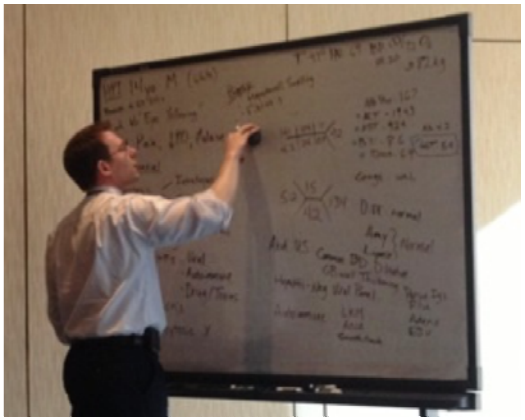
Introductions

As you are getting settled, please get to know your table-mates by sharing your:

- Name
- Organization/institution
- Your motivation for attending this workshop

We now join a representative morning report in progress…….



Choose Your Own Adventure: Leading Effective Case-Based Learning Sessions Using Evidence-based Strategies

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UCSF Benioff Children's Hospital San Francisco | dell children's medical center of central texas | Stanford Children's Health | Seattle Children's

Disclosure

We have no financial relationships to disclose

Learning Goals

At the end of this workshop, participants will be able to:

1. Tailor case-based discussions to address varying learning preferences
2. Apply evidence-based techniques to facilitate a small or large group case-based discussion
3. Effectively employ questioning techniques to promote clinical reasoning during a case-based discussion

Agenda

1. Introduction of Toolkit
    1. Facilitation tips handout
    2. Choose your own adventure template
2. Small Group Skills Practice
3. Wrap-up and evaluations

Introduction of Toolkit

Toolkit Materials

- Left side of folder
  - Choose Your Own Adventure Template
  - Facilitation Tips Handout

Illness script

Features	*Croup*	*Bacterial Tracheitis*	*Epiglottitis*
Epidemiology - age of onset - risk factors			
Typical symptoms			
Typical signs			

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Small Group Skills Practice

Wrap-Up

Case Conference: Choose Your Own Adventure Template

Before Session

1. Choose a Case

- Patient admitted the previous night / unknown diagnosis
- Established patient / known diagnosis
- A patient who taught you something

2. Choose Learning Objectives, and Pick the Right Approach To Achieve Them

Focus on the aspect of the case that should be emphasized to best meet your objectives: History, physical, diagnostic testing, management, or ethical/psychosocial/logistical issues. Other parts can presented in an abbreviated manner.

Objective	Approach
a) Ask the right questions to crack a mystery case.	Teach key points in history/physical for a particular complaint. Discuss LR+/LR- for certain PE findings.
b) Enrich your differential for a common complaint.	Compare and contrast a few likely diagnoses in addition to "uncommon" or "can't miss" diagnoses
c) Develop a diagnostic schema (a cognitive framework for approaching a specific chief complaint).	- Neuro complaint – by location - Hyponatremia – by volume status - FTT – by pathophysiology (increased metabolic demand, malabsorption, insufficient calories)
d) Compare and contrast diagnosis X with diagnosis Y.	Focus on developing rich illness scripts among the potential diagnoses and identifying discriminating features; learners identify what fits and doesn't fit for each diagnosis.
e) Choose an appropriate work-up for disease X	Discuss utility or PPV/NPV or Sens/Spec of studies. Would a test affect clinical decision making? Would it help the patient get better? Limit excessive testing through tiered investigation.
f) Compare management strategies for disease X	Identify all potential treatments, discuss pros and cons for each. Could include differences between different settings (inpatient versus outpatient; ICU versus regular floor).
g) Discuss potential issues in overuse / overdiagnosis.	Focus on cost of testing, false positives/negatives and consequences.
i) Discuss approach to a difficult situation (therapeutic, psychosocial, ethical, logistical challenge within hospital/clinic).	Review key principles, compare courses of action.

Case Conference: Choose Your Own Adventure Template

During Session

1. Set the Stage

a) Today we are going to discuss ___
b) At the end of this morning report, I hope you will be able to [insert learning objective]
c) Encourage open discussion and set ground rules if needed

2. Hook *(sometimes after initial case presentation, if a mystery)*

a) Why do you think I chose this topic?
b) Common disorder +/- controversy, potential for mismanagement
c) Uncommon disorder with consequences if missed
d) Will be on boards
e) Share a personal anecdote: mistake, good catch, lesson learned

