets credit

Test blueprinting

Purpose

- Helps achieve balance between instruction and assessment

- Helps ensure that a test will sample all important content and process areas

- Provides a structure for communicating with students before and after a test

Test blueprinting

- Matrix Design

- Content to be tested

- Thinking or cognitive processes to be tested

- Relative weight ascribed to both the content and cognitive areas

Test blueprinting

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- Categorize each test item according to the thinking or cognitive level, objective and content area. Number each test item.

- Make a 2-way grid with cognitive level across the top and course content along the side

- Number course objectives and unit objectives. Write either the objective or the corresponding number under the content section in the blueprint matrix.

Test blueprinting

- Write the percentage of questions you believe should be included within each cell of the matrix. Convert the percentage to the number of items that should be tested.

- Write the # of the test item in the cell that aligns with its respective cognitive level and content area or objective being tested

Test blueprinting

Course Objective	Unit Objective Test item	Remembering Comprehension		Application Analysis	Evaluation Synthesis	Total
			Item #			
#1	#2 #3	5% (3) (2)	1, 10, 14, 18, 25	10% (10)	10% (10)	15% (15) 10% (10)
#2	#1 #4 #5	5% (3) (2)	2, 50, 52, 55, 75,	10% (10) 20% (20)	10% (10) 10% (10) 20% (20)	20% (20) 35% (35) 20% (20)
Total		10% (10)		40% (40)	50% (50)	100% (100)

Questions

Outcome Measures of Successful Teaching

Rosemarie Suhayda PhD APRN-BC

Director University Assessment

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What is excellent teaching?

What is the ultimate measure of excellent teaching?

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- Learning the knowledge content
- Learning the ability to apply the knowledge to solve standard classroom problems
- Learning the ability to apply the knowledge to novel types of problems and situations
- Learning to learn—becoming a self-directed, independent life-long learner

Mohanan (2005) Center for Development of Teaching and Learning

How do we evaluate teaching?

- What is the quality of the knowledge that the teacher transmits?
- What is the quality of the mode of transmission of knowledge?
- What is the quality of the learning resulting from teaching?
- What is the quality of the enhanced learning capability resulting from the teaching?

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Educator's Golden Triangle

Instruction

Educator's golden triangle

Objectives

Evaluation

Outcomes

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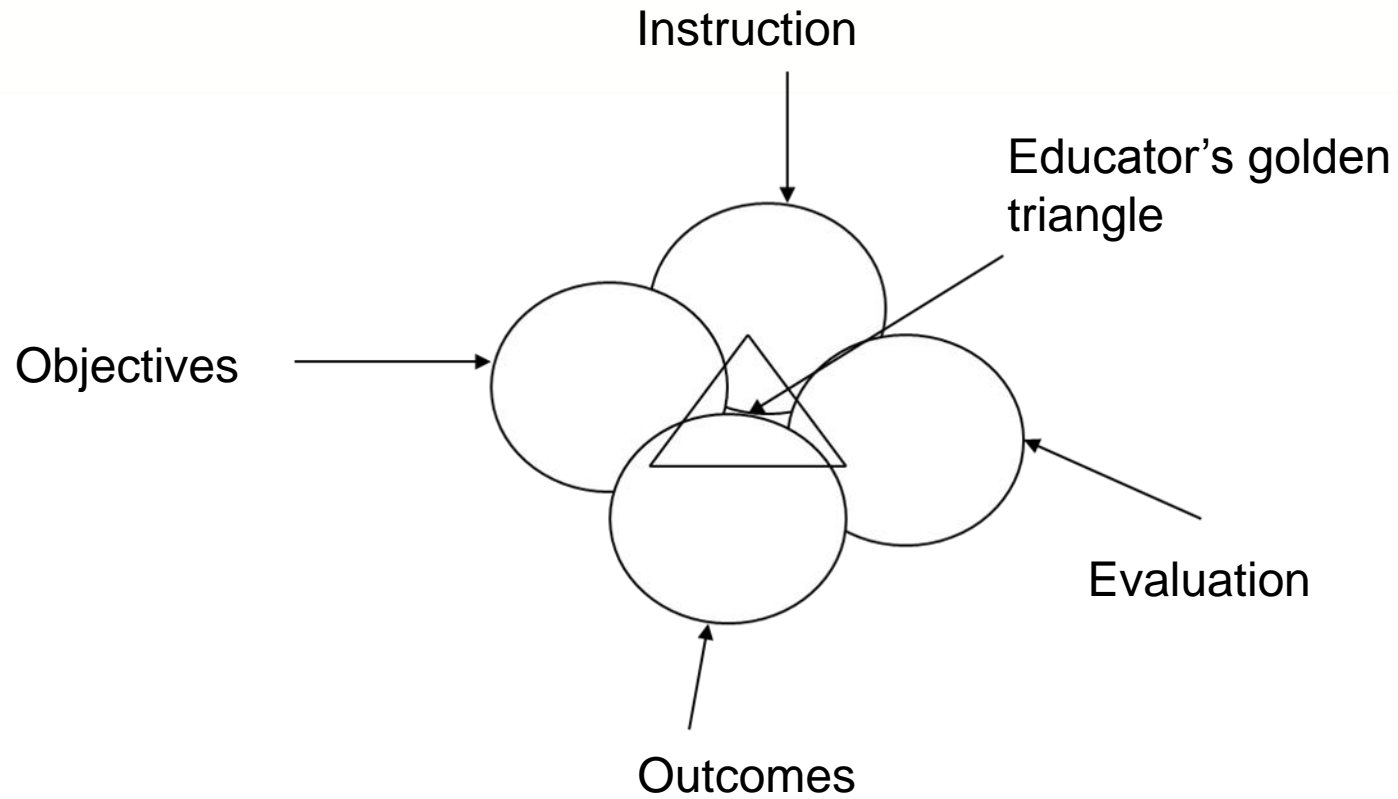
- Student learning outcomes (SLO's)
- Learning objectives
- Competencies
- Program goals

Objectives vs outcomes vs competencies vs program goals

Objectives--Broad statement of what a student will demonstrate at the end of a course or unit of study

Outcomes--Describe or list measurable and essential mastered content-knowledge, reflecting abilities and knowledge that students can demonstrate upon successfully completing a course or unit of study

Competencies--Are the results of integrative learning experiences and represent the combination of skills, abilities and knowledge

Program goals—Statement of the program's intent, purpose or expected outcome; statement of the overall mission or purpose of the program

Relationship between Competency, Objectives, Learning Strategies and Learning Outcomes

Competency/ Terminal objective	Course objective	Learning Activity	Learning outcome (Assessment criteria)
Uses appropriate methods for managing care of persons from diverse backgrounds	Identify a framework to design culturally competent public health care services for diverse populations	Answers essay questions and gives oral and written case presentations	Given a case of a Hispanic adolescent girl with a diagnosed chronic illness, the student describes an appropriate public health service with rationale for the selection

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- Describe student performance, not instructor performance

- Describe the learning product, not the process

- Focus on only one type of result for each objective (avoid compound-outcomes)

- Include

  – an action verb that indicates observable and measurable behaviors

  – condition(s) under which the behavior is to be demonstrated

  – standard or level of performance against which the behavior will be judged

- Avoid vague descriptors or action verbs

Learning objectives vs. program objectives?

- Incorporate current regulations and standards set by various agencies for blood banks and transfusion services into the daily operation of a clinical laboratory

- Achieve eligibility for state licensure within the profession

- Analyze and monitor the cost-effectiveness of clinical decisions

- Achieve an 85% or higher score on all clinical competency evaluations required for graduation

- Discuss management roles and responsibilities in a quality management system

- A minimum of 25% of investigative projects result in professional presentation or publication

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Examples of Direct Assessment Measures

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- Breakdown of scores on standardized tests
- Writing samples
- Score gains
- Locally designed quizzes, tests, and inventories
- Portfolio artifacts
- Capstone projects
- Case studies
- Team/group projects and presentations
- Oral examination
- Internships, clinical experiences, practica, student teaching, or other professional/content-related experiences
- Service-learning projects or experiences
- Authentic and performance-based projects or experiences
- Graduates' skills in the workplace rated by employers
- Online course asynchronous discussions

(Adapted from Maki, P.L. 2004)

- **Course evaluations**

- **Surveys**

- **Focus groups**

- **Interviews**

Formative Assessment: Classroom Assessment Techniques (CATS)

- Background knowledge or prior learning

- Minute papers (half sheet response)

- Muddiest point

- Directed paraphrasing

- Application cards

- Student generated test questions

- What's the principle

- Knowledge surveys

Angelo, Thomas A. and K. Patricia Cross, 1993, *Classroom Assessment Techniques: A Handbook for College Teachers*, Second Edition, San Francisco: Jossey-Bass Publishers.

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- Explicit set of criteria or scoring guide used for assessing a particular type of work or performance

- Typical parts of a rubric includes:
  - The task or assignment description
  - Some type of scale
  - Breakdown of the assignment parts
  - Description of each performance level

Why use rubrics?

- Provide timely feedback
- Allow feedback to become more objective and consistent
- Prepare students to use detailed feedback
- Encourage critical thinking
- Facilitate communication with others
- Help refine our teaching skills
- Level the playing field

Questions to consider when constructing rubrics

- What are the tasks and subtasks of the assignment?

- What is the purpose of the rubric?

- What cognitive/thinking skills can be demonstrated in the assignment?

- What are the ranking descriptors going to be?

- Are the levels of performance clearly described?

Recommendations for developing rubrics

- Performance criteria included in the rubric should be clearly aligned with stated course goals and objectives
- Performance criteria should be stated in terms of observable behaviors
- Performance criteria should be fair and unbiased
- The number of points or values used in the scoring scale should reflect the importance of the activity or criterion
- The scale used for a scoring rubric should be distinct in differentiating between scoring levels
- Scoring criteria and rubrics should be clearly written in language students understand

Moskal (2003)

Types of rubrics

- Analytical- Performance is divided into two or more criteria, elements, or dimensions; each is evaluated on a separate scale

- Holistic—performance criteria are evaluated in combination on a single scale

Analytic rubric

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Performance Dimension	Excellent	Competent	Needs Work
History and physical exams	Consistently includes all relevant components of a comprehensive health history and physical exam	Completes the history and physical exam with only minor inaccuracies in content and technique	Routinely needs guidance in obtaining history data and performing physical examination techniques

Analytic rubric

Criterion	Poor (1)	Good (2)	Excellent (3)
Analyzes current research and clinical literature relevant to the key issues of the clinical practice problem	Limited lit review. Limited analysis of research and its application to the clinical problem.	Lit review includes most relevant sources with accurate analysis. Identifies most issues associated with the clinical problem.	Comprehensive analysis of research and clinical literature. Analysis is thorough, appropriately related to the clinical problem and integrated throughout paper

Holistic rubric

Grade	Scoring Criteria
A	Well developed ideas with rationale; demonstrates application and synthesis of content; introduces new ideas; stimulates further discussion
B	Developing ideas with limited rationale; some application and synthesis of content; sometimes stimulates discussion
C	Poorly developed ideas based mostly on opinion; does not add substantially to the discussion; little or no application of content
F	Does not enter into discussion; responds inappropriately or refers to inaccurate materials

Purpose

- Helps achieve balance between instruction and assessment
- Reduces tendency to test "memory of facts" only
- Helps ensure that a test will sample all important content and process areas
- Provides a structure for communicating with students before and after a test

Matrix Design

- Content to be tested
- Thinking or cognitive processes to be tested
- Relative weight ascribed to both the content and cognitive areas

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1. Categorize each test item according to the thinking or cognitive level. Number each test item.

2. Make a 2-way grid with cognitive level across the top and course content along the side

3. Number course objectives and unit objectives. Write either the objective or the corresponding number under the content section in the blueprint matrix.

4. Write the percentage of questions you believe should be included within each cell of the matrix. Convert the percentage to the number of items that should be tested.

5. Write the # of the test item in the cell that aligns with its respective cognitive level and content area or objective being tested

Test Blueprinting: Aligning test items with learning objectives

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Course Objective	Unit Objective Test item	Remembering Comprehension		Application Analysis	Evaluation Synthesis	Total
			Item #			
#1	#2 #3	5% (3) (2)	1, 10, 14, 18, 25	10% (10)	10% (10)	15% (15) 10% (10)
#2	#1 #4 #5	5% (3) (2)	2, 50, 52, 55, 75,	10% (10) 20% (20)	10% (10) 10% (10) 20% (20)	20% (20) 35% (35) 20% (20)
Total		10% (10)		40% (40)	50% (50)	100% (100)

- Develop majority of test items at the upper cognitive levels
  - Application and analysis
  - Synthesis and evaluation
- Require multi-logical thinking
  - Requires knowledge of more than one fact or concept to logically and systematically apply concepts
- Require a high degree of discrimination
  - Ask student to choose the best, most important, first, etc. from among plausible alternatives

The nurse clinician assesses a 23 month old hospitalized boy and finds that he has an open anterior fontanel. Which intervention would be most important to include in this child's plan of care?

a)   Weigh the child daily

b)   Measure the child's head circumference daily*

c)   Weigh all diapers

d)   Provide age-related toys for a child on bedrest

Check for:

- Congruence between test content and test blueprint
  - Do items reflect the specific topic weights
  - Do items measure the range/emphasis of cognitive abilities specified?
- Clarity of directions
- Use of good item construction practices
- Test reliability
  - K-R Richardson – ideal for teacher made is 0.70
- Item difficulty
  - p value
  - ideal for 3 alternatives (0.67); 4 (0.63); 5 (0.60)
- Discrimination
  - Point biserial
  - 0.30 or above (very good); 0.20-0.29 (reasonably good); 0.09-0.19 (marginal); 0.08 and below (review and rewrite or nullify)

An objective is a description of a performance you want learners to be able to exhibit before you consider them competent. In other words: *what should students be able to do when they are done with your course?*

Clear objectives are important because they:

1. let the students know what they'll be able to do by the end of the course
2. help instructors pick material to best achieve that learning goal, and
3. give evaluators something to measure the success of their instruction.
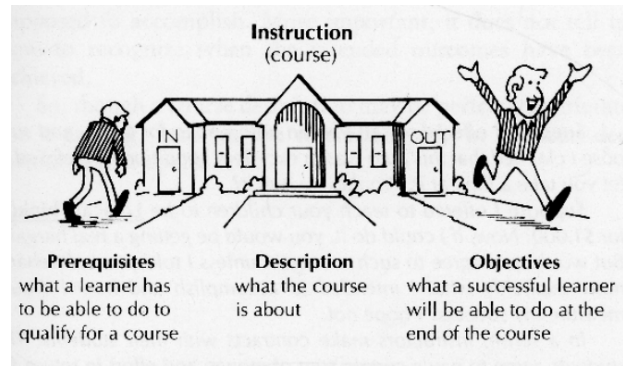
As a student progresses, so should the objectives

We expect more from our M2's than our M1's, more from our M4's than our M3's. Our objectives can be worded to reflect this progression using 6 different levels. At the very basic end of the spectrum, students simply memorize facts. As they progress, they start using those facts and then even make judgements about them. The six levels (of Bloom's Taxonomy) are:

- **Knowledge**: can recall facts.
- **Comprehension**: understands enough to organize information, compare, contrast and state general principles.
- **Application**: solves problems by using the learned material, often in using it in a new way.
- **Analysis**: break knowledge down into parts and identifies motives & themes, makes inferences and generalizations, and supports with evidence.
- **Synthesis**: combines information in different ways to suggest new solutions to problems.
- **Evaluation**: presents and defends opinions by making judgements about the quality of information.

Bloom's team also provided us with active verbs to use at each level. You might ask an M2 to <u>*list*</u> *the drugs used in treating asthma*, but you'd ask an M4 to <u>*design*</u> *a treatment plan for the asthmatic patient*.

KNOWLEDGE	COMPREHENSION	APPLICATION	ANALYSIS	SYNTHESIS	EVALUATION
<u>List</u>, Name, Identify, Show, Define, Recognize, Recall, State, Visualize	Summarize, Explain, Interpret, Describe, Compare, Paraphrase, Differentiate, Demonstrate, Classify	Solve, Illustrate, Calculate, Use, Interpret, Relate,Create Manipulate, Apply, Modify	Analyze, Organize, Deduce, Contrast, Compare, Distinguish, Discuss, Plan, Devise	<u>Design</u>, Hypothesize, Support, Schematize, Write, Report, Justify	Evaluate, Choose, Estimate, Judge, Defend, Criticize

Let's take some example objectives from our list for M4 students:

- List the 4 components of general anesthesia – unconsciousness, analgesia, amnesia, akinesia.
- Identify the different types of pneumonia.

"Listing" and "identifying" are basic skills. M4 students should be able to DO SOMETHING with that information. Rewording these to higher order objectives, we get:

- Compare and contrast the 4 components of general anesthesia – unconsciousness, analgesia, amnesia, akinesia. *(comprehension or analysis)*
- Create a treatment plan for patients with pneumonia. *(application)*

You may ask a more junior student to list and identify, but M4 students need a deeper understanding to accomplish these higher-order tasks.

Objectives should be clear to students and evaluators

Let's start with some unclear objectives:

- Understand a variety of radiologic procedures.
- Become familiar with the indications for and complications of common ICU procedures.

How would you know when a student understood the radiologic procedure? How familiar does a student have to be with the indications? And how would you know when they reached that level? Objectives should leave little room for interpretation for the student and evaluator. It should be obvious to everyone what the student is supposed to do and when the student has successfully achieved that goal.

- Compare and contrast the CT scan and MRI for neurologic imaging.
- Evaluate the risks and benefits of the following ICU procedures: intubation, central line placement...

These are not only discrete events that the student and instructor can easily understand, but also are easy for an evaluator to observe and measure. Using the active verbs makes this easier.

Objectives should be measurable

Remember the third goal of objectives is that it gives evaluators something to measure.

- Become familiar with a blood gas

How exactly would you know when the student was "familiar with" a blood gas? You can't grade that. This is not something you can observe and therefore something you cannot measure.

- Interpret a blood gas in the context of a patient scenario

This can easily be assessed on a test, paper case or in clinical practice. (See Appendix I for example assessments based on the Bloom level.)

ABCD's: the components of good objectives

Objectives can be made clear by specifying the ABCD's: *audience* (the student will be able to), *behavior* (what the student should be able to do), *conditions* (the conditions under which they should do it) and *degree* (how well they should be able to do it that we find acceptable).

For example, we should say more than "take a good history and physical." If we specify the components:

- audience: the M4 student
- behavior: a history and physical
- conditions: in the dermatology clinic

- degree: at the level of an intern (listing the important aspects of the history of skin lesions and describing lesions using proper dermatologic terminology)

Assembling this into an objective we'd get: *By the end of their rotation in Dermatology, the M4 student will be able to take a history and physical in the dermatology clinic listing the important historical aspects of dermatoses and describing lesions using proper dermatologic terminology.*

Avoid teacher oriented objectives

Many of our objectives seem to be written with the instructor as the audience, not the student. For example:

- To enable the student to diagnose and initiate care of asthma, rhinosinusitis, urticaria…
- The student will have exposure to different procedures in the outpatient rehabilitation clinics including botox injections, baclofen pump refills, acupuncture…

The above are things that instructors need to do. These should be reworded to reflect what we want the students to do.

- Diagnose asthma, rhinosinusitis, urticaria…
- Initiate care of asthma, rhinosinusitis, urticaria…
- Discuss which patients in the rehabilitation clinic would benefit from botox injections, baclofen pump refills, acupuncture…

Begin with the end in mind

One trick in formulating good objectives is to ask the question, "what do we want the student to get out of this rotation?" This way we look at bigger objectives instead of tiny details. Completing the phrase "at the end of this rotation, the student will be able to…" usually will result in a good objective.

Remember each objective is a promise to your students. By listing a particular objective, you are stating that they will have the opportunity to learn that material and then will be tested on it. So don't make "manage a scorpion bite" an objective unless that's something your students will get to do. Make it easier for yourself, if you can't deliver on it - don't list it.

Feel free to email me with any questions, criticisms, comments or improvements. Thanks-Rahul (rahul_patwari@rush.edu).

References

- http://meded.ucsd.edu/faculty/writing_instructional_objectives.pdf (Accessed Jan 2013)
- http://teaching.uncc.edu/articles-books/best-practice-articles/goals-objectives/writing-objectives-using-blooms-taxonomy (Accessed Jan 2013)
- A long conversation with Rose Suhayda (Dec 2012) - thanks Rose!

