



## Electronic Health Records

*Do they help or hinder teaching  
of longitudinal learners in the  
outpatient setting?*

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CLIC International Conference, Montana

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# Disclosures

- No financial disclosures

# The EMR & Medical Education

## Case:

- 24 year old MSIII w/ an iPhone, ipad, and no pen who presents with a 10 year history of extreme electronic prowess and technologic independence

## Case:

- 64 year old faculty pediatrician w/ a flip phone, no texting capabilities, and computer phobia, who presents with a 2 year history of technology fatigue and declining passion for medical student education

# The EMR & Medical Education

**FACT** Medical education is undergoing monumental transformation as a result of technology

**FACT** The Electronic Medical Record improves healthcare delivery and coordination of care

**FACT** The Electronic Medical Record creates unique challenges in medical student education

**FACT** There is no unified consensus on how to adequately incorporate learners into a technologically dependent profession

# EMR + Medical Students = Angst?

## PAST

- *No barriers to student access of records*

## PRESENT

- *increasingly impenetrable barriers*

## FUTURE

- *It remains to be seen...*



# Objectives

- 1) Articulate the importance of electronic health records in medical student education
- 2) Review the benefits of integrating medical students into the outpatient electronic health record
- 3) Discuss the challenges of integrating medical students into the outpatient electronic health record
- 4) Highlight current efforts at Duke University to incorporate medical students into the electronic Health record





Articulate the importance of electronic health records in medical student education

## **OBJECTIVE #1:**

# The EMR & Medical Education

- *“Curriculum must prepare medical students for entry into graduate medical education and include specific instruction in communication skills... including communication with patient and their families, colleagues, and other health professionals”*

– Liaison Committee on Medical Education



# The EMR & Medical Education

- *“Each medical school must ensure that before graduation a student will have demonstrated the ability to communicate effectively, both orally and in writing, with patients, patients’ families, colleagues, and others with whom physicians must exchange information in carrying out their responsibilities”*

– Association of American Medical Colleges

# The EMR & Medical Education



## Medical Student Documentation in Electronic Health Records: A Collaborative Statement From the Alliance for Clinical Education

TABLE 3  
EHR skills expected of a medical school graduate

- Mastery of key elements of traditional patient encounter documentation (H&P, SOAP note), including familiarity with use of templates and checklists
- Comprehensive understanding of key/critical elements of order entry, including familiarity with use of order sets and pharmacy/prescription entries
- Familiarity with medication reconciliation and how/when it must be done
- Familiarity with how to access basic laboratory and radiologic data
- Familiarity with how to locate and interpret ancillary staff entries including vital signs, inputs/outputs, and nursing/allied health documentation
- Ability to locate and review historical data from prior hospitalizations or ambulatory visits including progress notes, admission H&P, consultation reports, procedure notes, and discharge summaries
- Familiarity with how to identify patient demographics including contact information

# ACE Statement on Electronic Health Records

- **Summary Statements are applicable to Longitudinal Integrated Clerkships**
  - Every student should document in patient's chart & notes should be reviewed
  - Every student should have opportunity to practice order entry
  - Students should have exposure to clinical decision aids
  - Programs should develop competencies for student involvement and establish evaluation tools to track progress

# The EMR & Medical Education

- ~64% of programs in the US allow students to use the EMR
- Few schools have written policies for student documentation in the EMR
- The opportunities for LIC students to benefit from EMR integration are greater given their enhanced continuity experiences



Review the benefits of integrating medical students into the outpatient electronic health record

## **OBJECTIVE #2**



# Benefits of Student Integration in EMR



## Medical Education in the Electronic Medical Record (EMR) Era: Benefits, Challenges, and Future Directions

Michael J. Tierney, MD, Natalie M. Pageler, MD, Madelyn Kahana, MD,  
Julie L. Pantaleoni, MD, and Christopher A. Longhurst, MD, MS

