Engaging and Supporting Physicians in the Adoption of Health Information Technology and Exchange

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Perceived Barriers to EHR \((n=415)\)

**Kemper, 2006: 21% of General Pediatricians Had EHRS**

<table>
<thead>
<tr>
<th>Barrier</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Physician resistance</td>
<td>77.1</td>
</tr>
<tr>
<td>System downtime</td>
<td>71.5</td>
</tr>
<tr>
<td>Increase in physician workload</td>
<td>63.7</td>
</tr>
<tr>
<td>Inadequate computer skills</td>
<td>59.8</td>
</tr>
<tr>
<td>Increase in staff workload</td>
<td>55.3</td>
</tr>
<tr>
<td>Expense of implementation</td>
<td>93.5</td>
</tr>
<tr>
<td>Lack of return on investment</td>
<td>71.2</td>
</tr>
<tr>
<td>No improvement in patient care</td>
<td>58.1</td>
</tr>
<tr>
<td>No EHR that meets practice needs</td>
<td>80.5</td>
</tr>
<tr>
<td>No interface with existing systems</td>
<td>75.1</td>
</tr>
<tr>
<td>Transience of vendors</td>
<td>70.1</td>
</tr>
</tbody>
</table>
AAP Periodic Survey

• Annual Survey to AAP Membership
• 8 page self-administered questionnaire included by COCIT in 2009
  – EHR use, capabilities, barriers and attitudes
• Sent to 1,620 nonretired US members
• Original mailing and six follow-up mailings
• 927 responded (57%)
## Use of an EMR or EHRS

<table>
<thead>
<tr>
<th></th>
<th>EMR</th>
<th>EHRS</th>
</tr>
</thead>
<tbody>
<tr>
<td>N=637</td>
<td>N=613</td>
<td></td>
</tr>
<tr>
<td>Yes, all electronic</td>
<td>33.6</td>
<td>22.9</td>
</tr>
<tr>
<td>Yes, part paper / part electronic</td>
<td>21.1</td>
<td>18.3</td>
</tr>
<tr>
<td>No</td>
<td>45.1</td>
<td>56.7</td>
</tr>
<tr>
<td>Don’t know</td>
<td>0.2</td>
<td>2.1</td>
</tr>
</tbody>
</table>

*Most lack some basic functionality*

AAP Periodic Survey 2009
## Characteristics of Pediatricians with EHRs

<table>
<thead>
<tr>
<th>Category</th>
<th>Basic</th>
<th>Full</th>
<th>None</th>
</tr>
</thead>
<tbody>
<tr>
<td>General Pediatricians (458)</td>
<td>15.9</td>
<td>5.7</td>
<td>78.4</td>
</tr>
<tr>
<td>Subspecialists (174)</td>
<td>25.9</td>
<td>8.0</td>
<td>66.1</td>
</tr>
<tr>
<td>Northeast (153)</td>
<td>13.7</td>
<td>3.9</td>
<td>82.4</td>
</tr>
<tr>
<td>Midwest (137)</td>
<td>24.1</td>
<td>9.5</td>
<td>66.4</td>
</tr>
<tr>
<td>South (231)</td>
<td>14.7</td>
<td>4.3</td>
<td>81.0</td>
</tr>
<tr>
<td>West (118)</td>
<td>25.4</td>
<td>9.3</td>
<td>65.3</td>
</tr>
</tbody>
</table>
Barriers to EHR adoption (% Major Barrier)

Capital to acquire /implement an EHR 56.2

Uncertainty about ROI 34.2

Loss of productivity during transition 36.4

Capacity to select, contract, install, Implement 28.3
Capacity to Transmit Data

- Claims for private third-party payers: 53.5
- Claims for federal / state programs: 47.2
- Data to/from immunization records: 45.2
- Access a drug interaction database: 42.9
- Data for claims adjudication: 32.5
- Post remittances: 30.7
- Data for practice profiling QI: 26.0
- Transfer medical records: 16.3
- State-required reportable conditions: 12.5
- Biosurveillance data to local public health: 6.8

