



Future: CMIO & CNIO

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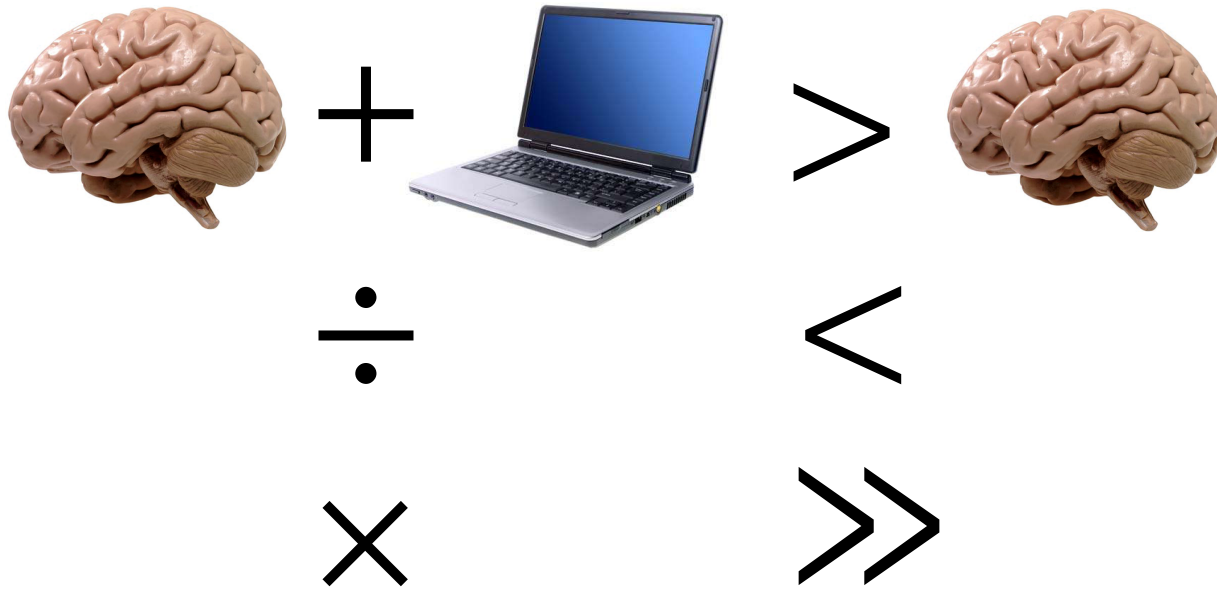
HiMSS

CENTRAL & SOUTHERN OHIO *Chapter*

Objectives

1. Participants should understand that although the EHR is cited as a cause of burnout, providers continue to adopt EHRs almost universally.
2. Participants should understand the role of the CMS rules for documenting Evaluation and Management Services in creating the current EHR experience in the United States, as compared to the EHR experience in other countries.
3. Participants should understand that the role of the CMIO is moving away from implementation issue and more toward user optimization, informatics research, and harnessing the innate power of computer systems to reduce provider workload.
4. Participants should understand the evolution of the CNIO role.
5. Participants should understand the role that technology plays today in healthcare delivery.
6. Participants should be able to articulate why informatics roles are needed in healthcare today.

The Fundamental Theorem of Medical Informatics



Friedman 2009 <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC2649317/>

Service of Dr. Arch. I. Carson
 EPISCOPAL HOSPITAL S. U. R. G. I. C. A. I.
 Number 60/1918 Name
 Age 15 yrs. Sex Male S. M. W.
 Nativity American Religion Catholic Address
 Occupation East