# Benefits of Student Integration in EMR

Core competency	Benefits	Challenges	Future directions
Medical Knowledge	Point-of-care clinical decision support (CDS) allows for context-relevant education <sup>7</sup>	Volume of online information may be overwhelming or underused <sup>15</sup>	Assess impact of CDS on fund of knowledge and identify most useful elements of CDS for learners
Practice-Based Learning and Improvement	<ul style="list-style-type: none"> <li>CDS provides opportunities to teach students and residents best practices<sup>7</sup></li> <li>EMRs offer opportunities in research and quality improvement education<sup>6</sup></li> </ul>	<ul style="list-style-type: none"> <li>CDS may be inappropriate to workflow, and/or promote alert fatigue<sup>15</sup></li> <li>Functional tools for registry tracking are still nascent<sup>44</sup></li> </ul>	<ul style="list-style-type: none"> <li>Well-planned implementation of CDS may improve teaching opportunities</li> <li>Further development of patient-tracking tools will allow greater use in quality improvement</li> </ul>
Patient Care	EMRs can reduce time spent in data gathering <sup>6,19</sup> and allow for efficient profiling and tracking of trainee clinical experiences and milestones <sup>6</sup>	EMRs may also introduce workflow inefficiencies <sup>17,19,22</sup> and may dull or stunt critical thinking skills <sup>27,28</sup>	Evaluate optimal computerized provider order entry implementation to maximize workflow efficiencies, and preserve critical clinical thinking
Interpersonal and Communication Skills	Learners may spend less time gathering and more time synthesizing clinical data <sup>6,19</sup>	Restrictions imposed on use of order entry or charting may limit EMR skill acquisition and documentation proficiency <sup>31</sup>	Modify documentation systems to promote EMR usage by trainees. Evaluate use of EMR as a tool for mobile, real-time clinical presentations.
Professionalism	Dedicated computer skill teaching can improve patient-provider interaction <sup>43</sup>	Computer-provider interaction may displace or degrade provider-patient interaction <sup>19,40</sup>	Determine how and when EMR-specific patient encounter skills should be introduced and assessed
Systems-Based Practice	EMRs offer potential for teaching effective integration of a network of care providers <sup>44,47</sup>	EMR systems have not reached maturity to support full multidisciplinary collaboration <sup>44</sup>	EMR technology needs to advance to fulfill needs of learners to operate effectively in the realm of the patient-centered medical home



## Medical Education in the Electronic Medical Record (EMR) Era: Benefits, Challenges, and Future Directions

Michael J. Tierney, MD, Natalie M. Pageler, MD, Madelyn Kahana, MD, Julie L. Pantaleoni, MD, and Christopher A. Longhurst, MD, MS

# Benefits of Student Integration in EMR

- **Most frequently cited benefits include:**
  - Increased legibility
  - More complete access to patient data
  - Improved remote access
  - Ability to have templates that allow for standardized care
  - Point of care teaching



Discuss the challenges of integrating medical students into the outpatient electronic health record

## **OBJECTIVE #3**

# Challenges of Student EMR Integration

- **Frequently cited Challenges**
  - Concerns related to use of templates
  - Concerns related to teaching time
  - Concerns related to student privilege



# Challenges of Student EMR Integration

Core competency	Benefits	Challenges	Future directions
Medical Knowledge	Point-of-care clinical decision support (CDS) allows for context-relevant education <sup>7</sup>	Volume of online information may be overwhelming or underused <sup>15</sup>	Assess impact of CDS on fund of knowledge and identify most useful elements of CDS for learners
Practice-Based Learning and Improvement	<ul style="list-style-type: none"> <li>• CDS provides opportunities to teach students and residents best practices<sup>7</sup></li> <li>• EMRs offer opportunities in research and quality improvement education<sup>6</sup></li> </ul>	<ul style="list-style-type: none"> <li>• CDS may be inappropriate to workflow, and/or promote alert fatigue<sup>15</sup></li> <li>• Functional tools for registry tracking are still nascent<sup>44</sup></li> </ul>	<ul style="list-style-type: none"> <li>• Well-planned implementation of CDS may improve teaching opportunities</li> <li>• Further development of patient-tracking tools will allow greater use in quality improvement</li> </ul>
Patient Care	EMRs can reduce time spent in data gathering <sup>6,19</sup> and allow for efficient profiling and tracking of trainee clinical experiences and milestones <sup>6</sup>	EMRs may also introduce workflow inefficiencies <sup>17,19,22</sup> and may dull or stunt critical thinking skills <sup>27,28</sup>	Evaluate optimal computerized provider order entry implementation to maximize workflow efficiencies, and preserve critical clinical thinking
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## Medical Education in the Electronic Medical Record (EMR) Era: Benefits, Challenges, and Future Directions

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Highlight current efforts at Duke University to incorporate medical students into the Electronic Health Record

## OBJECTIVE #4

# Medical Student EMR use at Duke

- Examples from Duke's Longitudinal Integrated Clerkship in Pediatrics
  - Use of Templates (To Use or Not to Use)
  - Use of Clinical Decision Making Supports
  - Use of Developmental Prompts
  - Use of Patient Instruction Functionality
  - Use of Disease specific Order Sets

# Incorporating Templates in LIC

9/26/2013 visit with Joseph ?