3. Choose Engagement Activity

a) Small groups

- Present case, background teaching, then questions - each group simultaneously holds up colored notecards to answer (ACTIVE format, Sawatsky, BMC Med Educ. 2014)
- Fill out diagnosis matrix handout as a group, report out one category per group
- Make participants debate different options, report out who "won" in each group
- Small group brainstorms and writes list: ddx, diagnostic tests, treatment options, or other objectives

b) Pairs

- Think pair share: Personal reflection followed by discussion with a partner, then sharing with the group (Lyman, Mainstreaming Digest, 1981)
- Debating pro-con for a two-sided question

c) Whole group together

- Audience response system (high tech or low tech, i.e. hands/colored cards raised)
- Individual brainstorming (each person writes a list on a blank sheet of paper; usually for ddx, but also treatment modalities, etc.) followed by Boggle-type lightning share, i.e. going around the room and saying anything that wasn't already said
- Poll the expert; co-facilitate with a subspecialist
- Fill out diagnosis matrix handout for individual reflection, then sharing with group
- Tiers of questions specific to level of training: Interns: What do you ask? Seniors: What do you do next? Attendings: Why wouldn't you do this?
- "Top 5": chief complaint is presented, and audience can choose 5 history questions, 5 physical exam systems, and 5 lab tests – and the challenge is to come up with the dx with those limited questions

4. Summarize

a) Review key teaching points; take home message is __
b) The next time you do __, I want you to ___

Case Conference Workshop
CASE 1: Fever and Rash

Note for facilitators: This is a toddler with 6 days of fever and rash who meets all of the clinical criteria for Kawasaki Disease (KD). Although there are close contacts with URI symptoms, the patient does not have URI symptoms. Diagnostic criteria for KD include: fever of 5 or more days' duration, and the presence of at least 4 of the following 5 clinical signs: rash, cervical lymphadenopathy (1.5 cm or greater in diameter), bilateral conjunctival injection, oral mucosal changes, and peripheral extremity changes. This patient presents with all of the clinical signs and symptoms. As is common for the acute phase of KD, she has an elevated ESR, CRP, and WBC. We have made this case straightforward to facilitate adaptation of learning goals for different learning objectives and to encourage different approaches to clinical reasoning. You should feel free to adjust the details of the case as you see fit, based on your specific learning objectives.

ID and CC: This is a 16-month old girl with fever and red eyes.
HPI: The fever started about 6 days ago, seemed to get a little better yesterday, but it's back to 102F today. Yesterday her eyes were noted by mom to have become red but there was no noticeable discharge. This morning mom also noticed a rash on the child's chest. She has been fussy and has had trouble sleeping. Mom says the whole family has had a cold recently, but the child has had no associated cough or runny nose. No vomiting or diarrhea. She has made 4 wet diapers in the past 24 hours.
PMH: She's been healthy; born full-term, no surgeries or hospitalizations. Her immunizations are up-to-date. Began walking and said first words around 11 months of age.
FH: There's a maternal grandmother with adult-onset hypertension. No relatives with unusual or chronic illnesses in childhood.
SH: She lives with her parents and 4-year-old sister. Exposures notable for everyone at home having a cold in the past 1-2 weeks. No smokers. There's a cat at home.
PE:

- Weight and height are at the 50th percentile.
- T 39 HR 140 RR 25 BP 95/55
- She is pretty fussy, but can be consoled intermittently by her mom.
- She has red, injected conjunctiva – but no eye discharge. Her lips are red and chapped. Tonsils are 3+ with no erythema or exudate. External ear exam and TMs are normal.
- There is a 1.5 cm non-tender, mobile anterior cervical lymph node on the left.
- Her lungs are clear bilaterally.
- She has a normal S1 and S2 without murmurs, rubs or gallops. Her pulses are 2+ bilaterally.
- Her abdomen is soft, non-tender, non-distended with normal bowel sounds.
- There is a fine, pink, macular, blanchable rash over her entire trunk. While I was doing my exam, mom noticed that the baby's hands seemed swollen. Her cap refill is less than 2 seconds.

Labs and Imaging:
CBC + diff: WBC 15.5 with 75% neutrophils; Hgb/Hct 10/30.3; MCV 85; platelets 470.
CRP: 4.6 (normal < 0.8). ESR: 58 (normal < 10).
AST, ALT, bilirubin: within normal limits. Albumin: 2.9.
Respiratory viral panel: negative.
UA: negative except for 10 WBCs/HPF.

Resolution/Management:
The patient was admitted to the hospital at 3 AM. Patient treated with IVIG and high dose ASA. ECHO WNL. Defervesced 5 hours into IVIG. No further fevers. Discharged, follow-up ECHO at 2 weeks and 6 weeks WNL.

THE CASE WITH PROPOSED STOP-POINTS BASED ON CYOA LEARNING OBJECTIVES

Case Conference Workshop CASE 1:
Fever and Rash

ID and CC: This is a 16-month old girl with fever and red eyes.

