How to change physician, health system and patient behavior: the knowledge to action cycle and guideline implementation

Braden Manns
Outline:

- Describe the Knowledge to Action Cycle and Guideline implementation
- Overview of how to change physician behavior
- Examples of Cluster RCTs testing different guideline implementation strategies
Knowledge translation is getting evidence into practice......

Canadian Institutes of Health Research
Knowledge to Action Cycle
1. Using albuminuria to assess risk and guide treatment in CKD-KDIGO CKD Guidelines

- Albuminuria increases the risk of death, cardiovascular disease and ESRD.
- Patients with albuminuria are the ones who benefit from angiotensin blockade.
  - But only 20% of people with nondiabetic CKD have a measure of albu/proteinuria within one year.
How do we get physicians to measure albuminuria and act on the results?
2. Timely initiation of dialysis

- Initiation of dialysis is the raison d'être of Nephrology
- Prior guidelines recommended initiating dialysis at mean eGFR of 10.5mls/min
- Between 2001 and 2010, “early start dialysis” increased from 27 to 41%
- IDEAL study suggests no difference in mortality, hospitalization or quality of life for patients initiating at lower eGFR
How do we prepare our system for smooth (later) initiation of Dialysis?
How do you change Health care practitioner behavior?

"I don’t do requests, It’s chopsticks or nuttin"
• The Canadian Society of Nephrology (CSN) created guidelines but had no knowledge translation plan/activities

• The CSN created “CANN-NET” to create priority areas for KT, and to use the knowledge to action cycle to improve care and outcomes in priority areas in kidney disease
Knowledge to Action Cycle

Digging deeper
Barriers to implementation of evidence

1. Professional
2. Patient
3. Health care team/ organization
4. Practice environment
Barriers to implementation of evidence:

Professional KDIGO
Physician knowledge

• Lack of awareness of study / guideline
• Medical training / lack of skills / obsolete knowledge
• Information overload
• Unsure how to implement the intervention
Uncertainty

• Clinical uncertainty – poor quality evidence
• Key opinion leaders not in agreement
Going against the grain:

• Going against usual “Standard of care”

• Compulsion to act (need to do something)
Barriers to implementation of evidence:

Patient
Patient’s expectations

• Patient typically doesn’t know what they want!
• Expressed wishes for prescription
Problems with adherence

• Lack of understanding regarding need for adherence
• Lack of time (i.e. exercise)
• Financial barriers to adherence
• Individuals exist within a larger society
  o Lifestyles are collective – dialysis education campaign more effective?
Barriers to implementation of evidence: Health System KDIGO
Health care team / organization

• Lack of reimbursement for service or medication
• Lack of time
• Perception of liability (risk of complaints)
Practice environment

• Geographic location of clinics / amenities
• Advocacy (i.e. by pharmaceutical companies)
Now we know what the relevant barriers are....
So what works to change care?

It depends on what the identified barrier is....

• No one intervention is effective in all circumstances
• Combinations of interventions may be more effective
In general....

• Prepare well
• Identify the barriers to implementation up front
• Select a set of strategies aimed at different barriers
• Define indicators for success and monitor progress regularly
If the Barrier is physician knowledge:

1. Distribution of educational materials to professionals: mixed effects

2. Guideline implementation strategies: median improvement in “care” of 8%

3. Continuing Medical Education:
   • Large conferences and didactic teaching: No/ minimal effect
   • Small group / interactive education with active participation: Positive effects on practice, possibly outcomes

4. Educational outreach by experts: particularly effective for prescribing
Other Strategies

Audit and feedback:

• Most evidence is around targeting of test ordering or prevention
• Mixed results when used on its own.
• Possibly more effective when combined with reminders, and education

Reminders (posters, patients reminding staff):

• largest effect of any of the strategies used on its own, but large variation across studies
Substitution of tasks:
• Use of nurses / pharmacists
• Anemia protocols, clinical pathways / order sets with implementation guided by nurse
• Can be similarly effective or more effective than physician-only care