Admitted. Feb. 27, 1918
 Discharged. March 9, 1918
 Result. Well

Diagnosis Phimosia

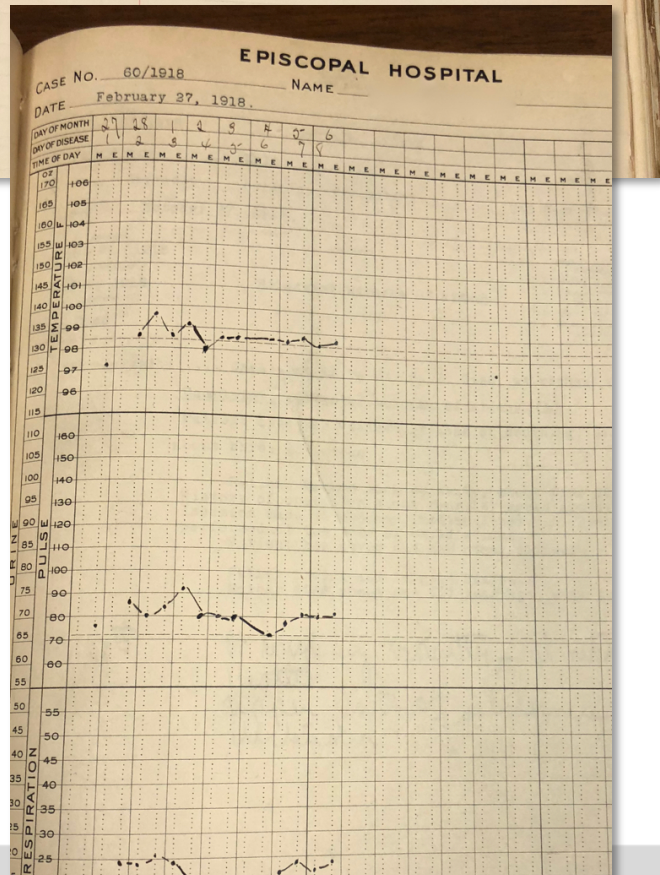
Observe following history:
 1. History of present illness
 2. Previous history pathological
 3. Family history
 4. Present condition and treatment

On admission Patient examined this afternoon by Dr. Carson, in Out-Patient Clinic.
 Patient admitted for circumcision.
 Previous history negative.

March 1st Circumcision done.
 March 9. Patient discharged, Condition good

EPISCOPAL HOSPITAL
 CASE No. 60/1918 NAME
 PHYSICIAN'S ORDERS.

No.	DATE ORDERED	DISCONTINUED	ORDER
1	March 7-18		general diet.



Service of Dr. W. J. Graf for Dr. Ramsay. EPISCOPAL HOSPITAL. M. E. D. I. C. A. L.

Number 16/1918. Name

Age 9 yrs. Sex Male

Nativity American / Protestant

Address 5th St., Portsmouth

Admitted Jan. 10, 1918

Discharged March 3, 1918

Result Improved

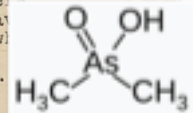
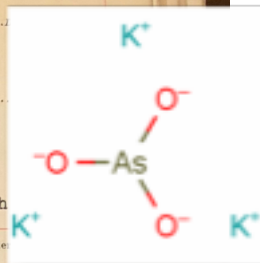
Diagnosis Idiocy
Hypertrophied tonsils,
Adenoids
Decayed teeth

Observe following order history:
1. History of present illness.
2. Previous history, physiological and pathological.
3. Family history.
4. Present conditions and physical examination.

On admission Case sent in by Dr. Keil, Portsmouth, O.
Diagnosis, Chorea, condition of two (2) years standing.

Trouble dates back to two (2) years ago when patient had whooping-cough followed by measles. Soon after this patient became nervous. Tonsils and adenoids were removed and circumcision was done, but nervous condition became worse. Patient has attacks of melancholia and hysteria. There are other times when he tears his clothing and seems to have a desire to destroy everything, but seems unconscious of what he is doing.
No history of other illness. No history of epilepsy.

According to the mother, she had a nervous attack during pregnancy, due to the father's sudden disappearance. The child has been raised by the grandmother, and has never played with other children. Was taught to sing in public when three years old.
Nonhistory of nervous diseases in the family.
No other children.



Jan 12th: Pt examined by Dr. Graff. Fowler's gtt ii TID. Increased to gtt viii. Advises removal of teeth (decayed) & tonsils. Mental condition bad.

Jan 15th: Pt had slight attack of tonsillitis

Feb 1st: Adenoids & tonsils and bad teeth (5) removed

Feb 8th: Pt less nervous--mental condition same. Throat condition OK.

Feb 15th: Fowler's solution discontinued.

Feb 19th: Cacodylic acid gtt every third day

March 1st: Pt up most of day--mental condition unimproved. General health good.

March 3rd: Pt dismissed--taken to farm by mother

Report: 55% of Time Spent in Front of EHRs, Other 45% Spent Cursing at EHRs

By Dr. 99

< 1K
SHARES



BOSTON, MA – In a report that is both shocking yet not shocking at all, a Harvard University report states that health care professionals spent 55% of their work day in front of an [electronic health record \(EHR\)](#), while the other 45% of their time is spent rigorously cursing out their EHRs.

