

# **Do Organization and System Factors Impact Family Physician Performance?**

**Northern Ontario Health Research Conference  
Nipissing University  
North Bay ON**

**May 31, 2008**

**Elizabeth Wenghofer, PhD  
School of Rural and Northern Health  
Laurentian University**

# Background

- Concepts of physician performance have been inadequate because....

## 1. Dimensionality –

- uni-dimensional or dimensions based on tasks or diseases
- devoid of patient context

## 2. Focused on the individual physician -

- what about organization (e.g., walk-in clinics, practice volume) and system (e.g., restructuring, resources)

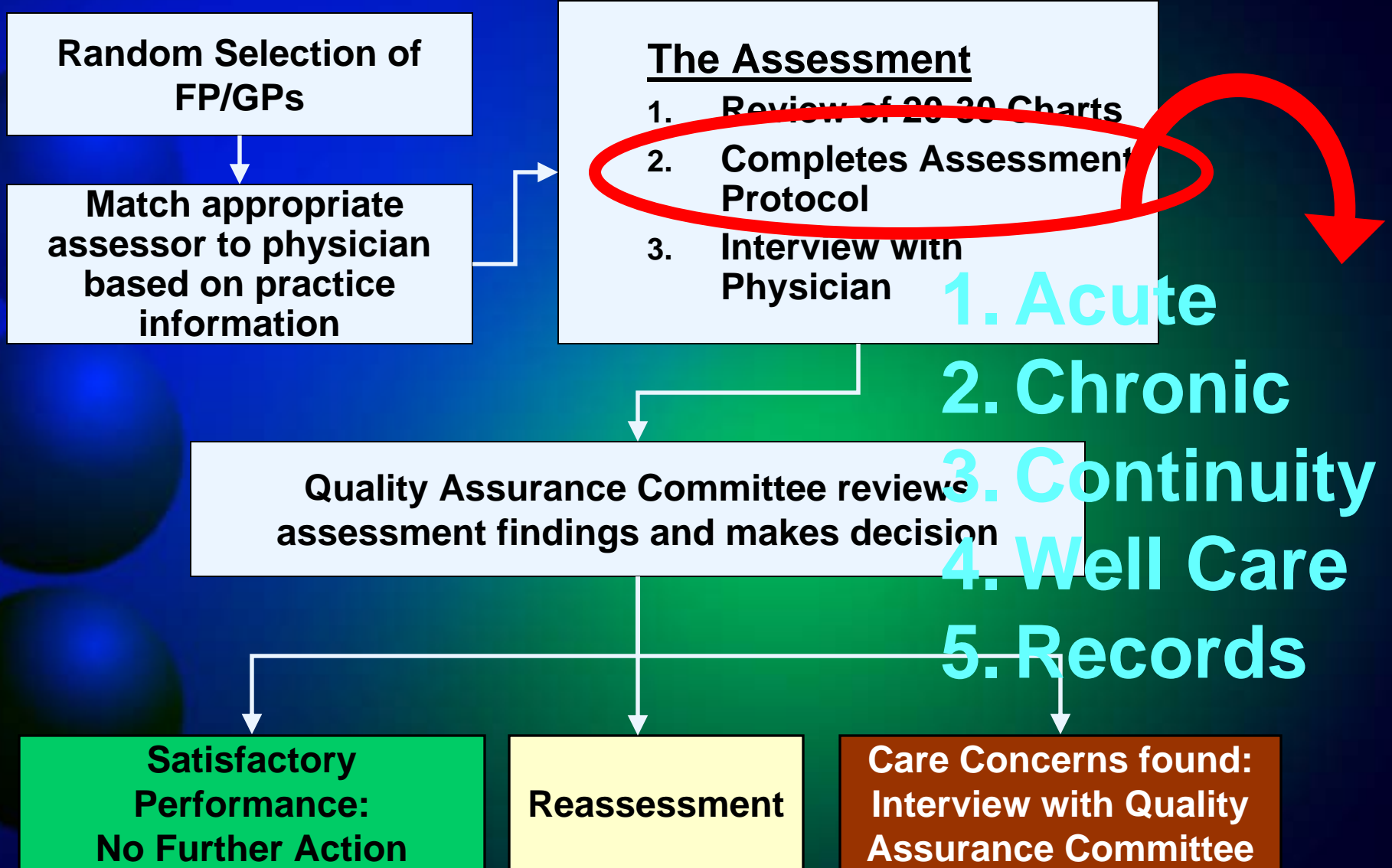
# Research Question

- What factors affect physician performance?
  - PHYSICIAN?
  - ORGANIZATION?
  - SYSTEM?
- Are different dimensions of performance affected by physician, organization and system factors uniformly or to varying degrees?

