ANA's Multi-pronged HIT Safety/Usability Policy Advocacy

- **Advocacy via Office of the National Coordinator (ONC) for Health Information Technology (HIT)**

    - **ANA/ONC Leadership Meetings**

    - **Kelly Cochran, Policy Advisor** - ANA's HIT policy lead, Department HP (Kelly.Cochran@ana,org)
        - Kelly/I Cross Cover Intersection between Quality/Safety-HIT

    - **Increased Nursing Representation at ONC & ANA/ONC Collaboration**
        - Committees, Workgroups, and Meetings
        - ANA-convened ANA/ONC Nurses Group
        - ANA-convened ONC Nurse Appointee Group

- **ANA Government Affairs (GOVA) and HP Congressional Advocacy (**e.g., Senate HELP Committee)

- **Advocacy with National Stakeholder Groups, Nursing and Non-nursing**

- **ANA Position Statements and Policy Briefs - http://www.nursingworld.org/positionstatements**

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Quality Policy Portfolio

- **ANA Quality Advocacy Across the National Quality Enterprise:**

- **Focus - Three National Quality Strategy (NQS) Priorities**: Safety, Care Coordination, and Pt/Family- Centered Care Engagement

    - **Nursing Sensitive Measures – Pay for Reporting and Quality Programs:**
        - **Centers for Medicare and Medicaid Services (CMS)** measure development contracts, eMeasure Kaizen meetings, Technical Expert Panels (TEP)
        - **National Quality Forum (NQF)** - Measure endorsement, prioritization, gap-filling

    - **Center for Medicare and Medicaid Innovation (CMMI) Projects – Quality Improvement**
        - Partnership for Patients (PfP)
            - Goals - Hospital acquired condition (40%) and 30 day readmission (20%) reduction
            - ANA's CAUTI Prevention Tool
        - Transforming Clinical Practice Initiative (TCPI) – Goal to improve ambulatory care outcomes

    - **Agency for Healthcare Research and Quality (AHRQ)** – Improved Quality/Reduce Disparities
    - **Patient Centered Outcomes Research Institute (PCORI)**
        - Funding and Nursing Input (e.g. Roundtables)
    - **ANA-convened Nursing Alliance for Quality Care (NAQC)**

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Quality/HIT Policy Intersection

- NQS Tri-part goals: Better Care/Healthier People/Communities/More Affordable Care
    - HIT is one of nine levers to advance the goals
    - Collaborate/Integrate across internal ANA departments
    - Integrate with ANA's national safety campaign (e.g., 2016 Culture of Safety)

- Nurses highest number (3.4 million versus 900K physicians) of HIT users
    - EHR pain - > 500 clicks for nurses to do initial assessments (Sengstack, 2015)

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ANA Joint Advocacy/Collaboration with Nursing/Non-Nursing Groups

- **ANA's President Cipriano and CEO Weston Presentations**
- **Ongoing Advocacy with Key Nursing Groups**:
  - Alliance for Nursing Informatics (ANI)
    - Policy comments and joint nominations collaboration
  - AMIA Nursing Informatics Workgroup
  - HIMSS Committees (e.g., Interprofessional Usability WG - http://www.himss.org/get-involved/committees/hit-usability-committee and Nursing Informatics Committee http://www.himss.org/get-involved/committees/nursing-informatics)
  - American Nursing Informatics Association (ANIA) (e.g., https://www.ania.org/about-us/position-statements/addressing-safety-electronic-health-records)
  - Nursing Big Data/Analytics
    - 2015 Conference Proceedings - http://www.nursing.umn.edu/icnp/center-projects/big-data/nursing-knowledge-2015-big-data-science-conference/index.htm)
    - Care coordination and Nursing Policy Advocacy Committees
  - Interprofessional groups (e.g., National Institute of Standards and Technology (NIST) has released a guide aimed at making electronic health records more usable and thus safer, http://www.nist.gov/healthcare/usability/)

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Nursing Big Data: Care Coordination Project

Purpose   Identify nursing implications related to "big data" associated with "care coordination.

Rationale: No common measure has been developed in order to define the aspects of patients who may receive the most benefit from care coordination, leading to the most potential financial benefit, for the organizations providing care coordination services.

Proposed Key Tasks

• Map the most common care coordination processes.
• Document the current state of care coordination and then begin to deconstruct the current state, breaking it down into segments or components to study further.
• Develop information model for the most important variables related to patients who will benefit most.
• Determine a strategy to identify from "big data" those who will most benefit from care coordination.
• Identify key patient characteristics from data elements in the EHR "big data" indicating the patients who will receive the most value
• Consider building off the HL7-reviewed care plan model for nursing value to show the interventions and outcomes associated with nursing care coordination work.

Proposed Deliverables

• White paper discussing common care coordination processes.
• Begin the development of standardized processes across the continuum of care.
• Create a method to identify patients who will receive the most value from care coordination.

Nursing Big Data: HIT Policy Advocacy Project

Purpose

Engage all nurses in health IT policy efforts; To provide nurses with the education, tools and resources to equip them as knowledgeable advocates for policy efforts that are important to nursing.

Proposed Key Tasks

Identify existing and develop or modify relevant health IT policy-related educational tools and resources; make them available in a resource library for nurses. Include items such as:

- How to give testimony; How to write a blog
- What is health IT policy? Why is it important to nurses?
- Success stories, best practice examples, storyboards
- Contact information and listing of relevant individuals, groups and organizations.
- Key talking points/recommendations/position statements
- Student projects
- Example testimony, blogs, comments
- Newsletters, blogs and websites
- Webinars
- Describe how to contact elected officials, including visits, calls, email, website communication, and the value of establishing an ongoing relationship with elected official staffers.

