OMED 2013
Pediatrics, EMRs, and Informatics
What’s News

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IBM and Boston Children’s Hospital
OPENPediatrics (September 2013)

IBM and Boston Children’s Hospital Team Improve Care of Critically Ill Children Around the World. Dr. Jeffrey Burns, Chief, Critical Care Medicine, Boston Children’s Hospital

A. International initiative combines clinical expertise with cloud-based social networkking technologies to build pediatric medical skills
B. Cloud-based global education technology platform to transform how pediatric medicine is taught and practiced around the world
C. Trains medical professionals using on-demand, interactive, digital and social learning experience, equipping them to perform life-saving procedures and treatments
D. Social networking technologies to share knowledge on best practices in caring for critically ill children through training modules, video demonstrations, simulations, and knowledge-sharing between clinicians.

The OPENPediatrics platform includes:
A. A social network that connecting world-wide pediatric care providers to exchange best practices and to discuss questions between peers
B. On-demand pediatric curricula and medical literature on specialty care (blood infections, high blood sugar, brain trauma, etc.).
C. Training videos of advanced procedures such as chest tube placement.
D. Interactive simulation experiences allowing physicians to practice comprehensive treatments in virtual settings.

Information Technology is useful in many different ways:
A. EMRs
B. HIEs
C. Mobile applications
D. Home monitoring
E. Telehealth
F. Education
Doctors in Training (Internal Medicine)

Time Motion Study
A. Baltimore – two Internal Medicine Residencies, 29 interns
B. Measures
  1. Primary outcome: Percent of time spent in direct patient care (talking with and examining patients)
  2. Secondary outcomes: Percent of time spent in indirect patient care, education, and miscellaneous activities (eating, sleeping, and walking).
  3. Multilevel regression analysis adjusted for clustering at the observer and intern levels
C. Results
  1. Interns observed for a total of 873 hours
  2. 12% of time in direct patient care
  3. 64% of time in indirect patient care
  4. 15% in educational activities
  5. 9% in miscellaneous activities
  6. Computer use consumed 40% of time (no significant difference in time between the two sites)
D. Conclusion
  1. Interns spend minority of time directly caring for patients (compared with time motion studies prior to 2003)
  2. Spent less time in direct patient care and sleeping
  3. More time talking with other providers and documenting
  4. Reduced work hours in the setting of increasing complexity of medical inpatients, growing volume of patient data, and increased supervision may limit the amount of time interns spend with patients.
Popular Pediatric EMRs

- Office Practicum – Bright Futures embedded
- Allscripts
- Epic
- Greenway (required significant customizing)
- Physicians Computer Company
- MDSuites

Vitera (customizable with significant hours and thought, few pediatric templates)

Athena, pretty pricey, a long shot, competing in the ambulatory side of medicine aggressively

ElationEMR ($149/mo, web-based, historical vaccine entry tool)

KonciergeMD (pediatric-specific patient portal)

- [COCIT@LISTSERV.AAP.ORG](mailto:COCIT@LISTSERV.AAP.ORG); [http://www.aapcocit.org/emr/readreviews.php](http://www.aapcocit.org/emr/readreviews.php)

- Only two EMRs have been decertified by ONC: EHRMagic – Ambulatory and Inpatient
  - No one attested; would lose out of incentive payments
EMRs Making Life Easier?

Drchrono surveyed 1300 physicians (EMR company using iPad)

A. 62 minutes saved daily

B. User base included general practitioners, pediatricians, internists, orthopedists, chiropractors, psychologists and others who practice in groups of 25 or fewer

C. 82% report patient appreciation for using EMR
Pediatricians Success Using EMR

Fiks et al. (all pediatricians used the same EMR)

A. Conclusions:
1. Mean overall visit length was 11:30 (min:sec) with 9:06 spent in the exam room
2. Clinicians used the EMR during 27% of exam room time and at all stages of the visit (interacting, chatting, and building rapport; history taking; formulation of the diagnosis and treatment plan; and discussing prevention) except the physical exam
3. Communication with the family accompanied 70% of EMR use.
4. Regression models demonstrate computer documentation outside the exam room was associated with visits that were 11% longer (p=0.001)
5. Female clinicians spent more time using the computer while communicating (p=0.003).

B. Study Information
1. 12 practices within The Children's Hospital of Philadelphia (CHOP) Pediatric Research Consortium (PeRC), and evaluated acute care visits only
2. Clinicians spent 27% of the patient visit length using the EMR and 70% of time communicating with the patient and family. Overall, clinicians and families spent 92% of the patient visit length interacting.
Can EMRs improve the efficiency of vaccines?

