Overview
Clinical Care Classification (CCC) System

4th CCC User Meeting
December 4, 2019
Presentation By:

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- SabaCare Inc.
- Adjunct Professor
- Uniformed Services University
- Distinguished Scholar, Emeritus
- Georgetown University
Nursing Informatics (NI)

- It is a nursing specialty that integrates: Nursing Science, Computer Science, and Information Science to manage and communicate data, information, knowledge, and wisdom in nursing practice (ANA, 2008).
Data
Knowledge
Information
Wisdom

ANALYSIS/PROCESS
DATA COLLECTION
DISSEMINATION of INFORMATION
> KNOWLEDGE > WISDOM
PRACTICE

ANALYSIS/PROCESS
DATA COLLECTION
DISSEMINATION of INFORMATION
> KNOWLEDGE > WISDOM
PRACTICE
What are Data?

- Raw Facts or Data Elements
- Words, Objects, or Numeric Values Representing Single Concepts
- Smallest (Atomic Level) Uniquely Coded & Defined - Concepts.
- Coded Concepts Once Collected / Stored are Processed into Outcome Data & Used for Analytics.
Early Nursing Theories

- 1850s: 6 Cannons - Nightingale
- 1950s: 14 Activities - Henderson
- 1960s: 21 Problems - Abdellah
- 1970s: 6 Self-Care Deficits – Orem
ANA Nursing Process: Standards of Professional Nursing Practice

Assessment → Diagnosis
Evaluation
Implementation ← Planning
Outcome Identification
CCC Nursing Process Steps / Information Model

Assessment  21 Care Components
Diagnosis  176 Nursing Diagnoses
Outcome  528 Expected Outcomes
Planning  (3 Improve, Stabilize, Deteriorate)
Implementation  804 Nursing Interventions
Evaluation  (Assess, Perform, Teach, Manage)
      (4 Action Types X 201 Rx)
      528 Actual Outcomes
      (3 Improve, Stabilize, Deteriorate)
CCC Data in Electronic Health Record (EHR) Provide:

- Nursing/Healthcare Analytics & Statistics
- Clinical Care Data
- Decision-Support & Outcome Data
- Quality & Safety Data
- Data Required by Federal Regulations
Overview of Clinical Care Classification (CCC) System
CCC Original Research


National Sample 8,967 Discharged Pts. From 645 Facilities for Episode of Illness

Coded 40,000 Diagnoses/Problems & 70,000 Interventions/Services

Dr. Virginia K. Saba, EdD, RN, FAAN, FACMI, LL
CCC System Version 2.5

- 1992: ‘Recognized’ by ANA
- 2003: Approved as ISO Nursing Reference Model Standard
- 2007/8: Approved by HHS/HISP as 1st National Nursing Standard - Interoperable in EHRs
- 20015/2016: Mapped to SNOMED-CT & LOINC by 3mmm.
It consists of two Empirically Developed & Interrelated Standardized Nursing Terminologies Classified by 21 Care Components to form one System, and its Information Model designed to document Nursing Plans of Care (NPOCs) adapting 6 steps of ANA Nursing Process for Professional Nursing Practice.
CCC Information Model

**Signs & Symptoms**

- Expected Outcomes
  - To Improve
  - To Stabilize
  - To Support/Deteriorate

**Nursing Diagnoses**

**Nursing Interventions**

**Nursing Outcomes**

- Actual Outcomes
  - Improved
  - Stabilized
  - Supported/Deteriorated

**Evidence**

**Action Types**

- Assess
- Perform
- Teach
- Manage

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Virginia Saba, Ed.D, RN, FAAN, FACME & Jean Arnold, Ed.D, RN, BC
Documents “ESSENCE OF NURSING CARE”
CCC System 4-Level Framework

4 Healthcare Patterns

21 Care Component Classes

176 Diagnoses
528 Outcomes
3 Outcomes

804 Interventions
201 RXs/4 Actions
Level 1: 4 HealthCare Patterns

1. Health Behavioral
2. Psychological
3. Functional
4. Physiological
Level 2: 21 Care Components
Cluster of Data Elements

1. Activity
2. Bowel/Gastric
3. Cardiac
4. Cognitive/Neuro
5. Coping
6. Fluid Volume
7. Health Behavior
8. Life Cycle
9. Medication
10. Metabolic
11. Nutritional
12. Physical Regulation
13. Respiratory
14. Role Relationship
15. Safety
16. Self-Care
17. Self-Concept
18. Sensory
19. Skin Integrity
20. Tissue Perfusion
21. Urinary
Levels 1/2 CCC System Structure