HPI: The fever started about 6 days ago, seemed to get a little better yesterday, but it's back to 102F today. Yesterday her eyes were noted by mom to have become red but there was no noticeable discharge. This morning mom also noticed a rash on the child's chest. She has been fussy and has had trouble sleeping. Mom says the whole family has had a cold recently, but the child has had no associated cough or runny nose. No vomiting or diarrhea. She has made 4 wet diapers in the past 24 hours.

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FH: There's a maternal grandmother with adult-onset hypertension. No relatives with unusual or chronic illnesses in childhood.

SH: She lives with her parents and 4-year-old sister. Exposures notable for everyone at home having a cold in the past 1-2 weeks. No smokers. There's a cat at home.

Learning Objective(s)	Sample questions/prompts
a) Diagnostic Mystery: Key Hx & PE	• What other key information do you want from the History? Why? • What specific findings on PE will help you decide which diagnoses are more or less likely?
b) Diagnostic Mystery: Common, Can't Miss	• What are the top 3 diagnoses on your differential at this point? • Are there 'can't miss' diagnoses you are considering? Why are they cant miss? [need for intervention? Treatment available?)
c) Diagnostic Mystery: Different Approaches	• I'm hearing a lot of infectious causes on the differential. Let's organize them by bacterial/viral/fungal/other. • Let's generate a preliminary differential diagnosis using VINDICATE (or other approach).

Notes:

PE:

- Weight and height are at the 50th percentile.
- T 39 HR 140 RR 25 BP 95/55
- She is pretty fussy, but can be consoled intermittently by her mom.
- She has red, injected conjunctiva – but no eye discharge. Her lips are red and chapped. Tonsils are 3+ with no erythema or exudate. External ear exam and TMs are normal.
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Learning Objective(s)	Sample questions/prompts
a) Diagnostic Mystery: Key Hx & PE	• How has your differential changed now that you have the PE? Any more you want to know?
b) Diagnostic Mystery: Common, Can't Miss c) Diagnostic Mystery: Different Approaches	• What are the top diagnoses on your differential at this point? Which is most likely and why? Which can you rule-out? What about your "can't miss" diagnosis/es?
d) Compare/contrast diagnoses using illness scripts	• Let's compare your top 3 possibilities using this illness script table (can provide this as additional handout). • Divide into 3 small groups- each discusses an assigned diagnosis, share and complete illness script table as a group • I'm hearing support for Kawasaki Disease. What details on history and exam support this diagnosis? What might argue against it?
e) Appropriate work-up	• What tests do you want to get at this point and why?
g) Overuse/overdiagnosis issues	• How will each test help you with diagnosis and/or management? • What is the most important or pressing question you need to answer for this patient today? (i.e., prioritizing)

Notes:

Labs and Imaging:

CBC + diff: WBC 15.5 with 75% neutrophils; Hgb/Hct 10/30.3; MCV 85; platelets 470.
CRP: 4.6 (normal < 0.8). ESR: 58 (normal < 10).
AST, ALT, bilirubin: within normal limits. Albumin: 2.9.
Respiratory viral panel: negative.
UA: negative except for 10 WBCs/HPF.

Learning Objective(s)	Sample questions/prompts
d) Compare/contrast using illness scripts	• How has prioritization of your differential changed now that you have these lab results? • Which diagnosis fits best with this presentation? What features argue for or against it?
f) Discuss management strategies; risk-benefits of different treatments	• What is your next step? • Let's take a vote. How many people would… get an echo now? Later? Why? • How many of you would order IVIG right now? For those of you who wouldn't immediately order it, what are your next steps and why? • You mentioned starting aspirin. Any downsides or risks with this?
h) Communication issues	• How would you explain the risks and benefits of treatment to the anxious family? • Her parents are refusing IVIG. How will you approach this conversation?

Notes:

Evidence-based medicine resources:

- Cochrane Database http://onlinelibrary.wiley.com/cochranelibrary/search
- Trip database https://www.tripdatabase.com/
- PubMed Clinical Queries http://www.ncbi.nlm.nih.gov/pubmed/clinical
- AHA Guidelines http://circ.ahajournals.org/content/110/17/2747.full

Case Conference Workshop
Case 2: Abdominal Pain

Note for facilitators: This is a teenage girl with abdominal pain, a common pediatric complaint. We chose this case because the differential diagnosis list is broad and involves several possible organ systems. The case captures both common possible diagnoses, but the eventual—somewhat unusual—diagnosis is of an undiscovered Meckel's diverticulum. A normal anatomic variant found in 2% of the population, Meckel's diverticulum (a remnant of the prenatal yolkstalk) is usually asymptomatic. The most common presenting symptom is GI bleeding, but cases can present with symptoms similar to appendicitis or with obstructive symptoms. Symptomatic patients usually present before the age of 2 years, so this case is notable for a well-known pediatric diagnosis outside of the typical age range. You should feel free to adjust the details of the case as you see fit, based on your specific learning objectives.