Appendix I: Example Objectives at Different Levels

LEVEL	EXAMPLE OBJECTIVE	EXAMPLE ACTIVITY	EXAMPLE ASSESSMENT
1: Knowledge	"By the end of this course, the student will be able to recite Newton's three laws of motion."	Have students group up and perform simple experiments to the class showing how one of the laws of motion works.	Use the following question on an exam or homework. "Recite Newton's three laws of motion."
2: Comprehension	"By the end of this course, the student will be able to explain Newton's three laws of motion in his/her own words."	Group students into pairs and have each pair think of words that describe motion. After a few minutes, ask pairs to volunteer some of their descriptions and write these descriptions on the board.	Assign the students to write a simple essay that explains what Newton's laws of motion mean in his/her own words.
3: Application	"By the end of this course, the student will be able to calculate the kinetic energy of a projectile."	After presenting the kinetic energy equation in class, have the students pair off for just a few minutes and practice using it so that they feel comfortable with it before being assessed.	On a test, define a projectile and ask the students to "Calculate the kinetic energy of the projectile."
4: Analysis	"By the end of this course, the student will be able to differentiate between potential and kinetic energy."	Present the students with different situations involving energy and ask the students to categorize the energy as either kinetic or potential then have them explain in detail why they categorized it the way they did, thus breaking down what exactly makes up kinetic and potential energy.	Give the students an assignment that asks them outline the basic principles of kinetic and potential energy. Ask them to point out the differences between the two as well as how they are related.
5: Synthesis	By the end of this section of the course, the student will be able to design an original homework problem dealing with the principle of conservation of energy."	Tie each lecture or discussion to the previous lectures or discussions before it, thus helping the students assemble all the discreet classroom sessions into a unified topic or theory.	Give the students a project in which they must design an original homework problem dealing with the principle of conservation of energy.
6: Evaluation	"By the end of the course, the student will be able to determine whether using conservation of energy or conservation of momentum would be more appropriate forsolving a dynamics problem."	Have different groups of students solve the same problem using different methods, then have each group present the pros and cons of the method they chose.	On a test, describe a dynamic system and ask the students which method they would use to solve the problem and why.

Appendix II: Key Words for Objectives

Those that communicate knowledge:

Knowledge:

Cite	draw	name	recite	repeat	tell
Count	identify	point	recognize	select	trace
Define	indicate	quote	record	state	write
Describe	list	read	relate	tabulate	

Comprehension:

Associate	contrast	distinguish	extrapolate	predict	translate
Classify	describe	estimate	interpolate	report	
Compare	differentiate	explain	interpret	restate	
Compute	discuss	express	locate	review	

Application:

Apply	employ	locate	relate	sketch
Calculate	examine	operate	report	solve
Complete	illustrate	order	restate	translate
Demonstrate	interpolate	practice	review	use
Dramatize	interpret	predict	schedule	utilize

Analysis

Analyze	criticize	diagram	experiment	inspect	separate
Appraise	debate	differentiate	inventory	summarize	
Contract	detect	distinguish	infer	question	

Synthesis

Arrange	construct	formulate	organize	produce
Assemble	create	generalize	plan	propose
Collect	design	integrate	prepare	specify

Evaluation

Appraise	critique	evaluate	measure	recommend	select
Assess	determine	grade	rank	revise	test
Choose	estimate	judge	rate	score	

Those that communicate skills:

Diagnose	hold	internalize	measure	pass	project
Empathize	integrate	massage	palpate	percuss	

Those that communicate attitudes:

Acquire	exemplify	realize	reflect

Verbs to avoid:

Appreciate	have faith in	know	learn	understand	believe

I'm teaching an online course...
What's involved? What can be improved?

Syllabus: When developing the syllabus for an online course, always state your expectations very clearly. Never assume the students know what you are talking about.

Student Feedback: Provide timely feedback on student assignments, papers, projects, etc.

Communication: Let students know of your communication preferences . Assure them that when they contact you, you will respond within 24 hours, for example, on a week day and 48 hours on the weekend.

Accessibility: Adding audio to your PowerPoint is a great idea! Just make sure to include a transcript with the presentation so students with audio impairments are able to view the text.

Accessibility: All content in a course should be accessible without waiting for a student to request accommodation.

Copyright: Be aware of copyright laws pertaining to using materials from copyrighted sources. Fair Use does not mean that you can copy and distribute content online without permission.

Course Template: Use templates to improve course design. Course Structure Matrix and Module Template could be used to increase course quality and help student to success.

Online Presence: Reflect on how you make your presence known in your online classroom. Communicate frequently with your students through announcements, email, discussions, blogs, etc. Make sure that they know you care, not just about their grades, but about them as individuals.

Rubrics: Use Rubrics as a means of communicating expectations for an assignment, providing focused feedback on works in progress, and grading final products. It helps students make dependable judgments about the quality of their own work.

HAVE FUN!

Best Practices for Teaching Online

Accessibility: Scanned documents are not accessible to students with visual impairments who use screen readers. Try to find an online version in a "readable" format to link in your course.

Student To Do List: Provide a weekly list of activities, assessments, projects, etc. that the students will be responsible to complete during the module or week.

Content format: HTML and PDF are the most recommended and accessible for documents created for your course. You can Save As HTML or PDF from Word and PowerPoint. These formats open easily and are accessible by screen readers.

Clarity : Compensate for lack on cues from facial expressions, vocal intonations, and body language. Remember, your students aren't seeing your smile or hearing your tone of voice, so choose your words carefully when communicating through text.

Universal Design Tips: Be careful when using color in your online course. Make sure your documents have a high contrast between text and background. Do not use colored text to differentiate or highlight pieces of text. Color blind students will probably not be able to see the color difference.

Online Lectures: There are several free options available for RUSH instructors. Visit with any METC Instructional Designers to help decide which option is best for your course.

Online Discussions: Require student participation in weekly discussions – this works well in an online classroom. The instructor doesn't need to reply to EVERY post. Instead check it several times a week and wrap the conversation up at the end of the week.

Practice Quiz: Create a fun practice quiz that your students will take the week before their first weighted exam. This reduces stress, ensures that they know how a Blackboard quiz works, and confirms that their computer is configured properly. The same could be suggested for discussions.

Rush University Medical Center, 2013

McCormick Educational Technology Center

Blackboard SP9 Upgrade
New Features & Enhancements

Course Tools—new feature:

- **Interactive Rubrics**: Enhanced rubrics are here to better support instructor efficiency in the grading process and convey expectations to students. The rubrics enable the efficient, consistent grading of manually graded student submissions and also facilitate secondary evaluations used to support program evaluations. The rubric is "clickable", allowing for dynamic entry of feedback and ratings. When creating a rubric, instructors can choose from 4 types (percentage, point, point range, and no-point), as well as assign weights to categories. The same rubric can be assigned to multiple gradable items. Instructors can also opt to have the rubric viewable by students. Rubrics can be imported and exported for use across courses.

Assessment and Grade Center Improvements:

- **Timed Assessments Enhancement**: This new capability provides instructors with an intuitive means of setting time limits on assessments and configuring the system to auto-submit the assessment at time expiration. Instructors can now choose to make the timed assessment auto-submit, or to allow the assessment to continue beyond the allotted time as in previous releases of the Blackboard Learn platform. Students are provided with visual cues to track their progress when taking and submitting timed assessments set to auto-submit. Attempt information for timed assessments includes details on how much time the student spent on the attempt versus how much time was allotted.

- **Automated Re-grading** Instructors can now fix problematic questions by simply editing the invalid question directly and having all necessary updates flow automatically to the Grade Center. For any assessment question, Instructors can drop, give full credit, change point value, or change which answer is marked correct. After the question has been updated, Blackboard Learn recalculates the score of all submitted assessments that included the updated question, reflects the updates in the Grade Center, and provides notification to both the Instructor and optionally to the Student for all impacted submissions.

- **Negative Marking** Negative Marking allows Instructors to apply negative point values for incorrect answers on assessment questions.

- **Needs Grading Tool Enhancement**: The Needs Grading tool is a view in the Grade Center that instantly provides instructors visibility and access to items that need to be graded. Gradable Blogs, Journals, Wikis, and Discussion Board activity will now appear in Needs Grading status in the Grade Center and on the Needs Grading page. When an instructor chooses to make an interactive tool gradable, (s)he will also have the option to choose how many interactions will place the item in Needs Grading status. A Discussion Board forum, for instance, might be set to only appear in Needs Grading status after a student has made three posts, rather than with each individual post. The Needs Grading tool is also visible as part of the Needs Attention Module so instructors are alerted consistently with other gradable items.

Course Administration Improvements:

- **Activity Reports** provide reporting on how instructors and students are utilizing their Blackboard Learn courses and course materials. Reporting features have been expanded to now include student time-on-task, so instructors can see how much time students spend in their course. Access information is now aggregated on a single page, rather than generating single reports for individual content items or activities.

- **Course-to-Course Navigation** Course-to-Course Navigation allows students and instructors to jump from course to course while retaining the context of the page or task from the original page of any recently accessed course.

Improved Browser Support:

- **The following browsers will now be considered compatible:**

  - Internet Explorer 9
  - Google Chrome 18 (stable channel)
  - Firefox 12 (final release channel)

  *Note 1: On Rush-own machines, Internet Explorer 8 is the latest version supported.

  *Note 2: The Firefox Release Channel is the fully tested version by Mozilla and intended to be the most stable. This channel is updated roughly every 6 weeks. The Chrome Stable Channel is the fully tested version by Google and intended to be the most stable as the name implies. This channel is updated roughly every 2-3 weeks for minor releases and 6 weeks for major releases.

- **No longer supported:**

  - Internet Explorer 6 and 7
  - Firefox 1.x, 2.0, 3.0, and 3.5
  - Safari 2.0, 3.0, 3.1, 3.2 and any version on Windows
  - Mac OS X 10.3, 10.4 "Tiger"
  - Java 5, although it may continue to work

  *Note: "No longer supported" does not indicate software will no longer function properly with Blackboard, but rather Bb no longer supports those software with the use of Bb. You may continue to use unsupported technology successfully, but Bb will be unable to help if issues arise when using unsupported technology.

Competency Based Education

David C. Shelledy, PhD, FAARC, FASAHP
Professor and Dean
College of Health Sciences
Rush University

Competency

- What is it?

- How do recognize it?

- How do you teach it?

- How do you evaluate it?

DEFINITION

- Competency: Competence
- Competence: The state or quality of being competent.
- Competent:

  1. Properly or well qualified; capable.

  2. Adequate for the purpose; sufficient

The American Heritage Dictionary - Second College Edition

Definition of a Competency

The
- Knowledge,
- Skills

and

- Attitudes

Needed to successfully perform on the job.

Student learning outcomes are the knowledge, skills, and abilities the student has attained at the end of (or as a result of) his or her engagement in a particular set of higher education experiences – CHEA , 2006

Teaching and Evaluation of Competency

- <u>Knowledge</u>
  - The cognitive domain.
  - What you need to know to do the job
  - Problem solving, critical thinking
- <u>Skills</u>
  - The psychomotor domain
  - What you need to be able to do to do the job
- <u>Attitudes</u>
  - The affective domain
  - Attitudes and values
  - Professional characteristics
  - Interpersonal skills

Novice
↓
Advanced beginner
↓
Competence
↓
Proficiency
↓
Expert
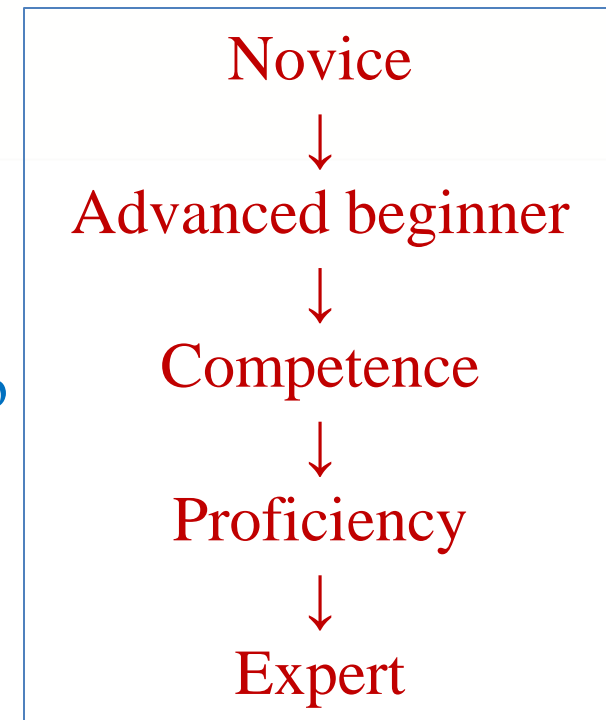
Needed to successfully perform on the job

Five Generic Competencies

1. Identifies, organizes, plans and allocates resources.

     Time, money, material and facilities, human resources

2. Works with others.

     Participates as a team member, teaches others new skills, serves patients/others, exercises leadership, negotiates, works with diversity

3. Acquires and uses information.

     Acquires, evaluates, organizes, maintains, interprets, communicates, and uses computers to process information

4. Understands complex inter-relationships.

     Understands systems (social, organizational, technological)

     Monitors and corrects performance

     Improves or designs systems

5. Works with a variety of technology.

     Selects technology, applies technology to task, maintains and troubleshoots technology

The Secretary's Commission on Achieving Necessary Skills, U.S. Department of Labor, 1992

IOM and IEC Core Competencies

1. Provide patient centered care.
2. Work in interdisciplinary teams.
3. Employ evidence-based practice.
4. Apply quality improvement.
5. Utilize informatics.

1. Values and ethics for inter-professional practice
2. Roles and responsibilities
3. Interprofessional communication
4. Teams and teamwork

Institute of Medicine – 2003; IEC Expert Panel, 2011

Key Elements of a Competency

- Outcome oriented

- Accomplishments of value

- Tasks, competencies and procedures

Competencies are delivered by a curriculum.

Curriculum

- The Race Course
- The Program of Studies
- Course Content
- Planned Learning Experiences
- A Structured Series of Intended Learning Outcomes
- A Written Plan for Action

Curriculum and Instruction

- Curriculum:

All Experiences Under the Auspices of the School
  - *Written and Unwritten*
  - *Planned and Unplanned*

- Instruction: The Planned Interactions Between Learner and Environment

Components of a Curriculum

- **Plan**
- **Design**
- **Implement**
- **Evaluate**

Components of a Competency-Based Curriculum

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- *Purpose*
  - Aims → Goals → Standards → Objectives

- *Content*
  - Cognitive
  - Psychomotor
  - Affective

- *Learning Activities*
  - Classroom, laboratory, practicum/clinical practice

- *Evaluation*
  - Cognitive
  - Psychomotor
  - Affective

Purpose/Content/Learning Activities/ Evaluation

- Philosophical + Social + Psychological Considerations
- Job Analysis
- Accreditation
- Board Exams and Licensure

- Educational Institution Requirements/Constraints

- Local/Regional Employer Needs

- Student Needs

- Patient Care Needs

- Evaluation of Outcomes

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- *Philosophy:*
  - The love and pursuit of wisdom
  - The synthesis of learning
  - The system of values by which one lives
  - Logic, ethics, aesthetics, metaphysics (ontology and cosmology), and epistemology

Branches of Philosophy

- *Ontology:* What is real?

- *Axiology:* What is good?

    – Aesthetics: What is beautiful?

    – Ethics: How should we act?

- *Epistemology:* How do we know?

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- **Ontology**: What is real?
  - Scientific realism
    - The world described by science (perhaps ideal science) is the real world, as it is, independent of what we might take it to be
      - Aristotle as the first great biologist
    - Bayesianism (Thomas Bayes, 1702-61) and confirmation →acquiring evidence modifies the probability rationally assigned to a hypothesis; Baye's Theorem
    - Karl Popper and the Logical Positivists
    - Thomas S. Kuhn and paradigm shifts – 1960s

Knowledge is constructed out of experience – the relativist and post-modernist

  - Pragmatism
    - Charles S. Peirce and William F. James
    - the usefulness, workability, and practicality of ideas, policies, and proposals are the criteria of their merit.
    - Truth is preeminently to be tested by the practical consequences of belief
  - Idealism
    - Plato and the allegory of the cave
    - Ideas and laws are more fundamental in reality than sensory things

- **Axiology**: What is good?
  - Health is good for individuals and society
  - Caring for, and service to others is good
  - To improve the quality of life/ prolong life with quality is good
  - What we do as health care providers is important
  - What we do as health care educators is important

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- **Axiology**: What is good?
  - Education for educations sake is good - but for many, education combined with professional training is better because it also provides a career
  - Students are important
    - Excellence is a worthy pursuit
    - All students have the potential for success
    - Concern for the welfare of others is a hallmark of the well educated and mature professional
    - *Graduates of our programs MUST be clinically competent*

Epistemology

The Nature of Knowledge

- Empirically Based
  - experience
- Rationally Developed
  - logic and reason
- Much Knowledge Based on Expert Authority
- A Role of Intuition
  - the scientific hunch or insight

Social Factors Affecting the Curriculum

- The purpose of public education is to pass on the values of society
    - Society must care for its members
    - To help the sick is good
    - Altruism has a social function
    - Sick people consume scarce resources
    - Health care provides jobs

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- A job: money, food and shelter
  - physiology and safety needs
- To be a part of the health care team
  - social needs
- Personal respect and self esteem
  - esteem needs
- To acquire professionalism and self-realization
  - self actualization
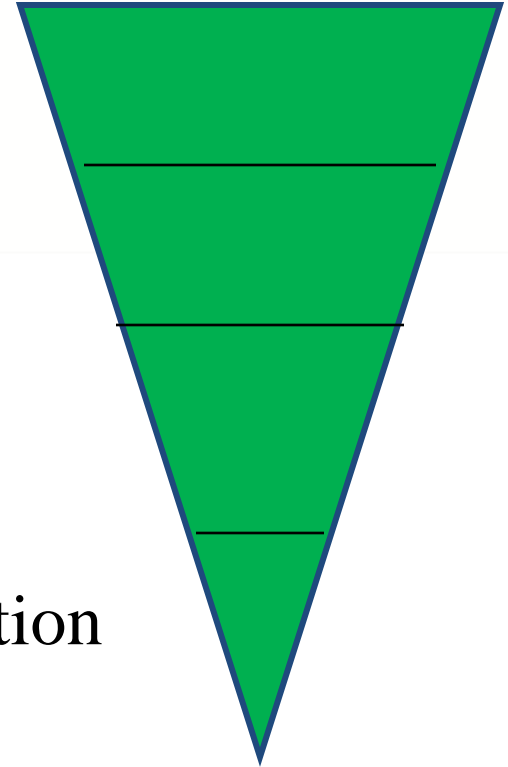
Maslow's Hierarchy - Human Motivation

Psychological Factors Affecting the Curriculum

- Learning Theory - Behaviorism
  - Modeling
  - Shaping
  - Chaining
  - Rewards for desired outcomes
  - Negative reinforcement – use may be rare
  - Avoid punishment (except perhaps when patient safety at issue)

• Principles of Learning:

– Active vs. passive

– Repetition important

– Reward correct response

– Motivation is important

– Group work

– Minimize conflict

   • Anxiety affects learning

The Learning Pyramid

We tend to comprehend...

10% of what we READ

20% of what we HEAR

30% of what we SEE

50% of what we both HEAR and SEE

70% of what we SAY

90% of what we both SAY and DO
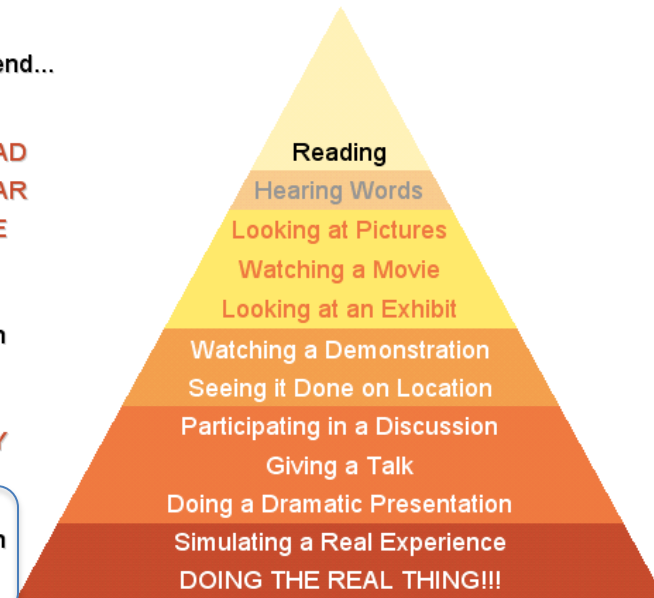
Reading

Hearing Words

Looking at Pictures

Watching a Movie

Looking at an Exhibit

Watching a Demonstration

Seeing it Done on Location

Participating in a Discussion

Giving a Talk

Doing a Dramatic Presentation

Simulating a Real Experience

DOING THE REAL THING!!!

