NURSE MANAGED HEALTH CENTERS and DATA—PAST, PRESENT and FUTURE in a COLLABORATIVE PRACTICE WORLD

HISTORY OF DATA WAREHOUSING AND BENCHMARKING OF NURSE MANAGED HEALTH CENTERS

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FUNDED BY W.K. KELLOGG FOUNDATION
GOALS OF PRESENTATION

• Understand the early development of a national standardized clinical and financial data base in primary care nurse managed health centers
HISTORY of A DATA WAREHOUSE WITH STANDARDIZED NATIONAL NMHC DATA 1998-2010

  Testing models-Cost of care, outcomes of care, data elements
- 2003-2004 Survey of NMHCs across the country
- 2004 Data Consensus Conference in DC
- 2003-2010 Institute for Nursing Centers: Data Warehouse

Funded by W. K. Kellogg Foundation
HISTORICAL ROLE of DATA WAREHOUSING IN NMHCs

• Small size of many NMHCs were not sufficient to tell the story on their own
• Need to track standardized data
• Inform sustainability
• Inform policy
• What you don’t measure, you cannot manage
Initial Funding From W.K. Kellogg Foundation to Create a Michigan Consortium

- Develop a strong consortium of 4 universities to educate nurse practitioners (NPs)
- Focus on community-relevant primary care
- Develop strategies to ensure financial viability of NMHCs
- Inform policy related to NMHCs and NP practice
- Examine quality outcomes
DATA from INITIAL FUNDING

- Patient Satisfaction
- HEDIS outcomes
  - Asthma
  - Cervical Cancer Screening
  - Depression
  - Diabetes
  - Hypertension
  - Immunizations – 0-2 years
  - Mammography Screening
  - Smoking
- Student experiences in NMHCs
- Community response to NMHCs
- NP experiences in NMHCs
- Financial data and sustainability issues
LESSONS LEARNED FROM FIRST PROJECT

• Lack of standardized national data on nursing centers was problematic
• Critical to have standardized data to inform policy and to be visible
• Need to collaborate for larger data sets is critical as most nursing centers are small
Step 2 (2003)

Findings:

- All 683 SONs in US were contacted
- 565 responses
- 92 SONs reported NMHCs with a total of 184 Academic NMHCs
- Out of the 184 Centers only 61 completed the full survey on clinical and business practices
- Nursing nomenclatures used included Omaha (23%, 14 clinics) and NANDA, NIC, NOC (20%, 12 clinics)
- 49% (n = 30) used some sort of electronic method to store clinical data in addition to paper charts
- 26% (n = 16) clinics used an EHR
- Many were not billing (as high as 45%)
- Literature reports on four National data surveys from Academic NMHCs, the most recent more than a decade ago (early 1990s)
- Limited data on number and detail of nursing centers
DATA CONSENSUS CONFERENCE
Step 3 2002-2004
Toward Data Warehouse
(Funded by W.K. Kellogg Foundation)

• Substantial contribution of NMHCs
• Lack of data sets on NMHCs
• Lack of consensus on common data elements or MDS on NMHCs
• Need for standardized, uniform information on NMHCs
• Research potential
• Basis for informing and transforming practice and policy regarding:
  • advanced practice nursing & NMHCs
  • health care agenda and primary care
  • underserved populations and health disparities
• Provide data to inform sustainability
• The larger environment is ready for strong data from NMHCs
LINKING THE PRESENT WITH PAST WORK

• Essential work of Werley and Lang on NMDS (1988)
• ANA’s work and support since 1986 for promoting nursing information systems in nursing services (Currently: Committee for Nursing Practice Information Infrastructure (CNPII))
• UDS and MGMA
• Above work did not capture primary care advanced practice nursing in the community
• Our challenge: to link the significant work of the past with advanced practice nursing in nursing centers
2004 NATIONAL CONFERENCE (DC)  
Broad Level of Stakeholders (53)

- AACN
- AHRQ
- BPHC
- MAC
- MGMA
- MNCC
- NACHCs
- NMHCs
- NNCC
- NONPF
- Nursing language experts
- Veteran’s Administration
GOALS & OUTCOMES for DATA CONSENSUS CONFERENCE

• To create consensus around demographic and clinical variables relevant to a national database for nurse managed health centers (NMHCs).