# Methods

- College of Physicians and Surgeons of Ontario (CPSO) Peer Assessment Data
- 539 Family/General Practitioners (FP/GP) randomly selected & peer assessed 1997-2000
- Self Reported Practice Data
- Peer Assessment Protocol Data
- Registry Data
- Stats Can Census Data

# CPSO Peer Assessment Process



# Analysis

- Impact of physician, organization and system factors affecting performance on performance dimension scores
- 2 Series of Multiple Regressions
  - i. Independent Model – Physician Factors Only
  - ii. Full Model – Physician, Organization and System simultaneously

# Performance Dimension Scores - Dependent Variables

- Scores from Assessment  
Protocols for...
  1. Acute Condition Management
  2. Chronic Condition Management
  3. Continuity of Care
  4. Well Care/Health Maintenance
  5. Records

# Factors Affecting Performance - Independent Variables

| Physician                               | Organizational                | System                                    |
|---|-------------------------------|---|
| 1) Age                                  | 1) Solo Practice (y/n)        | 1) EMS Distance (minutes)                 |
| 2) Gender                               | 2) Walk-in Clinic (WIC) (y/n) | 2) Availability of 911 (y/n)              |
| 3) Med School (North America vs. other) | 3) Total Staff                | 3) Diagnostic Tests Available (scale 0-1) |
| 4) CFPC (y/n)                           | 4) Patients/week              | 4) MD/1000 Population                     |
| 5) Previous Asmt (y/n)                  | 5) Hosp appointment (y/n)     | 5) Northern Practice                      |
| 6) Yrs in Current Practice Setting      | 6) Teach (y/n)                |   |
|   | 7) Focused (y/n)              |   |

# Effects of Physician Factors Alone on Performance (Independent Model)

|                           | <b>Physician</b>                      |
|---------------------------|---------------------------------------|
| <b>Acute Condition</b>    | <b>Gender, Certification</b>          |
| <b>Chronic Condition</b>  | <b>Certification</b>                  |
| <b>Continuity of Care</b> | <b>Indep. Model Not Significant</b>   |
| <b>Well Care</b>          | <b>Gender,<br/>Certification</b>      |
| <b>Records</b>            | <b>Age,<br/>Gender, Certification</b> |

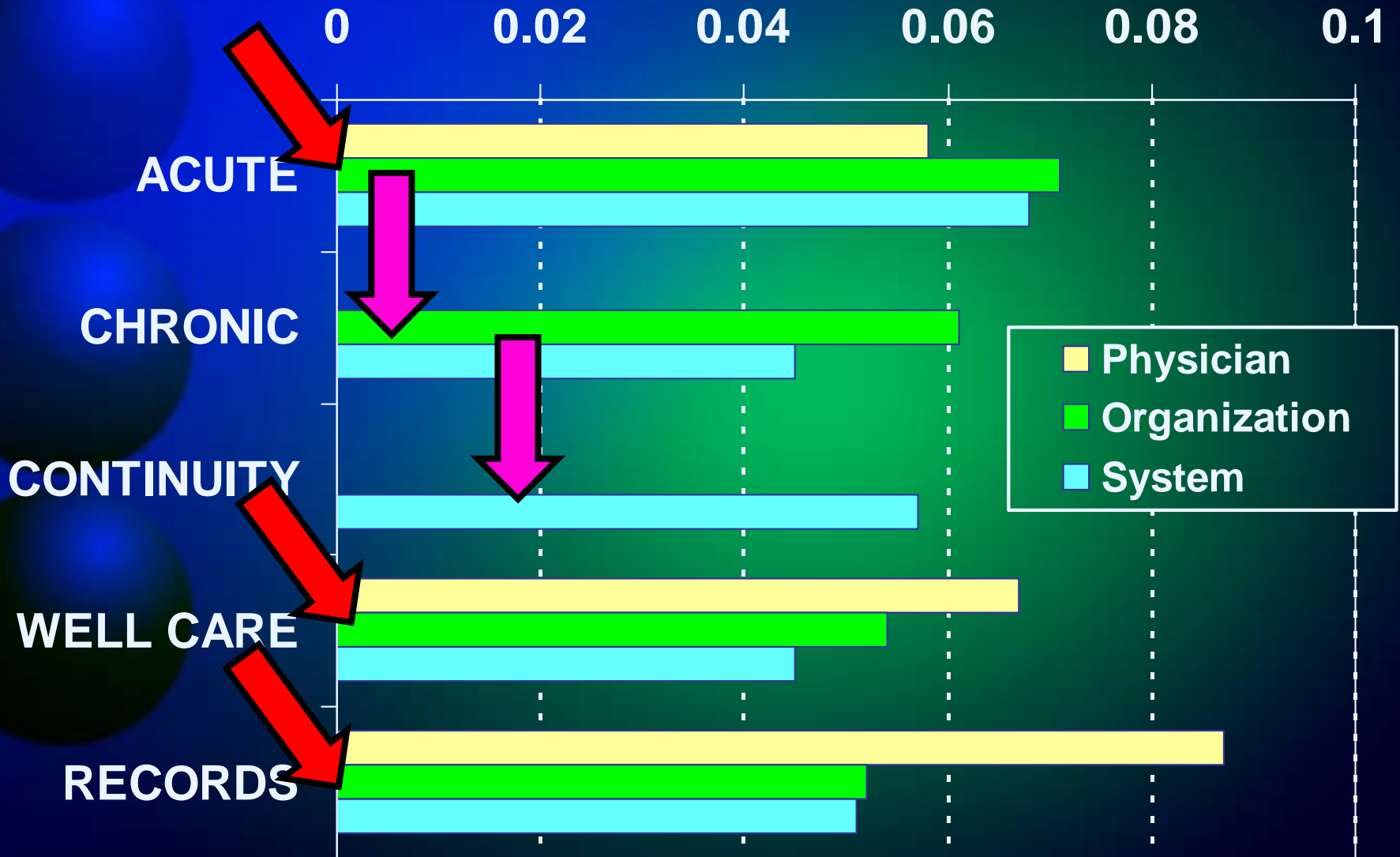
# Physician Factors once Organization and System Added (Full Model)

