Transforming evidence from multiple guidelines into user friendly clinical practice tools: COSTaRS project

D Stacey RN, PhD; M Carley BSc, M Harrison RN, PhD for the Pan-Canadian Oncology Symptom Triage and Remote Support (COSTaRS) project

August 2013, GIN Conference, San Francisco CA
<table>
<thead>
<tr>
<th>The COSTaRS Team</th>
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<tbody>
<tr>
<td><strong>D Stacey</strong>, RN, PhD, CON(C)</td>
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<tr>
<td>Ottawa, ON</td>
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<tr>
<td><strong>D Bakker</strong>, RN, PhD</td>
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<tr>
<td>Sudbury, ON</td>
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<td><strong>B Ballantyne</strong>, RN, MScN, CON(C)</td>
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<tr>
<td>Sudbury, ON</td>
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<tr>
<td><strong>L Butler</strong>, RN, PhD</td>
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<tr>
<td>Saskatoon, SK</td>
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<tr>
<td><strong>M Carley</strong>, BSc</td>
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<tr>
<td>Ottawa, ON</td>
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<tr>
<td><strong>K Chapman</strong>, RN, MSc(N)</td>
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<tr>
<td>Fredericton, NB</td>
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<tr>
<td><strong>D Crooks</strong>, RN, DNSc</td>
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<tr>
<td>Winnipeg, MB</td>
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<td><strong>J Cumminger</strong>, RN, BScN, CON(C)</td>
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<tr>
<td>Pictou County, NS</td>
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<td><strong>G Cummings</strong>, RN, PhD</td>
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Pan-Canadian Oncology Symptom Triage and Remote Support (COSTaRS) Project

http://www.ktcanada.ohri.ca/costars/
Purpose

• To transform evidence from guidelines for clinical practice tools for remote management of patients experiencing symptoms related to cancer treatment
Methods

Mixed methods descriptive study guided by CAN-IMPLEMENT©:

a) conducted a systematic search for clinical practice guidelines for each symptom;

b) appraised each guideline for methodological quality using AGREEII;

c) developed symptom-based clinical practice KT tool using evidence from guidelines

d) convened pan-Canadian panel to reach consensus on a template for the symptom-based KT tools

e) used template to create KT tools for 13 symptoms and validated KT tools by oncology nurses and researchers from across Canada
CAN-IMPLEMENT© Guideline Adaptation

Clinical practice KT tools

KT tools to support patient care by nurses.

KT tools narrow the know-do gap by:

- presenting best available evidence
- using format sensitive to how nurses think and what nurses do
Selection Flow Chart

412 citations for 2 symptoms (diarrhea & neutropenia)

186 duplicates

Search refined to guidelines & systematic reviews

93 potentially relevant

2 duplicates

74 citations excluded based on title review

23 potentially relevant

10 excluded because irrelevant, primary study, editorial, or about drug therapy

13 guidelines*:
- Diarrhea (9)
- Febrile Neutropenia (5)
*same for both

- Cancer Care Ontario (1)
- National Comprehensive Cancer Network (1)
- Oncology Nursing Society (2)
- BC Cancer Agency (1)
- Infectious Diseases Society of America (1)
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Results: 42 Guidelines for 13 Symptoms
median 3 guidelines; range 1 (bleeding) to 7 (vomiting)

- Diarrhea
- Nausea/vomiting
- Anorexia
- Stomatitis
- Constipation
- Bleeding
- Fever with neutropenia
- Skin alteration

- Fatigue*
- Anxiety*
- Depression*
- Neuropathy
- Dyspnea

(*primary source Ca Journey Guideline)

Excluded:
Cognitive changes
Dysuria/hematuria

Not done:
Pain
42 symptom guidelines
Median AGREE rigour score = 84% (range 8 to 86)

For example: diarrhea guideline AGREE scores
Principles for KT Tool development (with iterative feedback from nurses)

- Evidence-based using appraised clinical practice guidelines
- KT tools meet criteria for being a guideline (AGREE II-rigour)
  - Make explicit the recommendations
  - Link to evidence
  - Based on systematic review for guidelines
  - Reviewed by experts across Canada
- Usable in practice beyond resource on the shelf
- Be able to integrate in electronic health record and clinical practice
  - Used Edmonton Symptom Assessment System question
- Plain language
Diarrhea Protocol
Remote Assessment, Triage, and Management of Diarrhea in Adults Undergoing Cancer Treatment
(not for patients undergoing bone marrow transplant)