“Ugh, I hate typing [notes](#),” lamented primary care physician and author of the report Bonnie Townsend, who is ahead of pace in her quest to acquire carpal tunnel syndrome. Seconds later, her [computer screen freezes](#) and her [progress note](#) that she had been working on for 20 minutes

COMPANY	EHR	ADMIN'S TAKE	NURSES' TAKE	DOCTORS' TAKE
Gomer Corporation	PowerChart	Partiaticl	Sucks	Sucks
Epic S Corp				



GomerBlog

Earth's Finest Medical News

— 2014 SURVEY OF —
**AMERICA'S
 PHYSICIANS**

Practice Patterns & Perspectives

An Examination of the Professional Morale, Practice Patterns, Career Plans, and Perspectives of Today's Physicians Based on Over 20,000 Survey Responses

Survey conducted on behalf of The Physicians Foundation by Merritt Hawkins | Completed September, 2014. Copyright 2014, The Physicians Foundation

33. Has your practice implemented Electronic Medical Records?

	2014	2012
Yes	85.2%	69.5%
No	14.8%	30.5%

34. If yes, how has EMR affected your practice? (check all that apply)

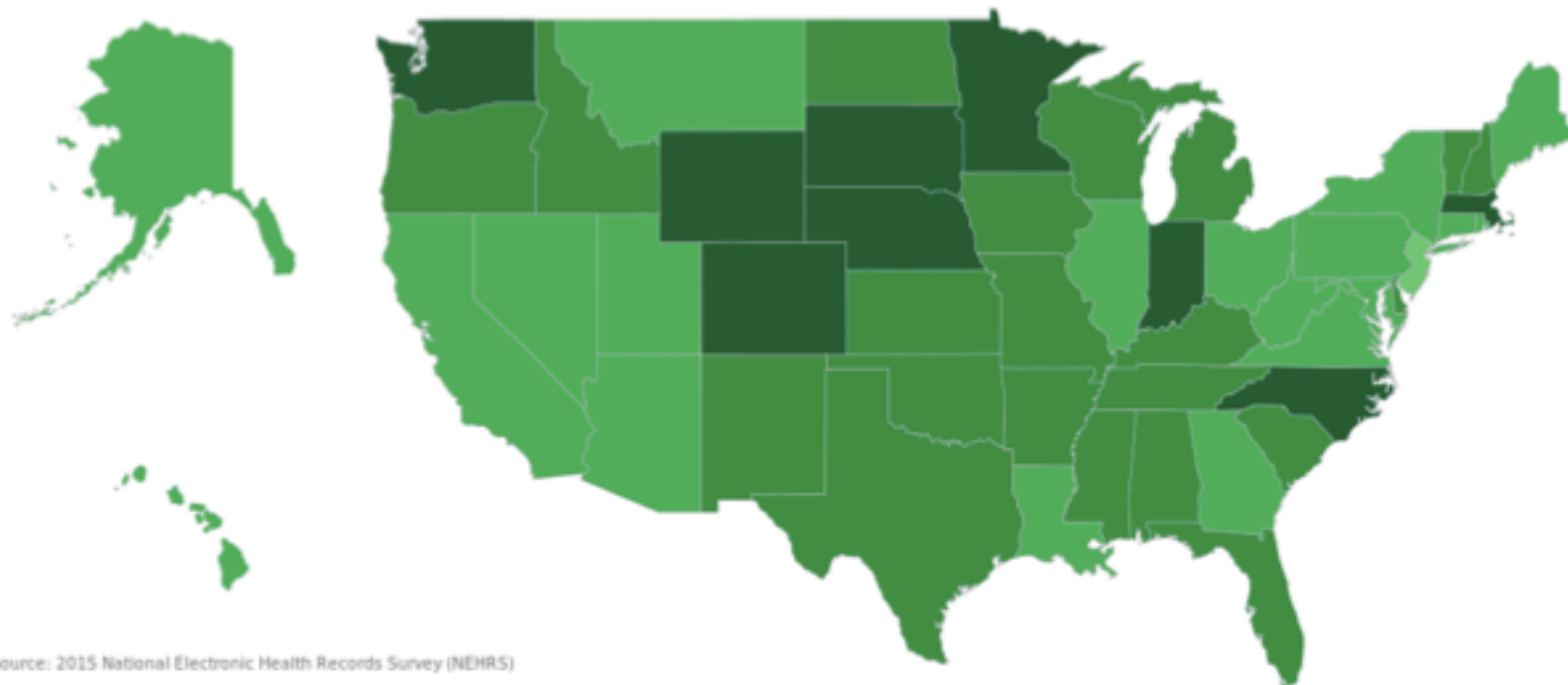
2014	
Improved quality of care	32.1%
Detracted from quality of care	24.1%
Improved efficiency	24.3%
Detracted from efficiency	45.8%
Improved patient interaction	4.6%
Detracted from patient interaction	47.1%
Has had little to no impact on the above	7.6%

How are we doing?