• To create consensus around financial and business variables relevant to a national database for nurse managed health centers (NMHCs).
CRITERIA for VARIABLE SELECTION

• Critical to informing policy
• Critical for sustainability
• Critical for research
• Feasible to collect
CLINICAL ELEMENTS: Demographics

- NMHC demographics
  - Location
  - Ownership
  - Patient volume/year
    - Total visits
    - Unduplicated users
    - Show rate: Percent of appointments kept

- Patient demographics
  - Gender
  - Year of birth
  - Ethnicity (Hispanic/non Hispanic)
  - Race (Census categories)
  - Limited English proficiency
  - Household size
  - Highest grade achieved in years
CLINICAL ELEMENTS: Diagnoses

- Medical Diagnoses (ICD9)
  Top 20 by visit volume including
  - Asthma
  - Depression
  - Diabetes
  - Hypertension
  - Obesity
  - Prenatal/perinatal

- Nursing Diagnoses
  Top 30 diagnoses if standardized language used
  - NANDA
  - Omaha
  - SABA
CLINICAL ELEMENTS: Services Offered

- Immunizations
- Cancer screening
- Smoking cessation
- Family planning services
- Prenatal and post-partum care
- Mental health services

- Chronic disease management
  - Asthma
  - Depression
  - Diabetes
  - Hypertension

- CPT codes: all
CLINICAL ELEMENTS
Consensus Not Reached

Select conclusions:
- NMHCs vary widely in the degree to which they provide these services and/or see them as core to the model of nursing care.
- NMHCs vary widely in the extent to which nurses (as opposed to NMHC team members of other disciplines) provide these services.
- NMHCs vary widely in the extent to which they combine a population focus with an individual personal care focus in the NMHC delivery model.
Survey Tool

- Survey & codebook developed using consensus
  - Considered national surveys (e.g., MGMA, BPHC UDS)
  - Financial and clinical data
- First survey distributed via web or hard copy
- Completed by 30 centers
- Usable financial data from 26 centers
- All centers provide primary care

- Years 2-4
- Survey: 150+ items
- Survey moved to only electronic submission by year 4 (MGMA work)
- Year 2: Completed by 27 centers (21 of those the same as previous year)
- Year 3: 24 submission
- Year 4: 20 submissions
- Able to benchmark a center’s data with the aggregate
- Year 4 added financial support of AANP
FEEDBACK

- Survey clear, thorough and well thought out
- Nothing seemed unnecessary, unimportant, or missing
- Codebook clear--easy to use
- Average time to complete: 10+ hours
- Benchmarking/comparison report is a major motivation for participating
USING DATA FOR POLICY: Payer Mix Looks like FQHCs

Private Physicians (NAMCS)

FQHCs

NMHC, Year 3 (n=21)

NMHC, Year 4 (n=20)

- Uninsured
- Medicaid
- Commercial
- Medicare
- Service Contract
- Other
Patient Race and Ethnicity

<table>
<thead>
<tr>
<th>Race</th>
<th>Year 2 (n=15)</th>
<th>Year 3 (n=20)</th>
<th>Year 4 (n=20)</th>
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</thead>
<tbody>
<tr>
<td>White</td>
<td>45%</td>
<td>45%</td>
<td>45%</td>
</tr>
<tr>
<td>Black/AA</td>
<td>35%</td>
<td>30%</td>
<td>25%</td>
</tr>
<tr>
<td>Other</td>
<td>10%</td>
<td>15%</td>
<td>20%</td>
</tr>
<tr>
<td>Hispanic</td>
<td>10%</td>
<td>5%</td>
<td>5%</td>
</tr>
</tbody>
</table>