**Diarrhea:** An abnormal increase in stool liquidity and frequency over baseline (> 4-6 stools/day) which may be accompanied by abdominal cramping.\(^4,6,7\)

1. **Assess severity of the diarrhea** (Supporting evidence: 7 guidelines)\(^1-7\)
   
   Tell me what number from 0 to 10 best describes your diarrhea
   - No diarrhea: 0
   - 1
   - 2
   - 3
   - 4
   - 5
   - 6
   - 7
   - 8
   - 9
   - 10
   - Worst possible diarrhea

   How worried are you about your diarrhea?\(^7\)
   - Not worried: 0
   - 1
   - 2
   - 3
   - 4
   - 5
   - 6
   - 7
   - 8
   - 9
   - 10
   - Extremely worried

   Have you been tested for c-difficile? If yes, do you know the results?
   - Yes
   - No
   - Unsure

   Ask patient to indicate which of the following are present or absent

<table>
<thead>
<tr>
<th>Patient rating (see ESAS above)(^9)</th>
<th>0-3</th>
<th>□</th>
<th>4-6</th>
<th>□</th>
<th>7-10</th>
<th>□</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient rating of worry about diarrhea (see above)(^1)</td>
<td>0-5</td>
<td>□</td>
<td>6-10</td>
<td>□</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Think about your normal bowel pattern. How many extra bowel movements are you having per day (including at night), above what is normal for you?(^1-7)</td>
<td>&lt; 4 stools</td>
<td>□</td>
<td>4-6 stools</td>
<td>□</td>
<td>≥ 7 stools</td>
<td>□</td>
</tr>
<tr>
<td>How would you describe your stools (colour, hardness, odour, amount, oily, blood, straining)?(^3,6,7)</td>
<td>Bleeding (gross)</td>
<td>□</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ostomy: How much extra output are you having, above what is normal for you?(^3-6)</td>
<td>□ N/A</td>
<td>None</td>
<td>□</td>
<td>Some</td>
<td>□</td>
<td>Severe</td>
</tr>
<tr>
<td>Do you have a fever &gt; 38° C?(^3,4,6,7)</td>
<td>N/A</td>
<td>Yes, with diarrhea</td>
<td>□</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you have pain in your abdomen or rectum with or without cramping or bloating?(^3,6,7)</td>
<td>Yes, some</td>
<td>□</td>
<td>Yes, often</td>
<td>□</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Does your diarrhea interfere with your daily activities at home and/or at work?(^3,6,7) Describe.</td>
<td>Yes, some</td>
<td>□</td>
<td>Yes, significantly</td>
<td>□</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Do you have any other symptoms?</td>
<td>Yes, some</td>
<td>□</td>
<td>Yes, often</td>
<td>□</td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ Nausea/vomiting(^3,4,6,7)</td>
<td>No</td>
<td>□</td>
<td>Yes, some</td>
<td>□</td>
<td></td>
<td></td>
</tr>
<tr>
<td>□ Loss of appetite</td>
<td>No</td>
<td>□</td>
<td>Yes, some</td>
<td>□</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Note: ESAS = Edmonton Symptom Assessment System*
<table>
<thead>
<tr>
<th>Loss of appetite</th>
<th>No</th>
<th>Yes, some</th>
<th>Yes, significantly</th>
<th>Have you been able to drink fluids?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Are you feeling dehydrated, which can include feeling dizzy, a dry mouth, increased thirst, fainting, rapid heart rate, decreased amount of urine?</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>Have you been able to drink fluids?</td>
<td>Yes</td>
<td>☐</td>
<td>☐</td>
<td>No</td>
</tr>
</tbody>
</table>

2. Triage patient for symptom management based on highest severity  
(Supporting evidence: 7 guidelines)  

- ☐ Review self-care.  
- ☐ Verify medication use, if appropriate.  
- ☐ Review self-care.  
- ☐ Verify medication use, if appropriate.  
- ☐ Advise to call back if symptom worsens, new symptoms occur, or no improvement in 12-24 hours.  
- ☐ Refer for medical attention immediately.