Key Nursing HIT Safety/Usability Advocacy in 2015-2016

- **ONC Usability-Safety/Interoperability/Measurement Work**
- **Policy and Standards Committees**
    - Workgroups (WG)
    - Newer Structure – Topic-focused Task Forces
  - Invitational Meetings (e.g., April, 2015 Care Plan Listening Session)
    - Five nurse attendees
    - Nurse presented regarding the HL7-reviewed standards for care plan
  - ANA Regulatory Team: Comments to ONC led by Kelly - ANA's Comments Page - http://www.nursingworld.org/MainMenuCategories/Policy-Advocacy/Federal/AGENCIES/ANA-Advises-Federal-Agencies
  - Testimony - Expert Nursing Testimony (e.g., Use cases)
  - Spread of Tools/Toolkits (e.g., ONS Safer Guides https://www.healthit.gov/safer/safer-guides)

Additional Key Safety/Usability Policy Advocacy 2015-2016

- 2015 Westhealth Interoperability between Medical Devices - Report/Meeting
  - Links -
    - http://www.westhealth.org/interoperability/
    - http://www.westhealth.org/news/nurses-say-medical-errors-could-be-reduced-if-devices-were-connected-west-health-institute-survey-shows/
- July, 2015 Pew *Designing EHR Usability*
  - Recommended follow-up –Develop a HIT Safety Standards
    - Association for the Advancement for Medical Instrumentation (AAMI) Standards
      Link: http://www.aami.org/productspublications/articledetail.aspx?ItemNumber=2663
    - Standards to apply to health service provider organizations and vendors that develop, implement, or use HIT software and systems
- NQF HIT Safety Framework/Measures Steering Committee

Nursing Presentation at PEW's Safety/Usability Conference

- ANA Advocacy Increases Nursing Representation and Supports Common Talking Points –
    - Ensures alignment with ANA/AAN seminal documents (e.g., care coordination) and HIT policy documents and comments
- Nursing Presentation - Nancy Staggers presented three pain points for nursing from patient-centered context:
    - Documentation
    - Care Coordination
    - Medication management

Links to Pew's Conference, *Designing EHR Usability* Presentations:

- [Ayse Gurses](#)
- [Nancy Staggers](#)
- [Matt Weinger](#)
- [Andrew Gettinger](#)

AAMI Safety Framework/Principles

- Invitational AAMI Conference/Meeting - Health IT Safety Framework/Principles
- AAMI HIT Safety Task Forces 1/2016 –
    - Two draft reports: 1) Application of Quality Management Principles to Health IT, and 2) Risk Management Practices for Health IT
    - Learn more at: http://www.aami.org/productspublications/articledetail.aspx?ItemNumber=2663#sthash.TLUghW0A.dpuf
- Multiple Workgroups (WG) and Higher-level Health IT Safety Committee
    - Six nurse appointees

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Current Related Nursing Work by ANA Members

- Nancy Staggers co-leads the HIMSS Usability WG
  - Building on Nursing Usability Tiger Team report (2009) -
    http://www.himss.org/ResourceLibrary/GenResourceDetail.aspx?ItemNumber=37443
  - Initial survey completed on nurse-focused usability (2015), white paper pending (1st in a series)
  - Publication – Staggers et.al., (2015). Nursing-Centric Technology and Usability A Call to Action, *Comput Inform Nurs*.,33(8):325-32.

- Texas Tech state-wide usability survey/research:
  Dr. Susan McBride, PhD, RN-BC, CPHIMS, FAAN
  Principle Investigator, Committee member
  Professor and Program Director Masters and Post Masters Nursing Informatics
  Texas Tech University Health Sciences Center, School of Nursing

Maureen Dailey, PhD, RN, CWOCN

Prepare for Nominations:

ANA leadership training opportunities -

https://learn.ana-nursingknowledge.org/catalog?pagename=ANA-Leadership-Institute

Send Bio/CV for Nominations - Yvonne Humes (Yvonne.Humes@ana.org)

My contact: Maureen.Dailey@ana.org

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Results and Modeling of the Texas Statewide Study on Nurse's Experience Using their Electronic Health Records

Susan McBride, PhD, RN-BC, CPHIMS, FAAN

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TNA/TONE Health IT Committee

- Charge: Determine implications of health care informatics for nursing practice and education in Texas

- Include nationally-based Technology Informatics Guiding Education Reform (TIGER) initiative

Vision: To enable nurses and interprofessional colleagues to use informatics and emerging technologies to make healthcare safer, more effective, efficient, patient-centered, timely and equitable by interweaving evidence and technology seamlessly into practice, education and research fostering a learning healthcare system.
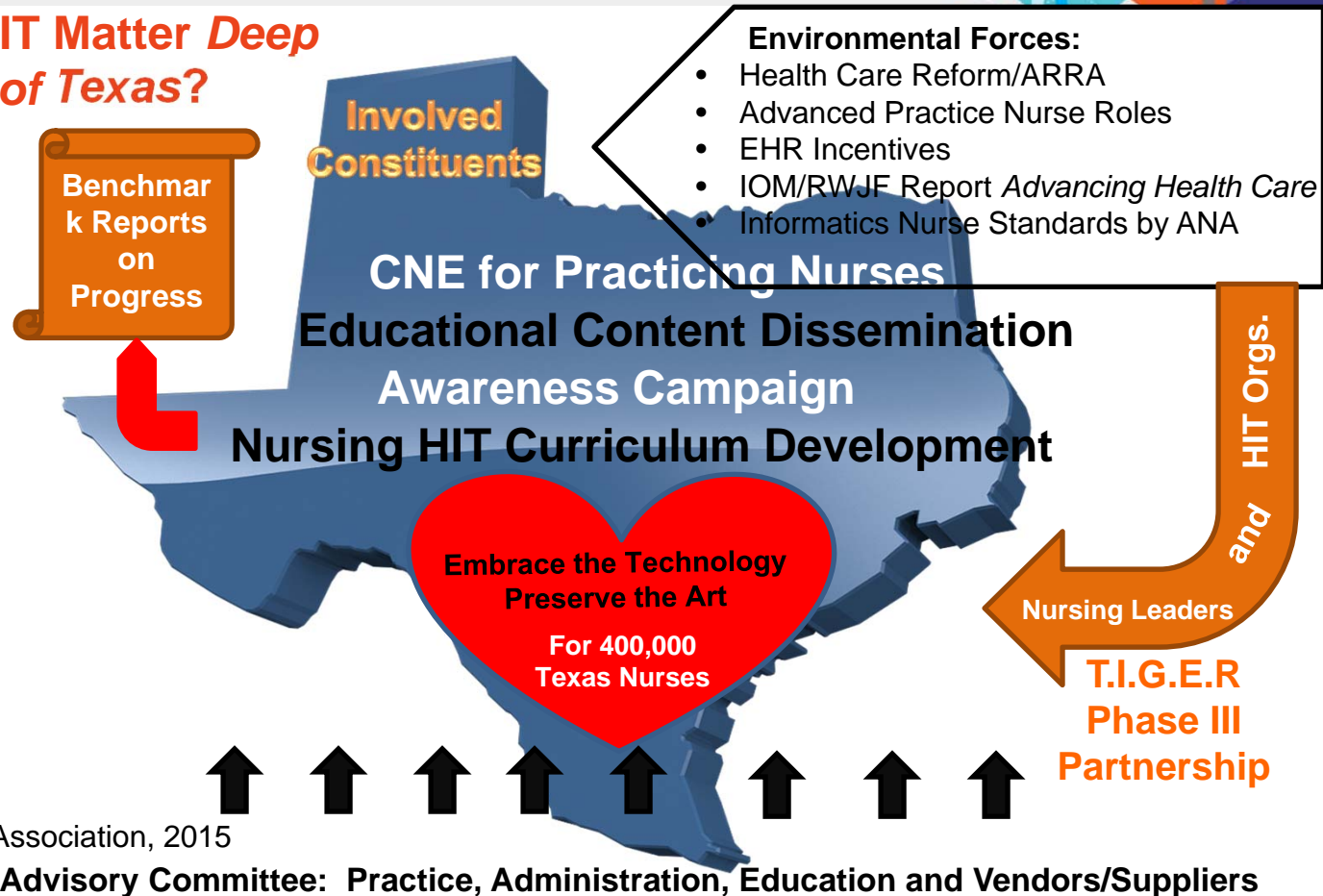
TNA = Texas Nurses Association
TONE = Texas Organization of Nurse Executives