4 Health / Care Patterns
- Health Behaviors
- Psychological
- Functional
- Physiological

21 Care Component Classes
- Medication
- Safety
- Health Behavior
- Cognitive
- Coping
- Role Relationship
- Self Concept
- Activity
- Fluid Volume
- Nutritional
- Self-Care
- Sensory
- Cardiac
- Respiratory
- Metabolic
- Physical Regulation
- Skin Integrity
- Tissue Perfusion
- Bowel Elimination
- Urinary Elimination
- Life Cycle

176 Nursing Diagnoses
528 Outcome Statements
804 Nursing Interventions

176 X 3 Outcome Modifiers
201 X 4 Action Type Modifiers
Levels 3/4-Terminologies Nursing Concepts

Interrelated Terminologies form Single System To Link DXs to RXs to OXs:

- **CCC of 176 Nursing Diagnoses**
  - (DXs X 3 Expected Outcomes/Goals)
- **CCC of 804 Nursing Interventions**
  - (201 Core x 4 Action Types)
- **CCC of 528 Nursing Diagnoses Outcomes**
  - (DXs X 3 Actual Outcomes)
Level 3a: CCC System: Nursing Diagnoses

- CCC Of Nursing Diagnosis Consists of 176 Nursing Diagnoses or Patient Problems & Responses to the Patient’s Health Conditions or Needs.
- Empirically Developed 40,000 from Live Research Statements
  - Example: Fluid Volume Deficit: F15.1
A clinical judgment about the healthcare consumer’s response to actual or potential health conditions or needs. The diagnosis provides the basis for determination of a plan to achieve expected outcomes. (ANA, 2010, p.64)
Level 4a: CCC Goals/Expected Outcomes

- Developed from 176 Diagnostic Outcomes
- 528 Goals / Expected Outcomes
  - 176 Nursing Diagnoses
  - 3 Outcome Qualifiers
    - 1) Improve, 2) Stabilize, or 3) Deteriorate

Example:
- To Improve Fluid Volume Deficit: F15.0.1
Level 3b: CCC of Nursing Interventions/Actions

- CCC of Nursing Interventions/Actions consists of 804 Nursing Interventions/Actions (Each of 201 Core Interventions with one of 4 Action Type Qualifiers: Assess, Perform, Teach, or Manage).

- Empirically Developed from 70,000 Live Research Statements
  - Example: Perform Fluid Therapy – F15.0.2
Single nursing action (data element) designed to achieve an outcome for a nursing or medical diagnosis & for which nurse is accountable.
Step 4/5: All Nursing Interventions Expanded by & 1 of 4 Action Type Qualifiers

1 – **Assess / Monitor**: Observe (No Touch / Hands Off – Look)
2- **Perform / Care**: Provide Direct Care (Touch / Hands On)
3 - **Teach / Instruct**: (Educate)
4 - **Manage/ Refer**: (Administer)
Level 4b: Action Type Qualifier Codes

- **Nursing Intervention:**
- **Fluid Therapy (F15.0)**
  - ADD + (Combine with)
- 1 of 4 Action Types [Assess (.1), Perform (.2), Teach (.3), Manage (.4)]
  -Equals = New Concept
- e.g. Perform Fluid Therapy: F15.0.2
Level 4b: Action Type Qualifier Codes Example

- Monitor/Assess Fluid Therapy: F15.0.1
- Perform/Care Fluid Therapy: F15.0.2
- Teach/Instruct Fluid Therapy: F15.0.3
- Manage/Refer Fluid Therapy: F15.0.4

NOTE: Analytics: Action Codes provides statistics on Workload & Cost
Level 4a: CCC Actual Outcomes

- 528 Goals / Expected Outcomes
  - 176 Nursing Diagnoses
  - 3 Outcome Qualifiers
    - 1) Improved, 2) Stabilized, or 3) Deteriorated

Example:
- **Fluid Volume Deficit Improved: F15.0.1**
CCC Coding Structure
Aggregate & Parse Data