ID and CC: This is a 14 year-old girl with worsening abdominal pain x 3 days. Pt admitted inpatient for work-up.
HPI: The pain started about 3 days ago and is located around her umbilicus. It has not moved. She describes the pain as a dull pain and constant. She has had subjective fevers at home, but her family does not have thermometer. She has had 2-3 episodes of vomiting a day for last 3 days and today started having loose watery brown stools. No blood in the stool or mucous. She has been taking Motrin every 8 hours for the pain. She has been taking less PO and noted she has not been urinating as much as normal. She denies sick contacts. No recent travel or exposure to animals or unusual foods or unpasteurized food.
PMH: Her only medical problem is well-controlled intermittent asthma treated with albuterol PRN
MEDS: Albuterol PRN asthma attacks; last used 7 months ago
GYN: Menarche at age 12; she has periods about every 30 days; last menstrual period 3 weeks ago
FH: Her mother has irritable bowel syndrome and a paternal cousin has Crohn's Disease
SH: She lives with parents and 8 year-old brother. On HEADDSS Assessment, obtained in 1-on-1 interview, she denies any sexual activity, smoking, drinking, illegal drugs, suicidal ideation. She states she likes boys but is a virgin.
PE:

- Weight at the 75th percentile; height at the 50th percentile
- Vitals: Temp: 101.5, HR 110, BP 110/78, RR: 12, Sat 100%
- General: Appears uncomfortable, able to talk in complete sentences, grimaces during exam
- HEENT: pupils equal and reactive to light, TM normal bilaterally; oropharynx clear with no lesions; mucous membranes are dry and somewhat tacky
- CV: Tachycardia, regular rhythm, no murmurs, 2+ pulses
- Resp: Lungs clear to auscultation bilaterally, no wheezes or crackles
- Abdomen: Hyperactive bowel sounds, voluntary guarding, no rebound, No masses or organomegaly
- GU: Tanner stage 5 pubic hair, normal female genitalia, no vaginal discharge on visual inspection
- Musculoskeletal: Full ROM, No swelling, No erythema or warmth
- Skin: No rashes or lesions

Labs and Imaging:
CBC: 17>13.5/40 <400; Neutrophil 87%, Lymphocytes 5%
Chem: Na 137, K 4.1, Cl 105, CO2 18, BUN 12, Cr 0.5, Glucose 90
CRP: 2; **ESR**: 30
UA: Negative leukocyte esterase, nitrites, blood; 1+ ketones, 0 WBCs, 0 RBCs
US Appendix: unable to visualize the appendix, small amount of free amount of fluid in the pelvis
Stool Cx: Negative; **Stool O&P**: Negative; **Stool Calprotectin**: Negative
US Pelvis: Ovaries normal with small cyst on left ovary measuring 1cm x 1cm; small amount of free fluid in pelvis
CT abdomen: Enlarged mesenteric lymph nodes, appendix normal in appearance, previously visualized 1 cm x 1 cm ovarian cyst on left ovary and possible loop of intestine vs. blind-ended pouch in LLQ of abdomen.
Meckel's Scan: Positive for suspected Meckel's on scan
Resolution/Management:
Due to the positive Meckel's Scan, this patient was taken to the OR where she was found to have an infected Meckel's diverticulum, which was removed. Following surgery, pt's abdominal pain resolved, and she was safely discharged.

THE CASE WITH PROPOSED STOP-POINTS BASED ON CYOA LEARNING OBJECTIVES

Case Conference Workshop
Case 2: Abdominal Pain

ID and CC: 14 year-old girl with worsening abdominal pain x 3 days
HPI: The pain started about 3 days ago and is located around her umbilicus. It has not moved. . She describes the pain as a dull pain and constant. She has had subjective fevers at home, but her family does not have thermometer. She has had 2-3 episodes of vomiting a day for last 3 days and today started having loose watery brown stools. No blood in the stool or mucous. She has been taking Motrin every 8 hours for the pain. She has been taking less PO and noted she has not been urinating as much as normal. She denies sick contacts. No recent travel or exposure to animals or unusual foods or unpasteurized food.

PMH: Her only medical problem is well-controlled intermittent asthma treated with albuterol PRN

MEDS: Albuterol PRN asthma attacks; last used 7 months ago

GYN: Menarche at age 12; she has periods about every 30 days; last menstrual period 3 weeks ago

FH: Her mother has irritable bowel syndrome and a paternal cousin has Crohn's Disease

SH: She lives with parents and 8 year-old brother. No smokers. No pets at home. On HEADDSS Assessment, obtained in 1-on-1 interview, she denies any sexual activity, smoking, drinking, illegal drugs, suicidal ideation. She states she likes boys but is a virgin.