Race categories: White, Black/AA, Other, Hispanic Ethnicity.
STUDENT EXPERIENCES IN NMHCS

**Year 1:** 26 NMHCs reported student experience
- 1,491 total students
- Median 42 students/center

**Year 2:** 25 NMHCs reported student experience
- 1,467 total students
- Median 45 students/center
BENCHMARK YOUR CENTER TO THE AGGREGATE OF NMHCs

Figure 9: Evaluation & Management Coding for New Patients

- Red: Aggregate NMHCs
- Orange: Your Center
- Green: FPPs (CMS data)
- Purple: NPs (CMS data)
BENCHMARK PAYER MIX

Figure 5: Distribution of Payer Source Among Patients

- Uninsured: 38%
- Commercial: 24%
- Medicaid: 40%
- Medicare: 24%
- Other Government: 14%
- Service Contract: 8%
- Other: 4%

Legend:
- Black: Aggregate (mean %)
- Yellow: Your Center
Average Percent Revenue Comparisons Between NMHCs, FQHCs, and Physician Practices
ADDITIONAL DATA
NATIONAL QUALITY DATA

Funded by W.K. Kellogg Foundation

• INC-led initiative

• Participation solicited from 15 of the larger NMHCs who participated in the most recent INC annual, national NMHC survey

• Measurement of quality outcomes in 4 areas
  • Breast Cancer Screening
  • Cervical Cancer Screening
  • Diabetes care
  • High Blood Pressure
# Outcomes Compared to FQHCs

<table>
<thead>
<tr>
<th>Outcome</th>
<th>NMHCs</th>
<th>UDS 2008 Data</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hypertension controlled</td>
<td>68.8%</td>
<td>62%</td>
</tr>
<tr>
<td>Diabetics with HbA1c below 7</td>
<td>42%</td>
<td>42.5%</td>
</tr>
</tbody>
</table>
LESSONS LEARNED

• NMHCs provide services to underserved groups

• NMHCs look more like FQHCs than family practice physician practices

• NMHCs are valuable and somewhat unique settings for student learning

• NMHCs rely on subsidy from schools/colleges of Nursing and/or Universities to a similar extent that FQHCs rely on grants from the BPHC

• Importance of benchmarking and comparing one’s NMHC to others as well as FQHCs and physician practices
Lessons Learned

• NMHCs need to continue to focus on the business model for their practices
• What you don’t measure, you cannot manage
• What you don’t measure keeps you from being taken seriously
• NMHCs need strong standardized data to be part of today’s U.S. Health System and Patient Centered Affordable Care Act
REFERENCES


NURSE MANAGED HEALTH CENTERS and DATA—PAST, PRESENT and FUTURE in a COLLABORATIVE PRACTICE WORLD

Nurse Managed Care and HRSA

Changes to NEPQR Program

Bonnie Pilon, PhD, RN-BC, FAAN
Vanderbilt School of Nursing
FY2012 NEPQR IPCP Emphasis

• Create or expand Interprofessional Collaborative Practice (IPCP) environments
• Nurses and other professional disciplines
• Provide comprehensive healthcare services
• Strengthen nursing’s capacity to advance health of patients/families/communities thru:
  – Innovative practice models
  – Using collaborative interprofessional teams
What is IPCP? (WHO, 2010)

- Health workers from different professional backgrounds
- Join with patients, families, caregivers & communities
- Deliver comprehensive high quality care
- Spans clinical and non clinical health-related work, including diagnosis, treatment, surveillance, health communication, disease management
Rationale

• Create environments for IPCP with high functioning diverse professionals with a collective identity to increase access, achieve high quality, and achieve population-centered outcomes

• Deliver care that is safe, effective, equitable

• Increase the number of nurses skilled in IPCP
Ideal IPCP Environments

- Foster increased communication and shared decision-making among practitioners
- Promote mutual respect and effective dialogue among members of the care team
  - Care planning
  - Problem solving
- Create more efficient and integrated practices that lead to high quality patient and population-centered outcomes
NEPQR Focus