5 Characters (ICD-10 Structure)
- 1st: Alpha – Care Component Class
- 2-4: 2 or 3-Digit Concept (Nursing Diagnosis or Intervention)
- 5th: Qualifier: 1 of 3 Outcomes or 5th Qualifier: 1 of 4 Action Types
  - Example: A01.0.2
CCC Coding Value

- Atomic Level Coded Concepts:
- Aggregates: Upward orParsed Down
- Documents: 6 Nursing Process Steps
- Configures: Decision-Support Systems
- Measures: Quality Indicators/Outcomes
- Maps: SNOMED-CT, LOINC, ICD-10 etc.
- Generates: Nursing Practice Data
Nursing Plan of Care (PoC)
Follows 6 Steps of Nursing Process
Nursing Plan of Care (NPOC) Case Study-- Example

- Mr. Jones, age 69, admitted to hospital from ER:
  - ** Shortness of breath when walking more than 20 feet,
  - ** Acute rib pain when coughing,
  - ** Temperature of 102 degrees.
- Chest x-ray taken showed bilateral lower lobe & right lobe infiltrates.
NPOC Case Study – Example, con’t

- MD Diagnosis - Bacterial Pneumonia:
- MD Ordered:
  - Oxygen Therapy - 10 liters,
  - Demerol 50 mgm - PRN for pain
  - Breathing Exercises - Q4hrs, &
  - Penicillin 500 mgm - PO q6 hrs.
Step 1: Assess S&S:
Nsg. Initial Encounter

- Assess Admission S/S - CCC
  Respiratory Care Component:
  - Shortness of Breadth when walking more than 20 feet
  - Rib Pain when Coughing
  - Temperature of 102 F
Steps 1/2: Select Nursing Diagnoses for Pneumonia/Respiratory Component

- **Problem**: Respiratory CC: (L)
  - *Breathing Pattern Impairment (L26.2)*
- **Coughing**: Sensory CC: (Q)
  - *Acute Pain*: CCC DX = Q45.1
- **Temp**: Physical Regulation CC: (K)
  - *Hyperthermia*: CCC DX = K25.2
Step 1/2: Determines RN
Diagnoses (3 DXs)

- Respiratory Component: (L)
  - 1) *Breathing Pattern Impairment*
  - *CCC DX = L26.2*

- Sensory Component: (Q)
  - 2) *Acute Pain*: CCC DX = Q45.1

- Physical Regulation Comp.: (K)
  - 3) *Hyperthermia*: CCC DX = K25.2
Step 3: Identify Goals/Expected Outcomes

- To Improve – *Breathing Pattern Impairment* (L26.2.1)
- To Improve – *Acute Pain* (Q45.1.1)
- To Improve – *Temperature* (K25.2.1)

◆ (Use one of three Expected Outcomes: .1) To Improve, .2) To Stabilize, or .3) To Support Deterioration)
Step 4/5: Plan & Implement Interventions/Actions

- For: To improve: **Breathing Pattern Impairment: DX**
  - **Perform - Oxygen Therapy Care** (L35.0.2)
    - Give 10 liters of O2 -- continuous
  - **Teach Breathing Exercises** – (L36.1.3)
    - Instruct Breathing Exercises -- Q4hr.
Step 4/5: Plan & Implement Interventions/Actions (Con’t)

For: To Improve Acute Pain DX

- Perform Acute Pain Control (Q63.1.2)
  - Measure Pain Scale, OD
  - Give Demerol 50 Mgm. if Pain Scale < 3 (Q4Hrs.)
Step 4/5: Plan & Implement Interventions/Actions (Con’t)

For: To Improve *Hyperthermia* DX

- **Perform**: Temperature (K33.2.2)
- **Perform** Medication Treatment (H24.4.2)
  - Give Penicillin 500mgm PO Q6hrs
Step 6: Actual Outcomes/At Discharge

- **Breathing Pattern Imp.: Improved** (L26.2.1)
  - No Oxygen
  - No Breathing Exercises
- **Acute Pain: Improved** (Q45.1.1)
  - No Cough & No Pain
- **Hyperthermia: Improved** (K25.2.1)
  - Temperature Normal
  - Penicillin Discontinued
Key NPOC: Uses of Nursing Process Steps:

- View NPOC to **Provide** Status of Patient AT Any Time During Hospital Stay, Change of Shift, Change of Unit, on Discharge, or Referral to CHHA
- **Evaluate** DXs Clinical Condition & Care Processes
Step 7: Discharge Instructions - Summarize Nursing NPOC