Learning Objective(s)	Sample questions/prompts
a) Diagnostic Mystery: Key Hx & PE	• What other key information do you want from the History? Why? • What specific findings on PE will help you decide which diagnoses are more or less likely?
b) Diagnostic Mystery: Common, Can't Miss	• What are the top 3 diagnoses on your differential at this point? • Are there 'can't miss' diagnoses you are considering? Why are they cant miss? [need for intervention? Treatment available?)
c) Diagnostic Mystery: Different Approaches	• Let's generate a preliminary differential diagnosis using VINDICATE (or other approach). It might help to think of what organ systems are in the abdominal area.

Notes:

PE:

- Weight at the 75th percentile; height at the 50th percentile
- Vitals: Temp: 101.5, HR 110, BP 110/78, RR: 12, Sat 100%
- General: Appears uncomfortable, able to talk in complete sentences, grimaces during exam
- HEENT: pupils equal and reactive to light, TM normal bilaterally; oropharynx clear with no lesions; mucous membranes are dry and somewhat tacky
- CV: Tachycardia, regular rhythm, no murmurs, 2+ pulses
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- Abdomen: Hyperactive bowel sounds, voluntary guarding with palpation throughout abdomen, no rebound, no masses or organomegaly
- GU: Tanner stage 5 pubic hair, normal female genitalia, no vaginal discharge on visual inspection
- Musculoskeletal: Full ROM, No swelling, No erythema or warmth
- Skin: No rashes or lesions

Learning Objective(s)	Sample questions/prompts
a) Diagnostic Mystery: Key Hx & PE	• How has your differential changed now that you have the PE? Any more you want to know?
b) Diagnostic Mystery: Common, Can't Miss c) Diagnostic Mystery: Different Approaches	• What are the top diagnoses on your differential at this point? Which is most likely and why? Which can you rule-out? What about your "can't miss" diagnosis/es?
d) Compare/contrast diagnoses using illness scripts	• Let's compare your top 3 possibilities using this illness script table (can provide this as additional handout). • Divide into 3 small groups- each discusses an assigned diagnosis, share and complete illness script table as a group • I'm hearing support for the diagnosis of appendicitis. What details on history and exam support this diagnosis? What might argue against it?
e) Appropriate work-up	• What tests do you want to get at this point and why?
g) Overuse/overdiagnosis issues	• How will each test help you with diagnosis and/or management? • What is the most important or pressing question you need to answer for this patient today? (i.e., prioritizing)

Notes:

Labs and Imaging:

CBC: 17>13.5/40 <400; Neutrophil 87%, Lymphocytes 5%
Chem: Na 137, K 4.1, Cl 105, CO2 18, BUN 12, Cr 0.5, Glucose 90
CRP: 2
ESR: 30
UA: Negative leukocyte esterase, nitrites, blood; 1+ ketones, 0 WBCs, 0 RBCs
US Appendix: unable to visualize the appendix, small amount of free amount of fluid in the pelvis
Stool Cx: Negative
Stool O&P: Negative
Stool Calprotectin: Negative

----------Prior to giving these imaging results, initiate discussion on rationalization of each imaging modality-----
US Pelvis: Ovaries normal in appearance small cyst on left ovary measuring 1cm x 1cm, with small amount of free fluid in pelvis
CT abdomen: Enlarged mesenteric lymph nodes, appendix normal in appearance, previously visualized 1 cm x 1 cm ovarian cyst on left ovary and *possible loop of intestine vs. blind-ended pouch in LLQ of abdomen*.
Meckel's Scan [tell this one last and only if audience specifically asks for it] : Positive for suspected Meckel's on scan

Learning Objective(s)	**Sample questions/prompts**
d) Compare/contrast using illness scripts	• How has prioritization of your differential changed now that you have these lab results? • Which diagnosis fits best with this presentation? What features argue for or against it?
f) Discuss management strategies; risk-benefits of different treatments	• What is your next step? • Let's take a vote. Who would order an ultrasound? Who would order a CT scan? What about an MRI? • What do you make of that "possible loop of intestine vs. blind-ended pouch in LLQ of abdomen" in the CT read?
h) Communication issues	• How would you explain the risks and benefits of treatment to the anxious family?