If patient is experiencing other symptoms, did you also refer to the appropriate protocols? If yes, please specify:

Additional Comments:
3. **Review medications patient is using for diarrhea, including prescribed, over the counter, and/or herbal supplements** (Supporting evidence: 6 guidelines)\(^{1-5}\)

<table>
<thead>
<tr>
<th>Current use</th>
<th>Examples of Medications for diarrhea</th>
<th>Notes (e.g. dose, suggest to use as prescribed)</th>
<th>Type of Evidence</th>
</tr>
</thead>
<tbody>
<tr>
<td>[]</td>
<td>Loperamide (Imodium(^{\circ}))(^{1-5})</td>
<td>2mg post each loose bowel movement (max 16mg/day)</td>
<td>Systematic Review</td>
</tr>
<tr>
<td>[]</td>
<td>Atropine-diphenoxylate (Lomotil(^{\circ}))(^{4,5,8})</td>
<td></td>
<td>Systematic Review</td>
</tr>
<tr>
<td>[]</td>
<td>Octreotide (Sandostatin(^{\circ}))(^{1-6})</td>
<td></td>
<td>Systematic Review</td>
</tr>
<tr>
<td>[]</td>
<td>Psyllium fiber (Metamucil(^{\circ}))(^{4})</td>
<td>1-2 tsp. per day</td>
<td>Randomized control trial</td>
</tr>
</tbody>
</table>

4. **Review self-care strategies** (Supporting evidence: 5 guidelines)\(^{3-7}\)

<table>
<thead>
<tr>
<th>What strategies are already being used?</th>
<th>Strategy suggested/education provided</th>
<th>Patient agreed to try</th>
<th>Self-care strategies</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. [x]</td>
<td>[x]</td>
<td>[x]</td>
<td>What helps when you have diarrhea? Reinforce as appropriate. Specify:</td>
</tr>
<tr>
<td>2. [x]</td>
<td>[x]</td>
<td>[x]</td>
<td>Are you trying to drink 8-10 glasses clear fluids per day (e.g. water, sports drinks, broth, diluted fruit juice)?(^{3-7})</td>
</tr>
<tr>
<td>3. [x]</td>
<td>[x]</td>
<td>[x]</td>
<td>Do you know what kinds of foods you should be trying to eat? Suggest: applesauce, oatmeal, bananas, barley, cooked carrots, rice, white toast, plain pasta, well cooked eggs, skinned turkey or chicken, mashed potatoes, cooked or canned fruit without skin(^{3-7}) (high in soluble fiber and low in insoluble fiber)</td>
</tr>
<tr>
<td>4. [x]</td>
<td>[x]</td>
<td>[x]</td>
<td>Are you trying to replace electrolytes (e.g. potassium and sodium or salt) that your body may be losing with the diarrhea by eating foods such as bananas and potatoes, drinking sports drinks or peach/apricot nectar, or oral rehydration drink (1/2 tsp. salt, 6 tsp. sugar, 4 cups water)?(^{4,7})</td>
</tr>
<tr>
<td>5. [x]</td>
<td>[x]</td>
<td>[x]</td>
<td>Are you trying to eat 5-6 small meals?(^{5,7,8,7})</td>
</tr>
<tr>
<td>6. [x]</td>
<td>[x]</td>
<td>[x]</td>
<td>Are you trying to avoid lactose-containing products (milk, yoghurt, cheese)(^{3,4,8,7})</td>
</tr>
<tr>
<td>7. [x]</td>
<td>[x]</td>
<td>[x]</td>
<td>Are you trying to avoid alcohol and minimize caffeine (&lt;2-3 servings) (coffee, chocolate)(^{5,7})</td>
</tr>
<tr>
<td>8. [x]</td>
<td>[x]</td>
<td>[x]</td>
<td>Are you trying to avoid greasy/fried and spicy foods?(^{4,8,7})</td>
</tr>
<tr>
<td>9. [x]</td>
<td>[x]</td>
<td>[x]</td>
<td>Are you trying to avoid large amounts fruit juices or sweetened fruit drinks?(^{5,4,7})</td>
</tr>
<tr>
<td>10. [x]</td>
<td>[x]</td>
<td>[x]</td>
<td>Are you trying to avoid raw vegetables, whole grain bread, nuts, popcorn, skins, seeds, legumes?(^{4,6,7}) (Insoluble fiber)</td>
</tr>
<tr>
<td>11. [x]</td>
<td>[x]</td>
<td>[x]</td>
<td>Are you trying to keep skin around your rectum or ostomy clean to avoid skin breakdown?(^6,7)</td>
</tr>
<tr>
<td>12. [x]</td>
<td>[x]</td>
<td>[x]</td>
<td>Have you been keeping track of the number of stools you are having and are you aware of other problems you should be watching for with your diarrhea? (e.g. fever, dizziness)(^3,6) (review criteria listed above in assessment)</td>
</tr>
<tr>
<td>13. [x]</td>
<td>[x]</td>
<td>[x]</td>
<td>Would more information about your symptoms help you to manage them better? If yes, provide details.</td>
</tr>
</tbody>
</table>

**Note:** The above self-care strategies are based on guidelines and may require further medical consultation to ensure they are appropriate for the patient's specific condition.
13. □ □ □ Would more information about your symptoms help you to manage them better? If yes, provide appropriate information or suggest resources.

