Appendix 1 (as supplied by the authors): Methodology for Identifying Preliminary Indicators and Supporting Evidence for Chronic Kidney Disease in Primary Care

1. Overview

The purpose of this search was to identify relevant quality indicators for chronic kidney disease in primary care, and to identify high quality clinical evidence to support these indicators. This involved a two-step approach designed to identify:

1. Existing quality indicators which have been established and measured by other organizations
2. Relevant recommendations from high quality clinical practice guidelines

This material was used to develop the preliminary list of indicators presented to the Delphi panel for their input and consideration.

2. Indicator Search Strategy

A multi-faceted approach was used to identify Canadian and international organizations that developed, recommended, or implemented performance indicators in primary care in both the grey literature and indexed, peer-reviewed literature.
This process included:

a. Developing a list of websites for relevant organizations that develop or report on indicators, and searching each website individually
b. Conducting a focused Internet search using Google to locate additional organizations relevant to each topic area, and examining their material to identify additional indicators
c. Conducting a focused search using Ovid MEDLINE to identify any relevant indicators in the indexed literature
d. Review of additional material provided by experts and clinical leads

2.1 Limits and Inclusion Criteria

- The search was limited to English language indicators published in the past 5 years (between November 2008 and December 2013).
- A number of large groups have published reports on indicators, but the data definitions and specific measures were pulled from other sources. Despite some duplication, these results were included at the first stage in order to provide an overview of the general adoption of specific indicators.
- Only published indicators from the most recent source available were included. For example, if information was collected in both 2009 and 2012, only the 2012 indicator was included.
- The search was focused on identifying indicators for chronic kidney disease in primary care. For this reason, indicators which focused only on patients with stage 4 or 5 CKD, end stage renal disease or who are receiving renal replacement therapy, self-reported

Appendix to: Tu K, Bevan L, Hunter K, et al. Quality indicators for the detection and management of chronic kidney disease in primary care in Canada derived from a modified Delphi panel approach. *CMAJ Open* 2017. DOI:10.9778/cmajo.20160113.

measures/patient awareness indicators, and measures not specific to CKD (e.g. overall incidence of diabetes) were excluded.

- Indicators that groups reported that they considered, but ultimately discarded, were excluded. For example, if a paper reported a rigorous process to select what they considered to be key indicators, their rejected indicators were not included in our results.

2.2 Search of the Grey Literature for Indicators: List of Relevant Websites Examined

- Agency for Healthcare Research and Quality: http://www.ahrq.gov
- Agency for Healthcare Research and Quality – Quality Indicators: http://www.qualityindicators.ahrq.gov/default.aspx
- Alberta AIM: www.albertaaim.ca
- Alberta Health Services: http://www.albertahealthservices.ca
- Alberta Interactive Health Data Application: http://www.ahw.gov.ab.ca/IHDA_Retrieval/selectCategory.do
- American Medical Association 2013 Physician Quality Reporting System: http://www.ama-assn.org/apps/listserv/x-check/qmeasure.cgi?submit=PQRS%20group
- Australian Commission for Safety and Quality in Health Care: www.safetyandquality.gov.au/
- Australian Institute of Health and Welfare: http://www.aihw.gov.au/
- Australian National Health Performance Framework: http://meteor.aihw.gov.au/content/index.phtml/itemId/392569
- British Columbia Patient Safety and Quality Council: http://www.bcpsqc.ca/
- Canada Health Infoway: http://www.infoway-inforoute.ca/lang-en/
- Canadian Agency for Drugs and Technologies in Health: http://www.cadth.ca/index.php/en/home
- Canadian Foundation for Healthcare Improvement: http://www.cfhi-fcass.ca
- Canadian Institute for Health Information: www.cihi.ca
- Canadian Medical Association: http://www.cma.ca/
- Canadian Society of Nephrology: http://www.gain-ni.org/images/Uploads/Guidelines/Chronic%20Kidney%20Disease.pdf
- Centers for Disease Control and Prevention Chronic Kidney Disease Surveillance System: http://apps.nccd.cdc.gov/CKD/default.aspx
- Centers for Disease Control and Prevention: www.cdc.gov/DataStatistics/
- Centre for Health Services and Policy Research, The University of British Columbia: http://www.chspr.ubc.ca/
- Clinical Excellence Commission: http://www.cec.health.nsw.gov.au/
- The Commonwealth Fund: http://www.commonwealthfund.org/
- European Community Health Indicators: http://ec.europa.eu/health/indicators/echi/list/index_en.htm

