UNIVERSITY OF MINNESOTA
SCHOOL OF
NURSING

PILOT TEST OF A MATERNAL RISK INDEX SCORE TO ASSESS PHN CASELOAD RISK AND FORECAST CARE NEEDS

APHA
November 1, 2011

Eunice Areba
Karen Monsen
Joan Brandt
Amy Lytton
Sue Mitchell
Tehout Selamaeb
David Radosevich

Acknowledgment

The authors would like to acknowledge

- St. Paul-Ramsey County Public Health Department
- Omaha System Partnership for Knowledge Discovery and Health Care Quality

Presenter Disclosures

Eunice M. Areba
Karen A. Monsen

No relationships to disclose

Caseload Management

"Nurses need to articulate how care is managed, evidence of this includes patient outcomes" (Lewis, 2008;Canham, 2000).

- Request for new resources for services (or Populations.

Caseloads should take into account complexity of care and number of visits (Storfjell,1997).

"Caseload burden"

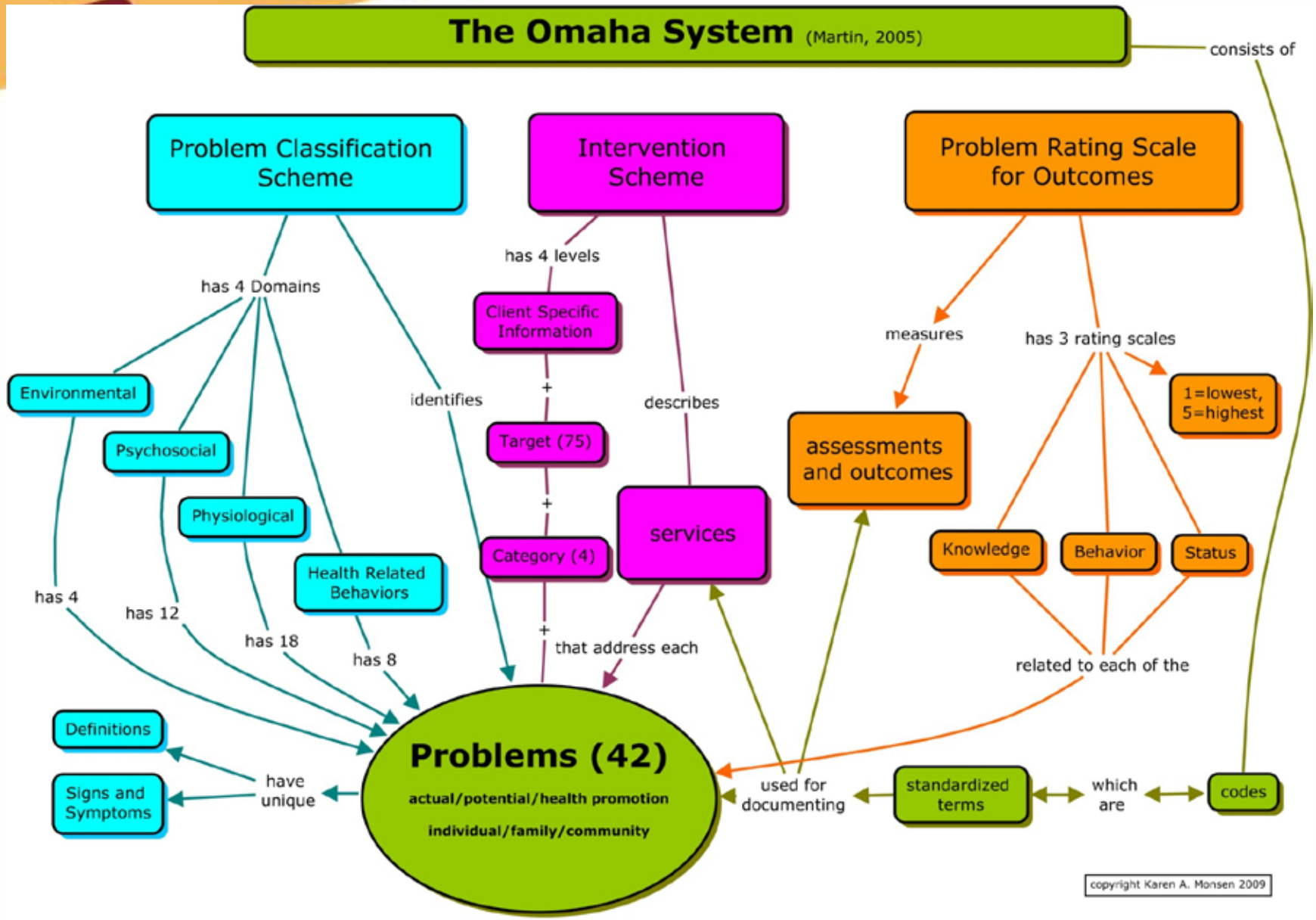
- Overwhelming caseloads.
- Increase in caseloads = Less visits, impersonal client contact and reactive work ethics (King et al., 2004).