Learning Theory

- Behaviorism
  - Modeling
  - Shaping
  - Chaining
  - Rewards for desired outcomes
  - Negative reinforcements use is rare
  - No punishment (unless patient safety at issue)

- Principles of learning:
  - Active vs. passive
  - Repetition important
  - Reward correct response
  - Motivation is important
  - Group work
  - Minimize conflict
  - Anxiety affects learning
  - Make structure clear
  - Know the learner
  - Organization of content
  - Learning with understanding
  - Differential abilities

Top Ten Techniques

1. Explain course material clearly and concisely
2. Introduce stimulating ideas about the subject
3. Relate course material to real-life situations
4. Make it clear how each topic fits into the course
5. Give tests, projects, etc. that cover the most important points of the course
6. Provide timely and frequent feedback on tests, reports and assignments
7. Display a personal interest in students and their learning
8. Encourage student-faculty interaction outside of class
9. Inspire students to set goals which really challenge them
10. Stimulate students to intellectual effort beyond that required by most courses

Curriculum and the Health Care Environment

- Health Care Costs
- Health Care Disparities
  - Access to Care – Uninsured Population
- Governmental – Regulatory Issues
- Recognition and Reimbursement
- Human Resource Shortages -> Recruitment and Retention Students/Personnel
- Medical Errors and Patient Safety
- Evidence – Based – Outcomes Based Practice
- Health Promotion and Disease Prevention
- Disease Management
- Independent Practice
- Information Technology – Effect on Quality and Safety
- Human Genome Research – Genetic Testing and Counseling

The Health Care Environment

Hot Topics Today:

– Health-Wellness, Disease Prevention

– Chronic Disease Management

– Health Care Reform

– The "Medical Home"

– Workforce Shortages

– Quality, Medical Errors and Patient Safety

– Disaster Preparedness and Response

– Infectious Disease (SARS, Flu, Meningitis, Mad Cow, HIV)

– Geriatrics/Gerontology/Aging Research

Health Care Environment

- Cost

- Quality

- Access

The knowledge, skills and attitudes needed to be successful on the job.

- Knowledge - Cognitive Domain

- Skills - Psychomotor Domain

- Attitudes - Affective Domain

"Professional Characteristics"

The Cognitive Domain

- **Knowledge:** recalling, remembering and reorganizing
  - Recognize, define, list, identify
- **Comprehension:** understanding and explaining
  - Describe, explain, convert, give examples
- **Application:** using ideas
  - Apply, utilize, demonstrate, solve
- **Analysis:** reasoning
  - Analyze, classify, distinguish, discriminate
- **Synthesis:** reasoning
  - Integrate, create, formulate, design, plan, organize
- **Evaluation:** making a judgment
  - Appraise, assess, compare, evaluate

Bloom's Taxonomy, 1956

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- Performance Objectives
  - Condition: Upon completion of the learning activities …
  - Performance: the student will…….
    - Recognize, define, list, identify; describe, explain, convert, give examples; apply, utilize, demonstrate, solve; analyze, classify, distinguish, discriminate; integrate, create, formulate, design, plan, organize; appraise, assess, compare, evaluate
  - Criterion: How well the student must perform

What is critical thinking?

"Critical thinking merges the principles of logical reasoning, problem solving, judgment, decision making , reflection and life-long learning"

Mishoe S. Critical thinking in respiratory care. In: Mishoe SC, Welch MA. New York: McGraw-Hill, 2002, p. 33-64.

Cognitive Domains

Evaluation

Synthesis

Analysis

Application

Comprehension

Recall
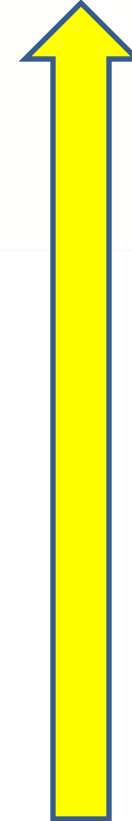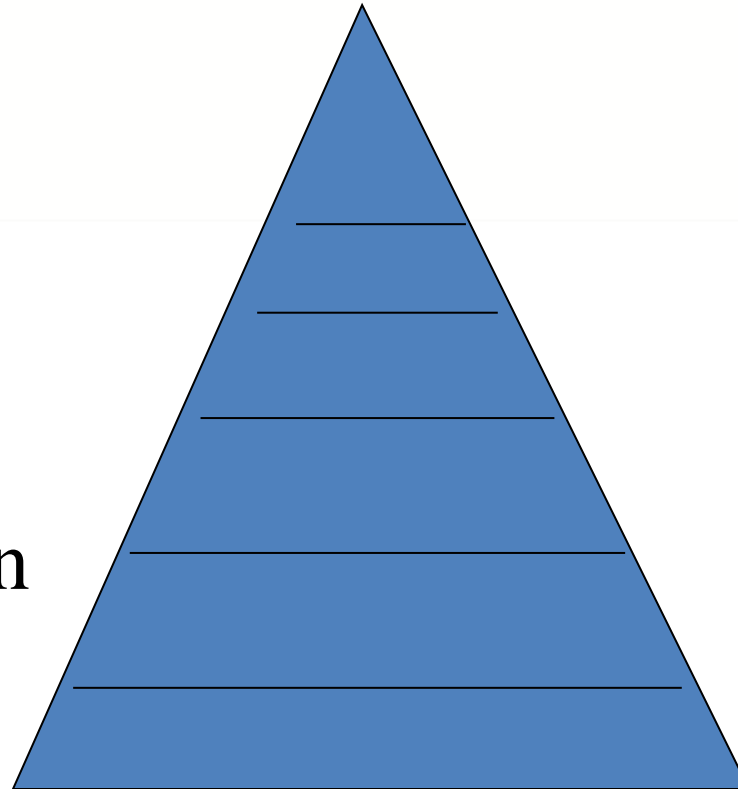
Critical Thinking

What is clinical problem solving?

"The recognition that a problem exists, followed by a systematic process during which a solution, or often solutions, to the problem are then determined, implemented and evaluated"

Novice
↓
Advanced beginner
↓
Competence
↓
Proficiency
↓
Expert

Welch MA. Clinical problem solving. In: Mishoe SC, Welch MA (eds.) Critical thinking in respiratory care. McGraw-Hill: New York, 2002.
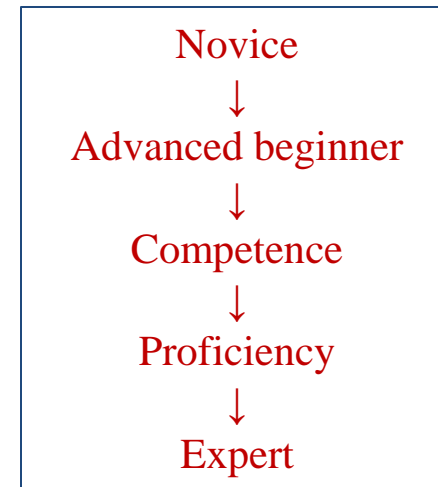
Critical Thinking and Problem Solving

Critical Thinking

Clinical Reasoning

Diagnostic Reasoning   →   Clinical

Decision Analysis   Decision
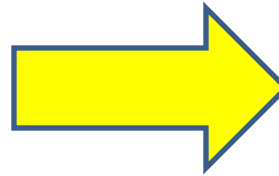
Problem Solving   Making

Characteristics of Critical Thinkers

Critical Thinkers	**Uncritical Thinkers**
Clear	Confused
Precise	Unrefined
Specific	Vague
Analytical	Shallow
Logical	Illogical
Reflective	Unreflective
Thorough	Superficial
Consistent	Inconsistent
Accurate	Inaccurate
Valid	Invalid

Objectives

Learning Activities

Evaluation

Evaluating the Cognitive Domain

- Written exams
  - Short answer – short essay
  - True False
  - Matching
  - Multiple choice tests
  - Written problems
  - Essay exams
  - Writing assignments and projects
  - Oral exams

Handouts:

- Quizzes, Test and Exams
- Appendix C: MCQs and Bloom
- Practical Suggestions

Objectives → Learning Activities → Evaluation

Norm vs. Criterion Referenced

- Criterion-referenced grading
  - Predetermined minimum level of acceptability
  - Grade *distribution* not important
- Norm-referenced grading
  - Based on performance relative to group norm
  - Inappropriate for competency-based training

Evaluating the Cognitive Domain

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- Written exams
  - Exams should be developed using a test matrix or exam blueprint

Objective or competency	Knowledge	Comprehension	Application	Analysis	Synthesis	Evaluation
1.0	3	1		1	1	
1.1		1	1	1		
1.2	2		1		1	1
1.3		1		2	1	1

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- **<u>Knowledge:</u>** recalling, remembering and reorganizing
  - Recognize, define, list, identify
- ***Upon completion of the learning activities the student will be able to***:
  - Define the term competency
- Which of the following is a correct definition of the term competency?

    A. Psychomotor skills need for effective practice

    B. Planned interactions between learner and environment

    C. **Knowledge, skills and attitudes needed on the job**

    D. All experiences under the auspices of the school

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- **<u>Comprehension</u>:** understanding and explaining
  - Describe, explain, convert, give examples
- *Upon completion of the learning activities the student will be able to:*
  - Give examples of competencies in education
- All of the following are examples of teacher competencies EXCEPT:
  - A. Developing, administering and grading examinations
  - B. Evaluating students' clinical performance
  - C. Obtaining a patient history and physical examination
  - D. Developing a lesson plan
  - E. Preparing and presenting lectures

Writing Cognitive Domain Performance Objectives

- **<u>Application</u>:** using ideas
  - Apply, utilize, demonstrate, solve
- *Upon completion of the learning activities the participant will be able to:*
  - Demonstrate the correct method to calculate the difficulty index of multiple choice test items.
- Twenty students took a multiple choice test. Four out the top five students answered an item correctly, while only one of the bottom five students answered the item correctly. The difficulty for the item is:

  A. .25
  *B. .50
  C. .75
  D. 1.0

Diff. Index = (H+L)/N: range 0 to +1

Discrimination Index = (H-L)/½ N: range -1 to +1

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- **<u>Analysis</u>:** reasoning
  – Analyze, classify, distinguish, discriminate
- *Upon completion of the learning activities the student will be able to:*
  – Perform an item analysis on a multiple choice test and determine which items should be omitted

(Difficulty: .20-.80; Discrimination: .20-.80)

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- A multiple choice examination is completed by your students with the following results:

Item	Difficulty	Discrimination
1.	1.0	0
2.	.50	-1
3.	.60	.20
4.	.20	.80

- Which item is hardest and has the most discrimination?

    A. 1
    B. 2
    C. 3
    D. 4

Cognitive Domain Performance Objectives

1. **For criterion testing – set cut score to pass ($\geq$75%)**
2. Calculate the difficulty and discrimination index for each item:
   – Difficulty = (H+L)/N; Range is 0-1.0; preferred range .20-.80 (1= very easy; 0= very hard)
   – Discrimination = (H-L)/ ½ N ; Range is -1.0 to +1.0; preferred range is .20-.80 but…

   -1= reverse discrimination,; 0= no discrimination; +1= very high discrimination
3. Omit most difficult or missed items (Diff. $\leq$ .20; $\geq$ 80% missed)
   – >.75 $\rightarrow$ very easy item (75% got it right; 25% missed)
   – <.25 $\rightarrow$ very difficult item (25% got it right; 75% missed)
   – Generally if,
     Diff. $\leq$ .20 ($\geq$80% missed $\rightarrow$ omit)
     Diff. $\leq$ .30 ($\geq$70% missed $\rightarrow$ may omit)
     Diff. $\leq$ .40 ($\geq$60% missed $\rightarrow$ consider)
➢ Review items with reverse discrimination
3. Give "bonus points" to those who miss items that are to be omitted in the grade calculation.
4. Calculate each students adjusted score on the exam

   Adjusted score = (number correct + bonus items)/ adjusted number of items

- **<u>Synthesis</u>:** reasoning
  - Integrate, create, formulate, design, plan, organize
- *Upon completion of the learning activities the student will be able to design an effective course unit.*

- **<u>Evaluation:</u>** making a judgment

- *Upon completion of the learning activities the student will be able to:*

  - Evaluate the effectiveness of an educational program in a health science discipline.

- Tools:
  - Student course evaluations
  - Student performance (courses and clinicals)
  - Graduate board exam scores
  - Employer evaluations of the graduate
  - Graduate evaluations of the program
  - Graduate career achievements (leadership, success)
  - Accreditation reviews
  - Program rankings and reputation

Components of a Unit of Instruction

- Components of an effective unit in a "theory" course
  - <u>Overview</u>
    - purpose, what the student will learn
  - <u>Unit objectives</u>
    - must include higher levels
    - Upon completion of the learning activities, the participant will …..
      - Condition, behavior, criterion
  - <u>Learning activities</u>
    - what the student will do to achieve the objectives
  - <u>Evaluation</u>
    - how the student will be evaluated and what criterion will be applied
- Examinations and other graded activities should be directly related to the unit objectives and learning activities

Cognitive Levels – an alternative to Bloom

- Level 1 - Recall
  - Recognition and recall of information
  - What is X?

- Level 2 - Application
  - Interpretation or application of limited data
  - Knowing X to be true, what can you expect to be true of Y?

- Level 3 - Analysis
  - Evaluation of data for the solution of a specific problem
  - Fitting together a variety of concepts into a meaningful whole

Critical Thinking in the Health Professions

The cognitive critical thinking skills can be understood as follows:

1. **Interpretation:** accurately interpreting problems as well as objective and subjective data from common information sources, related to the care of the patient;

2. **Analysis:** examining ideas/arguments in problems, objective and subjective data and possible courses of action related to the care of the patient;

3. **Inference:** querying claims, assessing arguments (recognizes faulty reasoning) and reaching conclusions that are appropriate to the care of the patient;

4. **Explanation:** to clearly explain and defend the reasoning in which an individual arrives at specific decisions in the context of the health care of the patient;

5. **Evaluation:** to evaluate information to ascertain its probable trustworthiness as well as its relevance to particular patient care situations; and

6. **Self-regulation:** constantly monitoring one's own thinking using universal criteria, for example, clarity, precision, accuracy, consistency, logic, significance, and so on, and correcting oneself as appropriate in the context of caring for patients.

Elaine Simpson E, Courtney M. *Critical thinking in nursing education: literature review International Journal of Nursing Practice 2002; 8: 89–98*

Teaching Critical Thinking

- Methods
  - Lecture - discussion
  - Problem-based learning
  - Team-based learning
  - Case-based learning
  - Simulations
    - High fidelity
    - Standardized patients
  - Flipping the classroom
  - Audience response systems
- Student evaluation
  - Multiple choice testing
  - Rubrics
  - Simulations
  - Projects (case presentations, capstone projects)

Novice
↓
Advanced beginner
↓
Competence
↓
Proficiency
↓
Expert
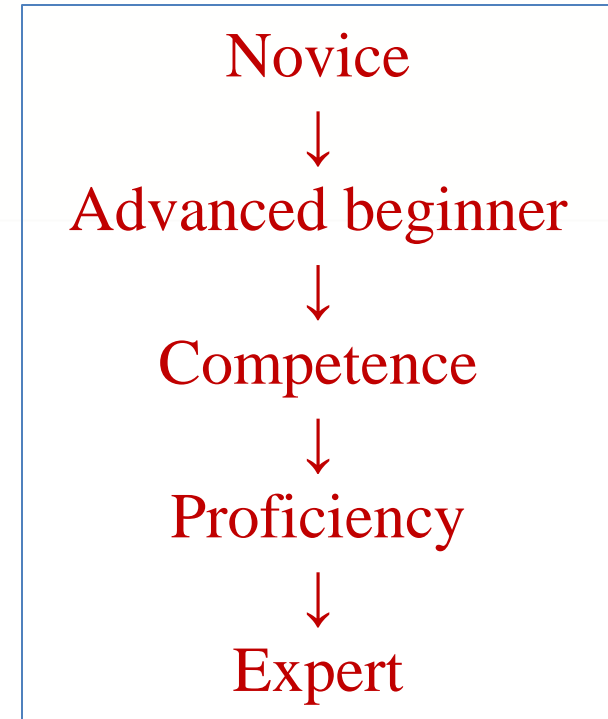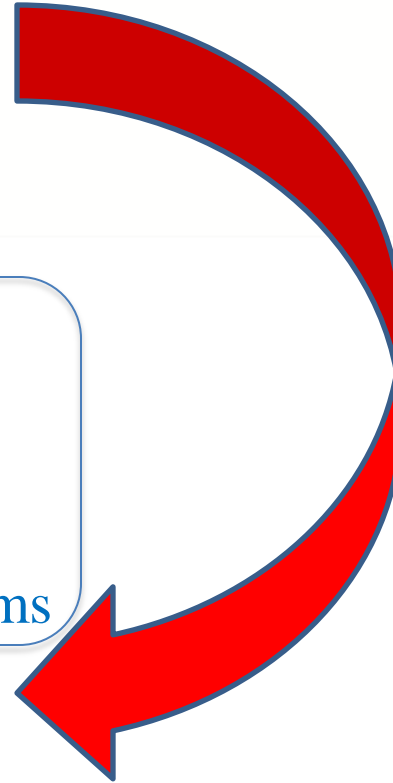
Skills: The Psychomotor Domain

- Perception: recognizing and detecting sensory cues
  - Hear, see, view, watch, perceive, recognize
- Set: becoming ready to act
  - Achieve a body position, posture or stance
- Guided Responses: imitating and practicing
  - Copy, duplicate, imitate, practice
- Mechanism: increasing efficiency
  - Conduct, demonstrate, improve, increase speed, show dexterity
- Complex Overt Response: performing automatically
  - Perform, advance confidently, master, excel

(Imitation, manipulation, precision, articulation, naturalization)

- Psychomotor Performance Objectives
  - <u>Condition</u>: Given a patient requiring mechanical ventilatory support...
  - <u>Performance</u>: the student will initiate mechanical ventilation....
  - <u>Criterion</u>: correctly completing each step listed on the task analysis evaluation form.

Evaluating the Psychomotor Domain

Performance evaluations

- Task analysis → check list
    - Observe performance procedure – Y/N for each step

- Qualitative evaluation for items which may vary in quality

    - Appearance

    - Quality of a patient interaction

    - Comfort

    - Creativity

    - Frequency of behavior

5 - Strongly agree
4 – Agree
3 - Neither agree nor disagree
2 - Disagree
1 - Strongly agree

5 – Very good
4 – Good
3 – Average
2 – Poor
1 – Very poor

5 - Very Frequently
4 -Frequently
3 - Occasionally
2 - Rarely
1 - Never

Performance evaluation: *Check Lists*

Task analysis → check list

Observe procedure performance – Y/N or Satisfactory /Unsatisfactory for each step

1. Review the medical record   Y/N

2. Gather equipment and supplies   Y/N

3. Enter room, wash hands, put on gloves   Y/N

4. Introduce self and explain the procedure   Y/N

5. Perform pre-procedure patient assessment   Y/N

    a.   Pulse

    b.   Respirations

    c.   Breath sounds

6. And so forth   Y/N

Evaluating the Psychomotor Domain

Performance evaluations: *Rating Scales*

- **Qualitative evaluation for items which may vary in quality**
  - Appearance
  - Quality of a patient interaction
  - Comfort
  - Creativity
- Rating scales

5 – Very good
4 – Good
3 – Average
2 – Poor
1 – Very poor

4 – A - excellent
3 – B - very good
2 – C - satisfactory
1 – D - below average
0 – F - failing

5 – excellent
4 – very good
3 – good
2 – fair
1 - unsatisfactory

Agree Very Much = 7; Agree Pretty Much = 6; Agree a Little = 5;
Disagree a Little = 3; Disagree Pretty Much = 2 ;Disagree Very Much = 1

Attitudes: The Affective Domain

- Receiving: attending and becoming aware
  - Accept, acknowledge, notice, perceive
- Responding: doing something about the phenomenon
  - Communicate, cooperate, answer, participate
- Valuing: developing attitudes
  - Express, prefer, choose, adopt
- Organization: arranging values systematically
  - Conceptualize, rank, arrange, classify
- Characterization: internalizing a set of values
  - Advocate, defend, act upon, exhibit, display

(Value complex formation)

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Professional Characteristics

- Attention

- Participation

- Dependability

- Communication

- Organization

- Safety

Example: daily professional characteristics evaluation

<u>Professional Characteristics Evaluation</u>
<u>Clinical Performance Record</u>

Student: _____

INSTRUCTOR'S: Indicate your score of the student's performance of the following objectives on a daily basis. Rate the student using the following scale.

