Making Progress:
National Clinical Pharmacy Key Performance Indicators (cp KPI)

Session Outline
- Why do we need clinical pharmacy key performance indicators (cp KPI)?
- What is the CSHP cp KPI Task Force?
- Important milestones to date
  - Information gathering
  - Evidence review
  - Selection criteria
  - Critical topic areas
  - DRAFT cp KPI
- What is planned for the future?

Session Objectives
After this session, you should be able to:
1. Explain why we need National clinical pharmacy performance indicators (cp KPI)
2. Describe the structure and function of the CSHP National cp KPI Task Force
3. List the important milestones completed to date
4. Recognize the key literature evidence reviewed
5. Recognize the cp KPI selection criteria proposed
6. List the evidence-informed critical topic areas proposed
7. Explain the process to achieve consensus on cp KPI
8. Learn where to provide feedback on draft cp KPI

Why do we need cp KPI?
- High-quality literature evidence has shown that clinical pharmacists can have impact on patient symptoms, morbidity, mortality, QOL, health-service utilization, and costs of care
- Existence of evidence does not guarantee provision of valuable, evidence-based services
- Performance indicators for clinical pharmacy services have been historically under-developed
- Project is aligned with CSHP Vision 2015

World Health Organization
“Pharmacists’ services…have been associated with improved health and economic outcomes, a reduction in medicine-related adverse events, improved quality of life, and reduced morbidity and mortality.”

Presentation by R. Slavik (CSHP BC Branch AGM November 23, 2012)
Why do we need cp KPI?

- To improve quality of clinical care (accessibility, appropriateness, effectiveness, safety, efficiency, cost-effectiveness etc.)
- To advance clinical pharmacy practice
- To enhance professional accountability and transparency for clinical services

Why do we need cp KPI?

- “Ideal” system would be...
  - Relevant
  - Aligned
  - Valid
  - Reliable
  - Sensitive
  - Specific
  - Efficient
  - Useable

Why do we need cp KPI?

- “Perceived” barriers include...
  - Time
  - Cost
  - Threatening
  - Lack of staff “buy-in”
  - No systems in place
  - Lack of access to data
  - Development training
  - Manual data collection
  - Feeling of “futility”

Why do we need cp KPI?

- Process Measures
  - Are proven activities or interventions being provided to eligible patients?
- Outcome Measures
  - Is implementation of process measures translating into expected improvements in clinical outcomes?
- Balancing Measures
  - Are changes designed to improve one outcome causing problems for others?

Example:

- Process measures
  - Clinical activities
  - Resolved DTPs
  - Reduced morbidity
    - “Med Reconciliation”
    - “DTP Tracker”
    - “Readmissions”
- Outcome measure
What is the cp KPI Task Force?

- Initially formed as cp KPI Working Group in 2011
- Pharmacist participants from across Canada
- Worked to develop relationship with CSHP
- First face-to-face meeting at SES in Aug 2011
- Extensive information gathering from across Canada from Sept 2011 – Apr 2012
- Facilitated PPC Workshop in Feb 2012
- Proposed formal link to CSHP at MCM in 2012
- Confirmed as cp KPI "Task Force" in Aug 2012

TOR: Currently being drafted

Co-Chairs: Olavo Fernandes/Kent Toombs


Information Gathering

- Review of work to date on cp KPI across Canada
- Heterogeneous findings ranging from capture of workload statistics to clinical activities to rDTPs
- Application of valuable, evidence-based services varied widely based on information provided
- Many areas of alignment across Canada in vision for clinical pharmacy services
- Participants eager to contribute to establish Canadian cp KPI for hospital pharmacists

Evidence Review

- Mortality rates
- Medication errors
- Adverse drug reactions
  - Pharmacotherapy 2006;26:735-747.
- Length of Stay
- Drug costs
- Total costs of care
  - Pharmacotherapy 2000;20:609-621.

Bond et al.
Clinical Pharmacy Services, Pharmacy Staffing, and Hospital Mortality Rates

C. A. Bond, Pharm.D., FASHP, FCP, and J. G. Gerber, B.S., CPhA, FASHP

Objective: To determine if hospital-based clinical pharmacy services and pharmacy staffing continue to be associated with mortality rates.