- French National Authority for Health: www.has-sante.fr/portail/jcms/c_5443/english?pcid=c_5443
- Government of Saskatchewan, Ministry of Health: www.health.gov.sk.ca
- Heath Canada: http://www.hc-sc.gc.ca/index-eng.php
- Health Council of Canada: http://www.healthcouncilcanada.ca/
- Health Council of the Netherlands: www.gezondheidsraad.nl/en
- Health Indicators Warehouse: http://healthindicators.gov/
- Health Quality Council of Alberta: http://www.hqca.ca/index.php?id=%20229
- Health Quality Ontario: http://www.hqontario.ca/
- The Information System of the Federal Health Monitoring: http://www.gbe-bund.de/gbe10/pkg_isgbe5.prc_isgbe?p_uid=gastd&p_aid=53878946&p_sprache=E
- Institute for Clinical Evaluative Sciences: http://www.ices.on.ca/
- International Society for Quality in Health Care: http://www.isqua.org/
- Manitoba Centre for Health Policy: http://umanitoba.ca/medicine/units/mchp/
- Manitoba Health: http://www.gov.mb.ca/health/index.html
- Manitoba's Physician Integrated Network Quality Measurement: http://www.gov.mb.ca/health/primarycare/pin/qm.html
- Ministry of Health and Long Term Care: http://www.health.gov.on.ca/en/
- National Health Service Atlas of Variation in Healthcare for People with Kidney Disease: http://www.rightcare.nhs.uk/index.php/atlas/kidneycare
- National Health Service Outcomes Framework: http://www.hscic.gov.uk/nhsof
- National Health Service Quality Improvement Scotland: http://www.nhshealthquality.org/nhsqis/CCC_FirstPage.jsp
- National Centre for Health Outcomes Development: http://www.nchod.nhs.uk/
- National Committee for Quality Assurance: http://www.ncqa.org/
- National Institute for Health and Clinical Excellence: http://www.nice.org.uk/
- National Institute for Health Research: http://www.nihr.ac.uk/
- National Kidney Foundation Kidney Disease Outcomes Quality Initiative: http://www.kidney.org/professionals/KDOQI/
- National Quality Forum: http://www.qualityforum.org/Home.aspx
- National Quality Measures Clearinghouse: http://www.qualitymeasures.ahrq.gov/
- New Brunswick Health Council: http://www.nbhc.ca/
- New Zealand Ministry of Health: http://www.moh.govt.nz/moh.nsf
- Newfoundland and Labrador Department of Health and Community Services: http://www.health.gov.nl.ca/health/
- National Institute for Health and Clinical Excellence Chronic Kidney Disease Quality Standard: http://publications.nice.org.uk/chronic-kidney-disease-quality-standard-qs5/list-of-statements

- National Institute for Health and Clinical Excellence Clinical Commissioning Group Outcomes Indicator Set (formerly known as the 'Commissioning Outcomes Framework' or 'COF'): http://www.nice.org.uk/aboutnice/ccgois/CCGOIS.jsp
- National Institute for Health and Clinical Excellence Quality Standards: http://guidance.nice.org.uk/qualitystandards/qualitystandards.jsp
- Northwest Territories Department of Health and Social Services: http://www.hlthss.gov.nt.ca/
- Nova Scotia Department of Health: http://www.gov.ns.ca/health/
- Nuffield Trust for Research and Policy Studies in Health Services: http://www.nuffieldtrust.org.uk/
- Nunavut Health and Social Services: http://www.gov.nu.ca/health/
- Organization for Economic Co-operation and Development Health Care Quality Indicators Project: http://www.oecd.org/health/health-systems/healthcarequalityindicators.htm
- Ontario Renal Network: http://www.renalnetwork.on.ca/
- Organization for Economic Co-Operation and Development: http://www.oecd.org/home/0,3305,en_2649_201185_1_1_1_1_1,00.html
- Prince Edward Island Department of Health and Wellness: http://www.gov.pe.ca/health/index.php3
- Pan American Health Association: http://new.paho.org/
- Public Health Agency of Canada Canadian Best Practices Portal Health Indicators: http://cbpp-pcpe.phac-aspc.gc.ca/resources/health-indicators/
- Public Health England Health Profiles Indicator Guide: http://www.apho.org.uk/resource/item.aspx?RID=127372
- Québec Ministère de la Santé et des Services Sociaux: http://www.msss.gouv.qc.ca/en/index.php
- The RAND Corporation: http://www.rand.org/
- Royal College of Physicians and Surgeons of Canada: http://rcpsc.medical.org/
- Royal College of Physicians London: http://www.rcplondon.ac.uk/Pages/index.aspx
- Saskatchewan Health Quality Council: www.hqc.sk.ca
- Statistics Canada: http://www.statcan.gc.ca/
- United States Department of Health and Human Services Measure Inventory: http://www.qualitymeasures.ahrq.gov/hhs/inventory.aspx#browseType=current
- United States Renal Data System Annual Data Report: http://www.usrds.org/adr.aspx
- United Kingdom Quality and Outcomes Framework: http://www.nice.org.uk/aboutnice/qof/qof.jsp
- United States Renal Data System: http://www.usrds.org/
- World Health Organization: http://www.who.int/en/

- World Health Organization Statistical Information System: www.who.int/whosis/indicators/en/
- Yukon Health and Social Services: http://www.hss.gov.yk.ca

2.3 Search of the Grey Literature for Indicators: Supplemental Internet Search

General Google search: (indicator* OR measure* OR quality measure) and (chronic kidney disease or CKD). The first three pages of results were examined for each search except for searches combining the term "chronic kidney disease" which returned more relevant results, so the review was expanded to include the first five pages of results.