http://www.thetigerinitiative.org/

Why Does HIT Matter *Deep in the Heart of Texas?*

Involved Constituents

Benchmark Reports on Progress

Environmental Forces:
- Health Care Reform/ARRA
- Advanced Practice Nurse Roles
- EHR Incentives
- IOM/RWJF Report *Advancing Health Care*
- Informatics Nurse Standards by ANA

CNE for Practicing Nurses

Educational Content Dissemination

Awareness Campaign

Nursing HIT Curriculum Development

and HIT Orgs.

Embrace the Technology
Preserve the Art

For 400,000 Texas Nurses

Nursing Leaders

T.I.G.E.R Phase III Partnership

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Advisory Committee: Practice, Administration, Education and Vendors/Suppliers

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HIT Committee Membership
Composed of TNA and TONE Member from practice and academia

Task Force Members

– Julie Brixey

– Nancy Crider (co-chair)

– Mary Anne Hanley

– Linda Harrington

– Susan McBride (PI)

– Elizabeth Sjoberg

– Laura Thomas

– Mari Tietze (co-chair)

TNA

– Cindy Zolnierek [pres./co-PI]

– Laura Lerma [educ.]

– Kat Hinson [comm.]

– Amy Loewe [admin.]

Membership

Background

Clinical Information Systems Implementation Evaluation Scale (CISIES) Survey*

1. Launched September 23, 2014, statewide

2. Over sampled rural hospitals in an effort to insure representation

3. Over 1,000 responses received

   – Included a newly-developed** EHR "maturity-index"

* = Gugerty, B.

** = McBride, S. & Tietze, M.

The goal:

Develop a tool kit focused on evidence-based improvement using study findings to inform improvements

Content for toolkit

- Use CISIES survey responses to guide toolkit content and focus groups to determine best strategies involving stakeholders
- Create and place on TNA and TONE Web sites
- Three CNE Webinars are being proposed based on immediate results:
  - "Workflow versus Work-Arounds to Optimize EHR Patient Safety and Quality."
  - "Interoperability of Electronic Health Records."
  - Best Practices for Using EHRs in Nursing Practice within Interprofessional Teams

Policy/Legislation Implications

Renew the 2010 TNA-TONE resolutions and add the following content:

1. Interoperability

2. Meaningful Use of EHRs (*for Nursing*)

3. Interprofessional Education/Collaboration

4. TIGER competencies initiative

5. Defining Best Practices for Using an EHR within the Clinical Workflow

Research Questions

- What are key issues with the current deployment of the electronic health record in the practice setting?
  - What is the relationship between health setting characteristics and the nurses' perceptions of their CIS?
  - What is the relationship between the nurses' characteristics and the nurses' perceptions of their CIS?
  - What is the relationship between CIS characteristics and the nurses' perceptions of their CIS?
- What are the related core HIT competencies that should be covered in nursing education?

Research Design

- A descriptive and exploratory research study of the current nursing workforce in Texas, using a previously validated survey instrument, was conducted in select acute care facilities and their associated acute care, ambulatory/episodic care and long term care (LTC) units (Texas Workforce Center) , collectively "Health Care Organization" to answer the research questions. (a priori power analysis/n=1,000)

First page of the
TNA/TONE state
wide online survey

23

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Demographic information about EHR functionality (5 of 24 items)

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TONE — TEXAS ORGANIZATION OF NURSE EXECUTIVES

Meaningful Use Maturity-Sensitive Index for Nursing*

Statewide Survey Assessing the Experience of Nurses with their Clinical Information System

Page 3 of 8 - Page 3

38%

DEMOGRAPHIC INFORMATION INSTRUMENT PART B

In my facility, the Electronic Health Record (EHR):

	Present and used	Present and not used	Not present	I don't know
1. Includes a computerized provider order system for directly entering medication orders	○	○	○	○
2. Initiates alerts when a medication order results in a possible drug-drug interaction	○	○	○	○
3. Initiates alerts when a medication order results in a possible drug-allergy interaction	○	○	○	○
4. Captures and displays Demographic Data	○	○	○	○
5. Maintains an active list of patient problems and diagnoses	○	○	○	○

(*McBride & Tietze, 2015)