0 Almost Never Occurs	1 Seldom Occurs	2 Sometimes Occurs	3 Frequently Occurs	4 Almost Always Occurs

NO.	TOPIC	KEY POINTS		EVALUATION
1.	Attention	a.	Demonstrates awareness of the importance of learning by asking pertinent questions, identifying areas of importance in clinical practice and reporting and recording those areas.	
2.	Participation	a.	Completes assigned work and prepares for clinical objectives prior to attending clinical practice.	
		b.	Participates in formal and informal clinical discussions, answers questions, reports on clinical experiences and volunteers for special tasks and research.	
		c.	Initiates alteration in patient care techniques when appropriate via notification of nursing staff and physician.	
3.	Dependability	a.	Attends and is punctual and reliable in completing clinical assignments with minimal instructor supervision.	

INSTRUCTOR'S: Indicate your score of the student's performance of the following objectives on a daily basis. Rate the student using the following scale.

0 Almost Never Occurs	1 Seldom Occurs	2 Sometimes Occurs	3 Frequently Occurs	4 Almost Always Occurs

4.	Communication	a. Demonstrates a pleasant and positive attitude when dealing with patients by greeting them by name, approaching them in a non-threatening manner and setting them at ease. b. Explains procedures clearly to the patient. c. Asks patients how they feel and solicits patient comments regarding the patient's overall condition and response to therapy. d. Communicates clearly to nursing staff and physicians regarding the patient status, utilizing appropriate charting, oral communication and the established chain of command.	
5.	Organization	a. Displays recognition of the importance of interpersonal relationships with other members of the health care team by acting in a cordial and pleasant manner. b. Works as a team with fellow students, nursing staff and the physician in providing patient care. c. Organizes work assignments effectively. d. Collects information from appropriate resources. e. Correlates respiratory care to overall patient condition. f. Adapts respiratory care techniques to overcome difficulties. g. Devises or suggests new techniques for welfare or patient or unit efficiency.	
6.	Safety	a. Verifies identity of patients before initiating therapeutic action. b. Interprets written information and verbal directions correctly. c. Observes, reports significant changes in patient's condition promptly to appropriate person(s). d. Acts to prevent accidents and injury to patients, personnel and self. e. Transfers previously learned theory, knowledge, skill to new/different patient situations. f. Requests help from faculty/nursing staff when unsure.	

13. Identifies alternate solutions to problems.

14. Draws appropriate conclusions from available data.

15. Explains the rationale for choosing specific solutions to a problem.

16. Corrects/modifies thinking based on new information.

17. Critically examines personal concepts and ideas.

18. Has a creative approach to problem solving.

19. Has excellent critical thinking skills.

20. Is good at solving problems.

21. Makes appropriate clinical decisions.

Agree Very Much = 7; Agree Pretty Much = 6; Agree a Little = 5;
Disagree a Little = 3; Disagree Pretty Much = 2 ;Disagree Very Much = 1

Competency Based Education

- How does one acquire competency?
  1. On the Job
  2. Training Programs
  3. Educational Programs

Traditional versus Competency Based Education

- ***What students learn.***
  - Traditional: texts, outlines, "material," lectures.
  - CBE: based on specific, precisely stated outcomes (competencies or tasks) verified as essential on the job.

- ***How students learn.***
  - Traditional: instructor centered lectures, demonstration, discussion, little feedback.
  - CBE: student centered learning activities, learn by doing, learning packages, feed back, self paced.

Traditional versus Competency Based Education

- ***When you proceed.***
  - Traditional: with the class - may proceed without mastery.
  - CBE: when the task or competency is mastered.
- ***Evaluation.***
  - Traditional: pencil and paper tests. Norm referenced exams.
  - CBE: each student performs task with a high level of proficiency in a job-like atmosphere. Criterion referenced testing - performances standard fixed.

Developing Competency-Based Programs

1. Identify and describe specific professions
2. Identify essential student prerequisites
3. Identify and verify job tasks or competencies
4. Analyze tasks, add knowledge
5. Write performance objectives
6. Sequence tasks (competencies) and performance objectives
7. Develop performance tests (psychomotor exams)
8. Develop written tests
9. Develop draft learning guides
10. Tryout - field test learning guides
11. Develop system to manage learning
12. Implement and evaluate program

William E. Blank
Handbook for Developing Competency-Based Training Programs

- 1. Identify and Describe Specific Occupations or Professions
  - The Formal Job Analysis
  - Examination Committee "Job Analysis"
  - DACUM
  - Existing Descriptions
    - Board exam matrix or outline
    - Accreditation agency
    - Licensure exams
    - National professional association or societies

The Job Analysis

- *Identify individuals performing the job*
- *Observe every aspect of job performance*
- *Identify job duties*
- *Identify job tasks*
- *Perform task analysis*

- NBRC Job Analysis
  - Entry Level CRTT and Written Registry Examinations
  - A comprehensive list of tasks is assembled
  - The list is mailed out to:
    - Practitioners
    - Directors
    - Educators
    - Medical Directors

NBRC Job Analysis

- Respondents rate each task for
  - Extent Performed (Entry Level, Advanced Level)

  - Significance of the Task to Safe and Effective Performance as a RCP
- 7,400 surveyed - varied locations
- 1,000 rated entry level -1,000 rated advanced level
- 98% indicated the task list adequately or completely covered the content domain

X
RRT Matrix

Content Area	Recall	Application	Analysis	Number of Items
I. **Clinical Data**	3	3	11	17
A. Review patient records; recommend diagnostic procedures	1	1	3	5
B. Collect and evaluate clinical information	1	1	5	7
C. Perform procedures; interpret results; recommend modifications to care plan	1	1	3	5
II. **Equipment**	3	4	13	20
A. Select and obtain; assure cleanliness	1	2	5	8
B. Assemble and check; correct malfunctions; perform quality control	2	2	8	12
III. **Therapeutic Procedures**	6	8	49	63
A. Evaluate, monitor and record patient's response	2	3	13	18
B. Maintain airway; remove secretions; assure ventilation and oxygenation	1	1	10	12
C. Modify therapy	0	1	10	11
D. Perform emergency procedures	1	1	10	12
E. Assist physician in special procedures; conduct pulmonary rehabilitation and home care	2	2	6	10
Totals	12	15	73	100

Cognitive Level

	Recall	Application	Analysis

I. Select, Review, Obtain and Interpret Data

SETTING: In any patient care setting, the advanced respiratory therapist reviews existing clinical data and collects or recommends obtaining additional pertinent clinical data. The therapist evaluates all data to determine the appropriateness of the prescribed respiratory care plan, and participates in the development of the respiratory care plan. **3**   **3**   **11**

	Recall	Application	Analysis
A. Review patient records and recommend diagnostic procedures.	**1***	**1**	**3**
1. Review existing data in the patient record:			
a. patient history [e.g., present illness, admission notes, respiratory care orders, progress notes]	X**		
b. physical examination [e.g., vital signs, physical findings].	X		
c. lab data [e.g., CBC, chemistries/electrolytes, coagulation studies, Gram stain, culture and sensitivities, urinalysis]	X	X	
d. pulmonary function and blood gas results	X	X	
e. radiologic studies [e.g., radiographs of chest/upper airway, CT, MRI]	X	X	
f. monitoring data			
(1) fluid balance (intake and output)			
(2) pulmonary mechanics [e.g., maximum inspiratory pressure (MIP), vital capacity]	X	X	
(3) respiratory monitoring [e.g., rate, tidal volume, minute volume, I:E, inspiratory and expiratory pressures; flow, volume and pressure waveforms]	X	X	
(4) lung compliance, airway resistance, work of breathing	X	X	
(5) noninvasive monitoring [e.g., capnography, pulse oximetry, transcutaneous O_2/CO_2] .	X	X	
g. results of cardiovascular monitoring			
(1) ECG, blood pressure, heart rate	X	X	
(2) hemodynamic monitoring [e.g., central venous pressure, cardiac output, pulmonary capillary wedge pressure, pulmonary artery pressures, mixed venous O_2, $C(a-\bar{v})O_2$, shunt studies ($\dot{Q}s/\dot{Q}t$)].	X	X	
h. maternal and perinatal/neonatal history and data [e.g., Apgar scores, gestational age, L/S ratio, pre/post-ductal oxygenation studies].	X		
i. other diagnostic studies [e.g., EEG, intracranial pressure monitoring, metabolic studies ($\dot{V}O_2$, $\dot{V}CO_2$, nutritional assessment), ventilation/perfusion scan, pulmonary angiography, sleep studies, other ultrasonography]			
2. Recommend the following procedures to obtain additional data:			

DACUM

Developing a Curriculum (DACUM)

- DACUM is a structured process that is often used in competency-based education (CBE) curriculum development
  - analyze the jobs, job roles (duties) and tasks associated with a specific profession or occupation.

- DACUM identifies specific knowledge, skills and professional (affective) characteristics needed by individuals to perform their job.

- DACUM uses a facilitator to lead a group of expert practitioners as they identify jobs, roles and tasks.

- Resulting task lists are used to develop the specific performance objectives, learning activities, and evaluation methods for training.

- These materials are then sequenced into specific courses, units of instruction and modules of study → a curriculum.

DACUM

- Method
  - A panel of workers or experts in the job
  - A neutral facilitator
  - A recorder
  - Observers
- Identify duties and tasks needed to perform on the job.
- Rate the resultant task list in terms of importance.

- Duty: Maintain the automobile
- Tasks:
  - Wash the car exterior
  - Vacuum car interior
  - Wax the car
  - Check the car fluid levels
  - Check tire air pressure

Occupational (Job) Analysis Assumptions

1. Expert workers are the best source for job and task analysis.
2. Any occupation can be effectively described in terms of

   a. Duties and tasks

- <u>Duty</u>: general area of competence that successful workers in the occupation must demonstrate or perform on an ongoing basis.

    PA Example: see adult patients in the clinic.

- <u>Task</u>: a work activity that has a definite beginning and ending, is observable, consist of two or more definite steps, and leads to a product, service, or decision.

    PA Example: perform a patient history and physical examination.

Occupational (Job) Analysis Assumptions

2. Any occupation can be effectively described in terms of
    b. Knowledge, skills and traits (professional characteristics) needed to perform tasks.
        - Cognitive skills → Knowledge
            – Recall, application, analysis
            – Knowledge, comprehension, application, analysis, synthesis, evaluation
        - Psychomotor skills → technical skills → tasks and procedures
        - Affective skills → professional characteristics

Competency: the knowledge, skills and professional characteristics (traits or attitudes) needed to perform on the job.

Why use the DACUM Process?

- *Method*
  - *A panel of workers or experts in the job (7-11)*
  - *A neutral facilitator*
  - *A recorder*
  - *Observers*
- *Identify duties and tasks needed to perform on the job*
  - *Nominal group technique used.*
- *Rate the resultant task list in terms of importance.*
- **Fast**
- **Cost effective**
- **Involves workers in a participatory process that recognizes their expertise**

DACUM

Participants:

- **Carl A. Kaplan, MD** — Professor of Internal Medicine, Section Chief, Pulmonary, Rush University Medical Center

- **David Bowton, MD, FCCP** — Professor and Head, Section on CCM , Wake Forest Univ.-Baptist Medical Center, Winston Salem NC

- **Thomas M. Fuhrman, MD, FCCP** — Prof of Anesthesiology, Chief Division of Neuroanesthesia, University of Miami

- **Robert Aranson, MD, FCCP** — Pulmonologist & Intensivist, Locum Tenens, Freeport, ME

- **Herbert Patrick, MD, FCCP** — Intensivist, Pulmonary & Critical Care, Kindred LTAC Hospitals, Philadelphia, PA and Hahnemann University Hospital, Philadelphia, PA

- **Kevin M. O'Neil, MD, FCCP** — Pulmonary Clinic, Wilmington, NC

- **Robert A. Balk, MD, FCCP** — Director of Pulmonary and Critical Care Medicine, Rush University Medical Center

DACUM

Directions

List all tasks, procedures and competencies needed for training an advanced-practice respiratory therapist to function as a mid-level provider .

- **Duty or Area: Tasks, Procedures and Competencies Needed to See Patients in the Clinic or Physicians Office.**
  - ➤ **75** specific tasks, procedures or competencies identified.
- **Duty or Area: Tasks, Procedures and Competencies Needed to See Adult Patients in the ICU.**
  - ➤ **70** additional tasks procedures or competencies identified.
- **Duty or Area: Tasks Procedures and Competencies Needed to See Adult Patients in the Hospital.**
  - ➤ **18** additional tasks, procedures or competencies identified.

Total: 163 competencies identified

Tasks, procedures and competencies needed for training an advanced-practice respiratory therapist to function as a **pulmonary/critical care midlevel provider**.

*Please rate each task or procedure in terms of importance for the training and practice of an advanced level respiratory therapist in order for him or her to function as a **pulmonary/critical care mid-level provider**. Please use the following scoring system:*

5 = Very Important; 4 = Important; 3 = Neither Important or Unimportant; 2 = Unimportant; 1= Very Unimportant

NOTE: Tasks, procedures and competencies are listed in the setting where they may be more likely to be performed, however, all competencies may be performed across all sites.

Importance Rating

Following identification of tasks, procedures and competencies, participants were asked to rate each using the following scale:

5 = Very important

4 = Important

3 = Neither important or unimportant

2 = Unimportant

1 = Very unimportant

Tasks, Procedures and Competencies Needed to See Adult Patients in the Clinic or Physician's Office:

1. Gather essential and accurate information about their patients.   5.00
2. Perform detailed pulmonary assessment.   5.00
3. Identify signs and symptoms of specific general medical and pulmonary condition conditions (see below).   5.00
4. Maintain respect, compassion, and integrity.   5.00
5. Demonstrate caring and respectful behaviors when interacting with patients and their families.   5.00
6. Develop and carry out patient management plans.   4.89
7. (Assess) history and physical exam.   4.89
8. Work effectively with physicians and other health care professionals to provide patient-centered care.   4.89
9. Evaluate and manage obstructive disorders (asthma, COPD).   4.89
10. Demonstrate sensitivity and responsiveness to patients' culture, age, gender, and disabilities.   4.89
11. Use effective listening, nonverbal, explanatory, questioning, and writing skills to elicit and provide information.   4.89
12. Understand etiologies, risk factors, underlying pathologic process, and epidemiology for specific general medical and pulmonary condition conditions (see below).   4.78
13. Identify the appropriate site of care for presenting conditions, including identifying emergent cases and those requiring referral or admission.   4.78

Tasks, Procedures and Competencies Needed to See Adult Patients in the Clinic or Physician's Office:

14. Interpret ABG report.   4.78

15. Management of CPAP and BiPAP (sleep patient).   4.78

16. Assess patient with dyspnea.   4.78

17. Perform and interpret PFTs.   4.78

18. Demonstrate commitment to ethical principles pertaining to provision or withholding of clinical care, confidentiality of patient information, informed consent, and business practices.   4.78

19. Patient education for specific diseases.   4.78

20. Basic chest radiograph interpretation.   4.78

21. Demonstrate professional relationships with physician supervisors and other health care providers.   4.78

22. Appropriately adapt communication style and messages to the context of the individual patient interaction.   4.78

23. Appropriately use history and physical findings and diagnostic studies to formulate a differential diagnosis.   4.67

24. Make informed decisions about diagnostic and therapeutic interventions based on patient information and preferences, up-to-date scientific evidence, and clinical judgment.   4.67

25. Select and interpret appropriate diagnostic or lab studies.   4.67

26. Teaching use of MDI, DPI, Nebulizers (all inhaled aerosol devices)   4.67

27. Interpret lab results.   4.67

28. Prescribe and manage home O2.   4.67

Tasks, Procedures and Competencies Needed to See Adult Patients in the Clinic or Physician's Office:

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29.	Partner with supervising physicians, health care managers and other health care providers to assess, coordinate, and improve the delivery of health care and patient outcomes.	4.67
30.	Treat pulmonary infections (bronchitis, pneumonia).	4.67
31.	Prescribe oxygen.	4.67
32.	Create and sustain a therapeutic and ethically sound relationship with patients.	4.67
33.	Demonstrate emotional resilience and stability, adaptability, flexibility and tolerance of ambiguity and anxiety.	4.67
34.	Demonstrate accountability to patients, society, and the profession.	4.67
35.	Demonstrate commitment to excellence and on-going professional development.	4.67
36.	Differentiate between the normal and the abnormal in anatomic, physiological, laboratory findings and other diagnostic data.	4.56
37.	Provide appropriate care to patients with specific chronic conditions.	4.56
38.	Enter medical history in patient record.	4.56
39.	Perform physical examination to identify sleep disorders.	4.56
40.	Obtain detailed history for sleep disorders.	
41.	Obtain ABG samples.	4.56
42.	Write and dictate progress notes, history, and physical examination results.	4.56
43.	Interpret chest pain.	4.56
44.	Apply and teach nebulizers.	4.56

Tasks, Procedures and Competencies Needed to See Adult Patients in the Clinic or Physician's Office:

45.	Conduct smoking cessation interventions.	4.56
46.	Manage bronchiectasis.	4.56
47.	Prescribe and oversee pulmonary rehab.	4.56
48.	Demonstrate responsiveness to the needs of patients and society.	4.56
49.	Demonstrate self-reflection, critical curiosity and initiative.	4.56
50.	Apply an understanding of human behavior.	4.56
51.	Provide health care services and education aimed at preventing health problems or maintaining health.	4.56
52.	Manage specific general medical and surgical conditions to include understanding the indications, contraindications, side effects, interactions and adverse reactions of pharmacologic agents and other relevant treatment modalities.	4.44
53.	Counsel and educate patients and their families.	4.44
54.	Prescribe (oral) antibiotics, bronchodilators, inhaled and systemic steroids.	4.44
55.	Obtain allergy exposure and symptom history.	4.44
56.	Interpret mixed acid-base disorders.	4.44
57.	Perform and interpret 6-minute walk test.	4.44
58.	Manage anticoagulation for PE and DVT.	4.44
59.	Perform preoperative pulmonary evaluation.	4.44
60.	Contribute to office function meetings (team player).	4.44

Tasks, Procedures and Competencies Needed to See Adult Patients in the Clinic or Physician's Office:

61. Change tracheotomy tubes.   4.44
62. Review homecare treatment plan.   4.44
63. Formulate homecare treatment plans.   4.44
64. Assess and document airway for planned procedures.   4.44
65. Recognize and appropriately address gender, cultural, cognitive, emotional and other biases; gaps in medical knowledge; and physical limitations in themselves and others.   4.44
66. Understanding of legal and regulatory requirements for provisional patient care.   4.44
67. Practice cost-effective health care and resource allocation that does not compromise quality of care.   4.44
68. Identify appropriate interventions for prevention of specific general medical and pulmonary conditions.   4.33
69. Interpret CTs, chest X-ray and imaging studies.   4.33
70. Perform outpatient consultation.   4.33
71. Complete O2 forms for home care companies.   4.33
72. Return patient calls with physician reviewed results.   4.33
73. Treatment of anaphylaxis.   4.33
74. Identify and manage drug interactions.   4.33
75. Code for outpatient billing (understand outpatient billing).   4.33
76. Palliative care.   4.33
77. Advocate for quality patient care and assist patients in dealing with system complexities.   4.33

