



# **Developing Public Health Information System Fluency through Undergraduate Community Assessment**

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# Purpose

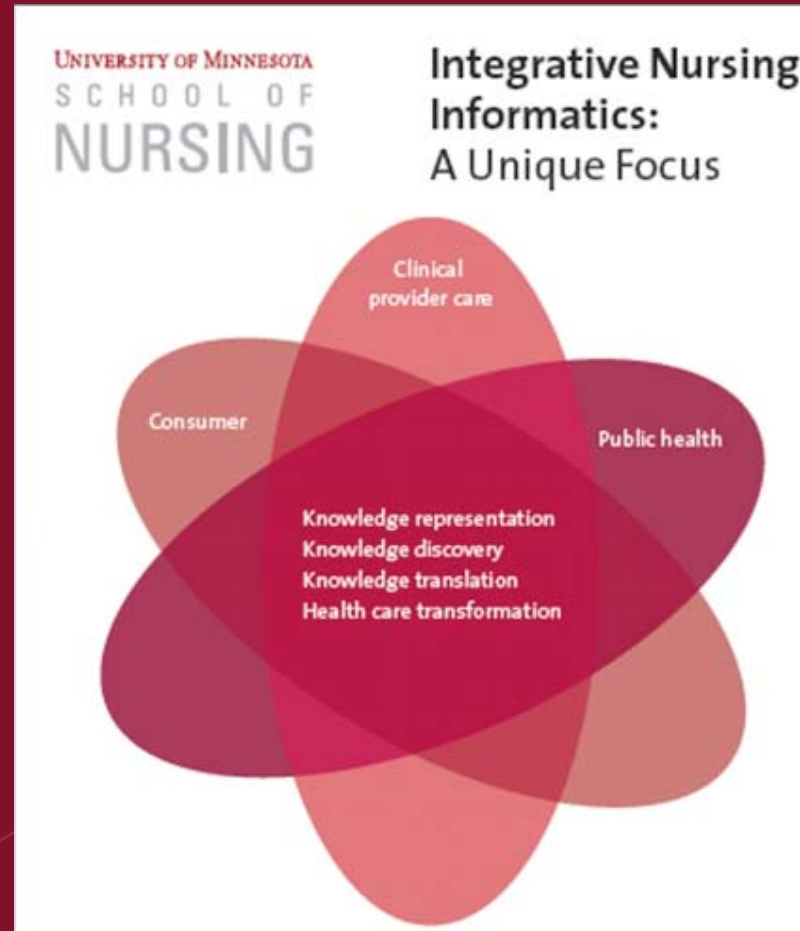
To develop student fluency in a standardized terminology used in public health informatics.



*Windshield survey day in the St. Croix River valley*



# Background



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# Community Assessment

- A core function and one of the essential services of public health
- A key component of population-based nursing curricula

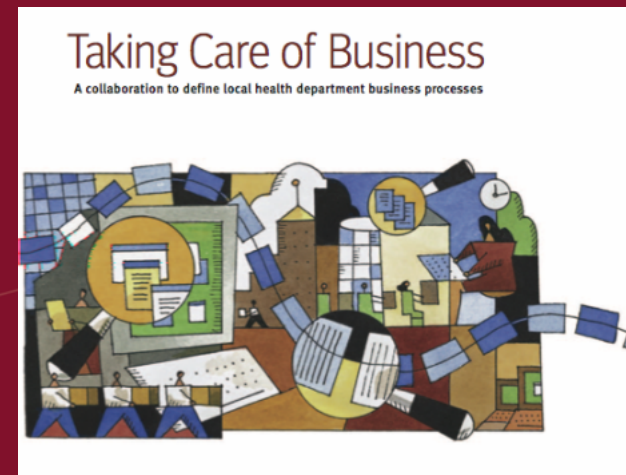


# Community Assessment

A business process identified in *Taking Care of Business* for development of information system requirements

Public Health Informatics Institute. (2006). *Taking Care of Business: A Collaboration to Define Local Health Department Business Processes*. Decatur, GA.

[http://www.phii.org/resources/doc/Taking\\_Care\\_of\\_Business.pdf](http://www.phii.org/resources/doc/Taking_Care_of_Business.pdf)





# Student Assignment

## Community Assessment Instrument for Baccalaureate Learners (CAIBL)<sup>1</sup>

<sup>1</sup> Gerberich, S.S., Stearns, S.J. & Dowd, T. (1995). A critical skill for the future: Community assessment. *Journal of Community Health Nursing*, 12 (4), 239-250.