<http://dashboard.healthit.gov/HITAdoption/>
(2015 NEHRS)

% of all Physicians that have Adopted Certified EHRs | National Avg = 78%

Less than 40% 40 - 51 % 52 - 62 % 63 - 74 % 75 - 85 % More than 85%



Source: 2015 National Electronic Health Records Survey (NEHRS)

HEALTH

These doctors think electronic health records are hurting their relationships with patients



5967



EMAIL

BY DAVID GORN, KQED FUTURE OF YOU July 21, 2017 at 11:01 AM EDT



Chan says he would never want to go back to the paper-only era.

"I remember back in the old days of paper medical records ... not being able to find a patient's chart was just maddening. We don't have that anymore."

Dr. Albert Chan demonstrates inputting medical information into an electronic health record. Many doctors are fed up with how time-consuming EHRs have become, and how they can impede the doctor-patient relationship during exams. Photo by Serginoo Roosblad/KQED

610.69
M45P

THE POST- PHYSICIAN ERA

Medicine in the Twenty-First Century

JERROLD S. MAXMEN

B. FLEISS
ELTON J. ROEMER

Services of Patients

2

THE MYTH OF PHYSICIAN NECESSITY

Man's strongest instinct is the will to live. We not only strive for longevity, but also crave a life free of infirmity. In the absence of health all human endeavors are frustrated. Because health is a prerequisite for optimal performance, the physician largely derives his preeminent role as the protector of that health. His role and activities seem to be the most important to the doctor. The physician is the most important of the obsolescent professions. He is the one who is abnegating the myth of physician necessity. I maintain, however, that is preoccupied with the myth of physician necessity.

Maxmen JS. 1976. ISBN-13: 978-0471578802



Artificial Intelligence

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Skin cancer

Computer learns to detect skin cancer more accurately than doctors

Artificial intelligence machine found 93% of melanomas in study compared to 86.6% for dermatologists

Agence France Press
Mon 29 May 2018 11:58 GMT



▲ A computer that was taught to distinguish malignant moles from benign ones outperformed dermatologists, Photograph: EyeEm/Alamy

A computer was better than human dermatologists at detecting skin cancer in a study that pitted people against machines in the quest for better, faster diagnostics, researchers said on Tuesday.

A team from Germany, the United States and France taught an artificial intelligence system to distinguish dangerous skin lesions from benign ones, showing it more than 100,000 images.

The machine - a deep learning convolutional neural network or CNN - was then tested against 18 dermatologists from 17 countries, shows photos of malignant melanomas and benign moles.

Healthcare IT News

AI is coming to a doctor's office near you, and AMA wants to be ready

The American Medical Association assesses the implications of artificial and "augmented" intelligence, proposing policy recommendations as it prepares for its annual meeting, which starts June 9.

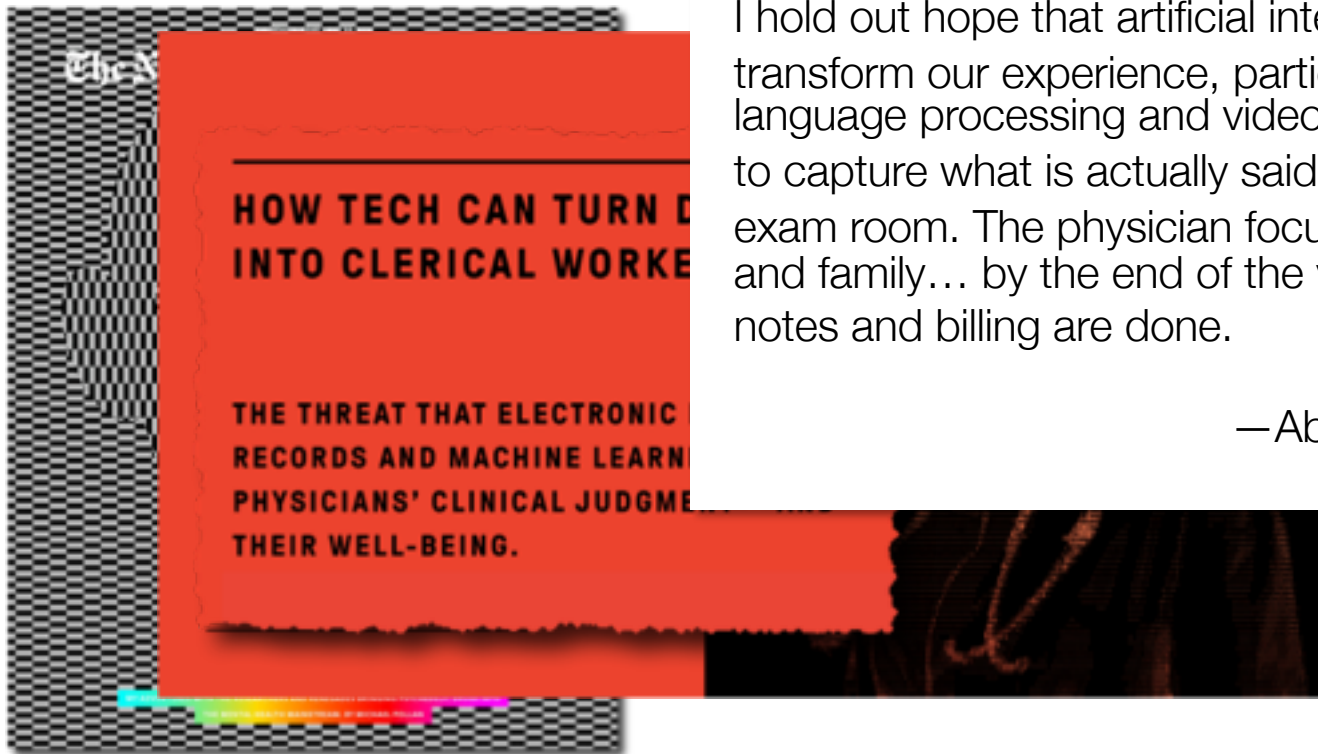
By [Mike Millard](#) | June 04, 2018 | 04:41 PM