• Projects that
  – Practice environments in which nurse leaders have opportunity to demonstrate leadership in interprofessional team building, collaborative problem-solving and care coordination
  – Provide interprofessional clinical training opportunities for nursing students
  – Demonstrate innovation in IPCP
IPCP Competency Principles

- Patient/family centered
- Community/population oriented
- Relationship focused
- Process oriented
- Ability to integrate across learning continuum
- Sensitive to systems context/practice settings
- Applicable across professions
- Common and meaningful language across professions
- Outcome driven
Core Competencies for IPCP

• Values/Ethics for Interprofessional Practice
  – Work with individuals of other professions to maintain a climate of mutual respect and shared values

• Roles/Responsibilities
  – Use the knowledge of one’s own role and those of other professions to appropriately assess and address the healthcare needs of the patients and populations served
Core Competencies for IPCP

• Interprofessional Communication
  – Communicate with patients, families, communities, and other health professionals in a responsive and responsible manner that supports a team approach to the maintenance of health and the treatment of disease

• Teams and Teamwork
  – Apply relationship-building values and the principles of team dynamics to perform effectively in different team roles to plan and deliver patient-/population-centered care that is safe, timely, efficient, effective, and equitable
Implications for Data Collection

• Challenges—
  – how do we capture the impact of the team rather than the outcomes of [only] nurse led care?
  – How do we understand the synergy (or lack thereof) among and between team members?
  – How do we document the IPCP work in a traditional medical record and/or electronic health record?
  – What is optimum workflow? (efficient, timely, financially feasible)
References

- *Nurse Education, Practice, Quality and Retention (NEPQR) Program – Interprofessional Collaborative Practice*


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Addressing Data Collection Challenges

Heather Davidson, PhD
Vanderbilt Schools of Nursing & Medicine
Implications for Data Collection

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  – How do we understand the synergy (or lack thereof) among and between team members?
  – How do we document the IPCP work in a traditional medical record and/or electronic health record?
  – What is optimum workflow? (efficient, timely, financially feasible)
Looking forward: Future data needs in a collaborative world

How do we understand the context?
• Aligning frameworks

How do we collect this information?
• Evaluating IPCP models
• National collaborations

How do we use this information?
• Measurement for improvement of care
• Case example: The Clinic at Mercury Courts
How do we understand the context?
Aligning Frameworks

• Interprofessional education and practice
  – Teamwork, effective collaboration

• The Triple Aim
  – Improving patient experience of care
  – Improving population health
  – Reducing per capita costs

• Continuous Quality Improvement and the Learning Organization
How do we collect this information?

Example: NEPQR IPCP Evaluation

HRSA asks grantees to identify data collection in each domain:

• Team Structure
• Team Functions
  – Perceptions, communication, information exchange
• Population Health
  – Disease burden, behavioral and physiological factors
• Patient Experience of Care
  – Communication about care, engagement
• Per Capita Costs
  – ED utilization rates, hospitalizations, total cost per member/month, cost waste outcomes
How do we collect this information?

National Center for Interprofessional Practice and Education

“Leads, coordinates and studies the advancement of collaborative, team-based health professions education and patient care as an efficient model for improving quality, outcomes and cost.”

https://nexsusipe.org/
National Center for Interprofessional Practice and Education

- Founded October 2012, University of Minnesota
- Public-private partnership
  - Cooperative agreement with Health Resources and Services Administration (HRSA); Collective funding from Macy, RWJ, Moore, and Hartford Foundations
- Resource exchange, literature and measurement
- Online collection of instruments
- Forums
- Community profiles
The new Nexus

The Nexus

Leading to partnerships

Producing positive impact on Triple Aim outcomes

Education

Practice

https://nexusipe.org/vision
Challenges to measuring team collaboration

• Teams are complex
  – Not all tasks require a team approach
  – Not just a group of individuals
  – Requires formation and management
  – Measures of success are vague
    • Katzenbach and Smith (2005)
  – Roles are often fluid, overlap locus of authority
    • Lingard et al (2012)
Available instruments from the National Center

- Review available literature on IPECP instruments
- Current collection includes 26 instruments
  - Attitudes
  - Behavior
  - Knowledge, skills and abilities
  - Organizational practice
  - Planning
  - Patient and provider satisfaction
How do we use this information?

