McMaster University

Family Medicine

David Braley Primary Care Research Collaborative

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Retrospective Chart Reviews

Watch a recording of the session here

Michelle Howard, MSc, PhD
Jeff Templeton, BA

October 26th, 2021

Michael G. DeGroote SCHOOL OF MEDICINE

McMaster University

Family Medicine

Retrospective Chart Reviews: Research Knowledge & Skill Builder

Michelle Howard, MSc, PhD

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Learning objectives

1. To become aware of the types of research questions that can be answered through a chart review.
2. To learn about methods considerations for conducting chart reviews of primary care medical records.
3. To become familiar with how to conduct a chart review using OSCAR EMR through a demonstration.

Common uses of chart review for research

- Sometimes called “retrospective chart review”
- Clinical research, epidemiology, quality assessment
- Typically includes
  - Age, sex
  - Diagnoses
  - Medications/treatments
  - Tests
  - Referrals
  - notes

Example of audit of care:

BMC Fam Pract. 2021 Mar 27;22(1):58. doi: 10.1186/s12875-021-01400-4.

Frequency of providing a palliative approach to care in family practice: a chart review and perceptions of healthcare practitioners in Canada

Erin Gallagher [1 2], Daniel Carter-Ramirez [1 2], Kaitlyn Boese [3 4], Samantha Winemaker [1 2], Amanda MacLennan [1 2], Nicolle Hansen [1], Abe Hafid [1], Michelle Howard [5]

Affiliations + expand

PMID: 33773579 PMCID: PMC8005234 DOI: 10.1186/s12875-021-01400-4

Free PMC article

Abstract

Background: Most patients nearing the end of life can benefit from a palliative approach in primary care. We currently do not know how to measure a palliative approach in family practice. The objective of this study was to describe the provision of a palliative approach and evaluate clinicians' perceptions of the results.

Methods: We conducted a descriptive study of deceased patients in an interprofessional team family practice. We integrated conceptual models of a palliative approach to create a chart review tool to capture a palliative approach in the last year of life and assessed a global rating of whether a palliative approach was provided. Clinicians completed a questionnaire before learning the results and after, on

Variables documented in electronic medical record	Overall (*n* = 79), n (%)	Did the patient receive a palliative approach to care?		*P*-value[ab]
		Yes (*N* = 20), n (%)	No (*N* = 59), n (%)	
Mortality Acknowledgement				
Advance Care Planning topics addressed and documented:				
Goals of care for treatment decisions (to pursue a treatment or not and why)	42 (53.2)	18 (90)	24 (40.7)	< .01
Understanding of severity of illness (illness awareness)	32 (40.5)	17 (85)	15 (25.4)	< .01
Values/beliefs/priorities moving forward	26 (32.9)	18 (90)	8 (13.6)	< .01
Do-Not-Resuscitate & Do-Not-Resuscitate Confirmation Form	20 (25.3)	15 (75)	5 (8.5)	< .01
Power of Attorney for Personal Care & Substitute Decision Makers	18 (22.8)	9 (45)	9 (15.3)	.01
Desired place of death	13 (16.5)	11 (55)	2 (3.4)	< .01
Prognosis	11 (13.9)	11 (55)	0 (0)	< .01
Will	2 (2.5)	2 (10)	0 (0)	.06
Funeral arrangements	2 (2.5)	2 (10)	0 (0)	.06
Other	5 (6.3)	2 (10)	3 (5.1)	.60
Quality of Life				
Homecare involvement documented:				
Nurse	32 (40.5)	17 (85)	15 (25.4)	< .01
Personal Support Worker	22 (27.8)	10 (50)	12 (20.3)	.01
Occupational Therapist	8 (10.1)	5 (25)	3 (5.1)	.02
Physiotherapist	4 (5.1)	2 (10)	2 (3.4)	.26
Psychosocial/Spiritual Advisor	3 (3.8)	3 (15)	0 (0)	.01
Registered Dietitian	2 (2.5)	1 (5)	1 (1.17)	.38
Other	12 (15.2)	1 (5)	11 (18.6)	.28
Quality of Life focused symptom discussions documented:				
Physical Symptoms	71 (89.9)	19 (95)	52 (88.1)	.67