Images More

Orders Only

Vital Signs

BestPractice

SmartSets

Verify Rx Benefits

Outside Meds

Progress Notes

Problem List

Visit Diagnoses

Meds & Orders

Follow-up

Close Encounter

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Edit Note

New Note

Bookmark

Duke Pediatrics Same Day Clinic / Acute Care Visit:

Primary Source of History: {Persons; ped relatives w/o patient:19502}

Primary Language of Patient: {Primary Language & Interpreter use:31114::"English"}

HPI:

Joseph A Jackson III is a 6 y.o. male who presents today for the evaluation of: No chief complaint on file.

PMHx/PSHx/SocHx/FamHx/ Allergies and Meds:

Patient Active Problem List

Diagnoses

- Routine infant or child health check

No past medical history on file.  
No past surgical history on file.  
No family history on file.

ROS- Negative except as indicated in the HPI

Outpatient Prescriptions Prior to Visit

Medication	Sig	Dispense	Refill
olopatadine (PATANOL) 0.1 % ophthalmic solution	Place 1 drop into both eyes 2 (two) times daily	5 mL	3
triamcinolone 0.1 % ointment	1 application topically 2 times a day if needed		3

No facility-administered medications prior to visit.

Objective:

There were no vitals taken for this visit.

# Student Template vs. Faculty Template

9/26/2013 visit with Joseph ?

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Objective:

There were no vitals taken for this visit.

Wt Readings from Last 3 Encounters:

Date	Weight	Percentile	Z Score
08/30/13	21.5 kg (47 lb 6.4 oz)	53%*	Z = 0.08
10/26/12	19 kg (41 lb 14.2 oz)	45%*	Z = -0.12
05/31/12	17.8 kg (39 lb 3.9 oz)	40%*	Z = -0.26

\* Growth percentiles are based on CDC 2-20 Years data.

Exam:

{CHOOSE INFANT, CHILD OR TEEN PHYSICAL EXAM:34922}

Assessment/ Plan :

{Consider using a "pap" Dx specific Smart Phrase here to speed documentation}

- Patient and Family advised to RTC for worsening symptoms

Medications at end of encounter:

Medication	Sig	Dispense	Refill
olopatadine (PATANOL) 0.1 % ophthalmic solution	Place 1 drop into both eyes 2 (two) times daily	5 mL	3
triamcinolone 0.1 % ointment	1 application topically 2 times a day if needed		3

No current facility-administered medications for this visit.

Future Appointments:



# Incorporating Clinical Decision Supports

The screenshot displays an EHR interface for a patient visit on 9/26/2013. The left sidebar contains navigation options such as Snapshot, Chart Review, Flowsheets, Results Review, Synopsis, Growth Chart, Medications, Immunizations, Order Entry, MAR, Patient Education, Communications, Demographics, Doc Flowsheets, Health Maintenance, Patient Station, and Orders Only Encounters. The main window shows a 'New Note' editor with a toolbar and a text area. The text area contains the following content:

Growth percentiles are based on CDC 2-20 Years data.

**There is no height or weight on file to calculate BMI.  
No BP reading on file for this encounter.**

**Exam:**  
{CHOOSE INFANT, CHILD OR TEEN PHYSICAL EXAM:34922}

**Assessment/ Plan :**

{Consider using a ".pap" Dx specific Smart Phrase here to speed documentation}

**There are no diagnoses linked to this encounter.**

**Pneumonia**  
{PED Pneumonia AP:22710}  
{Decision Support: Up to Date Table for Empiric Outpt Tx of Pneumonia in Children}

- Patient and Family advised to RTC for worsening symptoms

A red arrow points from the text 'There are no diagnoses linked to this encounter.' to the 'Pneumonia' section, highlighting the decision support provided for this diagnosis.

# Clinical Decision Tools

9/26/2013 visit with Joseph

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Verify Rx Benefits

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Visit Diagnoses

Medications

Immunizations

Order Entry

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Patient Education

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Bookmark

No facility-administered medications prior to visit.

**Objective:**  
**There were no vitals taken for this visit.**

Wt Readings from Last 3 Encounters:

08/30/13	21.5 kg (47 lb 6.4 oz)	(53%* Z = 0.08)
10/26/12	19 kg (41 lb 14.2 oz)	(45%* Z = -0.12)
05/31/12	17.8 kg (39 lb 3.9 oz)	(40%* Z = -0.26)

Growth percentiles are based on CDC 2-20 Years data.