- Summarize Nursing Process 6 Steps
- **Provide** Instructions for Post-Hospital Care: e.g. MD/Clinic Follow-up Appts.
- **Explain** Discharge RN & MD Orders
- **Reconcile** & **Explain** Medications.
- **Refer** to CHHA- **Send** Continuity of Care Orders as Interoperable Codes
Value of CCC Coded Nursing NPOC in EHRs

- Knowledge-base: Links Diagnoses to Interventions/Actions to Outcomes
- Develops Decision-Support
- Generates Best-Practices Models
- Determines Evidence to Advance Nursing Science/Knowledge
NPOC Data Analytics
CCC NPOC Clinical Data Analytics

- Clinical Care - Nursing Practice
  - Reuse Data
  - Summary Data
  - Aggregated Data
  - Warehouse Databases –
  - Big Data
NPOC Outcome Measures: Care Analytics

- **Evidence-Based**: Number & Frequency of Interventions by Action Types.

- **Care Measures**: Comparison of Nursing DX Goals/Expected to Actual DX Outcomes
Interventions/Actions Report: Oxygen Therapy X 4 Perform Action Types - q 4 MOs/1 Year
Outcomes Report: 3 Yrs.
Comparison Breathing Pattern Imp.-
Expected to Actual Outcome: I/ S/ or D

Breathing Improvement

Breathing Stabilization
NPOC Outcome Data Analyses Con’t

- **Workload & Resources**: Summary of RX Action Types for Clinical Condition, Patient, and/or Nurse.

- **Cost**: Baseline Score plus Pre-Determined Relative Value Units (RVUs) X Time Factor of Nursing Interventions/Actions (10 Min).
Other
CCC System Features
CCC Interface Terminology

CCC Interface Terminology

Codes Map to SNOMED CT: Reference Terminology for Electronic Transfer of POC to another EHR as required for Interoperability / HHS Legislative Requirements.
SNOMED CT: Reference Terminology vs CCC Information Model

- SNOMED is a Huge Reference Terminology (>350,000 concepts)
- It does not Link Nursing Concepts into an Information Model (such as the Nursing Process) that will support interoperable EHR documentation.
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<th>NAME</th>
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<td>Activity alteration (finding)</td>
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<td>A01.01</td>
<td>370863009</td>
<td>Activity care assessment (regime/therapy)</td>
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<tr>
<td>A01.02</td>
<td>370864003</td>
<td>Activity care (regime/therapy)</td>
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<tr>
<td>A01.03</td>
<td>223465007</td>
<td>Teaching how to perform activity (regime/therapy)</td>
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<tr>
<td>A01.04</td>
<td>370865002</td>
<td>Activity care management (procedure)</td>
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<td>A01.1</td>
<td>77427003</td>
<td>Activity intolerance (finding)</td>
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<td>A01.2</td>
<td>80601004</td>
<td>At risk for activity intolerance (finding)</td>
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<tr>
<td>A01.21</td>
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<td>Energy conservation assessment (regime/therapy)</td>
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<td>Energy conservation (regime/therapy)</td>
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<td>A01.4</td>
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<td>Fatigue (finding)</td>
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<td>Impaired mobility (finding)</td>
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<td>A01.6</td>
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<td>Sleep pattern disturbance (finding)</td>
</tr>
</tbody>
</table>
CCC *Interoperable* as CCC or to SNOMED CT & LOINC

- CCC Interface Terminology
- CCC - ICD-10
- CCC - ICNP
- CCC - SNOMED
- CCC - LOINC
- Multidisciplinary Terminology
- Interface Terminology
- EMR #1
- EMR
- EMR #2
CCC System Uses
CCC & Nursing Practice

- Unique Care Concepts
- Links Diagnoses to Interventions to Outcomes
- Facilities Configuration of Decision Support Systems
- Enables Evidence-based Practice
The Vision

1. Implement clinical guidelines & documentation templates in EMR System with standardized nursing terminology.

2. EMR System guides clinicians in providing care.


4. Data maps to acuity indicators automatically.

5. Acuity system calculates workload and staffing.

6. Acuity generates productivity reports, shows impact of staffing on patient outcomes.


8. Analyze data, determine impact of nursing care activities on patient outcomes.


Advise executives regarding nursing
CCC & Nursing Education

- APP Demonstrates Patient PoCs
- Tracks Student Procedures
- Documents Care on IPADs
- Conducts Online Teaching, Testing & Evaluating Student’s Clinical Care Documentation
Student Tracking