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95. Obtain advance directive documents and history.	4.11
96. Evaluate equipment.	4.11
97. Use the systems responsible for the appropriate payment of services.	4.11
98. Analyze practice experience and perform practice-based improvement activities using a systematic methodology in concert with other members of the health care delivery team.	4.11
99. Interpret EKG.	4.00
100. Perform ECG.	4.00
101. Perform pleural ultrasound.	4.00
102. Manage the following specific medical and surgical conditions:	
a. COPD/emphysema/chronic bronchitis.	5.00
b. ALI/ ARDS.	4.89
c. Pleural disease/ pleural effusion.	4.89
d. Tobacco addiction/dependence.	4.89
e. Pneumothorax.	4.89
f. Acute bronchitis.	4.78
g . Bronchiectasis.	4.78
h. Interstitial lung disease.	4.78
i. Pulmonary embolus.	4.78
j. Sleep disordered breathing.	4.78

k.	Interstitial pulmonary fibrosis (IPF).	4.67
l.	Neuromuscular disease affecting respiration.	4.67
m.	Postoperative care.	4.67
n.	Preoperative care.	4.67
o.	Upper respiratory tract infection.	4.67
p.	Congestive heart failure.	4.56
q.	Fluid and electrolyte disorders.	4.56
r.	Sepsis.	4.56
s.	Cystic fibrosis.	4.44
t.	Hypovolemic shock.	4.44
u.	Pulmonary hypertension.	4.44
v.	Anaphylactic shock.	4.33
w.	Sarcoidosis.	4.33
x.	Septic shock.	4.33
y.	Cardiogenic shock.	4.22
z.	Chest trauma.	4.22
aa.	Burns and smoke inhalation.	4.11
bb.	Lung cancer.	4.11
cc.	Pneumoconiosis.	4.11

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dd.	Hypersensitivity pneumonitis.	4.11
ee.	Coronary artery disease.	4.00
ff.	Drug overdose.	4.00
gg.	Myocardial infarction.	3.89
hh.	Fungal lung disease.	3.89
ii.	Anemia.	3.78
jj.	Obesity.	3.67
kk.	Alcohol and drug abuse.	3.56
ll.	Diabetes.	3.56
mm.	Renal failure.	3.56
nn.	Neurologic disease.	3.44
oo.	Malnutrition.	3.44
pp.	Leukopenia.	3.33
103.	Locate, appraise, and integrate evidence from scientific studies related to their patients' health problems.	3.89
104.	Perform venopuncture.	3.89
105.	Manage cystic fibrosis.	3.89
106.	Provide Moderate Sedation for outpatient bedside office procedures.	3.89
107.	Process bronchoscopy specimens.	3.89

Tasks, Procedures and Competencies Needed to See Adult Patients in the Clinic or Physician's Office:

108. Obtain and apply information about their own population of patients and the larger population from which their patients are drawn. — 3.89

109. Interpret sputum and gram stains (C & S). — 3.78

110. Manage alpha 1 antitrypsin replacement. — 3.78

111. Manage xolair administration (omalizumab). — 3.78

112. Participate in funded clinical research (office-based research activities). — 3.78

113. Administer vaccines. — 3.78

114. Interact with vendors. — 3.78

115. Understand the funding sources and payment systems that provide coverage for patient care. — 3.67

116. Perform methacholine challenge test (bronchial challenge). — 3.56

117. Perform outpatient thoracentesis. — 3.56

118. Apply knowledge of study designs and statistical methods to the appraisal of clinical studies and other information on diagnostic and therapeutic effectiveness. — 3.56

119. Perform and manage high altitude O2 test (HAST). — 3.33

120. Manage WBC for patients on with chemo. — 3.00

121. Perform allergy skin testing. — 3.00

122. ECHO interpretation. — 2.89

123. Perform/interpret stress test. — 2.89

124. Participate in local Tumor Board. — 2.56

Tasks, Procedures and Competencies Needed to See Adult Patients in the ICU or ED

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1.	Manage uncomplicated mechanical ventilator patients.	4.89
2.	Assess weanability (weaning readiness).	4.89
3.	Measure and manage auto PEEP.	4.89
4.	Prescribe and manage NIPPV.	4.89
5.	Airway assessment, documentation and airway management, endotracheal tube placement and associated tasks.	4.78
6.	Coordinate and communicate care plan with ICU team.	4.78
7.	Manage acute cardiac emergencies (ACLS).	4.78
8.	Ventilator Waveform Assessment and Interpretation.	4.78
9.	JVP measurement.	4.78
10.	Manage chest tubes.	4.67
11.	Change trach tubes.	4.67
12.	Prescribe nebulizer medication (including antibiotics).	4.67
13.	Manage and remove chest tube.	4.67
14.	Perform ETCO2 monitoring.	4.67
15.	Perform inpatient history and physical examination.	4.67
16.	Manage upper airway obstruction post extubation.	4.67

17. Initiate consults.	4.67
18. Interact effectively with surgeons.	4.67
19. A-line pulse pressure variation assessment and management.	4.67
20. Competently perform specific medical and surgical procedures considered essential in the area of practice.	4.56
21. Prescribe CPT and teach secretion removal devices.	4.56
22. Evaluate ER patient for admission.	4.56
23. Manage and understand PA catheters.	4.56
24. Assess patient for LTAC transfer.	4.56
25. Capnography set up and interpretation.	4.56
26. Assess hospital floor or Emergency Department patient for transfer and admission to ICU.	4.56
27. Insert and manage arterial lines.	4.44
28. Interpret and manage hemodynamics.	4.44
29. Perform extubation.	4.44
30. Participate with percutanous trachs.	4.44
31. Manage post op ICU patients.	4.44
32. Access and display digital radiographs.	4.44

Tasks, Procedures and Competencies Needed to See Adult Patients in the ICU or ED

33.	Participate in rapid response team.	4.44
34.	Manage complicated (complex) ventilator patients.	4.44
35.	Intubate patients.	4.33
36.	Perform LMA.	4.33
37.	Apply and teach personal protective devices.	4.33
38.	Participate in ICU quality improvement.	4.33
39.	Access and manage undifferentiated hypotension and shock states.	4.33
40.	Diagnose and treat sepsis.	4.33
41.	Prescribe and administer diuretics.	4.22
42.	Assist with thoracentesis.	4.22
43.	Assist with bedside bronchoscopy.	4.22
44.	Perform airway exchange catheter.	4.22
45.	Prescribe and manage commonly used sedatives and analgesics.	4.22
46.	Perform inpatient consults.	4.22
47.	Prescribe heliox.	4.22
48.	Titrate inhale NO.	4.22
49.	Perform thoracentesis.	4.11

50. Titrate vasopressors and inotropes.   4.11

51. Perform BAL (combi-cath mini-BAL).   4.11

52. Obtain advance directives.   4.11

53. Perform palliative care.   4.11

54. Conduct ICU discharge planning.   4.11

55. Serve as consultant to nurse managers.   4.11

56. Esophageal intubation, nasal or oral for GI decompression, monitoring, enteral feeds and medication   4.11

administration, or NAVA mechanical ventilation.

57. Place chest tubes.   4.00

58. Apply and interpret PPD.   4.00

59. Prescribe and manage IV antibiotics.   4.00

60. Admin / mange conscious sedation.   4.00

61. ICU Infection Control and Q.A. Review and management, i.e. LOS, DOV.   4.00

62. Insert central lines.   3.89

63. Setup transducers.   3.89

64. Manage nutritional support.   3.89

76. Administer vaccines (pneucco and flu).   3.44

77. Treat elevated ICP.   3.44

78. Perform metabolic studies.   3.44

79. Perform therapeutic bronchoscopy.   3.33

80. Prescribe/manage Flolan (prostaglandin).   3.33

81. Assist with bedside Critical Care Transesophageal Echocardiology, including topical   3.33
    and parental analgesia and sedation.

82. Perform transthoracic ECHO.   3.22

83. Perform PIC line.   3.22

84. Insert and manage bronchial blocker.   3.11

85. Participate in closed pleural biopsy.   2.89

86. Perform pleurodesis.   2.89

87. Foley urinary catheter placement and monitoring.   2.78

88. Rectal tube placement and monitoring.   2.67

Tasks, Procedures and Competencies Needed to See Adult Patients in the Hospital

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1. Work effectively with physicians and other health care professionals as a member a health care team or other professional group.   5.00

3. Accept responsibility for promoting a safe environment for patient care and recognizing and correcting systems-based factors that negatively impact patient care.   4.89

4. Apply information technology to manage information, access on-line medical information, and support their own education.   4.78

5. Tasks as above for ICU patients when performed in the ED or other hospital floors and units.   4.67

6. Change trach tubes.   4.67

7. Assess patient for sleep apnea.   4.67

8. Apply medical information and clinical data systems to provide more effective, efficient patient care.   4.67

9. Order and interpret labs.   4.56

10. Effectively interact with different types of medical practice and delivery systems.   4.56

11. Admit patient.   4.44

12. Palliative care.   4.44

13. ED triage to appropriate level of care.   4.44

Tasks, Procedures and Competencies Needed to See Adult Patients in the Hospital

RUSH UNIVERSITY

14. Use information technology to support patient care decisions and patient education.   4.44

15. Discharge patient.   4.33

16. Participate in selected transport.   4.33

17. Provide family interaction and updates.   4.33

18. Facilitate the learning of students and/or other health care professionals.   4.33

19. Interpret nocturnal oximetry.   4.33

20. Obtain advance directives.   4.22

21. Interact with transplant team.   4.22

22. Discharge planning.   4.22

23. Provide staff education.   4.22

24. Return family calls.   4.11

25. Insert PICC lines.   3.33

26. Pronouncement of death.   3.22

Next Steps

- Group competencies by course:
  - Theory courses needed
  - Clinical rotations needed
- Develop course descriptions, credits and sequencing
- Develop course syllabi and units of instruction
    - Course outline
    - Units:
      - Overview
      - Learning objectives
      - Learning activities
      - Evaluation

Educator Competencies

- Design program curricula
- Prepare and present lectures
- Prepare, administer, and grade examinations
- Set-up and conduct teaching laboratories
- Develop and lead other non-lecture learning activities to include group discussion, labs, student presentations
- Develop, implement and evaluate clinical learning experiences and rotations
- Develop and implement courses and programs
- Coordinate community resources
- Develop, train and assist clinical faculty
- Perform clinical instruction and clinical evaluation
- Maintain program accreditation
- Computer skills (Word, Powerpoint, Excel, Blackboard, SIS)
- Maintain records and documentation
- Counsel students
- Serve as professional role model for students
- Possess excellent communication skills
- IT/computer literacy

Clinical Learning Package Format

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- Unit One: Theory
  - Overview
  - Prerequisites
  - General Information
  - Performance Objectives
  - Learning Activities
  - Evaluation

Example: Module E

Clinical Learning Package Format

- Unit Two: Procedure Performance
  - Overview
  - General Information
  - Performance Objectives (TPO's)
  - Learning Activities
  - Evaluation
  - Task Analysis or Competency
  - Task Performance Report Form

Example: Module E

Competency

- What is it?

- How do recognize it?

- How do you teach it?

- How do you evaluate it?

The <u>knowledge</u>, <u>skills</u> and <u>attitudes</u> needed to successfully perform on the job.

Components of a Curriculum

- **Plan**
- **Design**
- **Implement**
- **Evaluate**

Components of a Curriculum

- *Purpose*

- *Content*

- *Learning Activities*

- *Evaluation*

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- Performance Objectives
  - Condition: Upon completion of the learning activities …
  - Performance: the student will…….
    - Recognize, define, list, identify; describe, explain, convert, give examples; apply, utilize, demonstrate, solve; analyze, classify, distinguish, discriminate; integrate, create, formulate, design, plan, organize; appraise, assess, compare, evaluate
  - Criterion: How well the student must perform

Learning Activities

- Theory
    - Lecture/discussion
    - Reading assignments (textbooks, papers, handouts)
    - Other media (Video, CAI, Web-based media)
    - Assignments (writing assignments, problems, electronic discussions, interviews, portfolios, presentations)
    - Simulations for critical thinking and problem solving
    - Thesis, dissertation or project
- Laboratory
    - Exercises
    - Simulations
- Clinical Practice
    - Observation
    - Demonstration
    - Practice

Competency Evaluation

- Cognitive domain
  - Written examinations
  - Projects
  - Problem solving simulations
- Psychomotor domain
  - Performance check lists (based on task analysis)
  - Rating scales
  - Summary evaluations
- Affective - professional characteristics

Objectives → Learning Activities → Evaluation

Developing Competency-Based Programs

1. Identify and describe specific professions
2. Identify essential student prerequisites
3. Identify and verify job tasks or competencies
4. Analyze tasks, add knowledge
5. Write performance objective
6. Sequence tasks (competencies) and performance objectives
7. Develop performance tests (psychomotor exams)
8. Develop written tests
9. Develop draft learning guides
10. Tryout - field test learning guides
11. Develop system to manage learning
12. Implement and evaluate program

William E. Blank
Handbook for Developing Competency-Based Training Programs

Competency-Based Education: A Review of Policies and Implications for Respiratory Care Accreditation

Commission on Accreditation for Respiratory Care

CoARC

May 18th, 2012

COMMISSION ON ACCREDITATION FOR RESPIRATORY CARE

CoARC

INTRODUCTION

As CoARC undergoes the process of revising its existing accreditation standards as well as begins the process of developing graduate level accreditation standards for an advanced practice respiratory therapist, it is important for the CoARC Board to consider the policy approaches covered in this report. Such approaches align with CoARC's continued emphasis on the importance of student learning outcomes that focus on the competencies and attainment levels reached by students upon completion of their program. The purpose of this report is to inform the CoARC Board and other key stakeholders in the respiratory care profession of the implications of competency-based education as it relates to the accreditation process. First, a description of the key characteristics of competency-based education will be provided. How competency-based education has become the recent focus of many health profession organizations will then be reviewed. Approaches by other specialized and professional health professions accreditors will also be reviewed. This will be followed by a review of the approaches to competency-based education for the respiratory care profession. A discussion of inter-professional competencies and its increasingly important role is summarized. The role that a differentiated practice model plays in a competency-based approach is also provided. The report concludes with some suggested evidence for evaluating a successful competency-based approach as well as some final comments to stimulate future dialogue on this topic.

WHAT IS COMPETENCY-BASED EDUCATION?

In a seminal article, Epstein and Hundert established a commonly cited definition of competency in the health care professions as the *"habitual and judicious use of communication, knowledge, technical skills, clinical reasoning, emotions, values, and reflection in daily practice for the benefit of the individual and the community being served"* (Epstein & Hundert, 2002, p. 226). Although there are many contextual variations when defining the term, a "competency" is generally viewed as encompassing the *"full array of knowledge, skills, attitudes, and other characteristics (KSAOs) for completing a task or course of study or performing a job, rather than simply knowledge alone"* (Calhoun, Wrobel, & Finnegan, 2011, p. 152). *Competency-based education* refers to educational programs designed to ensure that students achieve pre-specified levels of competence in a given field or training activity. A *core competency* is "the identified knowledge, ability, or expertise in a specific subject area or skill set that is shared across the health professions" (Institute of Medicine, 2003, p. 24). The term "competency" has also been used to refer to actual performance in a specific job duty or task, and competencies or competency areas are skills considered necessary to perform a specific job or service (Kelly-Thomas, 1998). Gradations in the level of competence have also been described in the literature. Hubert and Stuart Dreyfus describe a model for skill acquisition that occurs in five stages along a continuum of learning. These stages include (1) novice; (2) advanced beginner; (3) competence; (4) proficiency; (5) expert (Dreyfus & Dreyfus, 1986). At the level of "competence", a student can think conceptually and execute planned approaches to care based on the standards and rules they have learned (Gunderman, 2009, pp. 324-325).

"CBE addresses what graduates are expected to do (e.g., solve problems, communicate effectively, and provide appropriate care) upon completion of their program of study rather than on what they are expected to learn about during the course of their study."

- Richards & Rogers 2001

The term "student learning outcomes" is often used synonymously with competencies. The Council for Higher Education Accreditation (CHEA) defines student learning outcomes *"in terms of the knowledge, skills, and abilities that a student has attained at the end (or as a result) of his or her engagement in a particular set of higher education experiences"* (CHEA, 2006, p. 1). In the 2001, the Council for Higher Education Accreditation (CHEA) published a policy document, *Accreditation and Student Learning Outcomes: A Proposed Point of Departure*, which provided accrediting organizations with a conceptual framework and taxonomy for integrating student learning outcomes into the accreditation review process. In the document, Peter Ewell of the National Center for Higher Education Management Systems states that the student learning outcome approach requires institutions or programs to *"define learning goals from the outset as guides for instruction and for judging individual student attainment. Expressed in terms of competencies, moreover, such goals describe not only what is to be learned but also the specific levels of performance that students are expected to master"* (Ewell, 2001, p. 6). *The document also defines* "certification" to mean that the expected competencies have actually been attained. Bear in mind that not all outcomes in higher education are related to student learning. For instance, job placement rates, career mobility, retention,

higher income levels, etc. are examples of outcomes that are indirectly related to the learning process and educational experience. These metrics are more appropriate descriptors for evaluating institutional effectiveness rather than student learning and achievement. Similarly, student, graduate, and employer satisfaction surveys are important indicators of overall program effectiveness, but should not be confused with student learning (CHEA, 2006, p. 5).

The central focus of competency based education (CBE) is on student learning outcomes. In the context of accreditation, CBE addresses _what graduates are expected to do_ (e.g., solve problems, communicate effectively, and provide appropriate care) upon completion of their program of study rather than on _what they are expected to learn about_ during the course of their study. CBE is certainly not a new approach to education – it has been in existence for almost four decades- only in the past decade has it gained widespread acceptance in the higher education community. In a CBE framework, educational goals are defined in terms of precise measurable descriptions of knowledge, skills, and behaviors students should possess at the end of a course of study (Richards & Rogers, 2001). From the perspective of health professions education, CBE is a framework that focuses on the desired performance characteristics of health care professionals. CBE makes explicit what has been an implicit goal of traditional educational frameworks, by instituting observable and measureable outcomes that students are expected to achieve. The ability to perform to established expectations is the criteria by which a health professional is deemed competent. By placing emphasis on results rather than processes, CBE provides a substantial shift in what accreditors and other stakeholders look for in judging the effectiveness of educational programs (Gruppen, Mangrulkar, & Colars, 2010).

Traditionally, accreditation standards included a set of recommended or mandated courses of instruction that are based on the traditions, priorities, and values of the particular profession. Over time, the curriculum is slowly modified to accommodate new content in an attempt to keep pace with the rapidly changing, technology-driven health care environment. Competency-based accreditation standards focus on the requisite competencies needed for entry into a profession, allow flexibility in the curriculum to achieve competencies, and establish criteria to assess achievements and deficiencies by monitoring outcomes. By focusing on the outcomes of education, the approach is more transparent and therefore accountable to students, policymakers, and the public (Frenk, Chen, & et al., 2010). CBE's emphasis on student performance as evidence for having achieved a competency is predicated on the ability to accurately and validly measure performance in tasks and situations reflective of that competency (Gruppen, Mangrulkar, & Colars, 2010).

WHY COMPETENCY-BASED EDUCATION?

A review of the policies of various stakeholders in higher education reveals an increasing shift from a traditional, curriculum-centric approach of defining required courses to an outcomes-centric approach that establishes requisite competencies as the primary means to assess the achievement of expected student learning outcomes. The movement to competency-based education began in the 1970s and has since gained considerable momentum, particularly in the past decade due largely to growing concerns

about patient safety (Institute of Medicince, 2001). Furthermore, educators recognized the value of using the competency approach to guide educational program design—to develop specific learning objectives for each competency (AAMC-HHMI Committee, 2009). In today's knowledge economy, it is not sufficient for a graduate to demonstrate adequate basic cognitive skills and professional competencies. The nature of the health care field also requires that the graduate be able to work in teams, be a creative problem solver, and communicate with a diverse set of colleagues and patients. Employers and higher education institutions have "become more cognizant of the role that such so-called 'soft' or non-cognitive skills play in the successful performance in both academic and nonacademic arenas" (Swyer, Millett, & Payne, 2006, p. 14).