14. □ □ □ Have you spoken with a doctor or pharmacist about medications you may be taking that can cause or worsen your diarrhea? 6

5. Summarize and document plan agreed upon with caller (check all that apply)

- No change, continue with self-care strategies and if appropriate, medication use
- Patient agrees to try self-care items #:
- How confident are you that you can try what you agreed to do (0=not confident, 10=very confident)?
- Patient agrees to use medication to be consistent with prescribed regimen. Specify:
- Referral (service & date):
- Patient agrees to seek medical attention; specify time frame:
- Advise to call back in 12-24 hours if no improvement, symptom worsens, or new symptoms occur

References


Usability testing

1. Amount of information:
   ✔ just right

2. Appropriate terms:
   ✔ yes

3. Readability:
   ✔ good font type & size, icons

4. Fits with clinical work flow
   ✔ 8 yes

5. Self-evident to complete:
   ~mixed results
   – Wanted more guidance on
     – assessing
     – triaging
     – documenting

6. Space for entering data:
   60% enough
   40% not enough

*Patient management strategies rated the highest for usefulness followed by review of medications, triage, and documentation*
General comments

- clear, user-friendly, comprehensive assessment
- very thorough yet concise; offers direction without needing to seek more info
- tick boxes saves excessive charting
- links evidence to practice
- logical/ systematic approach
- easy to fill out when talking
- applicable to nearly every cancer
- excellent self-care strategies
- difference b/w mild/mod/severe symptoms
Reflections on the process

• Strengths
  – see consistencies across guidelines; used highest quality evidence

• Limitations
  – data depended on quality of guidelines (not original studies)

• Issues
  – If assessment/triage vague or absent in guidelines used NCI Common Terminology Criteria for Adverse Events v4.0
  – Needed to ensure consistency across guidelines (e.g. if blood in vomit listed as severe in diarrhea guideline, then severe on bleeding guideline)
  – Method of grading evidence not consistent across identified guidelines (e.g. ONS uses Recommended for Practice, Likely to be Effective, etc.)
  – When suggestions given, verified link to evidence
Summary

• We developed 13 KT tools:
  – created from guidelines
  – to transform evidence into user-friendly protocols
  – for use by nurses when guiding patients at home to better manage their cancer treatment-related symptoms.

• For implementation into clinical practice
  – training needed (e.g. flow of questions, listen to patient)
  – Some adapting at local level (e.g. logo, minimize references)
Managing symptoms during cancer treatments: evaluating the implementation of evidence-informed remote support protocols

Dawn Stacey¹*, Debra Bakker², Barbara Ballantyne³, Kimberly Chapman⁴, Joanne Cumming⁵, Esther Green⁶, Margaret Harrison⁷, Doris Howell⁸, Craig Kuziemsky⁹, Terry MacKenzie¹⁰, Brenda Sabo¹¹, Myriam Skrutkowski¹², Ann Syme¹³ and Angela Whynot¹⁴

Abstract

Background: Management of cancer treatment-related symptoms is an important safety issue given that symptoms can become life-threatening and often occur when patients are at home. With funding from the Canadian Partnership Against Cancer, a pan-Canadian steering committee was established with representation from eight provinces to develop symptom protocols using a rigorous methodology (CAN-IMPI FMMNT©). Each protocol is based on a systematic
Publications: The COSTaRS Project


• Stacey D et al. (2012). Evidence-informed protocols to guide oncology nurses providing remote symptom support. *Canadian Oncology Nursing j*.


• Stacey D et al. (2013). Development and validation of evidence-informed clinical nursing protocols for remote assessment, triage and support of cancer treatment-induced symptoms. *Nursing Research and Practice*.


• [http://www.cancerview.ca/idc/groups/public/documents/webcontent/can_implement_guide_lines.pdf](http://www.cancerview.ca/idc/groups/public/documents/webcontent/can_implement_guide_lines.pdf)