Patient-directed interventions
• Can be effective; particularly for improving prevention / vaccination
• Examples include education or Facilitated relay
Example: Using albuminuria to assess risk in CKD

The barriers

Lack of understanding of the results of the test
Lack of understanding of the prognostic significance
  In CKD
  In nonCKD

?Clinical decision support?
Clinical decision support system

<table>
<thead>
<tr>
<th>Medications</th>
<th>Problems</th>
<th>Procedures</th>
<th>Allergies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sudafed 30MG 1 Q6H</td>
<td>Smoking</td>
<td>Tonsillectomy</td>
<td>Bactrim</td>
</tr>
<tr>
<td>Zocor 20MG 1 QHS</td>
<td>Hypertension</td>
<td></td>
<td>Dairy products</td>
</tr>
<tr>
<td></td>
<td>Head trauma</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Diabetes mellitus</td>
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</tbody>
</table>

**Reminders**
- Patient has Diabetes and Hypertension on problem list and ACE inhibitor is not on the medication list. Recommend ACE inhibitor.
- Patient is overdue for HbA1C (rec: q 6 months).
- Patient is Overdue for LDL test (rec: q 1 year).
- Patient is overdue for Ophtho exam (rec: q 1 year).
Applying the policy: Clinical decision support systems

• To identify features of clinical decision support systems critical for improving clinical practice
• Systematic review of 70 RCTs, 68% of which “improved practice”
• Evaluated for the presence of 15 decision support system features

Kawamoto et al, BMJ 2005
## Features of effective decision support systems

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Example</th>
<th>Adjusted odds ratio</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Automatic provision</strong> of decision support as part of clinician workflow</td>
<td>Care recommendations provided within patients chart, so that clinicians do not need to seek out recommendations</td>
<td>112</td>
</tr>
<tr>
<td>Provision of decision support <strong>at time and location</strong> of decision making</td>
<td>Care recommendations provided as chart reminders during an encounter, rather than as monthly reports listing all the patients in need of services</td>
<td>15</td>
</tr>
<tr>
<td>Provision of a <strong>recommendation</strong>, rather than an assessment</td>
<td>CPGs recommend use of an ACE inhibitor vs ACE inhibitors are effective…</td>
<td>7</td>
</tr>
</tbody>
</table>
Can an eGFR management-based laboratory prompt, which identifies a patient with CKD as being at high risk for cardiovascular disease and progression to kidney failure, improve the management of cardiovascular risk factors and kidney disease by physicians?
In outpatients with stable kidney function, estimated GFR is a more accurate marker of kidney function than serum creatinine. Chronic kidney disease is defined by GFR <60 mls/min/1.73m² for more than 3 months. Published guidelines recommend that patients with GFR <30ml/min/1.73m² be referred to a Nephrologist (see [www.akdn.info](http://www.akdn.info)).

This patient has reduced kidney function and is at risk for cardiovascular events and progression to kidney failure. The National Kidney Foundation recommends:

1. Measure random urine albumin-to-creatinine ratio
2. Institute an ACEi or ARB in patients with diabetes, or those with an Alb:Cr >35mg/mmol
3. Referral to a Nephrologist if GFR < 30 ml/min/1.73m²
4. Assess and treat modifiable risk factors for CV and renal disease: a) target BP less than 130 /80 mmHg, b) target LDL-C < 2.5 mmol/L, c) if diabetic, target HbA1C < 7.0%

The above recommendations are general in nature and may not apply to all patients. Further information is available at [www.akdn.info](http://www.akdn.info)
## Results:

**Primary outcome:** Use of ACEi/ARB in patients with diabetes/albuminuria

<table>
<thead>
<tr>
<th>Cohort</th>
<th>Subgroup</th>
<th>Standard eGFR laboratory prompt, N(%)</th>
<th>Management based eGFR laboratory prompt, N(%)</th>
<th>Intra-class Correlation Coefficient (p-value)</th>
<th>Unadjusted Relative Risk (95% CI)</th>
</tr>
</thead>
<tbody>
<tr>
<td>All patients, GFR&lt;60 ml/min/1.73m²</td>
<td>Prevalent CKD patients</td>
<td>1,932 (77.1)</td>
<td>2,260 (76.9)</td>
<td>0.020 (&lt;0.001)</td>
<td>1.00 (0.96 to 1.04)</td>
</tr>
<tr>
<td>All patients, GFR&lt;30 ml/min/1.73m²</td>
<td>Prevalent CKD patients</td>
<td>161 (72.2)</td>
<td>208 (80.0)</td>
<td>&lt;0.001 (0.0497)</td>
<td>1.13 (1.03 to 1.24)</td>
</tr>
<tr>
<td>Incident CKD patients</td>
<td>38 (62.3)</td>
<td>57 (73.1)</td>
<td>&lt;0.001 (0.498)</td>
<td>1.17 (0.91 to 1.50)</td>
<td></td>
</tr>
</tbody>
</table>
## Results: Acquiring a measure of albuminuria

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<tbody>
<tr>
<td>All patients, GFR&lt;60 ml/min/1.73m²)</td>
<td>Prevalent CKD patients</td>
<td>550 (6.3)</td>
<td>645 (7.4)</td>
<td>0.050 (&lt;0.001)</td>
<td>1.29 (1.03 to 1.62)</td>
</tr>
<tr>
<td></td>
<td>Incident CKD patients</td>
<td>162 (6.0)</td>
<td>134 (5.2)</td>
<td>0.083 (&lt;0.001)</td>
<td>1.06 (0.75 to 1.49)</td>
</tr>
<tr>
<td>All patients GFR&lt;30 ml/min/1.73m²)</td>
<td>Prevalent CKD patients</td>
<td>42 (10.2)</td>
<td>69 (14.7)</td>
<td>0.038 (0.100)</td>
<td>1.50 (1.02 to 2.02)</td>
</tr>
<tr>
<td></td>
<td>Incident CKD patients</td>
<td>25 (16.8)</td>
<td>36 (20.6)</td>
<td>0.057 (0.171)</td>
<td>1.35 (0.81 to 2.25)</td>
</tr>
</tbody>
</table>
Conclusion:

• Baseline use of angiotensin blockade is high
• No additional impact of a management-based eGFR prompt, including on clinical outcomes
• Physicians may respond differently to the treatment-based lab prompt if eGFR<30mls/min
Timely initiation of dialysis

Canadian Society of Nephrology 2014 Clinical Practice Guideline for Timing the Initiation of Chronic Dialysis


CMAJ, Feb 2014
CSN Guideline

• Recommendation for the initiation of chronic dialysis
  • “intent-to-defer” over “intent-to-start-early” approach
  • Strong recommendation; moderate quality evidence
Barriers to implementation of evidence survey

• No renal program across Canada has a policy on timing of dialysis initiation

• A significant number of respondents felt uremic symptoms occurred earlier in patients with advancing age or co-morbid illness.

• Many Nephrologists felt there was an absolute eGFR at which they would initiate dialysis in an asymptomatic patient.
Knowledge to Action Cycle

Select, Tailor and Implement
When to Start Dialysis?

• Build awareness for your patients
• Medicine order sets
• KDIGO

Is it the right time to talk about dialysis options?
• Provider communication
• KDIGO

It's not just about numbers anymore.
• KDIGO
• KDIGO

Poster for providers

Education for patients

Draft order sets

Decision aid
Evaluate the impact of KT strategy

• What happened after publication of the IDEAL study – a time series analysis

• The impact of our KT strategy – a cluster RCT using 55 predialysis clinics in Canada, testing the impact on timing of dialysis and use of home dialysis
Proportion of patients initiating dialysis early, before and after the IDEAL study.
Assess to see if you’ve made a difference

Select your guideline to prioritize based on importance and care gaps

Local guidelines

Why don’t we do better

What strategy / KT tool will work best?