**There is no height or weight on file to calculate BMI.**  
**No BP reading on file for this encounter.**

**Exam:**  
**{CHOOSE INFAN** - Suspect pneumonia due to PE findings of: {Pediatric PE findings of Pneumonia:22657}  
 - Oxygen saturation on room air in clinic was \*\*\*.  
 - Will refer to hospital for further evaluation and treatment due to: {Pediatric Reasons to hospitalize for Pneumonia:22658}  
 - Given normal O2 Sat on RA, acceptable PO intake, and relatively unlabored breathing, will treat as outpatient.

**Assessment/Pl**  
 - Will treat with oral antibiotic therapy: {Pediatric Pneumonia Oral Antibiotics:22659}  
 - Advised to return to clinic for increased WOB (nasal flaring, retractions, increased RR).  
 - Encouraged use of acetaminophen or ibuprofen as needed for fever.  
 (Remember: initial outpt tx of pneumonia in pts 0-3 months not recommended)

**There are no d** (Decision Support: For 6mo to 5 yr, consider high dose Amox or Amox/Clav when concerned about Typical bact pathogens)  
 (Decision Support: For 6mo to 5 yr, if concerned about atypical bact pathogens add Macrolide)  
 (Decision Support: Macrolide should be first line outpt tx if > 5 yo if not clinically concerned for resistant S. pneumo)  
 (Decision Support: If > 5 yrs and concern for S. Pneumo - use high dose Amox)

**Pneumonia**  
 - \*\*\*  
 {PED Pneumonia AP:22710}

{Decision Support: Up to Date Table for Empiric Outpt Tx of Pneumonia in Children}

- Patient and Family advised to RTC for worsening symptoms

# Clinical Decision Tools (hyperlinks)

## Initial oral empiric antibiotics for outpatient treatment of pediatric community-acquired pneumonia

Age group	Empiric regimen
<b>1 to 6 months</b>	
Bacterial (not <i>Chlamydia trachomatis</i> )	<b>Infants &lt;3 to 6 months of age with suspected bacterial pneumonia should be hospitalized</b>
<i>Chlamydia trachomatis</i>	See UpToDate topic on <i>Chlamydia trachomatis</i> infections in the newborn
<b>6 months to 5 years</b>	
Typical bacterial*	<p>Amoxicillin* 90 mg/kg per day in 2 or 3 divided doses (MAX 4 g/day), <b>OR</b></p> <p>Amoxicillin-clavulanate 90 mg/kg per day of the amoxicillin component in 2 or 3 divided doses (MAX 4 g/day amoxicillin component), <b>OR</b></p> <p><b>For patients with non type 1 hypersensitivity to penicillins:</b></p> <ul style="list-style-type: none"> <li>- Cefdinir 14 mg/kg per day in 2 divided doses (MAX 600 mg/day), <b>OR</b></li> </ul> <p><b>For patients with type 1 hypersensitivity to penicillins:</b></p> <ul style="list-style-type: none"> <li>- Clindamycin 30 to 40 mg/kg per day in 3 or 4 divided doses (MAX 1.8 g/day), <b>OR</b></li> <li>- Erythromycin 30 to 50 mg/kg per day in 4 divided doses (MAX 2 g/day as base, 3.2 g/day as ethylsuccinate), <b>OR</b></li> <li>- Azithromycin 10 mg/kg on day 1 followed by 5 mg/kg daily for 4 more days (MAX 500 mg on day 1 and 250 mg thereafter), <b>OR</b></li> <li>- Clarithromycin 15 mg/kg per day in 2 divided doses (MAX 1 g/day), <b>OR</b></li> </ul> <p><b>In communities with a high rate of pneumococcal resistance to penicillin:</b></p> <ul style="list-style-type: none"> <li>- Linezolid 30 mg/kg per day in 3 divided doses (MAX 1800 mg/day), <b>OR</b></li> <li>- Levofloxacin 16 to 20 mg/kg per day in 2 divided doses (MAX 750 mg/day)</li> </ul>
<b>≥5 years</b>	
<i>Mycoplasma pneumoniae</i> or <i>Chlamydophila pneumoniae</i>	<p>Erythromycin 40 to 50 mg/kg per day in 4 divided doses (MAX 2 g/day as base, 3.2 g/day as ethylsuccinate), <b>OR</b></p> <p>Azithromycin 10 mg/kg on day 1 followed by 5 mg/kg daily for 4 more days (MAX 500 mg on day 1 and 250 mg thereafter), <b>OR</b></p> <p>Clarithromycin 15 mg/kg per day in 2 divided doses (MAX 1 g/day), <b>OR</b></p> <p>Doxycycline<sup>Δ</sup> 4 mg/kg per day in 2 divided doses (MAX 200 mg/day), <b>OR</b></p> <p><b>For skeletally mature patients:</b></p> <ul style="list-style-type: none"> <li>- Levofloxacin<sup>◊</sup> 8 to 10 mg/kg once daily for children 5 to 16 years (MAX 500 mg/day); 500 mg once per day for children for children ≥16 years, <b>OR</b></li> </ul>