Caseload Management

- High caseloads in public health nurse home visiting are associated with reduced efficiency in the delivery of care, and with reactive rather than proactive care.
- Suggested optimal staffing is 20-30 clients per nurse. Such caseloads ensure client safety and encourage innovative modes of delivery of care.
- However, there is pressure to increase caseload size due to fiscal constraints.
- No two clients are alike, and their care needs differ, which poses challenges in caseload management.

Maternal Risk Index for Family Home Visiting

- A maternal risk index for family home visiting has been developed, revised, and validated using PHN family home visiting data from three agencies
- The formula takes into account known maternal risk factors, including number of client problems, baseline knowledge scores, and co-morbidities such as poverty, mental health problems, cognition, abuse, and substance use.
- This maternal risk index has potential to provide a metric for managing PHN caseloads


The Omaha System (Martin, 2005)
consists of
Problem Classification Scheme
Intervention Scheme
Problem Rating Scale for Outcomes
has 4 Domains
has 4 levels
measures
has 3 rating scales
Client Specific Information
Environmental
identifies
describes
1=lowest, 5=highest
Psychosocial
Target (75)
assessments and outcomes
Physiological
services
Knowledge
Behavior
Status
Health Related Behaviors
Category (4)
has 4
has 12
has 18
has 8
that address each
related to each of the
Definitions
Problems (42)
actual/potential/health promotion
individual/family/community
Signs and Symptoms
have unique
used for documenting
standardized terms
which are
codes
copyright Karen A. Monsen 2009

The Omaha System

- Of the ANA-recognized terminologies, the Omaha System has been most widely adopted in clinical documentation systems used by PHNs
- A grass-roots PHN-led community of practice exists to advance data and practice quality using the Omaha System
- Numerous research and program evaluation examples illustrate the issues related to use of existing PHN data in PHN intervention/outcomes research

Purpose

Develop and test a caseload management system for family home visiting programs

Aim 1: Test associations between client risk index scores and actual length of client services at a local public health agency

Aim 2: Assess total caseload risk scores for practicing PHNs

Methods

Data were obtained from EHR

SAS ™ 9.2

Aim 1: Retrospective study of parenting clients served by public health nurses between 2007 and 2010 using Poisson Regression

- Count variable
- Time varying predictors & recurrent events
- Log transformed risk index scores and PHN visit counts

Aim 2: Maternal Risk Scores for PHN active caseloads (summed scores adjusted for PHN FTE)

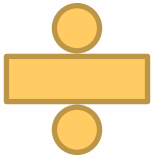
Methods

Episode of care: a time period between client admission and discharge in which a client received PHN home visiting interventions

Active caseload: clients visited within the last 3 months

Maternal Risk Index

Weighted total of identified problems



Average baseline knowledge scores for the identified problems

Problems weighted 1	Problems weighted 2	Knowledge scores
Pregnancy	Mental health	1 = no knowledge
Postpartum	Substance use	2 = minimal knowledge
Caretaking/parenting	Income	3 = basic knowledge
	Cognition	4 = adequate knowledge
	Abuse	5 = superior knowledge

Sample Characteristics (N=3125)

3169 client-episodes of care
44 excluded due to missing data
50% were 15-24 years of age

Primary Race	Frequency (%)
Asian / Pacific Islander	816 (22.95)
African / African American	1166 (32.80)
Native American / Alaska native	122 (3.43)
Hispanic/Latino	771(21.69)
European / European American	1194 (33.59)
> 1 Race	52 (1.46)
Other/ Unknown	198 (5.57)
Missing	7 (0.20)

Results: Predicting duration of care

MRI scores ranged from 0.25 to 15

20 of the scores that were above 6.5 were truncated before log transformation.