Study Design and Planning

1. Clear question
2. Sampling issues and statistical power
3. Inclusion/exclusion criteria
4. Operationalize variables (e.g. lab values in/out of range)
5. Training and monitoring abstractors (reliability, blinding)
6. Standardize abstraction form
7. Procedural manual (where to look in chart, what to include)
8. Pilot test
9. Confidentiality, ethics

Key considerations in operationalizing chart review

- Availability of data
- Data quality, accuracy, consistency
  - Case definitions
  - Free text
  - Data structure e.g. dates, current meds list vs renewals
- Time period
- Human error, training for inter-abstractor reliability
  - Data abstraction form, guide, pilot test, training

Example: data abstraction form

Patient ID: _ _ _ _ _ _
Abstractor: _____

Health Conditions

Are there any existing comorbidities documented in the patient's chart?
❑ **Yes, select all that apply** ❑ **No, not able to locate**

(**Instructions:** Examine the cumulative patient profile (CPP), consult notes in the past 2 years, and the current list of medications to determine chronic health conditions)

Consult the *Medications Associated with Health Conditions* resource

0. ☐ **NONE**

MYOCARDIAL
1. ☐ Angina
2. ☐ Arrhythmia
3. ☐ Valvular
4. ☐ Myocardial infarction
5. ☐ Congestive heart failure (or heart disease)

GASTROINTESTINAL
18. ☐ Mild liver disease
19. ☐ Moderate or severe liver disease
20. ☐ GI Bleeding
21. ☐ Inflammatory bowel
22. ☐ Peptic ulcer disease
23. ☐ Gastrointestinal Disease (hernia,reflux)

Goals of Care Chart Abstraction

Instructions: Examine the area of the paper chart or electronic medical record where goals of care designation would routinely be recorded by this physician or practice.

Date of patient's clinic visit: __ __/__ __ __/__ __ __ __ (DD/MMM/YYYY)

Looking back 2 years from the patient's clinic visit, is there any goals of care (GoC) designation noted in the medical chart?