A. EMRs provide an essential layer of support to healthcare professionals
   1. To organize, share and transfer relevant patient data between other healthcare practitioners.
   2. The best EMRs can also provide an additional resource
   3. EMR software that's been customized to meet the needs of pediatricians who provide regular vaccinations may help prevent a range of serious medical conditions, according to a recent study published in the journal of Applied Clinical Informatics

B. Researchers analyzed 1.7 million medical records
   1. Submitted by more than 200 primary care practices to the New York Citywide Immunizations Registry
   2. Between January 2007 and June 2011
   3. Revealed variances between when immunizations were given and the periods when youngsters were recommended to receive them.
   4. Automation has significant implications for managing public health (informing a local physician or policymakers on the health of an individual or health trends within a whole community)
   5. EMRs greatly enhance our ability to help at-risk populations (for whom up-to-date immunizations are critical) [Children, immunosuppressed individuals, or the chronically ill]

C. EMR software could effectively address public health needs by improving immunization reporting to automated registries and ensuring that children receive vaccinations on the appropriate schedule

D. EMR vendors (like Medical Mastermind) offer customized software for pediatric practices
   1. Improving immunization workflow is easier than ever
   2. The software works to reduce data inputting errors and facilitate faster documentation times allowing focus on providing a better level of care to patients
Hospital Pediatric Care Using EMRs…Cost Effective?

Teufel et al. looked at 4,605,454 weighted discharges.

A. EMR use by hospitals that care for children was common: (Stage of Implementation varied)
   1. Stage 1…24%
   2. Stage 2…23%
   3. Stage 3…32% (Automation of ancillary services, nursing workflow, computerized provider order entry, and clinical decision support)

B. The Multivariable linear regression demonstrated that advanced stage EMR was associated with an average 7% greater cost per case ($146 per discharge).

C. Conclusions
   1. The care of children with EMRs may create a safer health care system
   2. EMRs ARE NOT associated with inpatient cost savings (7% additional cost per discharge)
   3. This finding is contrary to predicted savings and may represent an added barrier in the adoption of EMR for inpatient pediatrics.
Pediatric Redesign

Stage 2 defined a Medicaid encounter to allow patients covered by the Children’s Health Insurance Programs (CHIP) to be eligible for inclusion

A. Allows eligibility of 60% of pediatricians to participate with EHR incentive

B. Provides pediatric clinical quality measures and reporting mechanisms

1. Challenge because of dental inclusion (decay or cavities) and vendors have not aggressively added discrete fields to enter dental data

4 Areas Where HIT Can Improve Pediatric Care
Written by Sabrina Rodak, June 18, 2013

- Health information technology can improve pediatric care delivery, according to a whitepaper by Boston Children’s Hospital and Verizon Foundation.

- The whitepaper, “Empowering Care Coordination with Technology: Opportunities to Transform Pediatric Care Delivery,” describes how technology in four areas can improve pediatric care:

A. Care coordination. Technology can help all members of the care team, including the patient and family, communicate more easily.

B. Care management. Secure transmission of biometric and lab-specific data can aid clinical decision-making.

C. Education. Technology can improve understanding of and compliance with treatment programs.

D. Policy environment. Incentives for technology adoption can encourage a team-based approach to care
Health-e-Access: Using Technology To Care for Children

A. Since 2001, more than 7,000 visits have been completed (as of July 1, 2009)
B. Absences due to illness have decreased dramatically (63% in inner city childcare)
C. 94% of parents who use Health-e-Access report that it allowed them to stay at work
D. 94% report that it helped to avoid an ED or office visit
E. 85% of telemedicine visits are done by the child's own primary care medical practice
F. 22% fewer Emergency Department visits among children with Health-e-Access, compared with a matched control group
G. Has received numerous awards

A. Parents and guardians who use child care centers report 40% of work absences are due to child illness
B. 50% of working women report they will need to miss work the next time a child is sick
C. Parents can secure prompt medical attention without losing work time.
D. High-quality videoconferencing, digital medical cameras, electronic stethoscope, and other diagnostic equipment
E. Telehealth assistants enable videoconferencing and help with examination of children by sending high resolution digital images, lung sounds, and video clips to nurse practitioners and doctors
F. These "virtual house calls" are made by a clinician from the child's own primary care practice
G. Nine community primary care practices currently participate
H. Physicians make medical evaluations for a broad range of problems and discuss treatment options with caregivers and patients who may be miles away
AHRQ Standard Requirements for Pediatric EMR Vendor Functionality

A. In February 2013, the Agency for Healthcare Research and Quality (AHRQ) released the children’s EHR format. Authorized in 2009 by the children’s health insurance program reauthorization act (CHIPRA) and developed by AHRQ and the centers for Medicare and Medicaid services (CMS), the format highlights critical elements of any EHR being used for pediatric care, including:

B. Prenatal and newborn screening tests
C. Immunizations and growth data
D. Well child and preventative care
E. Information on children with special health care needs
F. The final product is a set of instructions for EHR vendors that define functionality and data standard requirements that are essential to pediatrics, including elements that allow for data interoperability and collection in multiple settings (office, hospital, schools). The American Academy of Pediatrics advised the AHRQ and CMS in the development of the children’s EHR format, since pediatric care has many unique elements.
ParentLink: Better and Safer Emergency Care for Children  April 2007, Stephen Porter, M.D., a pediatric emergency medical physician at Children's Hospital in Boston

A. The emergency department is a high-risk environment prone for errors and poor quality of care
B. Pediatric patients are at increased risk of medical errors compared to adults
C. Implementation of a patient-centered health information technology - ParentLink - can address system-level deficiencies and the unique “just-in-time” information needs of ED physicians and the parents of ill children
D. An electronic interface linked to a pediatric knowledge base that integrates parent-derived data with best practices for safe and effective emergency care across common pediatric disease conditions:
   A. otitis media, urinary tract infections, asthma, and head trauma.
E. Two goals:
   1. Address critical gaps in data capture: to evaluate the completeness and accuracy of information on symptoms, disease condition, medications and allergies generated by parents using ParentLink versus information documented by ED physicians and nurses, using structured telephone interviews as a gold standard
   2. Measures the ParentLink’s impact on ED patient safety and quality, specifically: a) the error rate for ordering and prescribing of medications during ED care, and b) the percent of ED visits that adhere to national evidence-based guidelines.
   3. Clinical trial at two diverse ED sites and will use a sequential, non-randomized observational design with two intervention and two control periods to measure the effects on data capture and safety and quality of patient care.
Technology has limitations

Med board punishes doc for treating patients via Skype

September 27, 2013 | By Ashley Gold

While telemedicine may hold a lot of promise for improving patient care, one doctor in Eastern Oklahoma was disciplined for treating his patients over video conferencing platform Skype for mental health issues, NewsOK reported.

Thomas Trow, M.D., used Skype, claiming he thought it to be suitable for communicating with his rural patients, and prescribing patients Xanax and other powerful narcotics. However, the Medical Board of Oklahoma doesn’t approve of Skype as a telemedicine communication system, according to NewsOK. One patient was treated for three drug overdoses in less than six months, and later died, while two others also died while under Trow’s care, although investigators said it wasn’t attributable to the doctor.

Trow was put on probation and ordered to complete a course on prescribing practices, according to NewsOK.

The article reports that in March, a representative of the Oklahoma Health Care Authority alleged that Trow was "practicing telemedicine via Skype on SoonerCare members and prescribing [controlled dangerous drugs] without ever seeing the patients in person for an initial evaluation," according to a complaint filed in June by a medical board investigator.

Boston-based radio station WBUR, via its CommonHealth blog, asked Joseph Kvedar, M.D., founder of the Center for Connected Health at Partners Healthcare, for his opinion on this case.

Kvedar, a FierceHealthIT Editorial Advisory Board member, said he recognizes that what Trow did is illegal, but also raised the question: Can Skype substitute for an in-person visit?

"Although some studies suggest virtual visits can be useful, the evidence is not yet overwhelming," Kvedar said. "I can’t say with 100 percent certainty how virtual visits will best be used, but based on several pilot programs under way at Partners, I have a hunch or two."

The situation in Oklahoma leaves medical providers and HIT advocates in an unclear place, Kvedar said. Follow-up visits to patients the doctor had met before may have been acceptable, prescribing sedatives to patients he’d never met before may not have been.

"But the story does provide a nice backdrop to think about how technology is changing the way care is delivered and what your follow-up visit might look like in the near future," Kvedar said. "We have to do the studies, so don’t ask your doctor to Skype you just yet, but I’m optimistic that this technology will change health-care delivery for the better—and soon."

At the HIMSS Policy Summit in Washington, D.C., last week, a panel of government employees touted the uses and potential for telemedicine and argued for a culture change leaning more towards expanded telemedicine services.
Children’s Hospital, Cerner to build first U.S. pediatric information technology center

By J.D. Harrison, September 25, 2013

A. Children’s National Medical Center in Washington and Cerner, a health-care technology provider based in Kansas City, Mo., are each investing several million dollars to build what they say is the nation’s first health information technology center focused solely on pediatric care.

B. Called the Bear Institute, the center will bring together physicians and medical experts from Children’s Hospital and computer engineers from Cerner, the companies said Wednesday. It is intended to help the hospital more quickly implement existing and emerging technologies, such as electronic health records and data-driven treatment recommendations, as well as spur innovation and software development aimed squarely at improving care for children.