AI's success in healthcare depends on enthused buy-in from physicians AMA President James Madara, MD, said at HIMSS18.

For an organization that has no shortage of *strongly held opinions* on an array of topics affecting providers and the healthcare industry, the American Medical Association currently does not have an artificial intelligence policy.

Artificial Intelligence



I hold out hope that artificial intelligence... will transform our experience, particularly if natural-language processing and video technology allow us to capture what is actually said and done in the exam room. The physician focuses on the patient and family... by the end of the visit, the progress notes and billing are done.

—Abraham Verghese, MD

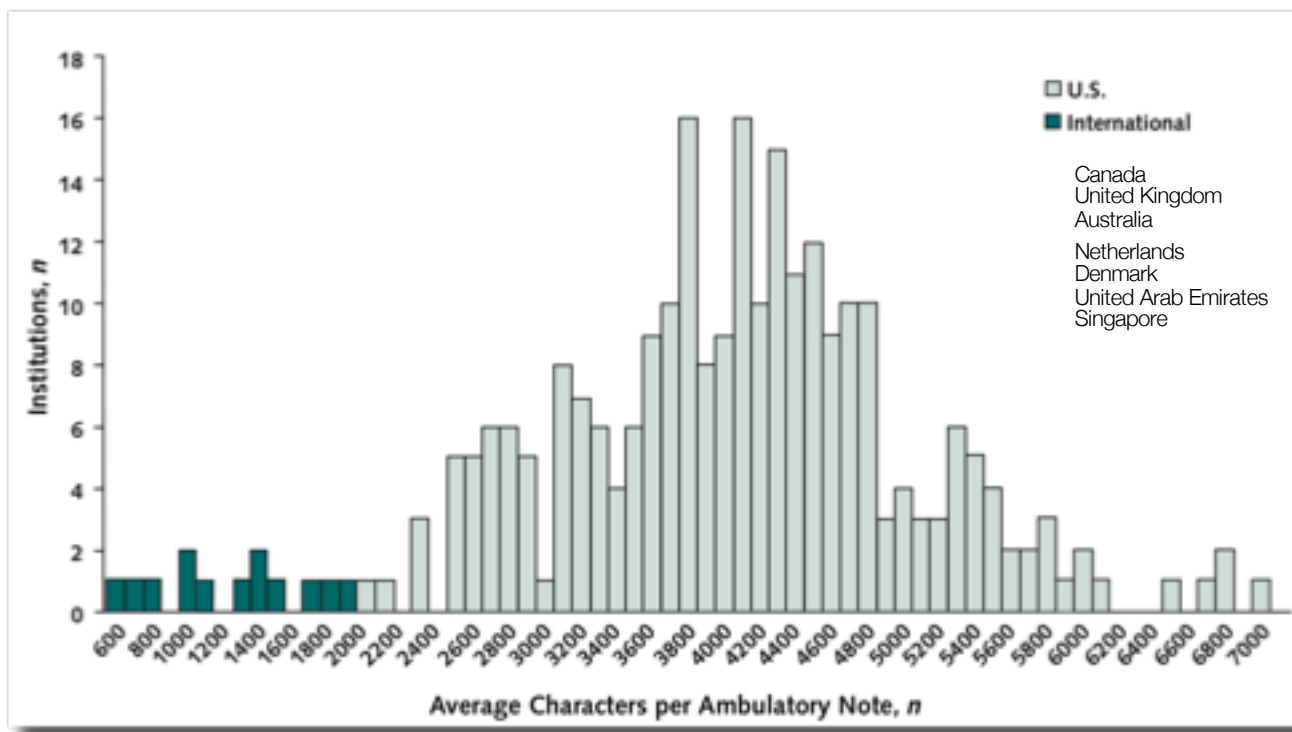
The New York Times Magazine, May 18, 2018