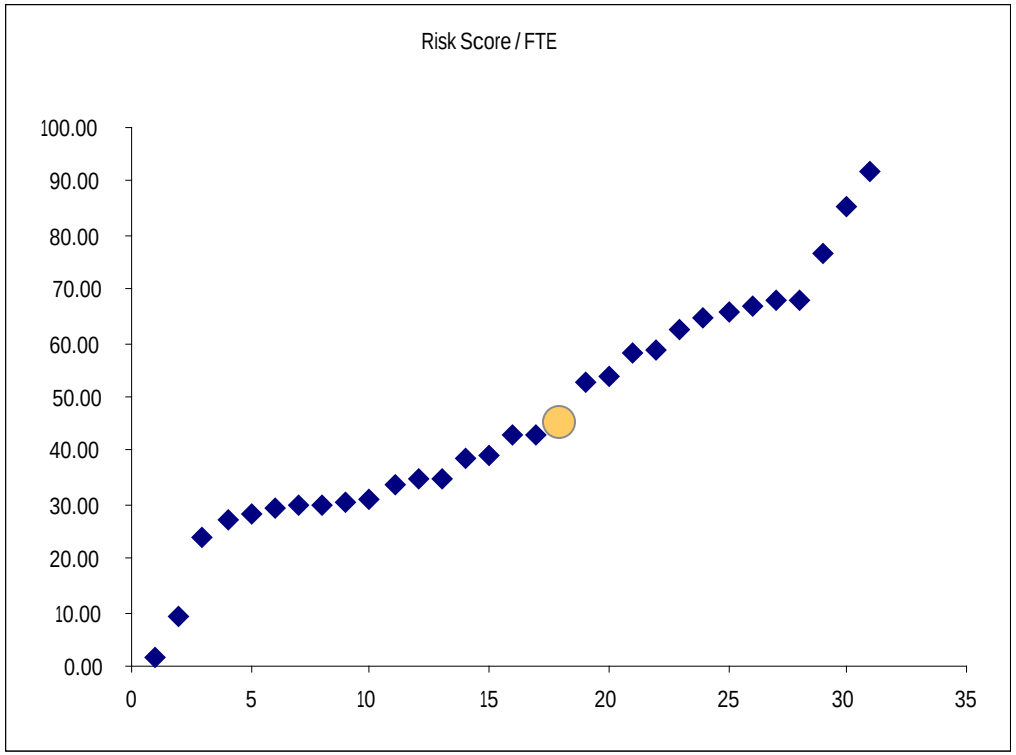
PHN visits ranged from 2.5 to 95, were also log transformed.

The association between MRI and number of visits was found to be statistically significant with a (95% CI of 1.30 - 1.48).

A unit increase in the MRI score corresponds with 1.39 more PHN visits for an episode of care.

Results: Caseload Management

Total caseload scores adjusted by FTE ranged from 1.6 - 91.8, with a mean of 46.0 (●).



Limitations

- Knowledge baseline ratings are observational data with usual limitations (i.e. observer bias)
- Variations in documentation proficiency

Practice Implications

Data-based way of looking at caseloads

The data are very preliminary and show great variation in caseload risk

Results support a new data quality initiative for PHN documentation

Maternal Risk Index will be used in the future to help monitor and manage caseloads

Conclusions

A maternal risk index based on PHN assessments predicts duration of home visiting episodes of care, and provides valuable caseload management information to support optimal client care and outcomes

References

Flaten et al. (2011) Validation of a Maternal Risk Index Across Multiple Counties, Poster presented at the Omaha System International Conference, Eagan, MN

Lewis, M., Pontin, D. (2008). Caseload management in community children's nursing. *Pediatric Nursing,20,* 18-24.

Martin KS. (2005). *The Omaha System: A key to practice, documentation, and information management* (Reprinted 2nd ed.). Omaha, NE: Health Connections Press.

Monsen, K. A., Radosevich, D. R., Kerr, M. J., Fulkerson, J. A. (2011). Public health nurses tailor interventions for families at risk. *Public health nursing, 28,* 119-128.

Storfjell, J. L., Allen, C. E., Easley, C. E. (1997). Analysis and Management of Home Health Nursing Caseloads and Workloads. *The Journal of Nursing ,27 ,*24-33.

Thank you!

Questions?

Eunice Areba

areba002@umn.edu