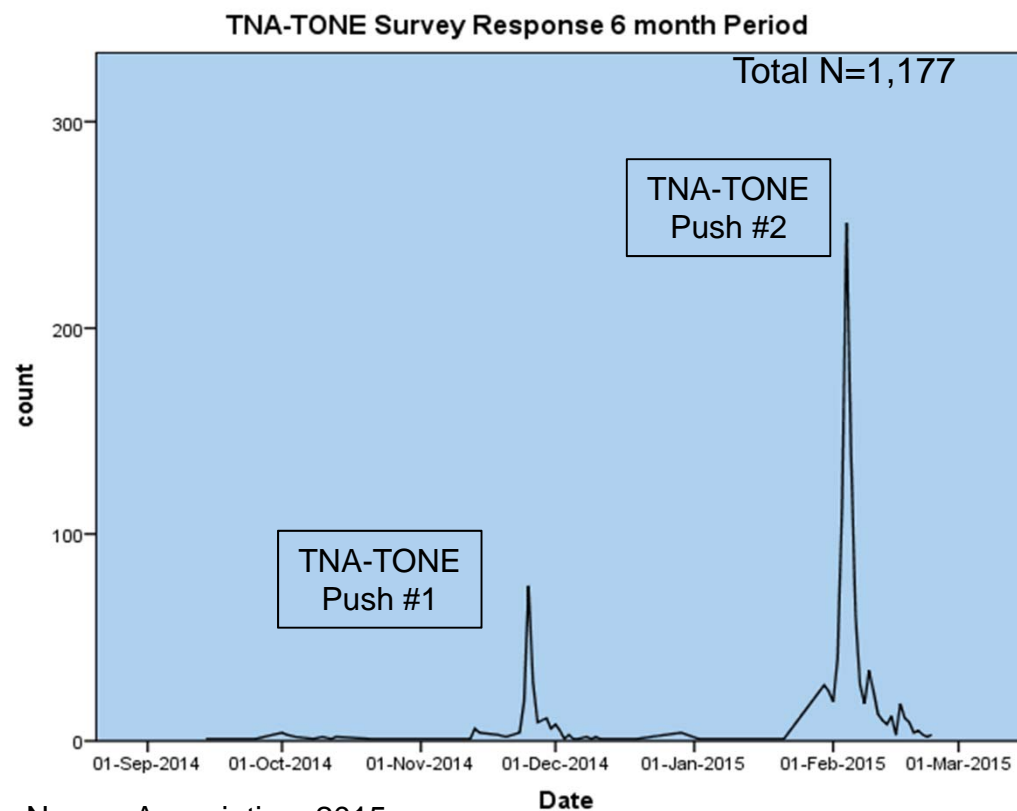# Clinical Information System Implementation Evaluation Scale (CISIES)

Please respond to the following questions:

	Strongly Disagree	Disagree	Somewhat Disagree	Somewhat Agree	Agree	Strongly Agree
01. Overall, I prefer using the system than the old way of doing things	○	○	○	○	○	○
02. I can depend on the accuracy of the system	○	○	○	○	○	○
03. The training I received was adequate	○	○	○	○	○	○
04.I feel confident in my ability to assist others in using the system.	○	○	○	○	○	○
05. Adequate resources were available when I was learning to use the system	○	○	○	○	○	○
06. I feel the use of the system has improved the quality of patient care	○	○	○	○	○	○
07. The use of the system reduces errors	○	○	○	○	○	○
08. The system is more efficient than the old way of doing things	○	○	○	○	○	○
09. The system has improved my practice	○	○	○	○	○	○
10. The system allows me to spend more time on other aspects of patient care	○	○	○	○	○	○

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Response Trend and Demographics

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Study Responses Sept 2014-Feb 2015

TNA-TONE Survey Response 6 month Period

Total N=1,177

TNA-TONE
Push #2

TNA-TONE
Push #1

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Rural and Urban Represented

What best describes your institution type?

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Rural	245	20.8	21.1	21.1
	Urban	918	77.9	78.9	100.0
	Total	1163	98.7	100.0	
Missing	System	15	1.3		
Total		1178	100.0		

What best describes your institution type?

■ Rural
■ Urban

21.07%

78.93%
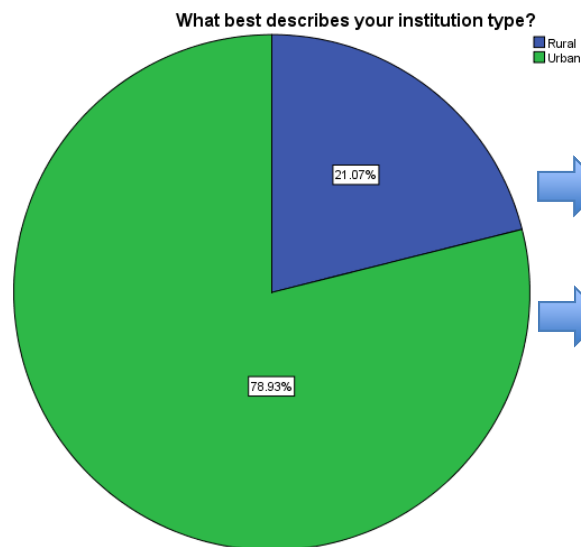
➡ Rural respondents were 52.7% acute care & 10.2% ambulatory

➡ Urban respondents were 52.7% acute care & 11.5% ambulatory

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Meaningful Use Maturity-Sensitive Index for Nursing (MUMSI)*:
Covariate Controlling for Maturity of the EHR

*McBride, S. & Tietze, M. (2015)

01. Includes a computerized provider order system for directly entering medication orders

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I don't know	33	2.8	3.3	3.3
	Not Present	37	3.1	3.7	7.1
	Present and not used	30	2.5	3.0	10.1
	Present and used	887	75.4	89.9	100.0
	Total	987	83.9	100.0	
Missing	System	190	16.1		
Total		1177	100.0		

02. Initiates alerts when a medication order results in a possible drug-drug interaction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I don't know	169	14.4	17.2	17.2
	Not Present	106	9.0	10.8	27.9
	Present and not used	26	2.2	2.6	30.6
	Present and used	684	58.1	69.4	100.0
	Total	985	83.7	100.0	
Missing	System	192	16.3		
Total		1177	100.0		

03. Initiates alerts when a medication order results in a possible drug-allergy interaction

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	I don't know	160	13.6	16.2	16.2
	Not Present	91	7.7	9.2	25.5
	Present and not used	20	1.7	2.0	27.5
	Present and used	714	60.7	72.5	100.0
	Total	985	83.7	100.0	
Missing	System	192	16.3		
Total		1177	100.0		

Meaningful Use Maturity-Sensitive Index
for Nursing

Sample of 3 of the
24 Item scale aligned with
Meaningful Use Stage 1 Measures
0.889 Cronbach's Alpha
Mean of 56.53 (SD 13.85)
Range 0 - 72

Content Validity using Lynn's method

Lynn, M.R. "Determination and Quantification of Content Validity." *Nursing Research* Vol. 35 No. 6 (1986)

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Clinical Information System Implementation Evaluation Scale©
(Gugerty, B.)