Calls by the public and policymakers for increased transparency and accountability as well as heightened consumerism have also influenced the shift to a competency-centered, outcomes-based approach to accreditation and the emphasis for accreditors to focus their standards on assessing the degree to which the professions are creating a skilled, competent, and globally competitive workforce. In December 1998, the Pew Commission on the Health Professions published the report, *Recreating Health Professional Practice for a New Century,* that outlines a number of recommendations aimed at transforming the health professions workforce (O' Neil & Pew Health Professions Commission, 1998). Among the recommendations was a call for health professions programs to "realign training and education to be more consistent with the changing needs of the care delivery system". The four action steps for fulfilling this recommendation were:

> *"Calls by the public and policymakers for increased transparency and accountability as well as heightened consumerism have also influenced the shift to a competency-centered, outcomes-based approach to accreditation and the emphasis for accreditors to focus their standards on assessing the degree to which the professions are creating a skilled, competent, and globally competitive workforce."*
>
> *- Recreating Health Professional Practice for a New Century*

1. **Professional school faculties and administration should evaluate their current course of study to determine whether or not they are adequately preparing students to meet the challenges set forth in the competencies;**
2. **Professional associations should integrate the competencies into their accreditation and licensing processes, benchmarks for graduation, entry into professional practice and continuing competence;**
3. **Students should assess the quality of educational programs based on how well they will prepare them to apply the competencies in their careers;**
4. **Hospitals and other institutional providers should prefer partnerships with academic institutions that continuously revise their curricula to reflect changing market dynamics and that embody the competencies (O' Neil & Pew Health Professions Commission, 1998, p. iii).**

To assist in this process, the Pew Commission revised its 1993 competencies and identified twenty-one

competencies for a changing health care system:

1. Embrace a personal ethic of social responsibility and service;
2. Exhibit ethical behavior in all professional activities;
3. Provide evidence-based, clinically competent care;
4. Incorporate the multiple determinants of health in clinical care;
5. Apply knowledge of the new sciences;
6. Demonstrate critical thinking, reflection, and problem-solving skills;
7. Understand the role of primary care;
8. Rigorously practice preventive health care;
9. Integrate population-based care and services into practice;
10. Improve access to health care for those with unmet health needs;
11. Practice relationship-centered care with individuals and families;
12. Provide culturally sensitive care to a diverse society;
13. Partner with communities in health care decisions;
14. Use communication and information technology effectively and appropriately;
15. Work in interdisciplinary teams;
16. Ensure care that balances individual, professional, system and societal needs;
17. Practice leadership;
18. Take responsibility for quality of care and health outcomes at all levels;
19. Contribute to continuous improvement of the health care system;
20. Advocate for public policy that promotes and protects the health of the public;
21. Continue to learn and help others learn (O' Neil & Pew Health Professions Commission, 1998, pp. 29-43).

"The Pew Commission report also cited the changing health care delivery system as a contributing factor for the increased demand for allied health professionals who offer a wider range of clinical skills, better preparation in management, greater experience in independent practice, and more flexibility in adapting to various practice settings. The report also identifies the increased demand by employers for practitioners who are culturally sensitive, team-focused, and possess interpersonal and listening skills."

- O' Neil & Pew Health Professions Commission, 1998, p. 47

Interestingly, the Pew Commission report also cited the changing health care delivery system as a contributing factor for the increased demand for allied health professionals who offer a wider range of clinical skills, better preparation in management, greater experience in independent practice, and more flexibility in adapting to various practice settings. The report also identifies the increased demand by employers for practitioners who are culturally sensitive, team-focused, and possess interpersonal and listening skills (O' Neil & Pew Health Professions Commission, 1998, p. 47).

Shortly after the Pew Commission report was released, the Institute of Medicine (IOM) published a report, *Crossing the Quality Chasm: A New Health System for the 21ˢᵗ Century,* that recommended an interdisciplinary summit be held to develop next steps for reform of health professions education in order to enhance patient care quality and safety (Institute of Medicince, 2001). In June 2002, the IOM convened this summit, which included 150 participants across disciplines and occupations. In 2003, the US Institute of Medicine (IOM) called upon higher education institutions to not only increase the number of health professions graduates, but also to elevate graduates' knowledge, skills, and abilities needed for meeting the ever-changing health care field. In what has become a seminal document facilitating the movement to a competency-based approach to education and accreditation, the IOM detailed five core competencies needed across the health professions, expressed through a vision to be shared by all institutions of health professions education: *"All health professionals should be educated to deliver patient-centered care as members of an interdisciplinary team, emphasizing evidence-based practice, quality improvement approaches, and informatics"* (Institute of Medicine, 2003, p. 3). The five core competencies are described as follows:

> *"All health professionals should be educated to deliver patient-centered care as members of an interdisciplinary team, emphasizing evidence-based practice, quality improvement approaches, and informatics."*
>
> *- Institute of Medicine, 2003, p. 3*

1. **Provide patient-centered care**. *Identify, respect, and care about patients. differences, values, preferences, and expressed needs; relieve pain and suffering; coordinate continuous care; listen to, clearly inform, communicate with, and educate patients; share decision making and management; and continuously advocate disease prevention, wellness, and promotion of healthy lifestyles, including a focus on population health;*

2. **Work in interdisciplinary teams**. *Cooperate, collaborate, communicate, and integrate care in teams to ensure that care is continuous and reliable;*

3. **Employ evidence-based practice**. *Integrate best research with clinical expertise and patient values for optimum care, and participate in learning and research activities to the extent feasible;*

4. **Apply quality improvement**. *Identify errors and hazards in care; understand and implement basic safety design principles, such as standardization and simplification; continually understand and measure quality of care in terms of structure, process, and outcomes in relation to patient and community needs; and design and test interventions to change processes and systems of care, with the objective of improving quality;*

5. **Utilize informatics**. *Communicate, manage knowledge, mitigate error, and support decision making using information technology* (Institute of Medicine, 2003, pp. 45-46).

The IOM also encouraged educational accrediting agencies to expand from an assessment model focused on structure and process to one that includes evaluation of the institutions based on student-centered outcomes (Calhoun, Wrobel, & Finnegan, 2011, p. 15). Specifically, Recommendation #3 called on accreditors to: *"move forward expeditiously to revise their standards so that programs are required to demonstrate through process and outcome measures that they educate students in both academic and continuing education programs in how to deliver patient care using a core set of competencies. In so doing, these bodies should coordinate their efforts* (Institute of Medicine, 2003, p. 8).

In response to the increasing role learning outcomes play in accreditation, CHEA, the non-governmental higher education organization that recognizes 60 institutional and programmatic accrediting organizations, published a set of statements "to provide a common platform upon which to develop appropriate policies and review processes that use evidence of student learning to improve practice, to improve communication with important constituents, and to inform judgments about quality" (CHEA, 2003, p. 1). The three key recommendations for accreditors outlined in the report are:

> *Recommendation #3 called on accreditors to: "move forward expeditiously to revise their standards so that programs are required to demonstrate through process and outcome measures that they educate students in both academic and continuing education programs in how to deliver patient care using a core set of competencies. In so doing, these bodies should coordinate their efforts."*
>
> *- Institute of Medicine, 2003, p. 8*

1. *Accrediting organizations are responsible for establishing clear expectations that institutions and programs will routinely define, collect, interpret, and use evidence of student learning outcomes.* More specifically, accreditors should establish standards and review processes that visibly and clearly expect accredited institutions and programs to:
   a. Regularly gather and report concrete evidence about what students know and can do as a result of their respective courses of study, framed in terms of established learning outcomes and supplied at an appropriate level of aggregation (e.g., at the institutional or program level);
   b. Supplement this evidence with information about other dimensions of effective institutional or program performance with respect to student outcomes (e.g., graduation, retention, transfer, job placement, or admission to graduate school) that do not constitute direct evidence of student learning;
   c. Prominently feature relevant evidence of student learning outcomes–along with other dimensions of effective institutional performance, as appropriate–in demonstrating institutional or program effectiveness (CHEA, 2003, p. 1).

2. *Accrediting organizations are responsible for using evidence of student learning outcomes in making judgments about academic quality and accredited status.* Establish and apply standards, policies, and review processes that examine how institutions and

programs develop and use evidence of student learning outcomes for internal quality assurance and program improvement.

- Working with an institution or program, examine:
  - o whether expectations of student learning outcomes are set at an appropriate level for the mission, student population, and resources of the institution or program;
  - o whether the actual achievement levels of students against these standards are acceptable given the mission, student population and resources of an institution or program, and, in the case of the professions, the professional community served; and
  - o whether the institution or program makes effective use of evidence of student learning outcomes to assure and improve quality.
- Ensure that using evidence of student learning outcomes plays a central role in determining the accredited status of an institution or program.

"Accrediting organizations are responsible for using evidence of student learning outcomes in making judgments about academic quality and accredited status. Establish and apply standards, policies, and review processes that examine how institutions and programs develop and use evidence of student learning outcomes for internal quality assurance and program improvement."

- CHEA 2003, p. 2

3. **Accrediting organizations should:**

   o establish standards, polices, and review processes that visibly and clearly expect institutions and programs to discharge the above responsibilities with respect to public communication about student learning outcomes,

   o clearly communicate to accreditation's constituents the fact that accredited status signifies that student achievement levels are appropriate and acceptable, and

   o provide information about specific proficiencies or deficiencies in aggregate student academic performance, if these played a role in an accreditation action or decision about an institution or program (CHEA, 2003, p. 2)

   With shortages in the health care workforce projected over the next couple of decades coupled with increasing demands by employers for graduates to possess a skillset needed to successfully deal with the health care needs of the 21st century, the Department of Education (DOE), under the leadership of Secretary Margaret Spellings, responded in 2006 with further recommendations for transforming the US higher education system that included, among others, that *"higher education institutions should measure and report meaningful student learning outcomes."* Recommendation #3 of the report describes the changes to be instituted by accrediting organizations:

"Accreditation agencies should make performance outcomes, including completion rates and student learning, the core of their assessment as a priority over inputs or processes. A framework that aligns and expands existing accreditation standards should be established to (i) allow comparisons among institutions regarding learning outcomes and other performance measures, (ii) encourage innovation and continuous improvement, and (iii) require institutions and programs to move toward world-class quality relative to specific missions and report measurable progress in relationship to their national and international peers. In addition, this framework should require that the accreditation process be more open and accessible by making the findings of final reviews easily accessible to the public and increasing public and private sector representation in the governance of accrediting organizations and on review teams. Accreditation, once primarily a private relationship between an agency and an institution, now has such important public policy implications that accreditors must continue and speed up their efforts toward transparency as this affects public ends" (US Department of Education, 2006, p. 25).

In late 2006, a DOE accreditation forum was held to introduce the resulting recommendations to key stakeholders and to explore implementation strategies. The onus for implementing these recommendations was placed on the accrediting organizations (Calhoun, Wrobel, & Finnegan, 2011).

> *"Accreditation agencies should make performance outcomes, including completion rates and student learning, the core of their assessment as a priority over inputs or processes."*
>
> *- Department of Education, 2006, p. 25*

COMPETENCY-BASED EDUCATION IN THE HEALTH PROFESSIONS

Many US accrediting agencies have responded to the recommendations from the Pew Commission, IOM, CHEA, and DOE by enacting significant changes to their accreditation standards and review processes. While almost all of the eight regional accrediting agencies have recently modified their standards and evaluation processes to increase the emphasis on student learning outcomes (Ewell, 2001), the past five years have also seen acceleration in the development of competencies and review processes for specialized and professional accreditors- particularly in the health professions. Many of these efforts have been driven by the professional organizations themselves, in an attempt to define expected knowledge, skills and behaviors of graduates entering practice (Gruppen, Mangrulkar, & Colars, 2010). The accrediting organizations for dentistry, health care management, medicine, nursing, pharmacy, physician assistant, athletic training, health information management, occupational therapy, physical therapy, dietetics, acupuncture and oriental medicine, nuclear medicine technology, and public health currently all require that core and/or specific competencies be achieved as stated in their respective accreditation documents, or alternately require individual programs to develop, implement, and document their own individualized competencies.

"The past five years have also seen acceleration in the development of competencies and review processes for specialized and professional accreditors- particularly in the health professions. Many of these efforts have been driven by the professional organizations themselves, in an attempt to define expected knowledge, skills and behaviors of graduates entering practice."

- Gruppen, Mangrulkar, & Colars, 2010

It is should be mentioned that shifting the accreditation review process from a traditional model to a competency-based model does have its challenges. Lack of faculty familiarity with CBE learning and assessment methods appears to be the primary constraint to successful implementation (Calhoun, Wrobel, & Finnegan, 2011). The time required for restructuring course curricula to include essential team-based and integrative learning methods, competing priorities, and overall resistance to change can also impede implementation. Other challenges to the establishment of a successful CBE include failure to appropriately address community health needs, competencies that are inadequately defined or too broad, and deficiencies or absence of assessment methods to determine when competencies have been achieved (Gruppen, Mangrulkar, & Colars, 2010).

The remaining section of this report provides a summary of the approaches to competency-based education by the various health professions and their respective accrediting agencies.

Medicine

In 1996, the American Association of Medical College's (AAMC) Medical School Objectives Project (MSOP) was established to help medical schools determine the outcomes of the medical student education program. The MSOP project and other competencies explicitly recognize the need to change and adapt competencies to meet changing educational, science, and health care developments (AAMC-HHMI Committee, 2009, p. 37). The MSOP developed basic and clinical science competencies for admission into and graduation from medical school. The first eight competencies focused on the sciences basic to medicine that students must gain by the completion of medical school. In what follows, the committee first presents those competencies deemed important for medical school education, followed by those identified for entering medical students. The competencies and their corresponding learning objectives are accompanied by examples of a few ways the competency could be included in an educational program (AAMC-HHMI Committee, 2009, p. 7).

The Accreditation Council for Graduate Medical Education (ACGME) began its general competency and outcome initiative in 1998. This initiative, called the Outcome Project, requires that US graduate medical education programs foster resident physicians' development of competencies in six domains and collect performance data that reliably and accurately depicts residents' ability to care for patients and to work effectively in healthcare delivery systems. This approach assumes that quality patient care results

when residents acquire and apply competencies effectively (Swing, 2007, p. 648). The ACGME and American Board of Medical Specialties (ABMS) jointly identified six domains of general competencies (and 24 competencies). Beginning in 2001, medical residents, and subsequently in 2008, one-year fellows, are evaluated on these six core competency domains (competency statements for one-year fellows are provided in bulleted format):

(1) Patient care (compassionate, appropriate, effective)
- Provide patient care that is compassionate, appropriate, and effective for the treatment of health problems and the promotion of health;

(2) Medical knowledge (biomedical, clinical, cognate sciences, and their application)
- Demonstrate knowledge of established and evolving biomedical, clinical, epidemiological and social-behavioral sciences, as well as the application of this knowledge to patient care;

(3) Practice-based learning and improvement (investigation and evaluation, appraisal and assimilation of evidence)
- Develop skills and habits to be able to meet the following goals:
  - o systematically analyze practice using quality improvement methods, and implement changes with the goal of practice improvement, and
  - o locate, appraise, and assimilate evidence from scientific studies related to their patients' health problems;

(4) Interpersonal and communication skills (effective information exchange, teaming with patients and families)
- Demonstrate interpersonal and communication skills that result in the effective exchange of information and collaboration with patients, their families, and health professionals;

(5) Professionalism (carrying out professional responsibilities, ethics, sensitivity)
- Demonstrate a commitment to carrying out professional responsibilities and an adherence to ethical principles; and

(6) Systems-based practice (awareness and responsiveness to larger context and system of health care, use of system resources)
- Demonstrate an awareness of and responsiveness to the larger context and system of health care, as well as the ability to call effectively on other resources in the system to provide optimal health care (Accreditation Council for Graduate Medical Education, 2012, pp. 4-5)

Nursing

The American Association of Colleges of Nursing (AACN) publishes curricular and competency requirements (i.e., "Essentials) for the baccalaureate, master's, and doctoral programs in nursing. *The 2011 Essentials of Master's Education in Nursing* emphasizes that the master's-prepared nurse will be able to:

1. Lead change for quality care outcomes;
2. Advance a culture of excellence through lifelong learning;
3. Build and lead collaborative inter-professional care teams;
4. Navigate and integrate care services across the healthcare system;
5. Design innovative nursing practices; and
6. Translate evidence into practice.

Master's degree nursing programs *"prepare graduates with enhanced nursing knowledge and skills to address the evolving needs of the healthcare system"* (American Association of Colleges of Nursing, 2012, pp. 3-4). The nine "Essentials" addressed in this document delineate the knowledge and skills that all nurses prepared in master's nursing programs acquire:

1. **Essential I: Background for Practice from Sciences and Humanities**
   o Recognizes that the master's-prepared nurse integrates scientific findings from nursing, bio psychosocial fields, genetics, public health, quality improvement, and organizational sciences for the continual improvement of nursing care across diverse settings;
2. **Essential II: Organizational and Systems Leadership**
   o Recognizes that organizational and systems leadership are critical to the promotion of high quality and safe patient care. Leadership skills are needed that emphasize ethical and critical decision making, effective working relationships, and a systems-perspective;
3. **Essential III: Quality Improvement and Safety**
   o Recognizes that a master's-prepared nurse must be articulate in the methods, tools, performance measures, and standards related to quality, as well as prepared to apply quality principles within an organization;
4. **Essential IV: Translating and Integrating Scholarship into Practice**
   o Recognizes that the master's-prepared nurse applies research outcomes within the practice setting, resolves practice problems, works as a change agent, and disseminates results;
5. **Essential V: Informatics and Healthcare Technologies**
   o Recognizes that the master's-prepared nurse uses patient-care technologies to deliver and enhance care and uses communication technologies to integrate and coordinate care;
6. **Essential VI: Health Policy and Advocacy**
   o Recognizes that the master's-prepared nurse is able to intervene at the system level through the policy development process and to employ advocacy strategies to influence health and health care.
7. **Essential VII: Inter-professional Collaboration for Improving Patient and Population Health Outcomes**
   o Recognizes that the master's-prepared nurse, as a member and leader of inter-

professional teams, communicates, collaborates, and consults with other health professionals to manage and coordinate care;

8. **Essential VIII: Clinical Prevention and Population Health for Improving Health**
   o Recognizes that the master's-prepared nurse applies and integrates broad, organizational, client-centered, and culturally appropriate concepts in the planning, delivery, management, and evaluation of evidence-based clinical prevention and population care and services to individuals, families, and aggregates/identified populations;

9. **Essential IX: Master's-Level Nursing Practice**
   o Recognizes that nursing practice, at the master's level, is broadly defined as any form of nursing intervention that influences healthcare outcomes for individuals, populations, or systems. Master's-level nursing graduates must have an advanced level of understanding of nursing and relevant sciences as well as the ability to integrate this knowledge into practice. Nursing practice interventions include both direct and indirect care components (AACN, 2011, pp. 4-5).

The Commission on Collegiate Nursing Education (CCNE), an accrediting agency that ensures the quality and integrity of baccalaureate, graduate, and residency programs in nursing publishes the *Standards for Baccalaureate and Graduate Nursing Programs.* While there are no defined competencies statements in this document, the CCNE requires programs to incorporate the *Essentials* document that corresponds to the degree program(s) that are offered by the institution. Specifically, Standard III B states that:

> *"Expected individual student learning outcomes are consistent with the roles for which the program is preparing its graduates. Curricula are developed, implemented, and revised to reflect relevant professional nursing standards and guidelines, which are clearly evident within the curriculum, expected individual student learning outcomes, and expected aggregate student outcomes* (CCNE, 2009, p. 13).

Another accrediting agency for the nursing profession, the National League for Nursing Accrediting Commission (NLNAC) publishes accreditation Standards and criteria for nursing programs at the practical, diploma, associate, baccalaureate, master's, and clinical doctorate levels. Standards refer to competencies established by the profession however no specific competencies are defined (NLNAC, 2008).

Physician Assistant

In an effort to define physician assistant competencies in response to similar efforts being conducted within other health care professions and growing demand for accountability and assessment in clinical practice, the physician assistant (PA) profession identifies core competencies for practicing PAs. The American Academy of Physician Assistants (AAPA), the Accreditation Review Commission on Education for the Physician Assistant (ARC-PA), the National Commission on Certification of Physician Assistants (NCCPA), and the Physician Assistant Education Association (PAEA) disseminated the document

Competencies for the Physician Assistant Profession in the spring of 2006 (AAPA, ARC-PA, NCCPA, & PAEA, 2005). Specifically, the PA competencies include the following six domains similar to the ACGME core competencies:

1. **Medical knowledge**
   o An understanding of pathophysiology, patient presentation, differential diagnosis, patient management, surgical principles, health promotion and disease prevention. Physician assistants must demonstrate core knowledge about established and evolving biomedical and clinical sciences and the application of this knowledge to patient care in their area of practice. In addition, physician assistants are expected to demonstrate an investigatory and analytic thinking approach to clinical situations;

2. **Interpersonal and communication skills**
   o Encompassing verbal, nonverbal and written exchange of information. Physician assistants must demonstrate interpersonal and communication skills that result in effective information exchange with patients, their patients' families, physicians, professional associates, and the health care system;

3. **Patient care**
   o Includes age-appropriate assessment, evaluation and management. Physician assistants must demonstrate care that is effective, patient-centered, timely, efficient and equitable for the treatment of health problems and the promotion of wellness;

4. **Professionalism**
   o The expression of positive values and ideals as care is delivered. Foremost, it involves prioritizing the interests of those being served above one's own. Physician assistants must know their professional and personal limitations. Professionalism also requires that PAs practice without impairment from substance abuse, cognitive deficiency or mental illness. Physician assistants must demonstrate a high level of responsibility, ethical practice, sensitivity to a diverse patient population and adherence to legal and regulatory requirements;

5. **Practice-based learning and improvement**
   o Includes the processes through which clinicians engage in critical analysis of their own practice experience, medical literature and other information resources for the purpose of self-improvement. Physician assistants must be able to assess, evaluate and improve their patient care practices;

6. **Systems-based practice**
   o Encompasses the societal, organizational and economic environments in which health care is delivered. Physician assistants must demonstrate an awareness of and responsiveness to the larger system of health care to provide patient care that is of optimal value. PAs should work to improve the larger health care system of which their practices are a part. (AAPA, ARC-PA, NCCPA, & PAEA, 2005, pp. 1-5).