Patient Care Classification System

- Enter PCC System
- Patient Data
- Intervention Frequency
- Interventions By Type
- Exit Database
CCC MOBILE/Smart APP

- Free Download: **CCC Look Up Tool**
- I-Phone: User-Friendly Mobile App.
- Aide for Documenting NPOCs at Point-of Care
- Teaching Tool / Nursing Process
  - 6 Steps
CCC & Nursing Research

- Used to Search Nursing & Healthcare Literature
- Provides Care Data for Research
- Evaluates Patients’ PoCs
- Provides RVUs for Care Data & Time Factors to Measure Outcomes, Workload, & Cost
A Delphi Study to Explore Clinical Nurses' Report of Frequency and Estimated Duration for Selected Nursing Actions Using the Clinical Care Classification (CCC) Standardized Terminology on Four Hospital Medical Surgical Units

Veronica D. Feeg, PhD, RN, FAAN
Lyris Greenidge Adams, MS, RN
A Delphi Study to Explore Clinical Nurses’ Report of Frequency and Estimated Duration for Selected Nursing Actions Using the Clinical Care Classification (CCC) Standardized Terminology on Four Hospital Medical Surgical Units

Veronica D. Fong, PhD, RN, FAAN
Lyris Greenidge-Adams, MS, RN (PhD Student)

INTRODUCTION

To date, the CCC terminology is the only downloadable, defined, atomic level coded data structure that produces a relational database for use in capturing, storing and aggregating nursing information about nursing diagnoses and interventions.

Informatics nurses and programmers can build screens to capture clinical data about nursing care. As more and more EHR systems begin to incorporate nursing care in their documentation of care and meaningful use, the CCC language will become more widespread in large hospital systems.

BACKGROUND

The CCC developed by Virginia Saba is an evidence-based coded and standardized terminology. The structure provides two parallel classification vocabularies: Diagnosis and Intervention. Each connects to a higher structure of healthcare patterns and care components, from which, the coded words branch into four types of actions and three actual outcomes (see Saba, V. Clinical Care Classification (CCC) System© developed by Virginia Saba).

The purpose of this study is to explore how clinical nurses describe nursing actions (interventions) they perform, including how often they do selected treatments and activities, using the standardized terminology of the Clinical Care Classification (CCC) System© developed by Virginia Saba.

The intent of the study is to collect a range of reported descriptors that are triggered by the standardized (coded) language that can be incorporated into electronic health records for documenting nursing care.

METHODS

Using the nursing process, the CCC has been integrated into a variety of computer systems that hospitals across the country are beginning to implement.

The CCC developed by Virginia Saba is an evidence-based coded and standardized terminology. The structure provides two parallel classification vocabularies: Diagnosis and Intervention. Each connects to a higher structure of healthcare patterns and care components, from which, the coded words branch into four types of actions and three actual outcomes (see Saba, V. Clinical Care Classification (CCC) System © developed by Virginia Saba).

DESIGN

Using the Delphi technique, participants who are deemed “expert” clinical/staff nurses will be invited to join a “panel of experts” who will serve as informants for the researchers on their experiences with the selected actions from the CCC standardized terminology.

The Delphi Technique uses mixed approaches to determine consensus by an expert group.

The study is being carried out in 3 “rounds” at 4 hospitals using a convenience sample of nurses who met the criteria.

In the Delphi technique, panelists complete repeated rounds of survey questions. The purpose of a sample of a prequalified team of 24 expert clinical staff nurses was invited to form the panels. These panelists serve as informants for the researchers on their expertise with the selected interventions.

PROCEDURES

The instrument uses CCC Nursing Action items. Round 1 employed a focus group of 4 clinical teaching experts to refine the language of the questionnaire and assist in the development of the survey to be sent to the expert panel.

The source of items was derived from 2 published studies on CCC Nursing Actions.

For each intervention, the participants were asked how frequently they performed the action and how much time it took. The survey questionnaire was refined from 50 to 30 items, and then further refined to 26 items that best captured the data.

For the 2nd round, 23 nurses were recruited via SurveyMonkey as a convenience sample from 4 hospitals who have electronic health records. One hospital uses the CCC. Questionnaires for Round 2 were mailed or hand-delivered to panelists with returned stamped envelopes. Results for the 19 surveys returned were used to develop the items for Round 3, which was mailed again to the sample and included the narrative and quantitative responses. Additional narrative information will be included in the analysis.