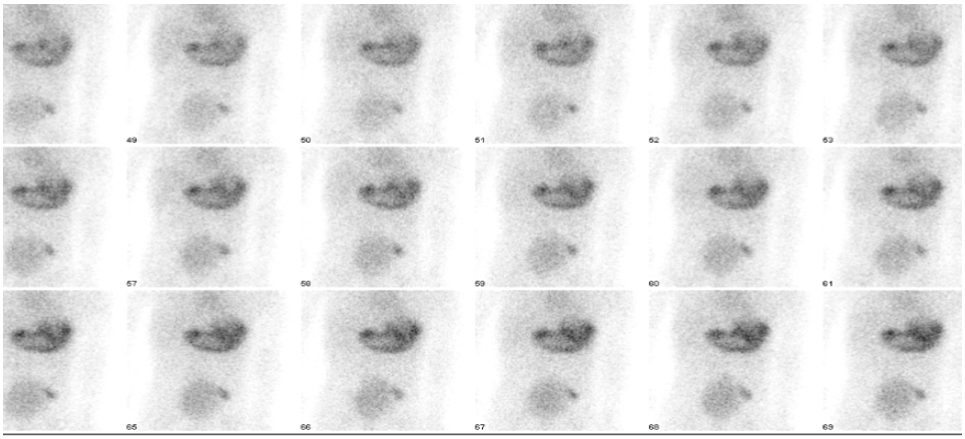
Notes:

Differential Diagnosis generated when we presented this case for our Resident Morning Report:

DDX:

1. GI
    a. Crohn's Disease
    b. Ulcerative Colitis
    c. Meckel's Diverticulum
    d. Constipation
    e. IBS
    f. Intussusception
2. Gyn:
    a. Ruptured Ovarian cyst
    b. Ovarian torsion
    c. PID
    d. Fitz-Hugh-Curtis syndrome
    e. STI
3. Rheum
    a. Vasculitis
    b. Lupus
4. ID
    a. Bacterial Colitis
    b. Viral Gastroenteritis
    c. Parasites
    d. Appendicitis
    e. UTI
    f. Pyelonephritis
    g. Intra-abdominal Abscess
5. Onc
    a. Neuroblastoma

Meckel's Scan:



Evidence-based medicine resources (will provide hyperlinks):

- Cochrane Database http://onlinelibrary.wiley.com/cochranelibrary/search
- Trip database https://www.tripdatabase.com/
- Meckel's Diverticulum article: http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2533303/

Clinical Reasoning Theoretical Concepts

Cognitive Concepts:

1. *Information Process Model*: Developed when computers were becoming more main stream. It suggested that the more our knowledge resembled the organized modelling of a computer program, the more it would result in efficient clinical reasoning and diagnostic reasoning.
2. *Cognitive Load*: This theory differentiates cognitive load into three types: intrinsic, extraneous, and germane. It focuses on the limited human architecture – that short term working memory can process only so many pieces of information at a given time.
3. *Illness Scripts*: Mental representations of the clinical symptoms and findings that are associated with a given disease. They are a way for learners to organize the features of classic disease presentations, promoting ease of comparison.
4. *Dual Process*: According to this approach, two cognitive systems are used to reason. The intuitive approach relies heavily on experience. It is often a subconscious process that relies heavily on pattern recognition of illnesses. The analytical approach uses a systematic approach to make sound decisions about patient presentations. Clinical reasoning often involves a balance of these two cognitive processes, based on the patient presentation.

Cognitive Concepts Teaching Implications:

- Help learners create strong illness scripts
    - How would a patient with Hirschprung's enterocolitis present?
- Compare and contrast diseases
    - How does viral PNA differ from bacterial PNA?
- Change key features in presentation
    - What if the patient was 7 days old and not 7 years old
- Give learners time to think
    - Intentional pauses (and don't interrupt her/him)
- Choose appropriate questions based on level of learner