2.4 Search of Indexed Literature for Indicators: Ovid MEDLINE Search

<1996 to November Week 3 2013>

1 Quality of Health Care/ or Quality Assurance, Health Care/ or Total Quality Management/ or Health Status Indicators/ or Quality Indicators, Health Care/ or "Outcome and Process Assessment (Health Care)"/ or "Outcome Assessment (Health Care)"/ or "Process Assessment (Health Care)"/ (150619)

2 (indicator$ or (quality adj assess$) or (quality adj care) or (logic adj model$) or (health adj improve$) or (quality adj metric$) or (quality adj measur$) or (quality adj improvem$) or (quality adj report$) or (assessment adj criteria) or (care adj evaluat$) or framework or (performance adj measure$) or (system$ adj performance)).ab,ti. (218826)

3 renal insufficiency, chronic/ or kidney failure, chronic/ or ("kidney disease$" or "renal disease$" or CKD).mp. (98743)

4 1 and 2 and 3 (304)

5 limit 4 to (english language and yr="2008 -Current") (129)

Notes regarding search terminology:

- Capitalized terms followed by a / indicate MeSH terms
- .m_titl indicates that the terms are being searched in the title field
- .mp indicates that the terms are being searched in multiple fields, including the title, abstract or MeSH field
- $ is a "wildcard" that allows for truncation (eg. improve$ will return results for improvement, improves, etc.)
- adj indicates that two terms need to be adjacent to each another, in either direction. (eg. quality adj assess$ will return results for 'quality assessment' and 'assessing quality', etc.)

3. Selecting and Compiling Preliminary Indicator List

174 existing quality indicators were identified using the search strategy outlined above. These indicators were reviewed by two clinical leads (GN, KT) who identified where indicators were similar enough that they could be combined. Original phrasing was maintained where possible, and if multiple quality indicators were similar enough to be combined into one, the indicator with the most specific details was the one which was preserved. When indicators were combined, all references supporting the measure were maintained to show that multiple organizations considered it an important measure of quality. For example, the indicators "Proportion of CKD patients with a formal assessment of cardiovascular risk factors documented in their records

during the past year" and "Proportion of people with CKD who are assessed for cardiovascular risk" were combined into one indicator, maintaining the wording of the first, while providing the references for both.
If there was agreement between both clinical leads that an indicator was out of scope, then it was removed from the list. If only one clinical lead suggested an indicator be removed, it was still maintained at this stage. None of the indicators were modified at this stage to make them more feasible to measure in an EMR, as it was agreed by the project team that this would happen at a later step in the process if necessary.
This first review by the clinical leads to combine duplicate measures, and to exclude indicators which both agreed were out of scope, resulted in the list being focused to 102 quality indicators.

4. Clinical Evidence Search Strategy

A focused search strategy was designed that concentrated on quickly identifying high quality clinical practice guidelines by searching the following resources:

4.1 Guideline Repositories:

- National Guideline Clearinghouse: www.guideline.gov/
- Canadian Medical Association Clinical Practice Guideline Infobase: http://mdm.ca/cpgsnew/cpgs/index.asp

4.2 Renowned Developers with Proven Methodologies:[1]

- United States Preventive Services Task Force: www.uspreventiveservicestaskforce.org/
- Scottish Intercollegiate Guidelines Network: www.sign.ac.uk/guidelines/index.html
- New Zealand Guidelines Group: www.nzgg.org.nz
- Institute for Clinical Systems Improvement: www.icsi.org/

4.3 Supplemental Internet Search:

- Relevant Canadian and international organizations in the area:
    - Canadian Society of Nephrology: www.csnscn.ca/
    - International Society of Nephrology: www.csnscn.ca/
    - The Renal Association: www.renal.org
    - The Kidney Foundation of Canada www.kidney.ca
    - National Kidney Foundation www.kidney.org
    - Kidney Disease Improving Global Outcomes www.kdigo.org
    - British Renal Society www.britishrenal.org
    - Renal Society of Australasia www.renalsociety.org
    - European Renal Association www.era-edta.org
    - American Society of Nephrology www.asn-online.org
    - Ontario Renal Network www.renalnetwork.on.ca

[1]Note: Guidelines published by these key developers are also indexed in the National Guideline Clearinghouse, but there is a delay between publishing and indexing. This search strategy is designed to ensure that guidelines from these reputable developers are considered.

    - British Columbia Renal Agency www.bcrenalagency.org
- Search for additional guidelines using Google: ("kidney" or "renal") and "guideline(s)", the first five pages of results were examined.

All results were limited to English language resources published in the past five years (between November 2008 and December 2013).
Results identified in this manner were evaluated using criteria from the Rigour of Development domain of the AGREE II Instrument,[25] a validated instrument for assessing the quality of clinical practice guidelines. This ensures that relevant evidence was considered during guideline development, and that the recommendations in the guideline are linked directly to levels of evidence. Guidelines which were identified that satisfied these criteria were then reviewed using the AGREE II Instrument, and the most methodologically sound guidelines which addressed the full scope of CKD care in primary care were selected to form the evidence base supporting the indicators.