PRELIMINARY RESULTS

Based on the consensus of responses (i.e. results of 3rd round of questionnaires to same sample of nurses with average time reported to them) the estimated costs were calculated for the mean score (time) to perform each nursing action based on the salary for clinical nurses in the metropolitan New York area.
Cost to perform action @RN rate $41.35/hr

- Intravenous Care - Monitor/Maintain IV
- New Onset Pain Control - Assess
- Bowel Care - Assess
- Oxygen Therapy Care - Perform
- Safety Precautions - Assess
- Routine Transmission Precautions - Perform
- New Onset Pain Control - Perform Pain Med
- Vital Signs - Assess
- Chronic Pain Control - Assess
- Chronic Pain Control - Perform (Admin Med)
- Safety Precautions - Perform (Safety Measures)
- Intake/Output - Assess
- Insulin Injection - Perform
- Bowel Care - Teach
- Safety Precautions - Teach
- Positioning Therapy (bed confined pt.) - Perform
- Pressure Ulcer Care - Assess
- Insulin Injection - Assess
- Routine Transmission Precautions
- Intravenous Care - Perform Periph Cath Insertion
- Urinary Catheter Insertion - Perform
- Pressure Ulcer Care (stage 2) - Perform
- Insulin Injection - Teach
- Tracheostomy Care - Perform
- Dressing Change (complex surg) - Perform
- Dressing Change (Surgical) - Teach
Samples of CCC Users’ Data & Analytics
A Real Life Success - Assimilation of Coded Care Plans into Every Day Practice

Debbie Raposo, RN
BSN, CIDI, LNC, NI-BC
Director, Clinical Information Systems
Southcoast Hospitals Group
South Eastern Massachusetts, USA
Meditech 5.0 System

- Documented 21 Care Components
- Compared **Goals** to **Actual Outcomes** by **Care Component**
- Developed PoCs Using 4 **Action Types** with Interventions
- Developed PoCs for Specific Conditions e.g. Cardiac Care with Goals and RXs.
### Simple Screen Design: Safety Component

<table>
<thead>
<tr>
<th>Expected Outcome</th>
<th>Expected Outcome Met By</th>
<th>Actual Outcome</th>
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</thead>
<tbody>
<tr>
<td>To Improve</td>
<td>Improve By</td>
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<tr>
<td>To Stabilize</td>
<td>Stabilize By</td>
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<tr>
<td>To Support Deterioration</td>
<td>Support Deterioration By</td>
<td>Deteriorated</td>
</tr>
</tbody>
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### View of Entire Component of Care Plan

<table>
<thead>
<tr>
<th>Safety Component</th>
<th>Name/Discipline</th>
<th>To Stabilize</th>
<th>Assess/Monitor</th>
<th>Care/Perform</th>
<th>Teach/Instruct</th>
<th>Safety Plan</th>
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</thead>
<tbody>
<tr>
<td></td>
<td>COTTER, SUSAN L RN</td>
<td>Injury Risk</td>
<td>Equipment Safety</td>
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<td></td>
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<td>Environmental Safety</td>
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<td>Environmental Safety</td>
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<td>Brakes-wc, stretcher &amp; bed</td>
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<td>Patient Checks PRN</td>
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<td>Encourage call light use</td>
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<td>Notify MD of Changes</td>
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<td>Orient Pt to Environment</td>
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<td>Ruby Slipper Program</td>
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<td>Side rails up</td>
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### Cardiac Component

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<tr>
<th>Name/Discipline</th>
<th>GARIFALES, KRISTAL RN</th>
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<tbody>
<tr>
<td>To Improve</td>
<td>Cardiovascular Alteration</td>
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<tr>
<td>To Stabilize</td>
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<tr>
<td>To Support Deterioration</td>
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<tr>
<td>Assess/Monitor</td>
<td>Cardiac Care</td>
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<tr>
<td>Care/Perform</td>
<td>Cardiac Care</td>
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<tr>
<td>Teach/Instruct</td>
<td>Cardiac Care</td>
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<td>Cardiac Plan</td>
<td>Assist with ADLs</td>
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<td>DVT/PE Prophylaxis</td>
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<td>Manuel BP</td>
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### Fluid Volume Component