# Teaching Developmental Milestones

9/26/2013 visit with Joseph

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SmartSets

Verify Rx Benefits

Outside Meds

Progress Notes

Problem List

Visit Diagnoses

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**Developmental History:**

**Gross Motor**  
Stands alone briefly: {pos/neg/not done:321853}  
Cruises: {pos/neg/not done:321853}  
Walks with hand held: {pos/neg/not done:321853}  
Walking: {pos/neg/not done:321853}

**Fine Motor**  
Neat pincer grasp: {pos/neg/not done:321853}  
Bangs 2 cubes together: {pos/neg/not done:321853}

**Language**  
Mama and dada, specific: {pos/neg/not done:321853}  
1-2 words, other than Mama & Dada: {pos/neg/not done:321853}

**Psychosocial**  
Play repetitive games (pat-a-cake): {pos/neg/not done:321853}  
Indicates wants: {pos/neg/not done:321853}  
Responds to parent's presence & voice: {pos/neg/not done:321853}  
Drinks from cup: {pos/neg/not done:321853}

**Developmental Screen**  
PEDs developmental screen completed by parent/guardian  
Concerns: {None/mild/mod/significant:11092} \*\*\*

**Anticipatory Guidance:**  
Items discussed during today's encounter: {Plan; anticipatory guidance review 12 mo:19478}

**Objective:**

Height: |  
Head circumference: |

# Patient Instruction Prompts

The screenshot displays an EHR interface for a patient visit on 9/26/2013. The left sidebar contains navigation options such as Snapshot, Chart Review, and Medications. The main window shows a 'New Note' editor with a toolbar and a text area. The text area contains the following content:

**Abscess**  
{Abscess A&P:36074}

-I & D performed  
-Purulent material sent for Gram stain & culture  
-Advised to pack wound with saline moistened gauze twice daily to assist with wound healing  
-Will treat with oral antibiotic: {TREATMENT ANTIBIOTIC:22643}  
-Advised to wash 2-3 times per day with warm soapy water, then apply topical: {PED TOPICALANTIBIOTICS:22644}  
-{MRSA staph eradication measures:22653}  
-Copy of Staph Eradication Protocol Handout given to patient / family  
-Advised to return to clinic for worsening symptoms  
-Will re-evaluate {TIME; DAYS, PRN:22646}  
-\*\*\*

{Staph Eradication Protocol Handout}

A red arrow points to the prompt '{Staph Eradication Protocol Handout}'.



# Patient Instruction Prompts

The screenshot shows a medical software interface. On the left is a navigation menu with categories like 'SnapShot', 'Chart Review', 'Flowsheets', 'Results Review', 'Synopsis', 'Growth Chart', 'Medications', 'Immunizations', 'Order Entry', 'MAR', 'Patient Education', 'Communications', 'Demographics', 'Doc Flowsheets', 'Health Maintena...', 'Patient Station', and 'Orders Only Enc...'. The main window is titled '9/26/2013 visit with Joseph' and contains a 'New Note' editor. A red arrow points to the 'New Note' title bar. The note content includes a title 'Duke Pediatrics Migraine Action Plan for: Joseph A Jackson III', a paragraph of instructions, a list of four questions to ask, and a table with two columns: 'Migraine Headache Management' and 'General Headache Management (NOT a Migraine)'. The table lists specific instructions for each type of headache, including medication prompts like '{Ped Analgesics:34519}' and '{Ped Antiemetics:34518}'. At the bottom, the name 'JOSEPH A JACKSON, MD' and the role 'Health Care Provider' are visible, along with a 'Date' field and a signature line with '\*\*\*'.

9/26/2013 visit with Joseph ?