Documentation Guidelines for Evaluation and Management Services

- Piecework approach to payment
- “Usual and customary” determined payment
- Later 80s: Resource-based Relative Value Scale
- CMS 1995 and 1997 rules
- “[P]ayers... may require reasonable documentation that services are consistent with the insurance coverage provided”

Established Office Visit																																				
Patient:		2 out of 3 Key Components Required				BCS	++	Positive Findings																												
E/M	Hx	Exam	MDM	Time																																
99211	PP	PP	SP	00																																
99212	PP	PP	Low	15																																
99213	Det	Det	Med	35																																
99214	Comp	Comp	High	60																																
Date:		See also dictated note from today <input type="checkbox"/>																																		
CC:		See also dictated note from today <input type="checkbox"/>																																		
Interval History:																																				
Permanent PFSH:		<input type="checkbox"/> Comprehensive PFSH taken during a previous encounter was re-examined and reviewed with the patient. For details, refer to the note in this chart dated:																																		
PF: 1 - 3 HPI elements or the status of 1 - 3 problems (No BCS required)		EPF: 1 - 3 HPI elements or the status of 1 - 3 problems plus at least 1 BCS (99211)		Det: 1 - 4 HPI elements or the status of 1 problem, 2 - 9 BCS plus at least 1 element of PFSH (99214)		Comp: 4 HPI elements or status of 3 problems, plus 2 out of 3 components of PFSH - often to review prior PFSH to assist (99215)																														
Constitutional: NAD, conversant, pleasant <input type="checkbox"/> (appearance) Eyes: <input type="checkbox"/> normal vision, clear, no strabismic deviation, <input type="checkbox"/> normal hearing <input type="checkbox"/> normal auditory acuity/TM's intact <input type="checkbox"/>		Exam Findings & Data Reviewed						Review and/or order medical test (P/Ts, EKG, x-rays, etc.) 0																												
Neck: Supple, FROTH <input type="checkbox"/> no thyromegaly <input type="checkbox"/> no carotid bruits <input type="checkbox"/>								Disease test with performing MD 0																												
Lungs: CTA, <input type="checkbox"/> and percussion <input type="checkbox"/> normal respiratory effort <input type="checkbox"/>		Review of image, tracing, specimen 2																																		
CV: RRR, no MBSs <input type="checkbox"/> normal PMI <input type="checkbox"/> No LE edema <input type="checkbox"/>		Decision to obtain old records 0																																		
ABD: Soft, NAD, no masses <input type="checkbox"/> no HSM <input type="checkbox"/> no hernia <input type="checkbox"/>		Review and summarize old records 2																																		
Msk: Normal temperature, tone, texture and turgor; no induration or subcutaneous nodules <input type="checkbox"/> no rash, lesions or ulcers <input type="checkbox"/>		See also dictated note from today <input type="checkbox"/>																																		
Psych: A & O x 3 <input type="checkbox"/> appropriate affect <input type="checkbox"/> intact judgment <input type="checkbox"/>		Assessment & Plan						See also dictated note from today <input type="checkbox"/>																												
Neuro: CNs II - XII intact <input type="checkbox"/> no focal sensory deficits <input type="checkbox"/>		PF: 1 - 3 bullets (99212) <input type="checkbox"/>		EPF: 4 - 11 bullets (99213) <input type="checkbox"/>		Det: 12 bullets (99214) <input type="checkbox"/>		Comp: 2 bullets from EACH of NME systems (99215) <input type="checkbox"/>																												
Problem Points 4 3 2 1 <input type="checkbox"/> 1. <input type="checkbox"/> 2. <input type="checkbox"/> 3. <input type="checkbox"/> 4. <input type="checkbox"/> 5.								99212 <input type="checkbox"/> 99213 <input type="checkbox"/> 99214 <input type="checkbox"/> 99215 <input type="checkbox"/>																												
M D M New, better w/c planned New, no better w/c planned Not limited or minor issues (2) Not limited, not controlled Established, stable		<table border="1"> <thead> <tr> <th>MDM</th> <th>Prob Pts</th> <th>Data Pts</th> <th>Risk</th> <th>E/M</th> </tr> </thead> <tbody> <tr> <td>SP <input type="checkbox"/></td> <td>≤ 1</td> <td>1</td> <td>Min</td> <td>99212</td> </tr> <tr> <td>Low <input type="checkbox"/></td> <td>2</td> <td>2</td> <td>Low</td> <td>99213</td> </tr> <tr> <td>Med <input type="checkbox"/></td> <td>3</td> <td>3</td> <td>Med</td> <td>99214</td> </tr> <tr> <td>High <input type="checkbox"/></td> <td>≥ 4</td> <td>4</td> <td>High</td> <td>99215</td> </tr> </tbody> </table>		MDM	Prob Pts	Data Pts	Risk	E/M	SP <input type="checkbox"/>	≤ 1	1	Min	99212	Low <input type="checkbox"/>	2	2	Low	99213	Med <input type="checkbox"/>	3	3	Med	99214	High <input type="checkbox"/>	≥ 4	4	High	99215								
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Only 2 out of 3 components required		Signature _____																																		
Minimal Risk <input type="checkbox"/>		Low Risk <input type="checkbox"/>		Moderate Risk <input type="checkbox"/>		High Risk <input type="checkbox"/>																														
• One well limited problem (e.g., cold, insect bite)		• Two well limited problems • One stable chronic illness • Acute uncomplicated illness (e.g., cystitis, flu) • POC drugs		• Mild exacerbation of one chronic illness • Two stable chronic illnesses • Self-adjusted care problem • Acute illness with systemic symptoms (e.g., pyelonephritis, colitis) • Prescription drug management		• Severe exacerbation of chronic illness • Illness with threat to life or bodily function • Abrupt change in neurological status (e.g., TIA, weakness) • Potential essential laboratory • Decision for SNR or to de-escalate care • High-risk patient monitoring for toxicity																														