Methods: A database was constructed from 1999 MedPAR, American Hospital Association’s Annual Survey of Hospitals, and National Clinical Pharmacy Services databases, consisting of data from 2,363,961 patients in 601 hospitals. Data from hospitals that had 15 clinical pharmacy services were compared with data from hospitals that did not have these services; hospital pharmacy staffing was also compared. A multiple regression analysis, controlling for severity of illness, was used.

Results: Seven clinical pharmacy services were associated with reduced mortality rates: pharmacists provided drug use evaluation (0.10 reduced deaths, p=0.01), pharmacists provided in-service education (0.10 reduced deaths, p=0.01), pharmacists assisted in the development of drug protocols and established procedures for inpatient drug use (0.08 reduced deaths, p=0.01), pharmacists assisted in the development of drug allergy policies (0.08 reduced deaths, p=0.01), pharmacists conducted patient reconciliation (0.08 reduced deaths, p=0.01), pharmacists participated in the development of drug-use policies and procedures (0.07 reduced deaths, p=0.01), and pharmacists provided drug allergy education (0.07 reduced deaths, p=0.01). The effect of each service was similar regardless of hospital size.

Clinical Pharmacists and Inpatient Medical Care

A Systematic Review


Activities that improve patient outcomes

- Pharmacists participation on rounds
- Interviewing patients
- “Medication reconciliation”
- Discharge counseling
- Post-discharge follow-up

Surrogate markers

- Reduction in HbA1C -1.8% (-0.9 to -2.7)
- Reduction in LDL -0.16 mmol/L (-0.15 to -0.17)
- Reduction in SBP -7.8 mm Hg (-5.8 to -9.7)
- Reduction in DBP -2.9 mm Hg (-2.0 to -3.8)

Safety endpoints

- Reduction in ADE: OR= 0.53 (0.33 to 0.83)

Humanistic endpoints

- Benefits on medication adherence, patient knowledge, and QOL (general health)
Evidence Review

- “Favorable” results found for the following outcomes in the majority of studies:
  - Reduced length of stay (59% of studies)
  - Reduced ED visits (52% of studies)
  - Reduced hospitalization/re-admission (51%)

Collaborate Study

D: P, R, OL, MC clinical trial
P: Internal medicine teams in 3 teaching hospitals in Alberta (2006-7)
I: Team pharmacist providing “comprehensive” pharmaceutical care with focus on resolution of evidence-based DRPs for patients with 5 high-priority disease states
C: No team pharmacist, reactive care
O: Overall quality of drug therapy, readmission rates

Results

- n= 452 patients (avg. 74 years)
- Significant improvement in KPIs for pneumonia, HF, COPD, IHD, DM (56.4% vs. 45.3%, p<0.05)
- Significant reduction in 3 month readmission rates (36.2% vs. 45.5%, p < 0.05)
- 25 fewer readmissions at 3 months

Swedish Study

D: P, R, OL, single centre clinical trial
P: Medicine ward in Sweden (2005-6)
I: Ward-based pharmacist providing “comprehensive” pharmaceutical care with focus on resolution of DRPs
C: No ward pharmacist, reactive care
O: Frequency of hospital visits
Swedish Study

Results
- n=368 patients (avg. 86 years), 12 month f/u
- n=357 DRPs resolved in intervention group
- 47% ↓ in ED visits (44 visits)
- 16% ↓ in hospital visits (50 visits)
- 80% ↓ in drug-related readmissions (36 visits)
- Lower total cost per patient ($230 savings/pt)

Quality Actions

Value Index = Prevalence x [Quality Aggregate] Effort to Manage

Quality Aggregate
- Evidence base: Strength of evidence
- Effectiveness: Impact on outcomes
- Safety: Impact on safety
- Efficiency: Avoidance of waste
- Modifiability: Link between pharmacist and change
- Reliance: Pharmacist best-suited for task

New Zealand Experience

Table 2: Top ranked key performance indicators (KPIs): comparison of the overall median and mean Likert scores for relevance and measurability

