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

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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).
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.
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)

Problem Classification Scheme
- has 4 Domains
  - Environmental
  - Psychosocial
  - Physiological
  - Health Related Behaviors
- has 4 in Domains
  - has 12
  - has 8

Intervention Scheme
- has 4 levels
  - Client Specific Information
  - Target (75)
  - Category (4)
- identifies + describes
- that address each

Problem Rating Scale for Outcomes
- measures
- 1 = lowest, 5 = highest
- has 3 rating scales
  - Knowledge
  - Behavior
  - Status

Problems (42)
- actual/potential/health promotion
- individual/family/community
- have unique

Definitions
Signs and Symptoms

used for documenting
standardized terms
which are
codes
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
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

<table>
<thead>
<tr>
<th>Problems weighted 1</th>
<th>Problems weighted 2</th>
<th>Knowledge scores</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pregnancy</td>
<td>Mental health</td>
<td>1 = no knowledge</td>
</tr>
<tr>
<td>Postpartum</td>
<td>Substance use</td>
<td>2 = minimal knowledge</td>
</tr>
<tr>
<td>Caretaking/parenting</td>
<td>Income</td>
<td>3 = basic knowledge</td>
</tr>
<tr>
<td></td>
<td>Cognition</td>
<td>4 = adequate knowledge</td>
</tr>
<tr>
<td></td>
<td>Abuse</td>
<td>5 = superior knowledge</td>
</tr>
</tbody>
</table>
### Sample Characteristics (N=3125)

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

<table>
<thead>
<tr>
<th>Primary Race</th>
<th>Frequency (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Asian / Pacific Islander</td>
<td>816 (22.95)</td>
</tr>
<tr>
<td>African / African American</td>
<td>1166 (32.80)</td>
</tr>
<tr>
<td>Native American / Alaska native</td>
<td>122 (3.43)</td>
</tr>
<tr>
<td>Hispanic/Latino</td>
<td>771 (21.69)</td>
</tr>
<tr>
<td>European / European American</td>
<td>1194 (33.59)</td>
</tr>
<tr>
<td>&gt; 1 Race</td>
<td>52 (1.46)</td>
</tr>
<tr>
<td>Other/ Unknown</td>
<td>198 (5.57)</td>
</tr>
<tr>
<td>Missing</td>
<td>7 (0.20)</td>
</tr>
</tbody>
</table>
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.
Total caseload scores adjusted by FTE ranged from 1.6 - 91.8, with a mean of 46.0 (○).
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


Thank you!

Questions?

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