Same EHR, Different Countries



Downing NL. Ann Int Med 3 Jul 2018.

A usability and safety analysis of electronic health records: a multi-center study

Raj M Ratwani,^{1,2} Erica Savage,¹ Amy Will,¹ Ryan Arnold,³ Saif Khairat,⁴ Kristen Miller,¹ Rollin J Fairbanks,^{1,2} Michael Hodgkins,⁵ and A Zachary Hettinger^{1,2}

PRACTICE MANAGEMENT

62 clicks to order Tylenol? What happens when EHR tweaks go bad

SEP 14, 2018

Staff

AMA

Share this article



Tylenol (500 mg PO, 4-6 hours)

Task duration (sec)	51.4 (15.3)	70.4 (32)	69.3 (38.2)	45.6 (15.9)
Clicks	14 (4.1)	23.5 (15.8)	61.6 (94)	25.8 (11.2)
Error rate	8.3%	0	7.1%	30%

CMIO Role

- Old

- Implement EHR
- Paper-to-electronic engineering, psychology
- Decision support design
- Governance of clinical decisions

- New

- Optimize users
- Optimize the implementation
- Support research
- Push vendors toward more data processing
- Nurture next generation

Evolution of Nursing Informatics



1992 ANA recognizes NI as a specialty practice

2002 ANA publishes Scope and Standards of Practice for Nursing Informatics

2008 Florence Nightingale's birthday, May 12, is officially recognized as Nursing Informatics Day.

Nursing Informatics -Defined

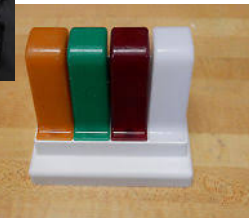
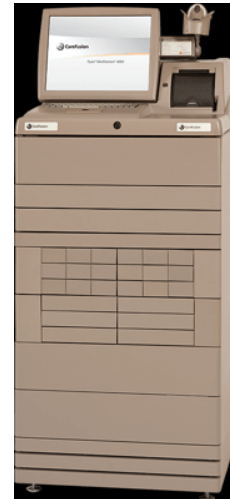
A specialty that integrates nursing science, computer science, and information science to manage and communicate data, information, knowledge and wisdom in nursing practice.

American Nursing Association. (2014). Nursing informatics: Scope and standards of practice. 2nd ed.