<table>
<thead>
<tr>
<th>Task Force Criteria (n=11)</th>
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<tbody>
<tr>
<td>Based on high quality literature evidence</td>
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<tr>
<td>Relevant impact on clinically important outcomes</td>
</tr>
<tr>
<td>Best-suited to pharmacist’s role</td>
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<tr>
<td>Attributable to direct patient care</td>
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<tr>
<td>Specific to pharmaceutical care process</td>
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<tr>
<td>Aligned with professional goals, objectives, practice</td>
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<tr>
<td>Accepted disease-based quality indicator</td>
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Selection Criteria

Task Force Criteria (cont’d)

- Feasible to measure
- Efficient to measure
- Valuable quality measure
- Generalizability

Summary Criterion
- Global statement to be drafted for final ranking

Critical Topic Areas

- Best possible medication history
- Admission medication reconciliation
- Multidisciplinary patient care rounds
- Pharmaceutical care
- Patient education/discharge counseling
- Discharge medication reconciliation
- Post-discharge follow-up
- Disease/drug-based indicator(s)
  - HF, IHD, COPD, AFIB, VTE prophylaxis, infection control, NRT/smoking cessation, chemotherapy, etc.

Call for candidate cp KPI

Kent Toombs: Kent.toombs@cdha.nshealth.ca
Olavo Fernandes: Olavo.fernandes@uhn.ca

DRAFT cp KPI

- Best possible medication history (n=1)
- Admission medication reconciliation (n=1)
- Multidisciplinary patient care rounds (n=1)
- Pharmaceutical care (n=4)
- Patient education/discharge counseling (n=3)
- Discharge medication reconciliation (n=1)
- Post-discharge follow-up (n=1)
- Disease/drug-based indicator(s) (n=14)
  - HF, IHD, COPD, AFIB, VTE prophylaxis, infection control, NRT/smoking cessation, chemotherapy, etc.

Examples

- Best possible medication history
  - Number (or proportion) of patients who receive a formal documented best possible medication history (BPMH) by a pharmacist or pharmacy technician

- Admission medication reconciliation
  - Number (or proportion) of patients who receive formal documented admission medication reconciliation and resolution of identified discrepancies by a pharmacist
**Presented by R. Slavik (CSHP BC Branch AGM November 23, 2012)**

**DRAFT cp KPI**

**Examples**
- **Pharmaceutical Care**
  - Number (or proportion) of patients for whom clinical pharmacists have completed pharmaceutical care plan
  - Number of total DTPs resolved by pharmacists
  - Number of DTPs resolved by pharmacists for "high-alert" medications (e.g. ISMP criteria)
- **Discharge Counseling**
  - Number (or proportion) of hospital patients who receive medication counseling by a pharmacist at discharge

**What is planned for the future?**
- Sample of survey panelists to be contacted (n=20)
- Dissemination of evidence summary to panelists
- Each candidate cp KPI will be evaluated on a 9-point likert scale based on 11 selection criteria and 1 overall summary criterion
- Three rounds of Delphi survey surveys are planed for consensus building

**Session Review**
- Why do we need clinical pharmacy key performance indicators (cp KPI)?
- What is the CSHP cp KPI Task Force?
- Important milestones to date
  - Information gathering (coast to coast)
  - Evidence review (n=7 papers)
  - Selection criteria (n=11)
  - Critical topic areas (n=8)
  - DRAFT cp KPI (n=26)
- What is planned for the future?

**Questions?**

**DRAFT cp KPI**

**Examples**
- **Disease-based indicator**
  - Number (or proportion) of IHD patients who receive ASA prior to discharge
  - Number (or proportion) of HF patients with an ACE-I or ARB initiated or titrated to target doses prior to discharge
- **Drug-based indicator**
  - Number (or proportion) of cancer inpatients receiving cytotoxic chemotherapy as determined by hospital approved chemotherapy treatment protocol

**What is planned for the future?**
- Delphi rounds 1 and 2 (Dec 2012-Feb 2013)
- Live meeting at PPC 2013 to clarify final cp KPI wording and rating scale for survey
- Delphi round 3 (Feb 2013) will be used to determine consensus on cp KPI
- Consensus cp KPI will be reviewed in context of 8 evidence-informed critical topic areas to address balance in "suite" of indicators
- Goal dissemination March-September 2013