2/2/2010 7Downs
Andy Spooner & COCIT, 2006
Requirements of Pediatric EHRs

• Immunization recording
• Linkage to immunization registries
• Immunization decision support (forecasting)
• Growth tracking
  – graphing and percentile calculations
• Age and weight based medication dosing
  – Appropriate rounding
  – Prescribing for home and school administration
Requirements of Pediatric EHRs

• Prenatal and newborn patient identification
• Family linkages, name changes, sexual ambiguity at birth
• Age specific norms: laboratory, radiologic etc
• Appropriate numeric precision
  – Age, weight, height and head circumference,
• Consent, permission to treat, access records
  – State wards, foster children, and adolescents of various ages
Reaching Docs without an EHR (Adaptive Turnaround Documents)

- Computer Generated
- Paper
- Delivers tailored information
- Scannable
- Captures structured data
  - Computer, scanner, or fax
Newborn Screening Example

• Virtually every child born in the US has a few drops of blood analyzed
• Looking for diseases
  – Otherwise unapparent
  – Dangerous
  – Treatable if found early
• Child’s care changes hands many times
• Data must follow the child
Figure 7: Provider sites receiving results through Docs4Docs.
Jennifer D. Patient
DOB: 14 May 2007
Newborn Screening Alert: Elevated C8 with Lesser Elevations of C6 and C10 Acylcarnitine
Suggestive of Medium-chain Acyl-CoA Dehydrogenase (MCAD) Deficiency

Condition Description: MCAD deficiency is a fatty acid oxidation (FAO) disorder. FAO occurs during prolonged fasting and/or periods of increased energy demands (fever, stress) when energy production relies increasingly on fat metabolism. In an FAO disorder, fatty acids and potentially toxic derivatives accumulate because of a deficiency in one of the mitochondrial FAO enzymes.

MEDICAL EMERGENCY - TAKE THE FOLLOWING IMMEDIATE ACTIONS:

ƒ Contact family to inform them of the newborn screening result and ascertain clinical status (poor feeding, vomiting, lethargy).
ƒ Consult with pediatric metabolic specialist.
ƒ Evaluate the newborn (poor feeding, lethargy, hypotonia, hepatomegaly). If signs are present or infant is ill, initiate emergency treatment with IV glucose. Transport to hospital for further treatment in consultation with metabolic specialist. If infant is normal initiate timely confirmatory/diagnostic testing, as recommended by specialist.
ƒ Educate family about need for infant to avoid fasting. Even if mildly ill, immediate treatment with IV glucose is needed.
ƒ Report findings to newborn screening program.

Diagnostic Evaluation:

Plasma acylcarnitine analysis will show elevated octanoylcarnitine (C8). Urine acylglycine will show elevated hexanoylglycine. Diagnosis is confirmed by mutation analysis of the MCAD gene.

Please check ALL of the following that apply:

[ ] Family contacted
[X] Newborn clinical status assessed
[ ] Problems (poor feeding, vomiting, lethargy, hypotonia, hepatomegaly)
→ [ ] Treated with IV glucose
[X] Infant stable
[X] Family provided attached educational materials

Diagnostic Evaluation

[X] Plasma acylcarnitine sent
[X] Referral made to metabolic center

[ ] Family could not be contacted
[ ] This is not my patient
Avoiding Missed Opportunities

• Capture HL7 message for neonates

• Check against newborn screening reports

• Alert physician if missing or positive
Model Peds EHR Format

• AHRQ Request for Task Order (contract)
• Proposals under review
• 3-phase contract
  – Environmental scan of unmet peds EHR needs
  – Develop & disseminate a model EHR format
  – Evaluate gaps in existing EHRs and prototype modules to fill gaps
• Begins March; 2-year project
Conclusions

• Meaningful EHR use by clinicians is low but growing
• EHRs are perceived as too expensive and inadequate to pediatric needs
• National efforts afoot to address the need for better pediatric functionality