The ARC-PA defines competencies as "the knowledge, interpersonal, clinical and technical skills, professional behaviors, and clinical reasoning and problem solving abilities required for PA practice" (ARC-PA, 2011, p. 24). The ARC-PA accreditation standards provide specific reference to competencies (but not specific reference to the competency document). For example, Standard B1.09 states that:

> *"For each didactic and clinical course, the program must define and publish instructional objectives that guide student acquisition of required competencies.* ***ANNOTATION:*** *Instructional objectives stated in measurable terms allow assessment of student progress in developing the competencies required for entry into practice. They address learning expectations of students and the level of student performance required for success* (ARC-PA, 2011, p. 14).

Further, Standard B3.02 refers to competencies in relation to the clinical portion of the curriculum:

> *"Supervised clinical practice experiences must enable students to meet program expectations and acquire the competencies needed for clinical PA practice"* (ARC-PA, 2011, p. 16).

The ARC-PA also publishes a document comparing its accreditation standards to the competencies document (ARC-PA, 2010). While the purposes of the two documents are different and do not have word for word correlation, they are complimentary.

Athletic Training

The Professional Education Council (PEC) of the National Athletic Trainers Association (NATA) is responsible for developing the most recent edition of its professional competencies. Those involved in its development included practicing athletic trainers, educators, and administrators. Consideration was given to the existing healthcare environment as well as current best practices in athletic training. The AT competencies include all tasks identified in the role delineation study/practice analysis conducted by its credentialing board, the Board of Certification for the Athletic Trainer (BOC). The AT competency document identifies seven foundational behaviors of professional practice: **(1) primacy of the patient, (2) team approach to practice, (3) legal practice, 4) ethical practice, (5) advancing knowledge, (6) cultural competence, (7) professionalism** (NATA, 2011, p. 9). In addition, the document establishes eight competency domains as well as detailed competency statements for each domain. The eight domains are:

(1) evidence-based practice;
(2) prevention and health promotion;
(3) clinical examination and diagnosis;
(4) acute care of injuries and illnesses;
(5) therapeutic interventions;

(6) psychosocial strategies and referral;

(7) healthcare administration; and

(8) professional development and responsibility (NATA, 2011, pp. 10-30).

The AT competencies serve as a companion document to the accreditation standards, which identify the requirements to acquire and maintain accreditation, published by the Commission on Accreditation of Athletic trainers (CAATE). The CAATE Standards provide specific reference to the NAATE competencies document. For example, Standard I3 states that:

> *"The content of the curriculum must include formal instruction in the expanded subject matter as identified in the Athletic Training Educational Competencies. Formal instruction must involve teaching of required subject matter with instructional emphasis in structured classroom and laboratory environments* (CAATE, 2008, p. 9).

Further, Standard J2 states that:

> *"Clinical experiences must provide students with opportunities to practice and integrate the cognitive learning, with the associated psychomotor skills requirements of the profession, to develop entry-level clinical proficiency and professional behavior as an Athletic Trainer as defined by the NATA Educational Competencies* (CAATE, 2008, p. 10).

Public Health

The Council on Education for Public Health (CEPH) accreditation standards continues to require curriculum content and coursework based on five core areas of public health knowledge for programs offering the Masters of Public Health degree: (1) biostatistics, (2) epidemiology, (3) environmental health sciences, (4) health services administration, and (5) social and behavior sciences (Council on Education for Public Health, 2006).

CEPH does not define a standardized list of competencies required for public health professionals graduating from accredited programs and institutions. Instead, the accreditation standards stress the importance of the required competencies related to the core knowledge areas for both guiding curriculum planning processes and serving as the primary measures against which student achievement is measured. For example, Standard 2.6 states that:

> *"For each degree program and area of specialization within each program identified in the instructional matrix, there shall be clearly stated competencies that guide the development of degree programs. The school must identify competencies for graduate professional public health, other professional and academic degree programs and specializations at all levels (bachelor's, master's and doctoral)"* (CEPH, 2011, p. 18).

Pharmacy

The Accreditation Council for Pharmacy Education (ACPE) defines three professional competencies, eleven other "knowledge, skills, attitudes, and values," and two sub-competencies (Standard 12.1) in its accreditation standards for doctor of pharmacy degree programs. The three professional competencies specified in Standard 12 that must be achieved by graduates are:

(1) Provide patient care in cooperation with patients, prescribers, and other members of an inter-professional health care team based upon sound therapeutic principles and evidence-based data, taking into account relevant legal, ethical, social, cultural, economic, and professional issues, emerging technologies, and evolving biomedical, pharmaceutical, social/behavioral/administrative, and clinical sciences that may impact therapeutic outcomes;

(2) Manage and use resources of the health care system, in cooperation with patients, prescribers, other health care providers, and administrative and supportive personnel, to promote health; to provide, assess, and coordinate safe, accurate, and time-sensitive medication distribution; and to improve therapeutic outcomes of medication use; and

(3) Promote health improvement, wellness, and disease prevention in cooperation with patients, communities, at-risk populations, and other members of an inter-professional team of health care providers.

Standard 12 further states that:

"These professional competencies must be used to guide the development of stated student learning outcome expectations for the curriculum. To anticipate future professional competencies, outcome statements must incorporate the development of the skills necessary to become self-directed lifelong learners" (ACPE, 2007, p. 18).

Acupuncture and Oriental Medicine

The Accreditation Commission for Acupuncture and Oriental Medicine (ACAOM) is the national accrediting agency of first-professional master's degree and professional master's-level certificate and diploma programs in acupuncture and Oriental medicine, and professional post-graduate doctoral programs in acupuncture and in Oriental medicine (DAOM), as well as freestanding institutions and colleges of acupuncture and Oriental medicine that offer such programs. ACAOM Accreditation Criterion 7-2 describes the professional competencies required of graduates in three categories (1) patient care; (2) systems based medicine; and (3) professional development along with a number of domains and specific competency statements for each domain. For patient care, the eight competency domains are: (1)

Foundational Knowledge, **(2) Critical Thinking/Professional Judgment, (3) History Taking and Physical Examination, (4) Diagnosis, (5) Case Management, (6) AOM Treatment, (7) Emergency Care, and (8) Advanced Diagnostic Studies.** For systems-based medicine, the three competency domains are: **(1) Education and Communication, (2) Patient Care Systems, and (3) Collaborative Care.** For professional development, the three competency domains are: **(1) Ethics and Practice Management, (2) Formulating and Implementing Plans for Individual Professional Development, and (3) Incorporating Scholarship, Research and Evidence-Based Medicine/Evidence-Informed Practice into Patient Care** (ACAOM, 2011, pp. 25-35).

Dental Hygiene

Standard 2-6 of the revised Dental Hygiene Standards published by the Commission on Dental Accreditation (CODA) requires its associate and baccalaureate degree programs to:

"Define and list the competencies needed for graduation. The dental hygiene program must employ student evaluation methods that measure all defined program competencies. These competencies and evaluation methods must be written and communicated to the enrolled students (CODA, 2013, p. 18).

CODA also defines three general competency domains: **(1) patient care, (2) ethics and professionalism, and (3) critical thinking.** CODA further defines each of the competency domains as follows:

Patient Care Competencies (Standard 2-16)
(1) *Graduates must be competent in providing dental hygiene care for the child, adolescent, adult and geriatric patient;*
(2) *Graduates must be competent in assessing the treatment needs of patients with special needs;*
(3) *Graduates must be competent in providing the dental hygiene process of care which includes (Standard 2-17):*
   a) *comprehensive collection of patient data to identify the physical and oral health status;*
   b) *analysis of assessment findings and use of critical thinking in order to address the patient's dental hygiene treatment needs;*
   c) *establishment of a dental hygiene care plan that reflects the realistic goals and treatment strategies to facilitate optimal oral health;*
   d) *provision of patient-centered treatment and evidence-based care in a manner minimizing risk and optimizing oral health;*
   e) *measurement of the extent to which goals identified in the dental hygiene care plan are achieved;*
   f) *complete and accurate recording of all documentation relevant to patient care;*

(2) *Graduates must be competent in providing dental hygiene care for all types of classifications of periodontal disease including patients who exhibit moderate to severe periodontal disease (Standard 2-18);*

(3) *Graduates must be competent in interpersonal and communication skills to effectively interact with diverse population groups and other members of the health care team (Standard 2-19);*

(4) *Graduates must be competent in assessing, planning, implementing and evaluating community-based oral health programs including, health promotion and disease prevention activities (Standard 2-20);*

(5) *Graduates must be competent in providing appropriate life support measures for medical emergencies that may be encountered in dental hygiene practice (Standard 2-21);*

Ethics and Professionalism

(1) *Graduates must be competent in the application of the principles of ethical reasoning, ethical decision making and professional responsibility as they pertain to the academic environment, research, patient care and practice management (Standard 2-22);*

(2) *Graduates must be competent in applying legal and regulatory concepts to the provision and/or support of oral health care services (Standard 2-23);*

Critical Thinking

(1) *Graduates must be competent in the application of self-assessment skills to prepare them for life-long learning (Standard 2-24);*

(2) *Graduates must be competent in the evaluation of current scientific literature (Standard 2-25);*

(3) *Graduates must be competent in problem solving strategies related to comprehensive patient care and management of patients* (CODA, 2013, pp. 21-25).

Healthcare Management

In its revised accreditation criteria for fall 2013, the Commission on Accreditation of Healthcare Management Education (CAHME) will require its master's degree programs to *"adopt a set of competencies that align with the mission and types of jobs graduates enter..."* and *"...use the competencies as the basis of the curriculum, course content, learning objectives, and teaching and assessment methods"* (CAHME, 2012, p. 5). While CAHME does not define specific competency statements in its standards, it establishes four major competency domains: **(1) communication and interpersonal effectiveness; (2) critical thinking, analysis, and problem-solving; (3) management and leadership; and (4) professionalism and ethics** (CAHME, 2012, p. 5). CAHME also requires programs to base their curricula and outcomes assessments on existing evidence-based core competency models, or their own scientifically-derived model. CAHME does not mandate a standardized model for its accredited programs in order to create an opportunity for the practicing community to jointly partner with educational programs in producing the future generation of competent graduates (Calhoun, Wrobel, & Finnegan, 2011, p. 153).

Health Information Management

The American Health Information Management Association (AHIMA) publishes *The AHIMA Curriculum Competencies and Knowledge Clusters*. These documents are also referred to as a "curriculum maps." Curriculum maps are provided for programs that offer associate, baccalaureate, and master's degrees. The Health Informatics Management (HIM) Entry-Level Competency Domains for the associate degree programs include: **(1) Health Data Management, (2) Health Statistics, Biomedical Research and Quality Management, (3) Health Services Organization and Delivery, (4) Information Technology & Systems, (5) Data Storage and Retrieval, and (6) Organizational Resources.** The document includes sub-domains and competency statements for each domain as well as corresponding curricular components (AHIMA, 2012).

The Commission on Accreditation for Health Informatics and Information Management (CAHIIM) provides specific reference to these competencies in its accreditation standards. For example, Standard 7 state that:

> *"The program must provide assurance that the educational needs of students are met and that graduates demonstrate at least the AHIMA entry-level curriculum competencies. The program must assess through goals and target outcomes that student learning outcomes are examined and demonstrate progress toward achievement of entry-level competencies. These assessments must demonstrate that graduates meet entry-level competencies"* (CAHIIM, 2012, p. 5).

Further, Standard 24 states that:

> *"The program must demonstrate that the curriculum meets or exceeds the professional course content as published in the AHIMA HIM entry-level curriculum competencies and knowledge clusters for associate degree programs. The curriculum syllabi and course content must ensure concise and adequate coverage of the AHIMA HIM entry-level curriculum competencies and knowledge clusters for associate degree programs. Each course syllabus must be evaluated against the required knowledge clusters, and demonstrate learning progression to achieve the stated entry-level curriculum competencies* (CAHIIM, 2012, p. 9).

Nuclear Medicine Technology

The Joint Review Committee on Educational Programs in Nuclear Medicine Technology (JRCNMT) *Standards* provides a framework for accredited programs to follow so that graduates can accomplish commonly accepted technical competencies of the entry-level nuclear medicine technologist. These competency domains, as defined by the JRCNMT, are located in Appendix I of their accreditation manual (a separate document from their accreditation standards) along with detailed competency statements. These

technical competencies include the following domains: **(1) Patient Care; (2) Professionalism; (3) Radiation Safety; (4) Instrumentation Utilization and Quality Control; (5) Radiopharmaceuticals and Pharmaceuticals; (6) Diagnostic Procedures; (7) Radionuclide Therapy** (JRCNMT, 2012, pp. 21-26). The JRCNMT provides specific reference to these technical competencies in its accreditation standards. For example, Standard C2.5 states that:

> *"A program's professional curriculum must address all JRCNMT-recognized educational competencies, as published in the accompanying JRCNMT Accreditation Manual* (JRCNMT, 2011, p. 8).

Physical Therapy

In 2004, the American Physical Therapy Association (APTA) held a consensus conference to identify the minimum required skills for physical therapist (PT) graduates. Subsequently, the APTA published the *Minimum Required Skills of Physical Therapist Graduates at Entry-Level.* In 2009, a similar conference was held to identify the minimum required skills for physical therapist assistants (PTAs). Following this conference, the APTA published the *Minimum Required Skills of Physical Therapist Assistant Graduates at Entry-Level.* Minimum skills were defined in the PT document as the *"foundational skills that are indispensable for a new graduate physical therapist to perform on patients/clients in a competent and coordinated manner"* (APTA, 2009, p. 1). The PTA document added *"...under the direction and supervision of the physical therapist"* to the definition (APTA, 2009, p. 1). The documents provided skill categories, analogous to competency domains, in the following areas and also included descriptions for each category:

Minimum Skills Categories for the PT	Minimum Skills Categories for the PT
1. Plan of Care Review; 2. Provision of Procedural Interventions; 3. Patient Instruction; 4. Patient Progression; 5. Data Collection; 6. Documentation; 7. Safety, CPR, and Emergency Procedures; 8. Healthcare Literature; 9. Education; 10. Resource Management; 11. Behavioral Expectations; 12. Communication; 13. Promotion of Health, Wellness, and Prevention; 14. Career Development **(APTA, 2009, pp. 2-12)**.	1. Screening; 2. Examination/Reexamination; 3. Evaluation; 4. Diagnosis; 5. Prognosis; 6. Plan of Care; 7. Interventions; 8. Outcomes Assessment; 9. Education; 10. Practice Management; 11. Professionalism: Core Values; 12. Consultation; 13. Evidence-Based Practice; 14. Communication; 15. Cultural Competence; 16. Promotion of Health, Wellness, and Prevention (APTA, 2009, pp. 2-18)

The Commission on Accreditation in Physical Therapy Education (CAPTE) publishes the Evaluative Criteria for doctoral degree PT Programs as well as the *Evaluative Criteria* for associate degree PTA Programs. While the CAPTE *Evaluative Criteria* do not specifically reference the *APTA Minimum Required Skills* documents, there are a number of criteria that refer to expected student outcomes. Expected student outcomes are defined in the *Evaluative Criteria* as the:

> *"Competencies that the program expects students to have achieved at completion of the program, as well as stated expectations for graduate success in relationship to graduation rates, licensure rates, and employment rates. Expected student outcomes are a subset of the expected outcomes of the program"* (CAPTE, 2011, p. xi).

CAPTE Criteria CP-2.2 requires programs to provide *"Statements of expected student outcomes at the completion of the program"* (CAPTE, 2011, p. 24). Further, Criteria CC-5.18 references cultural competence as a professional practice expectation: *"Identify, respect, and act with consideration for patients'/clients' differences, values, preferences, and expressed needs in all professional activities"* (CAPTE, 2011, p. 31).

Occupational Therapy

While the Commission on Continuing Competence and Professional Development (CCCPD), a subgroup of the American Occupational Therapy Association (AOTA), is responsible for developing and maintaining the *Standards for Continuing Competence*, the Accreditation Council for Occupational Therapy Education (ACOTE) is responsible for developing and maintaining the Standards and Interpretive Guidelines for programs offering the associate degree for occupational therapy assistants as well as the master's and doctoral degrees for occupational therapists (ACOTE, 2012). Skills, knowledge, and competencies for entry-level practice are derived from AOTA practice documents and National Board for Certification in Occupational Therapy (NBCOT) practice analysis studies. The curricular content requirements in the ACOTE accreditation standards are written as expected student learning outcomes. Specific competency statements are included under each domain with some differences based on degree level (i.e., higher order competencies with higher degree requirements.)

The competency domains for the occupational therapy assistant include:
   (1) Foundational content;
   (2) Basic tenets of occupational therapy;
   (3) Occupational therapy theoretical perspectives;
   (4) Screening, evaluation, and referral (For OTA programs, screening and evaluation only);
   (5) Intervention plan: formulation and implementation (For OTA programs, intervention and implementation only);
   (6) Context of service delivery
   (7) Leadership and management (doctoral OT); Leadership and management of occupational therapy services (Master's OT); Assistance with management of occupational therapy

services (OTA programs);

(8) Scholarship; and

(9) Professional ethics, values, and responsibilities (ACOTE, 2012, pp. 17-31).

Dietetics

The Accreditation Council for Education in Nutrition and Dietetics (ACEND), formerly known as the Commission on Accreditation for Dietetics Education (CADE) describes a set of "Core Knowledge and Competencies" in its accreditation standards for dietitian education programs for registered dietitians. Specifically, Standard 10 states that:

> *"The program must map its curriculum around ACEND's Core Knowledge and Competencies using sound educational methodology to prepare graduates to enter dietetics practice in any setting and produce optimal client or patient outcomes"* (ACEND, 2012, p. 23)

Appendix A of the Standards describes in detail, by means of general and specific competency statements, the Core Knowledge and Competencies for the registered dietitian. The core knowledge domains include: **(1) Scientific and Evidence Based of Practice- Integration of scientific information and research into practice (2) Professional practice expectations- beliefs, values, attitudes and behaviors for the professional dietitian level of practice, (3) clinical and customer services- development and delivery of information, products and services to individuals, groups and populations; (4) practice management and use of resources- strategic application of principles of management and systems in the provision of services to individuals and organizations; (5) Support Knowledge- knowledge underlying the requirements specified above** (ACEND, 2012, pp. 54-58).

COMPETENCY-BASED EDUCATION IN RESPIRATORY CARE

Originally issued in 1998 and later revised in November 2011, the American Association for Respiratory Care (AARC) published the position statement, *Competency Requirements for the Provision of Respiratory Care Services,* which describes the essential role that competency plays in the profession:

> *"The complexities of respiratory care are such that the public is at risk of injury, and health care institutions are at risk of liability when respiratory care is provided by inadequately educated and unqualified health care providers rather than by practitioners appropriately educated in the specialty of Respiratory care. All health care practitioners providing respiratory care services to patients, regardless of the care setting and patient demographics, shall successfully complete training and demonstrate initial competence prior to assuming those duties. This training and demonstration of competence shall be required of any health care provider regardless of credential, degree, or license. Formal education is defined as a systematic educational activity in the affective, psychomotor and*

cognitive domains. It is intended to develop new proficiencies with an application in mind, and is presented with attention to needs, objectives, activities and a defined method of evaluation. The education shall be approved by a national accrediting entity. In the allied health fields, this training includes supervised pre-clinical (didactic and laboratory) and clinical activities, as well as documentation of competence accredited by an independent accrediting entity to be valid and reliable. The qualifications of the faculty providing this training shall be documented and also meet accreditation standards. AARC, therefore, supports recognition of individuals with competencies from the aforementioned accredited formal education programs for the purpose of providing care which includes a subsection of the respiratory care scope of practice with the caveat that such provision be limited to the elements contained within each credentialing examination's matrix respectively" (AARC, 2012).