R08. The system is more efficient than the old way of doing things

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	72	6.1	7.6	7.6
	Disagree	73	6.2	7.7	15.3
	Somewhat Disagree	82	7.0	8.6	23.9
	Somewhat Agree	194	16.5	20.4	44.3
	Agree	266	22.6	28.0	72.3
	Strongly Agree	263	22.3	27.7	100.0
	Total	950	80.7	100.0	
Missing	System	227	19.3		
Total		1177	100.0		

R09. The system has improved my practice

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	81	6.9	8.5	8.5
	Disagree	73	6.2	7.7	16.2
	Somewhat Disagree	99	8.4	10.4	26.7
	Somewhat Agree	224	19.0	23.6	50.3
	Agree	274	23.3	28.9	79.1
	Strongly Agree	198	16.8	20.9	100.0
	Total	949	80.6	100.0	
Missing	System	228	19.4		
Total		1177	100.0		

R10. The system allows me to spend more time on other aspects of patient care

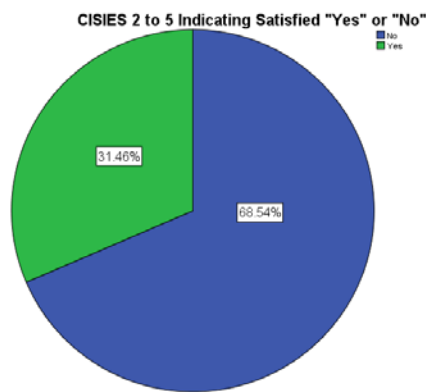|		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Strongly Disagree	194	16.5	20.5	20.5
	Disagree	133	11.3	14.0	34.5
	Somewhat Disagree	149	12.7	15.7	50.2
	Somewhat Agree	168	14.3	17.7	67.9
	Agree	159	13.5	16.8	84.7
	Strongly Agree	145	12.3	15.3	100.0
	Total	948	80.5	100.0	
Missing	System	229	19.5		
Total		1177	100.0		

CISIES 37 Survey Questions
Cronbach's Alpha 0.881

49.8% Strongly agree or Agree
That the system is more efficient
than the old way of doing things

16.2% disagree or strongly disagree

Positive, Neutral and Negative Satisfaction are Equally Distributed

CISIES 2 to 5 Indicating Satisfied "Yes" or "No"
31.46% 68.54%

CISIES 0.5 to 1.99 Indicating Neutral or Not Completely Satisfied
33.64% 66.36%

<.5 CISIES Score Indicating Dissatisfaction "yes" or "no"
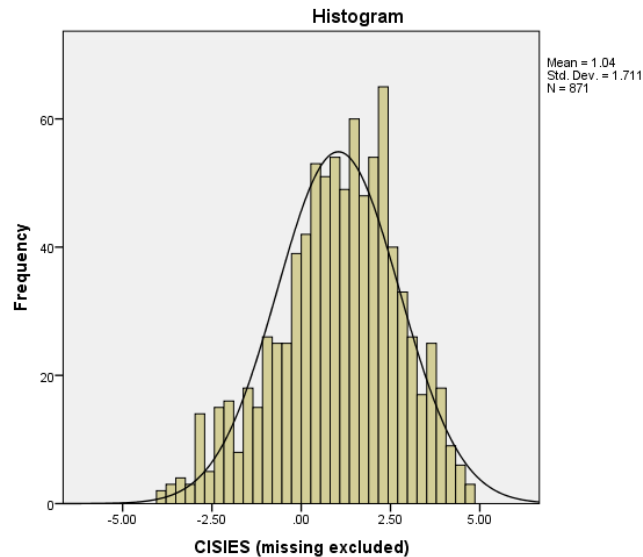34.90% 65.10%

Positive   Neutral   Negative

3
3
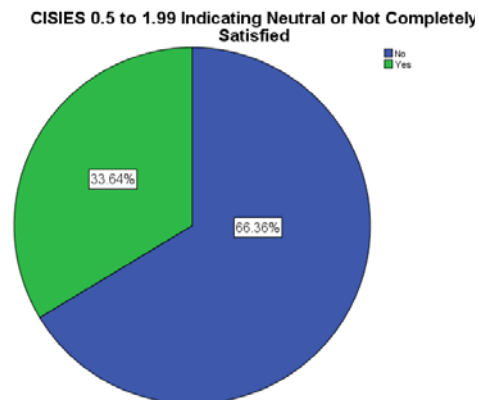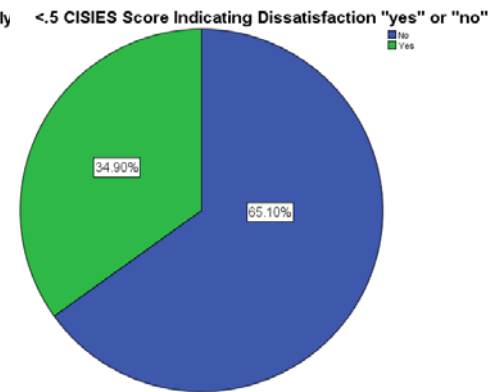
CISIES Distribution: How satisfied are nurses in Texas with EHRs?

< 0.5 CISIES Indicates Dissatisfaction

0.5-1.99 Indicates Neutral or Not Completely Satisfied

2-5 Indicates Satisfied

Gugerty, B., Maranda, M., Rook, D. (2006). The Clinical Information System Implementations Evaluation Scale, pp. 621-625. In H. A. Parks, P. Murray, & C. Delaney (Eds.) *Consumer-centered computer-supported care for healthy people.* Landsdale, PA: IOS Press.