|                    | Physician   |
|--------------------|---|
| Acute Condition    | <del>Gender, Certification</del><br>Years in Current Setting          |
| Chronic Condition  | <del>———— Certification ————</del>                                    |
| Continuity of Care | <del>Indep. Model Not Significant</del><br>No significant Phys effect |
| Well Care          | Gender,<br>Certification  |
| Records            | <del>Age,</del><br>Gender, Certification                              |

|   | ACUTE<br>B (SE)   | CHRONIC<br>B (SE)               | CONTINUITY<br>B (SE)            | WELL CARE<br>B (SE)             | RECORDS<br>B (SE)               |                                 |
|---|---|---------------------------------|---------------------------------|---------------------------------|---------------------------------|---------------------------------|
| <b>Model R Square</b>                           | <b>.199**</b>   | <b>.142**</b>                   | <b>.123**</b>                   | <b>.193**</b>                   | <b>.233**</b>                   |                                 |
| <b>Significant<br/>Physician<br/>Factors</b>    | <b>Males</b>  |                                 |                                 | <b>-.236*</b><br><b>(.095)</b>  | <b>-.104*</b><br><b>(.050)</b>  |                                 |
|   | <b>Years in Current<br/>Practice</b>                          | <b>-.007*</b><br><b>(.004)</b>  |                                 |                                 |                                 |                                 |
|   | <b>Holds CFPC<br/>Certification</b>                           |                                 |                                 | <b>.208**</b><br><b>(.068)</b>  | <b>.073*</b><br><b>(.036)</b>   |                                 |
| <b>Significant<br/>Organization<br/>Factors</b> | <b>WIC Practice</b>   |                                 | <b>-.166*</b><br><b>(.071)</b>  |                                 |                                 |                                 |
|   | <b>Number of Patient Visits<br/>per Week</b>                  | <b>-.002**</b><br><b>(.000)</b> | <b>-.001**</b><br><b>(.000)</b> | <b>-.001**</b><br><b>(.000)</b> | <b>-.002**</b><br><b>(.001)</b> | <b>-.001**</b><br><b>(.000)</b> |
|   | <b>Holds Active Hospital<br/>Appointment</b>                  |                                 |                                 |                                 | <b>.080*</b><br><b>(.036)</b>   |                                 |
| <b>Significant<br/>System<br/>Factors</b>       | <b>Proportion of Basic<br/>Diagnostic Tests<br/>Available</b> |                                 | <b>.350**</b><br><b>(.131)</b>  | <b>.391**</b><br><b>(.111)</b>  | <b>.458*</b><br><b>(.217)</b>   |                                 |
|   | <b>Physician to 1000<br/>Population Ratio</b>                 | <b>.033*</b><br><b>(.013)</b>   | <b>.027**</b><br><b>(.011)</b>  | <b>.021*</b><br><b>(.009)</b>   |                                 |                                 |
|   | <b>Northern Practice<br/>Location</b>                         | <b>-.345**</b><br><b>(.095)</b> |                                 |                                 | <b>-.332*</b><br><b>(.124)</b>  | <b>-.240**</b><br><b>(.065)</b> |

\*\* significant at p<.01 \* significant at p<.05

# Significant R Square Values for Regression of Performance Scores on Physician, Organization and System Factors



# Returning to the Research Questions...

- What factors affect physician performance?
  - **Physician, organization and system → looking at physician factors alone is inadequate**
  - **Looking at them separately gives a different interpretation than looking at their impact simultaneously**
- Is performance affected by physician, organization and system level factors uniformly or to varying degrees?
  - **Each varies depending on the dimension of performance examined – each dimension has unique needs and barriers**

# Implications

## 1. Quality Improvement

- Right solution at the right target

## 2. Governance

- Scope of Practice
- Contextual competence



# Questions & Discussion