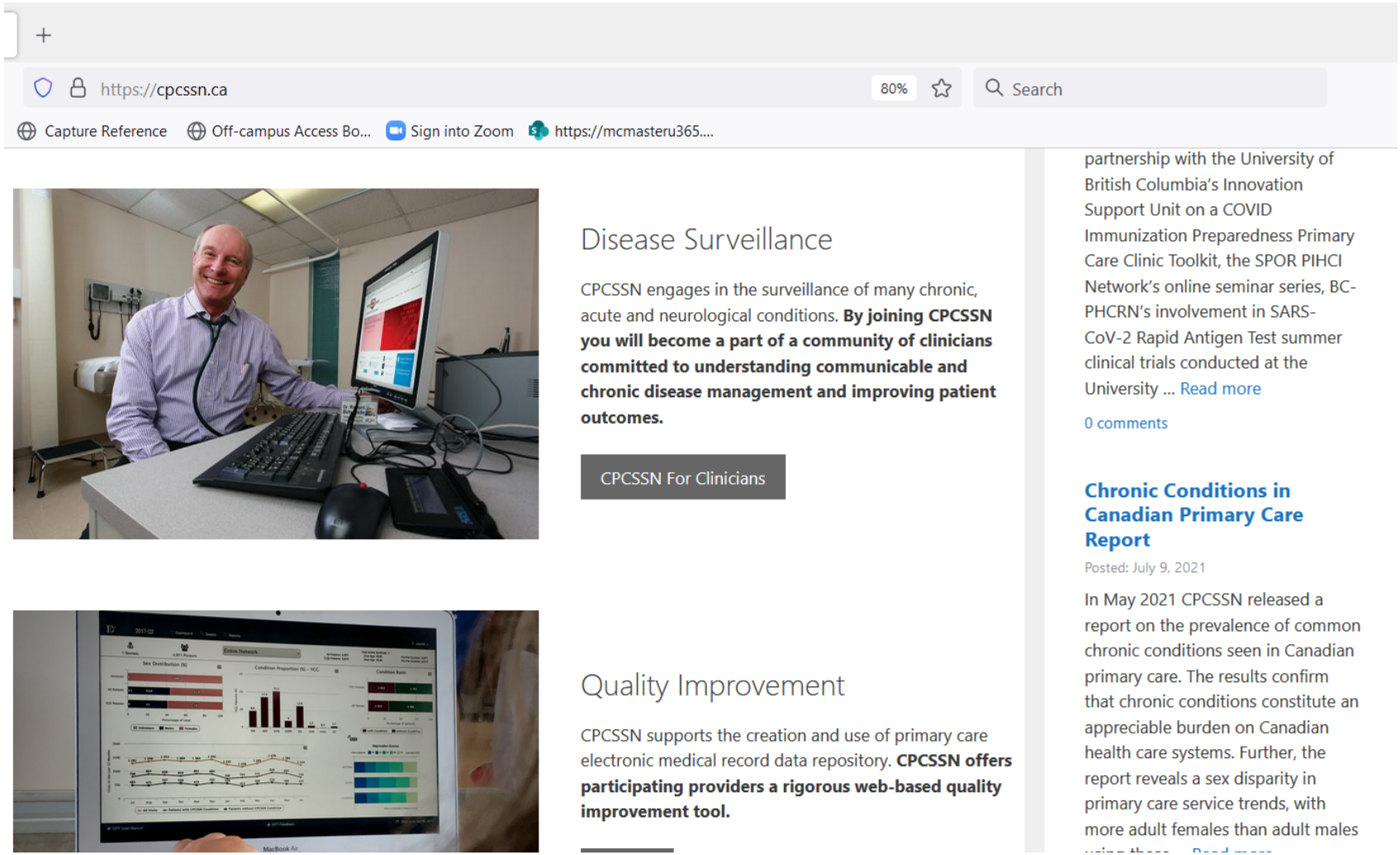
❑ **Yes** ❑ **No (stop here)**

↓

What was the source of that information?
- ❑ Patient profile (CPP)
- ❑ Periodic health exams **in the past 2 years**
- ❑ Advance Directive documentation
- ❑ Other, specify _____

Please select your region:
- ❑ Alberta
- ❑ Fraser Health MOST
- ❑ BCCA MOST
- ❑ All other regions

Automating chart review



Example: Case definition of disease

Identifying heart failure in patients with chronic obstructive lung disease through the Canadian Primary Care Sentinel Surveillance Network in British Columbia: a case derivation study.

Rohit Vijh, Sabrina T. Wong, Matthew Grandy, Sandra Peterson, Allison M. Ezzat, Andrew

April 16, 2021 9 (2) E376-E383; DOI: https://doi.org/10.9778/cmajo.20200183

Abstract

Background: Heart failure (HF) poses a substantial global health burden, particularly in patients with chronic obstructive pulmonary disease (COPD). The objective of this study was to validate an electronic medical record–based definition of HF in patients with COPD in primary care practices in the province of British Columbia, Canada.

Methods: We conducted a cross-sectional retrospective chart review from Sept. 1, 2018, to Dec. 31, 2018, for a cohort of patients from primary care practices in BC whose physicians were recruited through the BC node of the Canadian Primary Care Sentinel Surveillance Network. Heart failure case definitions were developed by combining diagnostic codes, medication information and laboratory values available in primary care electronic medical records. These were compared with HF diagnoses identified through detailed chart review as the gold standard. Sensitivity, specificity, negative (NPV) and positive predictive values (PPV) were calculated for each definition.

Results: Charts of 311 patients with COPD were reviewed, of whom 72 (23.2%) had HF. Five categories of definitions were constructed, all of which

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Example: Coded and free text

[dx, billing, ACP, DNR, CPR, advance directive, death, CCAC, malignant, PPS, ESAS, frail]

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Exhibit 1 # search terms returned per patients

6-16 search terms had 50-100% probability as palliative

# of Search Criteria	# of Patients		Charts Audited	Pall (Y)	Pall(N)	% Palliative
1	1521		10	0	10	0.0%
2	1046		10	1	9	10.0%
3	765		10	2	8	20.0%
4	547		10	2	8	20.0%
5	345		10	3	7	30.0%
6	252		10	5	5	50.0%
7	169		10	8	2	80.0%
8	133		10	7	3	70.0%
9	74		5	3	2	60.0%
10	41		5	4	1	80.0%
11	35		5	5	0	100.0%
12	13		5	4	1	80.0%
13	12		5	4	1	80.0%
14	9		9	6	3	66.7%
15	2		2	1	1	50.0%
16	5		5	4	1	80.0%
Grand Total	4969		121	59	62	