Differences in Satisfaction with EHRs related to MU maturity.
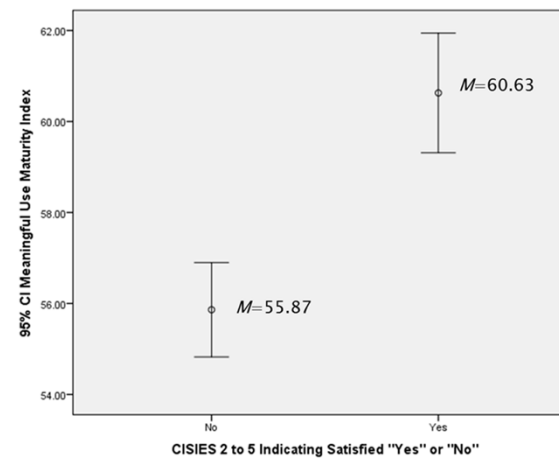
The MUMSI was calculated for all respondents based on 24 questions related to MU. The index score mean =56.53, median=59, range 0-72 (highest score possible).
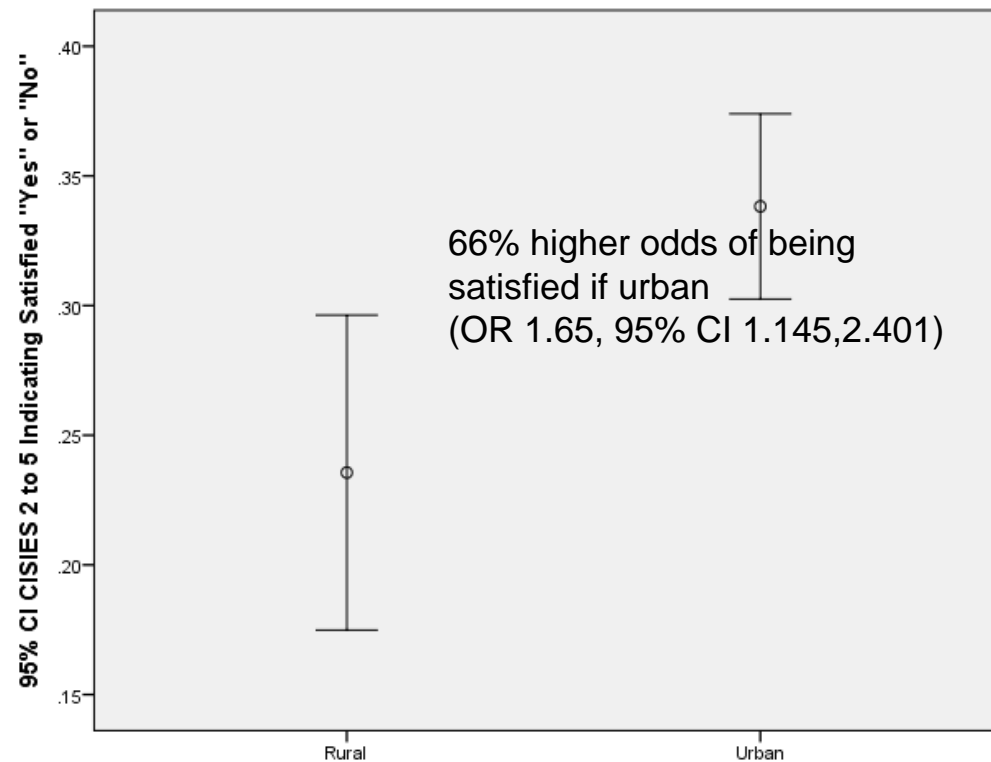
© Texas Nurses Association, 2015

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Overall satisfaction with your CIS/EHR?

66% higher odds of being satisfied if urban
(OR 1.65, 95% CI 1.145,2.401)

Overall satisfaction with your CIS/EHR?

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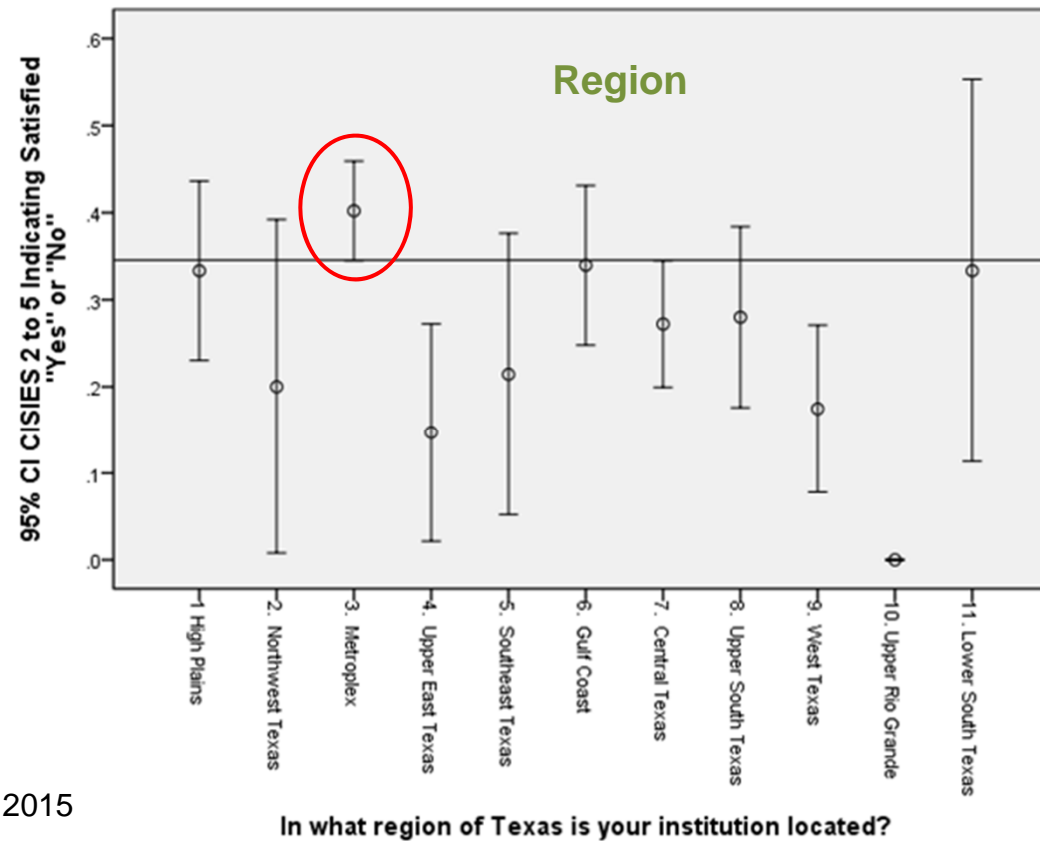
Overall satisfaction with your CIS/EHR?

Overall satisfaction with your CIS/EHR?

Position

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Overall satisfaction with your CIS/EHR?