Nursing Informatics Applying the Definition



Beyond the EHR

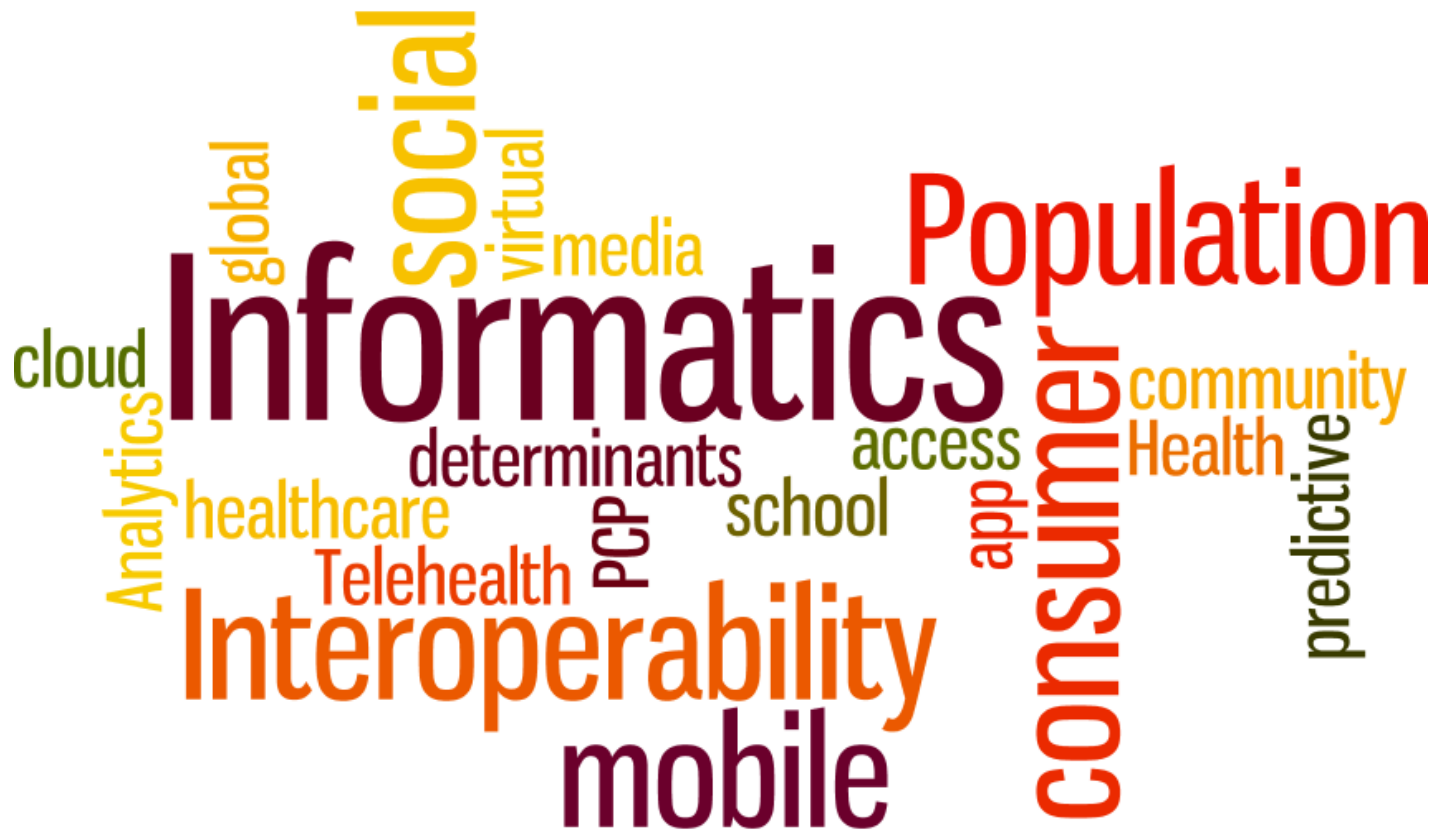


CNIO Role

Strategy that supports

- Planning and implementation of IT solutions
- Oversight of education to promote sustainable adoption of IT solutions and support of IT solutions to ensure safe and efficient use
- Evaluation of IT solutions to support evidence for best practice

Beyond the Hospital



CNIO Role

- Old
 - Implement/Oversight EHR
 - Paper-to-electronic transition
 - Workflow optimization
- New
 - Executive partner
 - Optimize EHR
 - Regulatory participant
 - Identify and implement IT solutions that meet org needs, promote safe and efficient care delivery and enhance the patient and family experience
 - Steward of vendor relationships
 - Push vendors for features and interoperability
 - Evaluate technology use to support best practice and population health
 - Serve as Innovative Leader

Questions?