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**Duke Pediatrics Migraine Action Plan for: Joseph A Jackson III**

Please ask the following questions to determine which plan to follow. If all answers are "NO," follow the directions for "Headache (NOT a Migraine)." Otherwise, follow the directions for "MIGRAINE."

**Questions to ask:**

1. Does your headache get worse when you move?
2. Does your headache make you very sensitive to sounds or light?
3. Since your headache started do you have nausea (feel like you might throw up)?
4. Since your headache started have you vomited ( thrown up)?

<u>Migraine Headache Management</u>	<u>General Headache Management (NOT a Migraine)</u>
<ol style="list-style-type: none"><li>1. Record in Headache Diary</li><li>2. Give medications right away:<ol style="list-style-type: none"><li>a. For pain: {Ped Analgesics:34519}</li><li>b. For Nausea and/or vomiting: {Ped Antiemetics:34518}</li><li>c. Additional: ***</li></ol></li><li>3. Offer a non-caffeine drink.</li><li>4. Allow Joseph to rest in a quiet, dark place for 30-60 minutes.</li><li>5. Offer Comfort Measures:</li><li>6. Contact Parent to inform about Migraine and care given.</li><li>7. After 60 minutes, if Migraine is resolved, can return to activities. If not, needs to go home.</li></ol>	<ol style="list-style-type: none"><li>1. Record on Headache Diary</li><li>2. Give medication:<ol style="list-style-type: none"><li>a. For pain: {Ped Analgesics:34519}</li></ol></li><li>3. Take Temperature</li><li>4. Call parent to discuss next step (home or return to activities).</li></ol>

JOSEPH A JACKSON, MD  
Health Care Provider

Date \*\*\*

# Order Entry Opportunities

9/26/2013 visit with Joseph Augustus Jackson Jr., MD for Orders Only

Preference List Browser - Jackson, Joseph A III

Search

Browse (F4) Preference List (F5) Facility List (F6)

Clear Selected

Selected Orders

Options

Order Entry

click to open

click to open

Accept Cancel

**Labs**

- Chemistry
- Hematology
- Microbiology/serology
- Healthcheck Screens**
- Southpoint Peds Vacc
- 12 & 24 Month Well Sc
- Adolescent Screen
- Anemia Workup
- Healthy Lifestyle Scre
- Southpoint Fever Wor
- Stool Studies
- Newborn
- Radiology
- Imaging
- Immunization
- Referrals
- Orders
- Frequent Orders

**Healthcheck Screens (Labs)**

- Medicaid Developmental Screening Form
- MCHAT Screening Form
- Dental Varnishing

**Southpoint Peds Vaccines (Labs)**

- DTaP HIB IPV combined vaccine IM (PENTACEL)
- DTaP HepB IPV combined vaccine IM (PEDIARX)
- Pneumococcal conjugate vaccine 13-valent IM (PREVNAR 13)
- Poliovirus vaccine IPV SQ/IM (IPOL)
- Hib PRP-OMP conjugate vaccine 3 dose IM
- DTaP vaccine less than 7yo IM
- Poliovirus vaccine IPV SQ/IM (IPOL)
- MMR vaccine SQ
- Varicella vaccine SQ (VARIVAX)
- Hepatitis A vaccine pediatric / adolescent 2 dose IM
- DTaP IPV combined vaccine IM (KINRIX)
- Tdap vaccine greater than or equal to 7yo IM
- Meningococcal conjugate vaccine 4-valent IM (MENACTRA)
- HPV vaccine quadrivalent 3 dose IM (GARDASIL)

**12 & 24 Month Well Screen (Labs)**

- Hemoglobin With MCV
- Lead, Blood

**Adolescent Screen (Labs)**

- Chlamydia & Gonococcus, DNA Amp, Urine
- HCG Pregnancy Test-Qual Urine
- Urinalysis Complete
- Culture Urine
- Wet Prep Panel
- HIV-1 And HIV-2 Antibody, Combined
- RPR
- Cholesterol, Total
- CBC

**Anemia Workup (Labs)**

- CBC
- Manual WBC Differential
- Iron And TIBC
- Ferritin
- Reticulocytes

**Healthy Lifestyle Screen (Labs)**

- Comprehensive Metabolic Panel
- Lipid Panel (Calculated LDL)

# Summary

- Medical Educators must strive to integrate students into the electronic Health Record
- Numerous benefits and challenges exist when integrating medical students into the outpatient health record
- The LIC at Duke continues to explore and advance medical student exposure to the EHR