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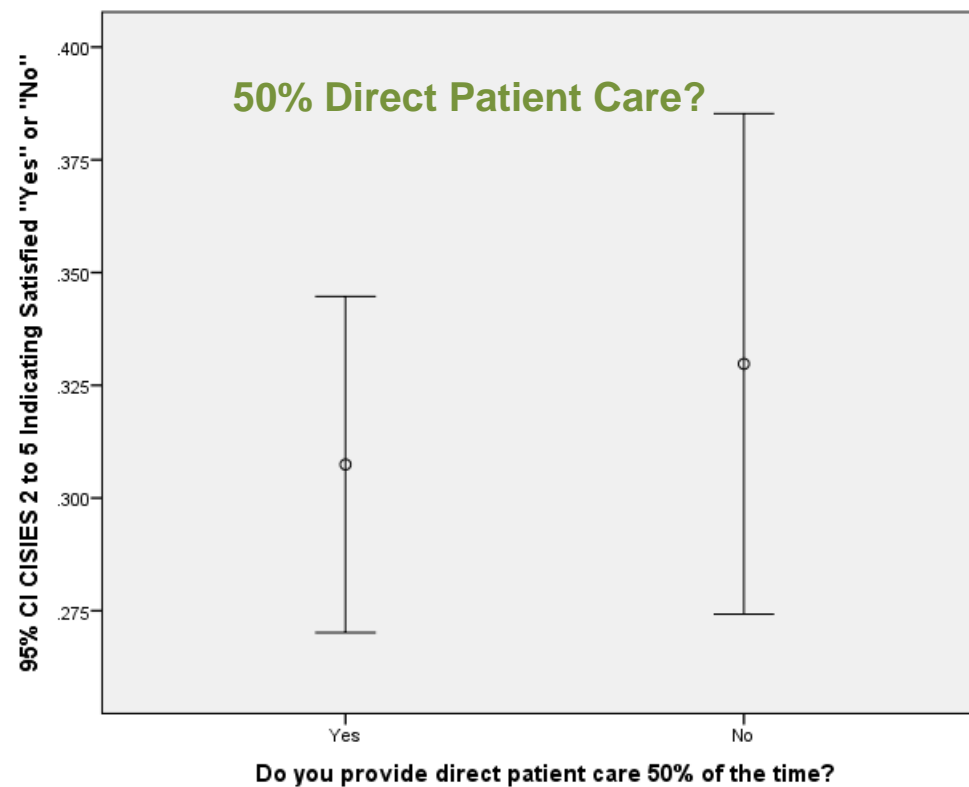
Overall Satisfaction and Nurses Age:
Older nurses compared to younger nurses are less likely to be satisfied

Age Groups Related to Satisfaction

CISIES 2
to 5
Indicating
Satisfied
"Yes" or
"No"

■ No
■ Yes

Age

Controlling for MU maturity, nurses 51- 60 years are 36% (OR .431, 95% CI .227, .817, *p*=.01) less likely to be satisfied and nurses greater than 61 years are 68% less likely to be satisfied (OR .321, 95% CI .149, .690, *p*=.004)

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40

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Overall Satisfaction and Years in Nursing
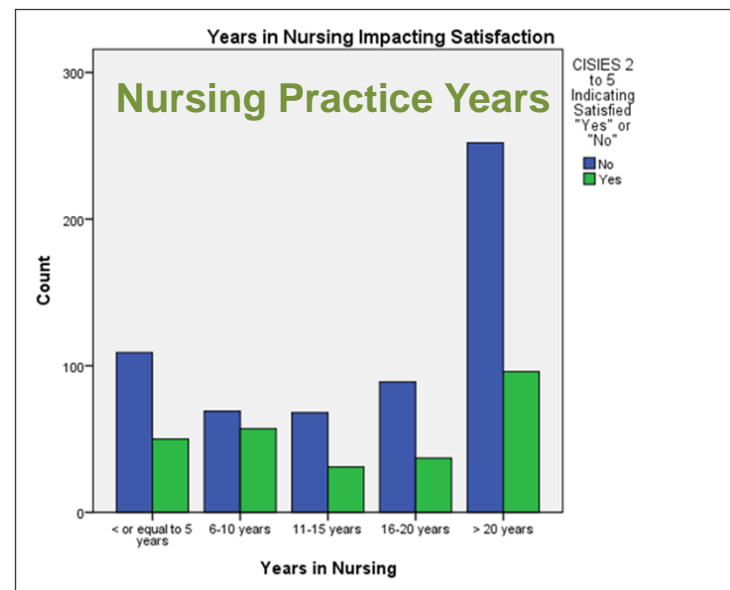
Nurses in practice for ≤ 5 years compared to all other groups: nurses in practice for 6-10 years are 78% more likely to be satisfied with their EHRs, while other groups were not significantly different with respect to satisfaction (OR 1.783; 95% CI 1.088, 2.923, p=.022).

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41

Overall satisfaction with your CIS/EHR?
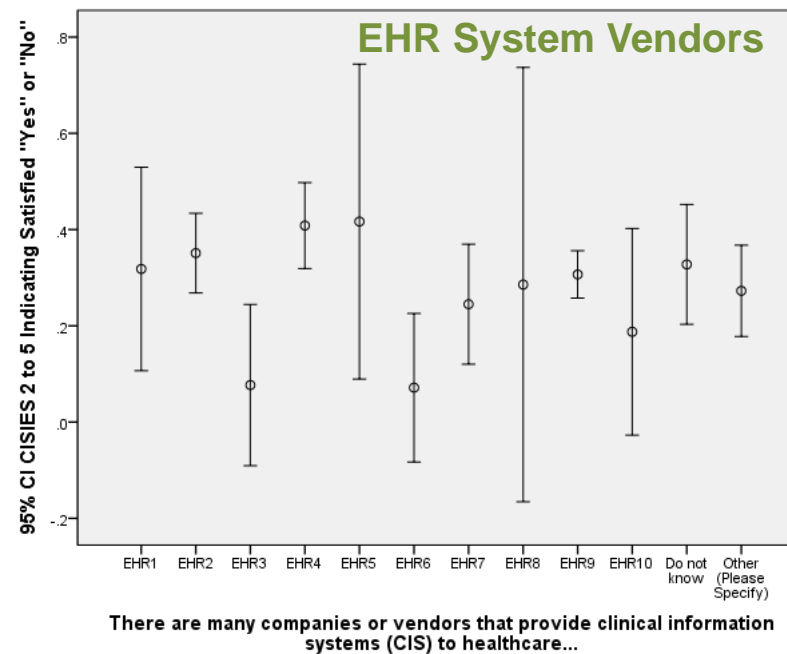
Once the maturity of the EHR is taken into account there is no significant difference in any of the EHRs reported.