Measurement for Improvement of Care

• Both processes and outcomes are important to understanding larger care questions
• Creating time and space for regular analysis, reflection, and strategic planning
• Growing demands to collect and analyze data for improvement
  – Insufficient grounding in measurement methods and statistical applications
  – Time consuming
  – Accuracy and consistency
  – Too many indicators, too few indicators
Counting What Counts
MEASURING PROGRESS TOWARD BETTER HEALTH AT LOWER COST

What matters most for improving the health of Americans and the affordability of our health care? Because what gets measured gets done, progress in health and health care depends on the measures used to guide our efforts, and our focus can be blurred without a sense of what’s most important among the thousands of measures in use across the nation. Our challenge is to identify a small, practical set of key indicators of our progress—how we are doing in achieving better health, better care, lower costs, and in involving people more in their own health and care. We need core metrics for continuously learning health and health care in America.

TODAY’S CHALLENGES
- Too many measures
- Uneven relevance
- Little sense of priority
- Uncoordinated efforts
- Limited multi-level comparability

A PATH TO IMPROVEMENT
- Specify a core set of measures
- Align measures to focus on the most important priorities
- Assess progress across the system, from the organizational, community, regional, state to national levels

INFRASTRUCTURE FOR MEASURES
- Build data systems that capture and exchange key data elements
- Integrate measures into processes for reporting, regulation, and payment
- Develop approach to continuously update measures and adapt to new technologies

ANTICIPATED BENEFITS
- Reduce the measurement burden on clinicians and organizations
- Allow for comparisons and identification of best practices
- Promote collaborations and coalitions
- Ensure data systems capture the most important information

BUILDING ON CURRENT INITIATIVES
- Leading Health Indicators for Healthy People
- AHRQ’s National Healthcare Quality Report
- CMS’s ACO Measures
- Consumer Reports health rating metrics
- ONC’s Meaningful Use
- NQF’s Buying Value and MAP
- NCQA’s Quality Measurement Programs

This graphic summarizes themes that emerged from a workshop.
For more information, please visit www.iom.edu/countingwhatcounts.

NOTES: ACO = accountable care organization; AHRQ = Agency for Healthcare Research and Quality; CMS = Centers for Medicare & Medicaid Services; MAP = Measure Applications Partnership; NCQA = National Committee for Quality Assurance; NQF = National Quality Forum; ONC = Office of the National Coordinator for Health Information Technology.
How do we use this information?

The Clinic at Mercury Courts

• Vanderbilt University School of Nursing partnered with Urban Housing Solutions

• Clinic uses an IPCP model
  – Nurse Practitioner, Pharmacist, Social Worker, Counselor & Health Advocates, Medical Assistants, Physician (remote)

• Data set includes measures of teamwork, patient experience, population health, cost in addition to traditional health outcomes.
  – Data regularly drives system improvements
Interprofessional Touches

(Unpublished evaluation data, The Clinic at Mercury Courts 2012-2014)
Team Development Measure
Self assessment

- Winter 2013 average: 58.25
- Summer 2013 average: 58.50
- Winter 2014 average: 62
# Team Development Measure