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<tr>
<th>Name/Discipline</th>
<th>GARIFALES, KRISTAL RN</th>
</tr>
</thead>
<tbody>
<tr>
<td>To Improve</td>
<td>Fluid Volume Excess Risk</td>
</tr>
<tr>
<td>To Stabilize</td>
<td></td>
</tr>
<tr>
<td>To Support Deterioration</td>
<td></td>
</tr>
<tr>
<td>Assess/Monitor</td>
<td>Intake/Output</td>
</tr>
<tr>
<td>Care/Perform</td>
<td>Intake/Output</td>
</tr>
<tr>
<td>Teach/Instruct</td>
<td>Intake/Output</td>
</tr>
<tr>
<td>Fluid Volume Plan</td>
<td>Ask dietitian to assess</td>
</tr>
<tr>
<td></td>
<td>Change IV Q 96 hrs or PRN</td>
</tr>
<tr>
<td></td>
<td>Track daily weights</td>
</tr>
<tr>
<td></td>
<td>Fluid Restriction per MD Monitor IV site</td>
</tr>
</tbody>
</table>
Electronic Nursing Documentation: A Descriptive Analysis of Coded Nursing Actions from Three Hospitals Using the Standardized Terminology of the Clinical Care Classification (CCC) System

Veronica D. Feeg, PhD, RN, FAAN
Keith R. Weiner, MS, RN
Deborah Raposo, BSN, LNC, BCNI, CMHIMS, INS
Virginia K. Saba, EdD, RN, FAAN, FACMI, LL
Analysis of CCC Data Results

- Number of interventions per patient (Mean=5.0)
  - Frequency of the 20 CCC coded care components from highest (SAFETY = 76% and ACTIVITY = 58%) to lowest (self-concept = 1%)
  - Reported Expected Outcomes vs Actual Outcomes

Example: Skin Outcome

\[ e = \text{equal to } EO \quad b = \text{better than } EO \quad w = \text{worse than } EO \]

- Observations documented vs required documentation (DELTA)
Frequency of Care Components Documented (n=85)

Category Frequency By Percent
Documentation Expected Outcomes vs Actual Outcomes (n=85)
Implementation Successes

Criteria 1 – Care plan reviews required q24 hours

- **Pre-implementation:**
  - Compliance = 38-62 %
- **Post-implementation:** (14 days after “go live”)
  - Compliance = 100%
- 100% interdisciplinary both education records and care plans
- Falls Rate (i.e. Falls per 1000 patient days) changed from .58 to .35.
Criteria 2 – Nursing time for admission process

- **Pre-Implementation**
  Admission work and initial care planning = average of 75 minutes
  - 42,127 admissions per year for hospital system
  - 3,159,525 minutes
  - 52,658 hours
  - 25.4 FTE’s

- **Post-Implementation**: (Measured 3 weeks after implementation)
  Admission work and initial care planning = 45 minutes per admission
  - 42,127 admissions
  - 1,895,715 minutes
  - 31,595 hours
Implementation Successes

- **Pre-Implementation:**
  - $52,653 \times $27.50 = $1,447,957.50

- **Post-Implementation:**
  - $31,595 \times $27.50 = $853,065

**SAVINGS:** $594,892

**Successes:**
- 100% Care Plan Compliance
- ↓ Nsg time admission process (↓10 FTE)
PROSPECT
PROVIDER FACING TOOLS
PARTNERS HOSPITAL
DR. PATTIE DYKES
Partners System

- Screen Layout Addressed:
  - Pt. Care Component (Sensory),
  - Problem (Pain),
  - Goals – Pt & Staff (Overall, Daily, Care Team), Interventions, &
  - Outcomes - Discharge Instructions
Nursing Plan of Care

<table>
<thead>
<tr>
<th>Onset Date</th>
<th>R</th>
<th>Problems</th>
<th>Goal(s)</th>
<th>Planned Assessments and Interventions</th>
<th>Outcome Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>10/12/2014</td>
<td></td>
<td>Comfort alteration</td>
<td></td>
<td>Pain management goal 1</td>
<td>No change</td>
</tr>
</tbody>
</table>
<pre><code>                        |   | Add Problem     | Scale used Numerical (0-10) | Assess pain every 2 hours |               |
</code></pre>
<p>|           |   |                | Other ⬠           | Patient will appear comfortable      | No change      |
|           |   |                |                   | T &amp; R q 2 hrs w/ PROM increase oob as tol |               |</p>

**SENSORY**
Clinical Care Classification System Problems and Outcomes

Nursing Plan of Care Documentation

Patient Plan of Care Problems With Infobuttons

Patient Educational Content

### Patient's Plan of Care

**My Concerns:**

- Skin integrity impairment
- Infection risk

**My Other Clinical Problems:**

- ... Further details...