C. “This gives us an opportunity to combine our talents and resources and make incremental investments from both organizations to advance technology and informatics around pediatric medicine,” Cerner chief executive Neal Patterson said in an interview.
Application of clinical pathway using electronic medical record system in pediatric patients with supracondylar fracture of the humerus: a before and after comparative study

**Background**
Investigate usefulness of clinical pathway using an (EMR) in pediatric patients undergoing closed pinning for supracondylar fracture of the humerus

**Results**
LOS decreased from $2.9 \pm 0.7$ days to $2.4 \pm 0.7$ days by 15.0%
Hospital cost decreased from $1162.2 \pm 236.7$ US$ to $1139.8 \pm 291.1$ US$ by 1.9%
There was significant increase in the satisfaction score for doctors after implementation of CP ($p < 0.001$), but, no change in the satisfaction score for nursing staffs ($p = 0.793$).

**Conclusions**
Implementation of CP, using an EMR, in pediatric patients undergoing closed pinning for supracondylar fracture of the humerus enhances the treatment efficiency
CHIPRA Quality Demonstration Grant: Improving Pediatric Care through the Use of Health Information Technology

Official Title: QUICKSTEPS: Quality Improvement and Care for Kid Through Electronic Programs (with the Pennsylvania Department of Public Welfare and Department of Insurance)


Supported by: Centers for Medicare and Medicaid Services (CMS)

Dates: February 2010 – February 2015

Background

The Children's Health Insurance Program Reauthorization Act of 2009 (CHIPRA) included $100 million to be awarded to states as ten federal CHIPRA Quality Demonstration Grants. The Pennsylvania Department of Public Welfare and Department of Insurance (DPW/DOI) received one of these grants to improve the quality of health care services for children enrolled in Medicaid and CHIP. Pennsylvania’s objective is to create QUICKSTEPS (Quality Improvement and Care for Kids Through Electronic Programs) to improve health outcomes and reduce costs through the use of a pediatric electronic health record that includes pre-visit screening capabilities, a referral linkage system, and continuous evaluation by core pediatric quality measures. CHOP is one of seven health systems across Pennsylvania partnering with DPW/DOI on this effort.
CHIPRA Quality Demonstration Grant: Improving Pediatric Care through the Use of Health Information Technology

Aims and Methods

A. **Category A: Testing and reporting on the pediatric core measures of quality** - Category A activities include using the electronic health record to extract and report core pediatric quality measures approved by the Agency for Healthcare Research and Quality (AHRQ) and CMS. After collecting data on the core measures, CHOP and the partner health systems will identify gaps in care and use provider feedback reports to improve access and quality of care.

B. **Category B: Promoting the use of HIT in children’s health care delivery** - Activities in this grant category seek to innovatively use health information technology (HIT) to improve the early identification of children with developmental delays and behavioral health concerns. CHOP’s CHIPRA team is leading efforts to integrate electronic screening and referral processes into primary care and the electronic health record (EHR). Along with maximizing early identification of need through point-of-care assessment, a major objective of this work is to improve the coordination of children’s care between their primary care medical homes, appropriate medical specialists, and child-serving social agencies.

C. The piloting of screening tools linked with the pediatric EHR (e.g., parental/adolescent questionnaires answered at home or using computers in the office) will explore pre-visit assessment strategies to enhance patient and provider communication during the office visit. Electronic tools including referral tracking systems will also be implemented to link children with appropriate services within CHOP and in the community.

D. Core teams of experts on developmental pediatrics, psychology, children with special health care needs, and clinical informatics are working together to identify screening domains, choose strong and accurate measures for screening, develop partnerships and linkages with community service providers such as Early Intervention and community behavioral health agencies, and design a system to roll out screening to primary care practices. The lessons learned will be shared with the other partner health systems as they work to implement similar activities in the later years of the project.
CHIPRA Contined

A. Progress - Reporting and analysis of the pediatric core quality measures is ongoing. The electronic screening and referral linkage components are gradually being implemented in 12 pilot CHOP primary care practices, which will be followed by data collection and evaluation phases. The entire project runs through 2015.

B. Policy Focus - Given the recent American Academy of Pediatrics and U.S. Preventive Services Task Force recommendations for standardized screening at pediatric primary care visits, this project will evaluate barriers to the use of standardized screening tools and electronic screening methods for families with children enrolled in Medicaid and CHIP.

C. The CHIPRA work will also identify barriers to the collection and analysis of the pediatric core quality measures to inform future quality measurement reporting initiatives in pediatric health care.

D. Dissemination


References


References


Merrill M, “Pediatric HER Redesign in the Works”, Healthcare IT New, Jan 18, 2013
References

Good Things Come to those who wait!
Questions?