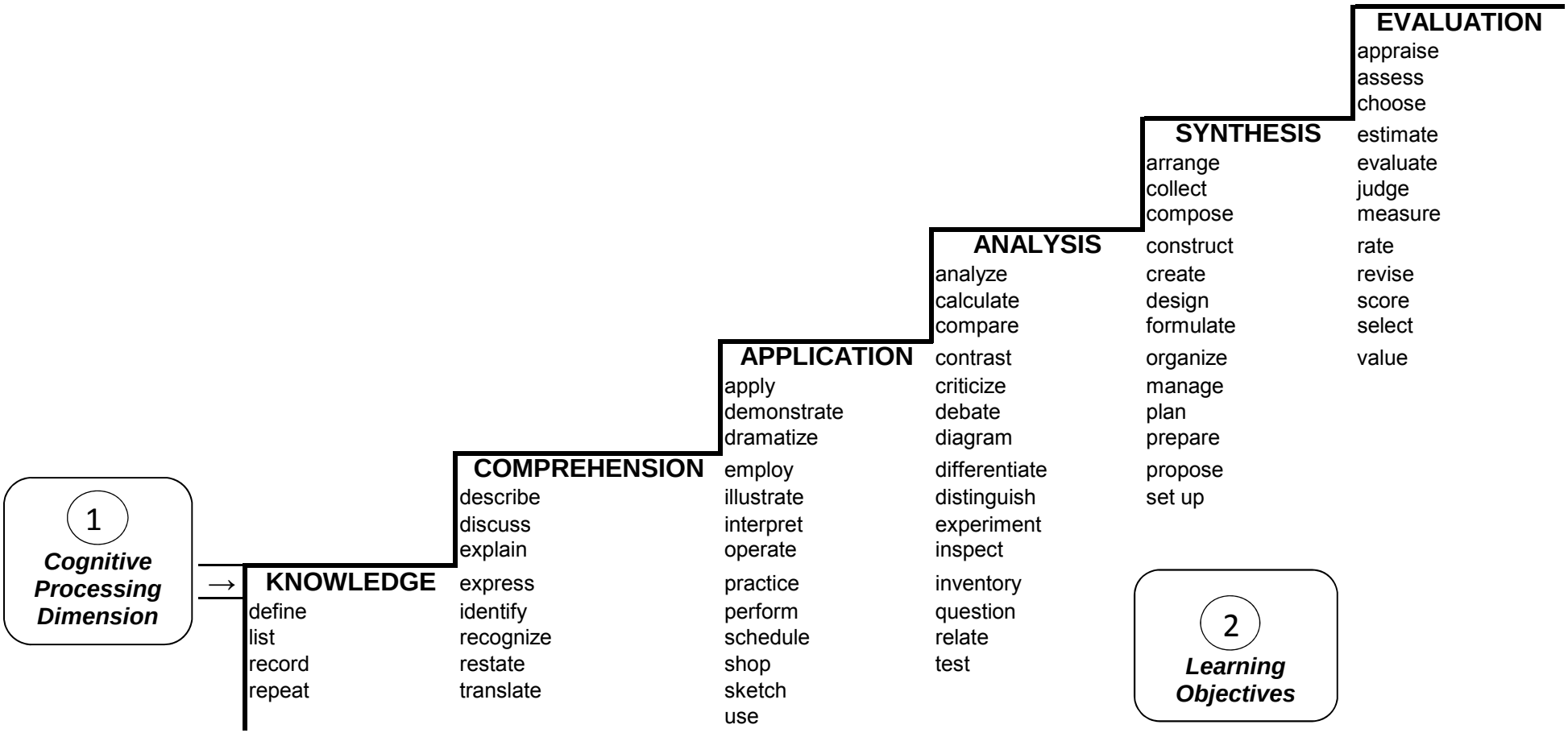
Non-Cognitive Concepts:

1. *Distributed Cognition*: The answer to some problems do not sit in the head of one individual and that there are some activities which require multiple participants to be successful.
2. *Situated Learning*: Knowledge is co-constructed and not simply the transmission of knowledge or content.
3. *Learning Preferences*: Individuals have a preferred method of gathering, processing, interpreting, organizing and analyzing information.
4. *Control Value Theory*: This theory argues that our emotions and motivation affect our performance. There can be activating emotions (enjoyment) and inhibiting emotions (boredom, embarrassment).

Non-Cognitive Concepts Teaching Implications:

- Tend to learners' emotions
    - Tell meaningful stories – choose cases that hook your learners
    - Foster self-efficacy and confidence
- Increase attention by encouraging learners to make commitments to diagnoses and therapies
- Incorporate small group activities
- Focus on the process and not just on content
- Incorporate a variety of teaching tactics and formats

LEARNING OBJECTIVES VERBS



Adapted from: Bloom, B.S. (Ed.), Engelhart, M.D., Furst, E.J., Hill, W.H., & Krathwohl, D.R. (1956). *Taxonomy of educational objectives: The classification of educational goals. Handbook 1: Cognitive domain* . New York: David McKay.

Ellen F. Goldman, EdD 11-1-2010

Case Conference Feedback Instrument

Presenter: _____ Observer: _____ Date:_____

Title / Subject: _____

Behavior	Observed	Somewhat observed	Not observed	Comments Identify specific instance(s) where the behavior was demonstrated, and/or times when you feel the behavior should have been used but was not
States goals of the session				
Communicates importance of session topic/case				
Gives learners time to think (comfortable with silence)				
Creates a "safe" learning environment (i.e. varies questions based on level of learner)				
Encourages learners & faculty to expose their thought processes				
Encourages learners to commit to diagnoses & therapies				
Ensures audience is engaged through use of questions, activities, body positioning				
Asks questions which prompt reflection				
Summarizes key learning points at the end of the sessions				

One behavior to **continue** doing:

One behavior to **start** doing:

One behavior to **stop** doing:

Additional comments:

Case Conference: Facilitation Tips

A. Make clinical reasoning visible to all:

1. Prioritize the data you gather
    a. "Before we go in the room / Based on this chief complaint, what are the 3 most important pieces of information you will want to gather?"
    b. "What pieces of information are most important thus far?"
    c. "What parts of the PE will be more helpful/predictive?" *(before you reveal PE)*
    d. "Do you think we have enough information at this stage to start solving the problem?"
2. Get residents to articulate their reasoning
    a. "How do you approach these sorts of patients?"
    b. "What are you thinking at this stage?"
    c. "Great - Why did you ask about the height of the fever?"
    d. "What do you make of that finding?"
    e. "Tell us what made you think about that diagnosis."
3. Utilize Summary Statement/Problem Representations
    a. "Would someone like to give us a quick summary statement (i.e. one liner)?"
    b. "Can you explain why you included the travel history in your one liner?"
    c. "I noticed you didn't include this patient's hyponatremia, can you tell me about that?"
4. Force them to make commitments *(for advanced learners)*
    a. "What is # 1 on your differential and why?
    b. "What is #2 on your differential and why isn't it #1?"
    c. "What are the top 3 things on your differential?"
    d. "What are you *most* worried about? What do you want to rule in or out right away?"
5. Help develop rich illness scripts
    a. "Tell me what you know about that disease."
    b. "What types of patients get that disease?"
    c. "What would be the classic, textbook presentation of that disease?"
6. Ask questions that prompt reflection
    a. "What else could be going on?"
    b. "What doesn't seem to fit?"
    c. "Could more than one thing be going on?"
    d. "What can't we explain?"

B. Accountability - Ensure everyone (including faculty) is engaged

1. Great teaching is not about being nice or about being mean - It is about maintaining positive tension, without this tension, people stop thinking.
    a. "Would everyone who thinks we need a pulmonary function test done, raise his/her hand?"
    b. Everyone think about what you think this patient has…and I'm going to ask everyone to shout out their answers in 5 seconds.
    c. Incorporate pair or small group work.
2. Make eye contact with all learners after asking a question
3. If one learner is dominating the discussion, move toward the other side of the room
4. When asked a question, redirect the question to the group. Your job is to show residents how smart they are, as opposed to how smart you are.
5. Encourage faculty to explain their thought processes out loud.
    a. Probe experts later in the session since learners are less willing to speak up once the expert states the "correct" answer.
    b. "Before we ask the attendings, does a resident want to give it a shot?"

C. Adapt your teaching (choice of questions) to match the level of the learner

1. Novices
    a. “Would you mind listing some of the key pertinent negatives and positives of this case?” (i.e. problem list)
    b. “List as many diagnoses that you think make sense.” (i.e. goal-free principle, as opposed to forcing them to make a commitment)
    c. “What do you think of John’s assessment?”
    d. “Can you explain why you think everyone is asking for an ESR and CRP?”
2. Intermediate/Experts - When appropriate, push them.
    a. “What if the patient was 7 days old and not 7 yrs old?”
    b. “I agree, ID should be on our DDX, but is there a particular infection you are worried about?”
    c. “Can you explain how an ESR will change your DDX, or management?”
    d. “How will you think about this case if the treatment doesn’t work?”
    e. “What if that test is negative?”
    f. “You mentioned you would like a CBC, what do you think it will show?”
3. Silence is golden: Maintain silence and wait at least 5 to 10 seconds (or 2-3 deep breaths!) for learners to respond. The length of your pause will depend on the learner.

D. Create a safe learning environment

1. Set expectations: “What I’d like to do is think through this case together, and there is no single right answer.”
2. Be quick to re-phrase your questions or simplify them, if a learner is struggling
    a. “I’m sorry, I worded that question poorly; let me try it again…”
    b. Think about the show “Who wants to be a millionaire”
        i. Phone a friend
        ii. Poll the audience
        iii. 50:50
3. Ways to decrease cognitive load
    a. “How have you seen other people approach these patients?”
    b. “This is a senior resident level question, but I want to give the interns a stab at it first.”
    c. That’s an interesting thought, but what do you think of that diagnosis given the absence or presence of _____(finding).”
4. Correct gently
    a. Necessary to establish a culture of accountability - but do it gently
    b. If a resident gives a partially correct answer. You might say,
        i. “I like where you are going with this. Could someone else add to John’s answer?”
        ii. “Good. You are on the right track; would someone else like to add to John’s answer?”
        iii. “Until recently, I also thought that…”
        iv. “When I was a resident, I struggled with this concept as well…”

E. Don’t shy away from uncertainty / Access appropriate resources

1. Role modeling is important, and being able to say ‘I don’t know’ is critical: if you don’t know, say so.
2. Learners need to see you modeling lifelong learning and curiosity.
    a. “I don’t know how often children with Condition X present with Symptom Y. That’s a very good question. I’ll look into it and email the group with what I find out. ”
    b. Ask the group, if appropriate: “I don’t know the answer to that question. Does anyone here know what the mechanism of action is of Drug X?”
    c. “I don’t know the answer to that one, would someone look it up on their smart phone?”
    d. Which consultants would you call at this stage?
    e. Which resource would you use to look up this question?

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