### Preventing pressure ulcers

Pressure ulcers are also called bedsores, or pressure sores. They can form when your skin and soft tissue press against a harder surface, such as a chair or bed, for a prolonged time. This pressure reduces blood supply to that area. Lack of blood supply can cause the skin tissue in this area to become damaged or die. When this happens, a pressure ulcer may form.

- **You have a risk of developing a pressure ulcer if you**:
  - Spend most of your day in a bed or a chair
  - Are overweight or underweight
  - Are not able to control your bowels or bladder
  - Have decreased feeling in an area of your body
  - Spend a lot of time in one position

  You will need to take steps to prevent these problems.

**Self-care**

You, or your caregiver, must check your body every day from head to toe. Pay special attention to the areas where pressure ulcers often form. These areas are:

- ... Further details...
Development and Testing of a PC Based Simulated Patient Care Documentation System (SPCD) for Students Using a Standardized Nursing Language (CCC)

PI: Veronica D. Feeg, PhD, RN, FAAN
CO-PI: Virginia K. Saba, EdD, Honorary PhD, RN, FAAN, FACMI,

This study was funded by a grant from Epsilon Zeta Chapter, Sigma Theta Tau.
PC Access Software for Student Education Using CCC System

- Input Screen: Three forms
- Pt. Information
- Pt. Care Data: Follow Nursing Process
- Screen 2 parts: Input Data & Results
  Data to View and Review
- Pt. Output Reports
Student Tracking

Patient Care Classification System

- Enter PCC System
- Patient Data
- Intervention Frequency
- Interventions By Type
- Exit Database
CORE PATIENT INFORMATION

Select patient: Mary Smith

Last Name: Smith  First Name: Mary

Age: 75  Birth Date: 9/1/1934

Ethnicity: White/Non-Hispan  Marital Status: Married/Living with Partner

Gender: Male  Female

Medical ID Code:  Nurse ID Code:

Primary Medical Diagnosis:
Pneumonia

Known Allergies: NKA

Admitted Date:
Discharged Date:

Living Arrangement: With spouse  Significant Other’s Name: Jack

Available Caregiver:  Able to comprehend English:  Able to communicate in English:

New Patient  Remove Current Patient  Exit

Record: 2 of 3
### Individual Care Records

**Patient:**  **Bernie Smith**

<table>
<thead>
<tr>
<th>Problem ID</th>
<th>Date</th>
<th>Diagnosis</th>
<th>Expected Outcome</th>
<th>Type of Intervention</th>
<th>Actual Outcome</th>
<th>Status</th>
<th>Resolve Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>6/15/2004</td>
<td>Noncompliance/Adherence</td>
<td>() T</td>
<td>Compliance with Medication Regimen Handout instructions and discussed further willingness to focus on blood testing during hours that match routines better</td>
<td>In progress</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>6/15/2004</td>
<td>Endocrine Alteration</td>
<td>(I) A-C-T-M</td>
<td>Diabetic Care Structured ADA program presented - Demonstrated blood testing with new equipment</td>
<td>In progress</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
CCC System Summary

- Free with Permission
- Discrete Coded Atomic-Level Data
- Designed for EHRs Documentation- NPOCs
- 1st HHS National Nursing Standard 2007/8
- Interoperable & Mapped to SNOMED-CT, LOINC, ICNP, ICD, etc.
- Can Track Care across Time, Settings, Population Groups, & Geographic Locations
CCC System

Supports electronic capture of discrete coded patient care data for documenting the “essence of care” and measuring the relationship of nursing care to patient outcomes.
CCC Web Site Materials

- Mobile-Friendly Tool
- Overview/ Description
- Tables/ Hidden Files etc.
- Tools: Plan of Care Educ. Demos
- Videos (2): Overview & Sample NPOC
- Translations: Several Languages
- Other Materials
CCC Web Site etc.

- http://www.sabacare.com or www.clinicalcareclassification.com
- Email: <vsaba@att.net>