Varimax Rotation CISIES & EHR Path Diagram: Measuring 3 Distinct areas

MUMSI

Path Diagram

CDS

Associated with dissatisfaction

CISIES

Nurses are 2.8 X more likely to be satisfied when drug-drug and allergy alerts *are not present* (OR 2.815, 95% CI 1.591, 4.981 p<.001)

When alerts *are present* for clinical decisions and standards nurses are 2.76 X more likely to be satisfied compared to nurses who indicate the functionality is not present (OR 2.758, 95% CI 1.666, 4.566)

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Qualitative Survey Data
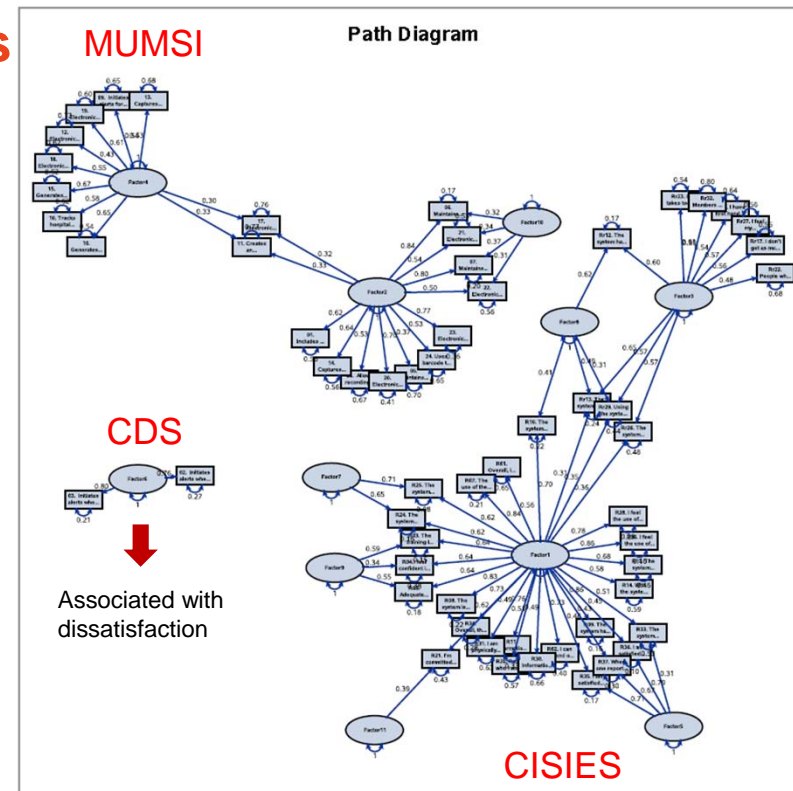
Themes

Theme	Word Count Frequency	Percentage
Electronic Medical Record	75	6.4%
Charting	65	5.5%
Nurses	42	3.6%
Information	52	4.4%
Computer System	189	16%
Software	110	9.3%
Patient	82	7.0%
Care	40	3.4%
Time	41	3.5%
Health	16	1.4%
Questions	23	2.0%
Healthcare	61	5.2%
Drugs	20	1.7%
Physicians	31	2.6%

Source:. NVIVO Word frequency distribution (Gilder, R. McBride, S. and Tietze, M., 2015)
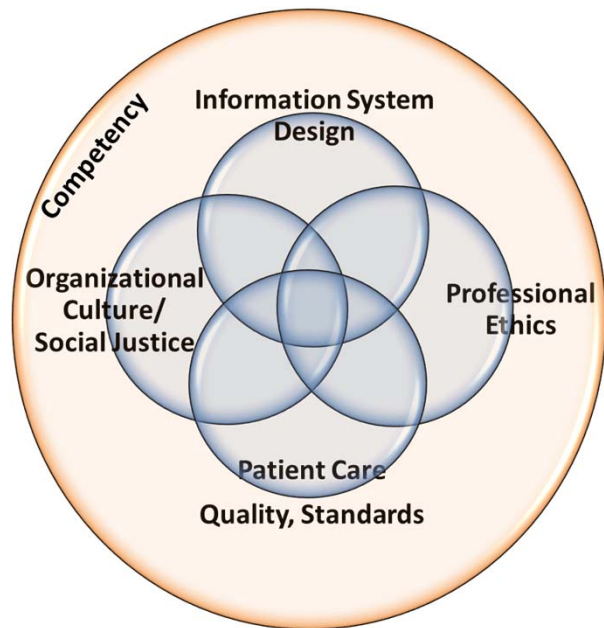
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Thematic Content Analysis

- Most effective in identifying concepts and themes
- Focus groups conducted to examine text themes
- Further detailed analysis with four examiners examined detailed text to reach consensus on subcategories

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Narrative Themes Regarding Nurse Experiences with CIS/EHR

Competency
Information System Design
Organizational Culture/ Social Justice
Professional Ethics
Patient Care Quality, Standards

Major and Minor Themes

- System design/usability
  - Interoperability
- Patient safety and quality
  - Documentation/legality
- Time
  - Ns-pt time reduced/inefficiency
- Support
  - IT, administrative, competency
- Workflow
  - Med admin, work-arounds
- Distress
  - Aggravation, voice not heard
- Communication
  - Reduced consultation among clinicians

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46

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Evidence-Based Approach: Relationship Between Survey Factors and Potential Action Items

Theme	Potential Action Items/Interventions
System design/usability	Utilize satisfied characteristics to improve dissatisfied & utilize dissatisfied characteristics to inform improvement strategy
Patient safety and quality/legality	Integrate with relationship to design/usability
Time: away from patient care delivery	Focus groups exploring clinician-based solutions
Time: inefficiency	Focus groups exploring designer-based solutions (vendor and IT implementation)
Support	Assess/deploy needed resource support throughout organization
Workflow	Institute leadership-adopting a culture of improvement related to health IT
Distress	Provide collegial approach, interprofessional solutions and openly monitor progress
Communication	Emphasize open, consistent, throughout organization

47

Projected Timelines

Analysis, Summarize Findings & Prepare Report	Report to TNA/TONE Boards with recommendation on high level priorities based on the evidence	Formulate Intervention Strategies based on the evidence	Deploy Strategies Across Texas	Target Follow-up Study to determine impact of interventions
June-Aug 2015	Sept 2015	Oct-Dec 2015	Jan-Dec 2016	Oct-Dec 2017

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