Students discuss and come to consensus on:

- community strengths

*e.g. fast response time of police*

- opportunities for improvement

*e.g. no fire hydrants*





# The Omaha System

- A complex multiaxial hierarchical classification system amenable to automation and implementation within public health information systems.
- One of the standardized terminologies mapped to SNOMED CT®

<http://www.ihtsdo.org/our-standards/>





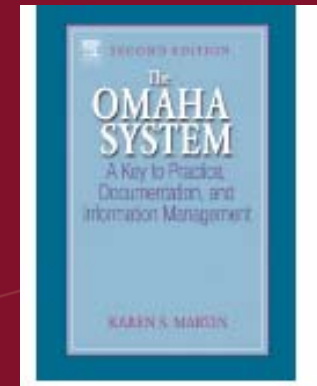
# New Omaha System

- New community modifier
- Community-level assessments, interventions and outcomes <sup>1</sup>.

e.g. Problem: Residence

Modifiers: Community and actual

Signs/Symptoms: Homeless



<sup>1</sup> Martin, (2005). *The Omaha System: A Key to Practice, Documentation, and Information Management*. Elsevier.



# Method

Feasibility test to see if Omaha System terms can be matched with CAIBL data

## 1. Sample:

- 6 archived student community assessments
- data in the form of narrative statements about community strengths and opportunities for improvement.



# Method

## 2. Expert panel:

- 5 experienced Omaha System users
- independently matched Omaha System terms to 73 narrative items from student community assessments (39 strengths, 34 opportunities for improvement).



# Method

## 3. Agreement evaluated:

a. Resulting problem and sign/symptom terms were compiled and agreement evaluated using a criterion of 80% or 4/5 panel members with the same Omaha System problem term.

😊😊😊😊 😐 4/5 = 80% agreement

b. % of Omaha System terms on which panelists agreed was calculated.



# Expert Panel Results

Panelists agreed on Omaha System terms for 61/90 student terms (68%)

- Opportunities for improvement (29/39 = 74%)
- Strengths (32/51 = 62%)



# Expert Panel Results

Problems for 6 archived community assessments

- Communication with community resources (n=5)
- Neighborhood/workplace safety (n=4)
- Income (n=3)
- Residence (n=2)
- Nutrition (n=2)
- Substance use (n=2)



## Expert Panel Results for 6 Archived Community Assessments

Problem	Freq	Definition	Identified Signs/Symptoms
Communication with community resources/ Psychosocial domain	13	Interaction between the individual/family/community and social service organizations, schools, and businesses in regard to services, information and goods/supplies.	<ul style="list-style-type: none"> <li>• cultural barrier</li> <li>• educational barrier</li> <li>• inadequate/unavailable resources</li> <li>• language barrier</li> <li>• limited access to care/services/goods</li> <li>• transportation barrier</li> <li>• unable to use/has inadequate communication devices</li> <li>• unable to communicate concerns to provider</li> </ul>
Neighborhood/ workplace safety/ Environmental domain	8	Freedom from illness, injury, or loss in the community or place of employment.	<ul style="list-style-type: none"> <li>• high crime rate</li> <li>• high pollution level</li> <li>• inadequate/unsafe play area</li> <li>• physical hazards</li> <li>• threats/reports of violence</li> <li>• other</li> </ul>



# Omaha System to CAIBL

- One faculty member mapped the Omaha System to Community Assessment Instrument for Baccalaureate Learners (CAIBL)
- Expert review of map by 2 coauthors





# Translation into Practice

- The map tool was made available to students
- Omaha System terminology was integrated into the CAIBL assignment



# Student Results Fall 06

Problems for 5 student community assessments:

- Communication with community resources (13)
- Neighborhood/workplace safety (7)
- Income (5)
- Residence (2)
- Nutrition (2)
- Substance use (2)
- Health care supervision (2)
- Spirituality (2)



# Student Results for 5 communities Fall 2006

Problem/Domain	Freq	Definition	Identified Signs/Symptoms
Communication with community resources/ Psychosocial domain	13	Interaction between the individual/family/community and social service organizations, schools, and businesses in regard to services, information and goods/supplies.	<ul style="list-style-type: none"> <li>• cultural barrier</li> <li>• inadequate/unavailable resources</li> <li>• language barrier</li> <li>• limited access to care/services/goods</li> <li>• transportation barrier</li> </ul>
Neighborhood/ workplace safety/ Environmental domain	7	Freedom from illness, injury, or loss in the community or place of employment.	<ul style="list-style-type: none"> <li>• high crime rate</li> <li>• high pollution level</li> <li>• physical hazards</li> <li>• threats/reports of violence</li> <li>• other</li> </ul>



# Conclusion

It was feasible to map student community assessment statements to the Omaha System Omaha System Problem Classification Scheme provided data standardization



*PHN Practicum Day*



## Most common community-level problems using Omaha System terminology:

1. Communication with Community Resources
2. Neighborhood/workplace safety





# Discussion

Standardized terminology for community assessment is a first step toward measuring community-level interventions and outcomes.

Future possibilities- comparison across time, populations, and geographic locations.



# Questions?

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*Resource Recovery Facility Tour*

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