## Stages of Team Development

<table>
<thead>
<tr>
<th>Stage</th>
<th>Score range</th>
<th>Components present</th>
<th>Solidification</th>
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</thead>
<tbody>
<tr>
<td>Pre-team</td>
<td>0-36</td>
<td>None to building cohesiveness</td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>37-46</td>
<td>Cohesiveness</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>47-54</td>
<td>Communication</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>55-57</td>
<td>Role Clarity</td>
<td>In place</td>
</tr>
<tr>
<td>4</td>
<td>58-63</td>
<td>Goals and Means Clarity</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>64-69</td>
<td>Cohesiveness</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>70-77</td>
<td>Communication</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>78-80</td>
<td>Role Clarity</td>
<td>Firmly in place</td>
</tr>
<tr>
<td>8</td>
<td>81-86</td>
<td>Goals and Means Clarity</td>
<td></td>
</tr>
<tr>
<td>Fully developed</td>
<td>87-100</td>
<td>Everything</td>
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</table>
# Challenges

## Self assessment (Winter 2014)

<table>
<thead>
<tr>
<th>Items with an average score &lt;3 (Disagree or Strongly disagree)</th>
<th>Avg score</th>
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</thead>
<tbody>
<tr>
<td>The team has agreed upon clear criteria for evaluating the outcomes of the team's effort.</td>
<td>1.67</td>
</tr>
<tr>
<td>The team handles conflict in a calm, caring and healing manner.</td>
<td>2.67</td>
</tr>
<tr>
<td>The goals of the team are clearly understood by all team members.</td>
<td>2.67</td>
</tr>
<tr>
<td>All team members define the goals of the team as more important than their own personal goals.</td>
<td>2.73</td>
</tr>
<tr>
<td>All team members participate in making decisions about the work of the team.</td>
<td>2.80</td>
</tr>
<tr>
<td>Roles and responsibilities of individual team members are clearly understood by all members of the team.</td>
<td>2.80</td>
</tr>
<tr>
<td>All individuals on this team feel free to suggest ways to improve how the team functions.</td>
<td>2.87</td>
</tr>
<tr>
<td>On this team, the person who takes the lead differs depending on who is best suited for the task.</td>
<td>2.87</td>
</tr>
<tr>
<td>There is confusion about what the work is that the team should be doing.</td>
<td>2.93</td>
</tr>
<tr>
<td>When team problems arise, the team openly explores options to solve them.</td>
<td>2.93</td>
</tr>
</tbody>
</table>
Team Interviews

- Qualitative interviews conducted 2x/year
- Allows for deeper understanding, ability to interpret TDM measures
### HgA1c within 6 months and Results

#### Graph:

- **September-13**: Total 10
- **October-13**: Total 11
- **November-13**: Total 8
- **December-13**: Total 5
- **January-14**: Total 7
- **February-14**: Total 4

<table>
<thead>
<tr>
<th></th>
<th>September-13</th>
<th>October-13</th>
<th>November-13</th>
<th>December-13</th>
<th>January-14</th>
<th>February-14</th>
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<tbody>
<tr>
<td><strong>No Value</strong></td>
<td>10</td>
<td>11</td>
<td>8</td>
<td>5</td>
<td>7</td>
<td>4</td>
</tr>
<tr>
<td><strong>HgA1c &gt;9 or no value</strong></td>
<td>5</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td><strong>HgA1c 8.1-8.9</strong></td>
<td>3</td>
<td>4</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td><strong>HgA1c 7-8</strong></td>
<td>3</td>
<td>1</td>
<td>5</td>
<td>4</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td><strong>HgA1c &lt;7</strong></td>
<td>6</td>
<td>7</td>
<td>6</td>
<td>8</td>
<td>9</td>
<td>10</td>
</tr>
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Using data for improvement

- Regular retreat focused on data analysis and strategic planning for improvement
- March 2014, Goal setting and Interprofessional workflow redesign
- Setting up both process and outcome measures to interpret improvement and clinic development
Looking forward: Future data needs in a collaborative world

- Standardized set of measures unavailable without better understanding of complexity
- Proximal measures within standardized domains is possible now
- Clarify questions that define the needs of specific population of patients
- Using data for continuous improvement
- Identify yourself as a learning organization
References


• Lingard, L, McDougall, A., Levstik, M et al. (2012) Representing complexity well: a story about teamwork, with implications for how we teach collaboration