The AARC also published position statements on ethics and professional conduct as well promoting diversity education and cultural competence in its professional education programs (AARC, 2010).

In 2008, the AARC convened three conferences involving various stakeholders from the education, management, accreditation, credentialing, and practice sectors to identify potential new roles and responsibilities of respiratory therapists (RTs) in 2015 and beyond. The first conference confirmed that the healthcare system in the United States is on the verge of dramatic change, driven by the need to decrease costs and improve quality. Use of evidence-based protocols that follow a nationally accepted standard of practice and application of biomedical innovation continue to be important competency areas for RTs. The goal of the second conference was to identify specific competencies needed to assure safe and effective execution of RT roles and responsibilities in the future. The third conference addressed the education needed by the workforce to assume the new responsibilities emerging as the healthcare system changes. The goal of the small groups in Conference 2 was to identify the competencies needed by new graduate RTs in 2015 and to identify the minimum competencies required of experienced RTs (Barnes, Gale, Kacmarek, & Kageler, 2010, p. 603). The sense of the group was that, upon entry into practice in 2015, a graduate RT and RTs already in the workforce must possess 69 competencies in 7 major domains: **(1) diagnostics; (2) disease management; (3) evidence-based medicine and respiratory care protocols; (4) patient assessment; (5) leadership; (6) emergency and critical care; and (7) therapeutics** (Barnes, Gale, Kacmarek, & Kageler, 2010, p. 604).

"All health care practitioners providing respiratory care services to patients, regardless of the care setting and patient demographics, shall successfully complete training and demonstrate initial competence prior to assuming those duties. This training and demonstration of competence shall be required of any health care provider regardless of credential, degree, or license."

- AARC Position Statement: Competency Requirements for the Provision of Respiratory Care Services

While the overall goal of Conference 3 was to determine what changes in the profession are necessary to position respiratory therapists to fulfill the roles and responsibilities identified in Conference 1 and to ensure that future and practicing respiratory therapists in 2015 and beyond acquire the competencies identified in Conference 2, there did not appear to be any consideration regarding which competencies identified by the communities of interest are considered essential for the new graduate versus those considered essential for continued competence in the workforce. CoARC believes that identifying any such differences is critical for the programs it accredits to effectively develop future competencies needed for entry into the profession. In order to effectively address the issue, CoARC must either clearly specify the student learning outcomes we require programs to address, or must require programs to do so. Given the important nature of this issue, CoARC has recently recommended to the AARC to conduct a follow-up survey that asks whether the competencies should be expected upon graduation (i.e., entry into the profession), should be expected after a defined period of professional practice, or should be considered an advanced competency. Once the competencies for entry into the profession have been defined and approved, one of the crucial questions which CoARC will address will be how to measure these competencies and what evidence would be considered acceptable to ensure that program graduates have attained the levels of competence needed for effective professional practice.

CoARC defines competencies as the *"written statements describing the measureable set of specific knowledge, skills, and affective behaviors expected of graduates"* (CoARC, 2010, p. 10). While the 2010 CoARC *Accreditation Standards for the Profession of Respiratory Care* currently do not mandate a specific set of established competencies required for graduates entering the profession, CoARC does require programs to provide evidence of student learning outcomes (i.e., competencies) as an integral part of its standards and processes for review. These student learning outcomes encompass the integration of a specialized set of knowledge, skills, and abilities that students have attained at the completion of their professional program and that are required for entry into the profession. Specifically, CoARC Standard 4.01 requires that programs *"prepare students to meet the recognized competencies for registered respiratory therapists identified in these Standards"* (CoARC, 2010, p. 23). Documentation of competencies encompassing knowledge, technical proficiency, and behaviors expected of program graduates as well as evaluation mechanisms designed to monitor knowledge, performance, and behavior are the minimal evidence of compliance associated with this Standard. Programs may select the types of learning activities and assessments that will indicate compliance with recognized competencies. To prepare competent respiratory therapists, the curriculum should be the framework for a deliberate and systematic educational process in the affective, psychomotor, and cognitive domains. It is intended to develop new proficiencies with an application in mind, and is presented with attention to needs, objectives, activities, and a defined method of evaluation. The curriculum should include supervised pre-clinical (didactic and laboratory) and clinical activities, as well as documentation of progress towards achieving competency.

Further, Standard 4.02 requires programs to *"define and list the competencies it requires for graduation. The program must employ student evaluation methods that measure all defined program competencies. These competencies and evaluation methods must be written and communicated to the enrolled students"* (CoARC, 2010, p. 23). Evaluation mechanisms designed to monitor knowledge,

performance, and behaviors as well as published materials demonstrating communication of competencies to students are the minimal evidence of compliance associated with this *Standard*. The educational competencies for the respiratory care education program should include the preparation of graduates who possess the knowledge, skills and values to practice respiratory care. The evaluation methods used in the program should include process and end-product assessments of student performance (e.g., competency checklists), as well as a variety of objective testing measures. These mechanisms will provide student performance data related to measuring defined program competencies throughout the program for the students, faculty and college administration. The program should provide evidence that each student is made aware of (i.e., written acknowledgment) the competencies required for completion of the program.

Bear in mind that CoARC is currently undergoing a *Standards* revision process this year. CoARC will provide adequate opportunity for broad comment from its communities of interest prior to adoption of proposed changes to the *Standards*. CoARC will continue its outcomes-centered approach to the accreditation review process. Given the significant shifts to a competency-based approach to accreditation as discussed in this report, revisions to the 2010 *Standards* will likely reflect an increased emphasis on student learning outcomes that focus on the competencies and attainment levels reached by respiratory care students upon completion of their first professional degree program.

A RENEWED EMPHASIS ON INTER-PROFESSIONAL COMPETENCIES

Inter-professional competencies are defined as the *"integrated enactment of knowledge, skills, and values/attitudes that define working together across the professions, with other health care workers, and with patients, along with families and communities, as appropriate to improve health outcomes in specific care contexts."*

- IEC Expert Panel, 2011, p.2

Originally defined by the Pew Commission and IOM in the context of "working in interdisciplinary teams", the term *inter-professional competence* has gained prominence in recent years as a critical knowledge, skill, and ability required of health care professionals in an ever-increasingly complex health care system. In 2011, the American Association of Colleges of Nursing, American Association of Colleges of Osteopathic Medicine, American Association of Colleges of Pharmacy, American Dental Education Association, Association of American Medical Colleges, and Association of Schools of Public Health published a report on inter-professional collaborative practice that identified a set of inter-professional competencies to be adopted by health professions. Preparing all health professions students to be able to work effectively as members of clinical teams with the goal of providing a safer, patient-centered health care system is a central tenet of inter-professional education.

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inter-professional competency domains identified in the report are built upon the framework of the five core competencies for all health professionals established by the IOM in 2003. The four core competency domains (and general competency statements) include:

(1) Values/ethics for inter-professional practice
   o *Work with individuals of other professions to maintain a climate of mutual respect and shared values;*

(2) Roles/responsibilities
   o *Use the knowledge of one's own role and those of other professions to appropriately assess and address the healthcare needs of the patients and populations served;*

(3) Inter-professional communication
   o *Communicate with patients, families, communities, and other health professionals in a responsive and responsible manner that supports a team approach to the maintenance of health and the treatment of disease;* and

(4) Teams and teamwork
   o *Apply relationship-building values and the principles of team dynamics to perform effectively in different team roles to plan and deliver patient-/population-centered care that is safe, timely, efficient, effective, and equitable* (IEC Expert Panel, 2011, pp. 17-25).

THE DIFFERENTIATED PRACTICE MODEL AND ITS ROLE IN CBE

In 1984, the Kellogg Foundation funded a three-year project entitled the National Commission on Nursing Implementation Project (NCNIP). One of the purposes of that project was to facilitate differentiated practice in nursing in response to recommendations by the 1983 Institute of Medicine (IOM) report, *Nursing and Nursing Education: Public Policies and Private Actions,* and the National Commission on Nursing's (NCN) 1983 publication, *Summary Report and Recommendations.* The NCN report recommended the development of differentiated practice competencies. Two types of differentiated practice were defined by NCNIP: assessment-based and education-based. Education-based practice was differentiated according to the educational credentials of the care provider. Assessment-based differentiation was based upon the education and experiential learning that the provider brought to the care environment. The latter was deemed the most commonly used form of differentiation (AACN, 1995, p. 5).

"The differentiated practice approach adopted by those in the nursing, physical therapy, and occupational therapy professions, to name a few, distinguishes the roles and functions of the profession according to education, experience, and competency and is based on health care needs and market demands. The differentiated practice model establishes a hierarchical approach to patient care within the specified discipline that delineates the competencies required to practice at each level."

- Boston, 1990

The differentiated practice approach adopted by those in the nursing, physical therapy, and occupational therapy professions, to name a few, distinguishes the roles and functions of the profession according to education, experience, and competency and is based on health care needs and market demands. The differentiated practice model establishes a hierarchical approach to patient care within the specified discipline that delineates the competencies required to practice at each level (Boston, 1990).

While the differentiated practice model has led, in some health professions like occupational and physical therapy, to the establishment of an "assistant" level distinct from the therapist, the nursing profession has managed to sustain a relatively successful differentiated practice model (i.e., ADN, BSN, MSN) without resorting to the creation of an "assistant" level for those who earn only the associate degree. The associate degree nurse (ADN) role functions primarily at the bedside in an institutional setting and in less complex patient care situations and whose practice is constrained to standards, protocols, and pathways. The Bachelor of Science in Nursing (BSN) role functions within a horizontal focus or across time from preadmission to post discharge and whose scope of practice encompasses care plan development and inter-professional collaboration to address complex health care needs. The advanced practice nurse (APN) role, based on Masters of Science in Nursing (MSN) competencies and whose scope encompasses creates and defines protocols and pathways, and assists with development of standards on emerging care issues, case management and coordinated care across all care settings (AACN, 1995, p. 26) The competency categories identified by the AACN-AONE Model for Differentiated Nursing Practice for the ADN and BSN include: Provision of Direct Care Competencies with a focus on care plans (AACN, 1995, p. 29); Communication Competencies and Management Competencies. AACN and AONE established a joint task force charged with developing a plan that would provide for rational workforce planning based upon a differentiated set of nursing personnel and differentiated practice expectations for a changing health care market (AACN, 1995, p. 3).

SUGGESTED EVIDENCE FOR MEASURING THE SUCCESS OF A CBE APPROACH

Without direct evidence of the student's ability to achieve a given competency, it is impossible to evaluate the success of either that individual in meeting expected learning outcomes or the educational program in meeting its goals. Once competencies are defined and performance on these competencies evaluated, CBE requires clearly specified performance criteria on these assessments that enable faculty and other stakeholders to judge that the student has reached the minimal level of performance that qualifies as "competent." It is important to recognize that performance criteria can be set only after the competencies have been defined and assessment methods developed and applied (Gruppen, Mangrulkar, & Colars, 2010, p. 19).

Evidence of student learning outcomes can take many forms, but should involve direct examination of student performance-either for individual students or for representative samples of students. Examples of the types of evidence that might be used to evaluate expected learning outcomes include (but are not limited to):

- Faculty-designed comprehensive or capstone examinations and assignments;
- Performance on licensing or other external examinations;
- Professionally judged performances or demonstrations of abilities in context;
- Portfolios of student work compiled over time;
- Case-based examinations;
- Literature searches involving critical reviews of peer-reviewed publications;
- Samples of representative student work generated in response to typical course assignments. (CHEA, 2006, p. 2).

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- Gruppen, Mangrulkar, & Colars, 2010, p. 19

Higher order assessments would require direct observation, structured feedback on performance, or skills-based evaluations in simulated or real patients.

The self-study document in a competency-based accreditation review may include (but not be limited to) the following required documentation:

1. Identification of a set of competencies that all must attain at the completion of the program of study. There should be one set for each degree level offered by the program;
2. A curriculum matrix or map that identifies the learning experiences (e.g., specific course or activity within a course, practicum, culminating experience or other degree requirement) by which the identified competencies are met;
3. A detailed analysis of the completed matrix or map identifying deficiencies or gaps in the curriculum based on a comparison with the expected learning outcomes. If changes have been made in the curricula as a result of the analysis, such changes should also be described;
4. A description of the method in which competencies are developed, used and made available to students and the public;
5. A description of the manner in which the program periodically assesses changing practice or health needs and uses this information to revise the competencies;
6. A description of the procedures used for monitoring and evaluating student progress in achieving the expected competencies, including processes for identifying competency attainment;
7. Identification of outcomes that serve as measures by which the program will evaluate student achievement;
8. Student clinical evaluation mechanisms demonstrating student competence in clinical skills, communication and practice management, or other identified competency domains.

A successful tool that programs may use to evaluate the integration of the competencies, and the curriculum as a whole, is a curriculum map. A curriculum map traditionally provides a comprehensive overview of the content and the respective assessment tools used to measure student outcomes. Curriculum maps also provide programs with a tool to facilitate continuous curricular evaluation and identify potential areas for improvement (Essary & Statler, 2007, p. 22). CoARC currently uses a version of a curricular map, the *CRT/RRT Combined Detailed Content Outline Comparison*, which allows programs to compare the content areas of the National Board for Respiratory Care (NBRC) examination matrices with program course content areas in order to identify gaps in the curriculum.

CONCLUDING REMARKS

Federal and state policymakers as well as the public are holding higher education institutions and accreditors accountable for the measurement and reporting of student competencies and programmatic outcomes. Student learning outcomes are increasingly taking center stage as the principal indicator of higher education's effectiveness. Employers and elected officials have demanded that graduates should possess an increasingly specific set of higher order knowledge and skills that are readily adaptable to the workforce. Parents, students, and the public—acting as "consumers" of higher education—are looking not just at cost versus value, but at the underlying quality of a degree (Ewell, 2001).

A systematically different approach to the design of curricula is needed that provides greater alignment with what society needs from those that are responsible for its health. These health care needs should drive the desired competencies of graduates, which in turn should determine the curricula by which will result in the achievement of these competencies (Gruppen, Mangrulkar, & Colars, 2010). The competency-based accreditation review process centers on student learning outcomes as the key indicator of institutional quality and performance. A competency-based review process emphasizes outcomes more than resources and processes. Competency-based standards require demonstration and documentation of student competencies as central to determination of institutional quality (CHEA, 2000).

"A systematically different approach to the design of curricula is needed that provides greater alignment with what society needs from those that are responsible for its health. These health care needs should drive the desired competencies of graduates, which in turn should determine the curricula by which will result in the achievement of these competencies."

- Gruppen, Mangrulkar, & Colars, 2010

When comparing CBE to some of the more traditional models of education, three fundamentally different characteristics emerge. First, CBE guides decisions about what graduates must be able to do, in order to appropriately address healthcare needs and market conditions. Second, CBE uses these expectations to then develop and implement learning experiences (i.e., the curriculum) designed to produce the requisite knowledge values, and skills in the graduates to achieve these competencies. Finally, CBE uses the same set of competencies to develop critical assessment programs to determine the extent to

which they meet stated goals (Gruppen, Mangrulkar, & Colars, 2010, p. 7).

For CoARC, the implications as well as opportunities are evident. How do respiratory care educational programs move beyond the dominance of knowledge-based curricula? How will best practices in evaluation be incorporated to support competency-based methods? A stepwise approach to curricular design appears to offer the best chance of success. The four steps are: 1) identify the competencies; 2) determine the components of each competency and the expected performance levels; 3) evaluate achievement of the competencies; and 4) assess the overall process (Carracio, Wolfsthal, & et al., 2002).

CoARC can continue to improve the efficiency and effectiveness of its mission through greater use of competency-based standards and a focus on the performance requirements for graduates entering the respiratory care profession. Establishing a common set of core competencies for respiratory care graduates would ostensibly enhance the accreditation review process. In addition, as more programs prepare for their next accreditation reviews and adopt or develop competencies for their curricula, the potential benefits of CBE will gain increased recognition.

COMMISSION ON ACCREDITATION FOR RESPIRATORY CARE

CoARC

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How to Chair a Meeting and a Committee

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RUSH UNIVERSITY

- Introduce yourself
- Let them know why you are here
- What committee experiences have you had at Rush? Were they "good" or "ok" or "bad"?
- What is your ideal committee experience?
- What is your ideal meeting experience?

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- Provide useful and practical tips on how to lead and engage a successful committee
- Learn from each other on what can work for a particular situation
- Think through the various steps
  - Creating a committee
  - Preparing for a meeting
  - Meeting execution
  - Follow-up

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- I was recommended, asked and I said "yes"
  - Similar to becoming a committee chair…..
- Professional experience with management consulting (Accenture), Rush's executive office, Office of Transformation, United Way, Rush Health
  - Too many committees and meetings to count on all of our collective fingers and toes
- Informal and formal leadership experiences throughout my life
  - Kappa Kappa Gamma, Ross School of Business' Follies, "group projects," Junior League of Chicago, my household

- Robert's Rules of Order
  - Motions, seconds, majorities, points of order
- Formalities of a meeting
- Formal responsibilities of a chair

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- Self-appointed
- Elected or nominated by peers
- Elected or nominated by your boss

- Expertise
- Skill
- Interest
- Time and availability

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- Because you were asked!

- Workgroup to make a recommendation
- Execute a specific project
- Oversight and feedback of a process
- Distribute information

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- It depends

- Representation / information funnel
- Expertise
- Sub-committee participation
- Title/position

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- Templates
  - Committee charters
  - Meeting agendas
  - Meeting minutes
  - Issue lists
- Distribution / contact lists
  - Include assistants
- Organizational / project background

Rush Corporate Documents / Templates

- Purpose and/or charge of committee
  - Role relative to other forums/committees
- Who does what and when:
  - Committee Chair and role
  - Member and role (including staff)
  - Meeting frequency, time, location
  - Agenda setting, distribution
  - Meeting Documentation
- Include with first meeting agenda / background information

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- Meetings are not always the best method for distributing information
  - Alternatives: e-mail, announcements
- Focus on feedback and discussion of data and materials
  - Incorporate small group activities
  - Have participants write things down (for you and for themselves)

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- Having an agenda is the first step
- Distributing it ahead of the meeting is the second step

- Purpose of item
- Topic and sub topics
- Leader/Facilitator
- Time allocated

- Meeting set-up/objectives
- Meeting evaluation

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- Ideally, yes - everyone's voice is important

- Technology makes this easier
  - Webinar
  - Conference Call

- Meeting guidelines
  - Often a first order of business for a new committee: buy-in to the expectations of participation
  - Sample expectations / guidelines
    - Everyone has received and reviewed content ahead of time
    - Use Rush Hour: start meeting on time and end 5 minutes before end of meeting time
    - Arrive on time and stay for duration
    - Limit outside interruptions which prohibit participation and distract other committee members
    - Participate and ask questions, speaking openly and honestly
    - Summarize decision and/or next steps
- Chair will help transition topics and facilitate agenda timing
- Follow agenda, yet allow for just-in-time deviations

- Voting required
- Consensus driven
- Off-line processing
- Chair-led

- Either way, having a direction and proposed end point may help conversation

- Ask…

- Meeting evaluation: include on your agenda
- Ask participants afterward – good water cooler talk
- Reflect on how participants looked, acted, interacted, followed the guidelines – how did that make you feel?
  - Is there an engagement question?

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- Go back to roles and responsibilities in the charter: are the expectations clear?
- Is the committee charge clear? Is there committee competition?
- Am I getting information out in a manner that is easy to digest?
- Is there enough time for discussion?
- Are there assignments/follow-ups that have clear accountability?

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- Pre-meeting communication: with meeting materials
- Post-meeting communication: with meeting follow-ups
- Other opportunities
  - An article of interest
  - Off-line tasks / action items
  - Share relevant topics / information between meetings
  - Call for meeting agenda items

It didn't go well, now what?

- Try, try again

- Do not get discouraged
- Lean on informal feedback from participants
- Ask a mentor
- Lean on committee charter and purpose

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- Human Resources' Employee and Organizational Development department

- Google

- books

Questions and Thoughts?

Thank You