HIREB retrospective chart review

Presenting methods and results

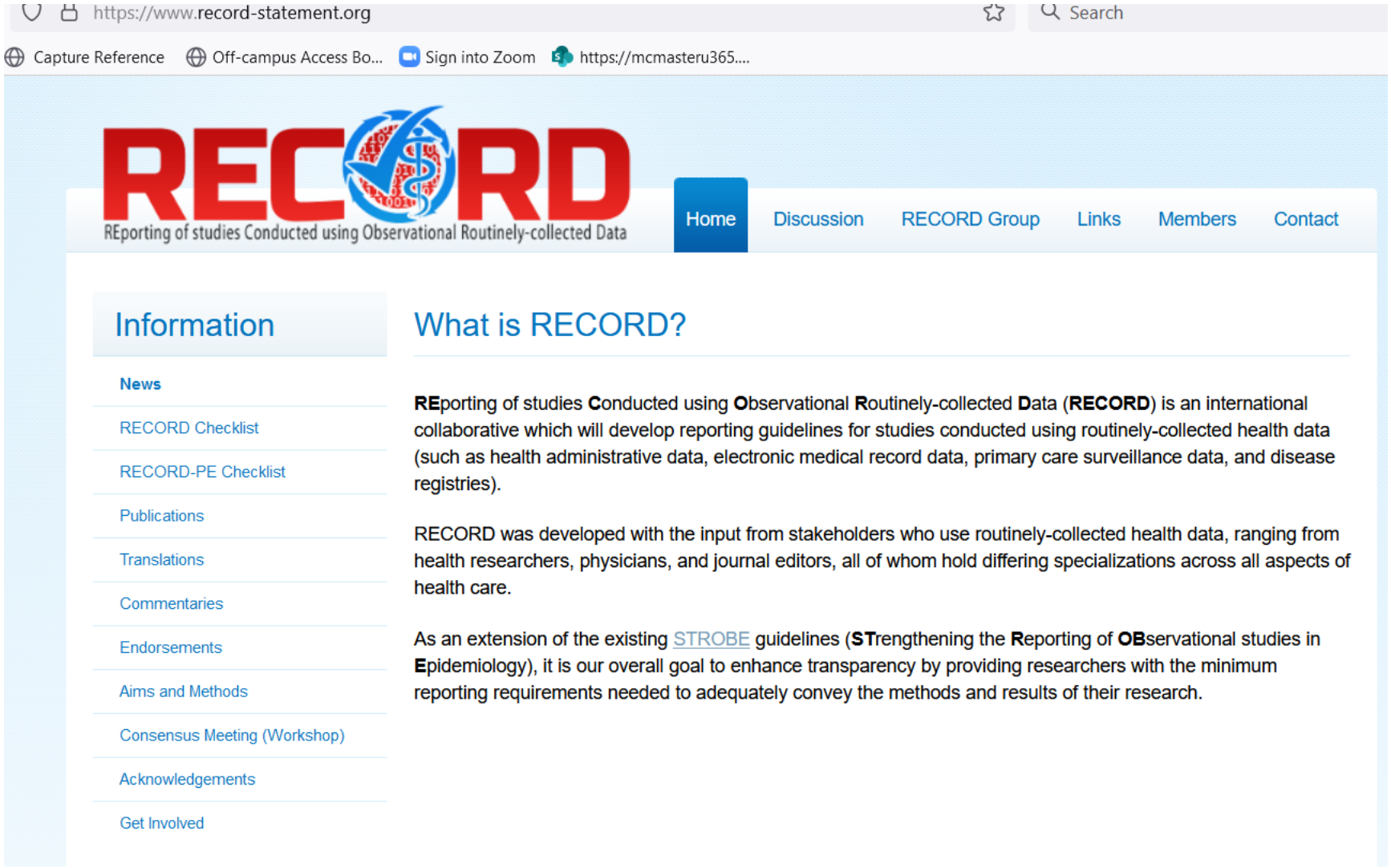
Setting: Academic interdisciplinary primary care group with 40,000 patients, 40 family physicians, diverse allied health professionals, 80 family medicine residents

Patient records: 100 charts randomly selected among 192 patients who died in 2017. Data used were encounter notes, list of conditions, demographics

Data Extraction: 2 family physician reviewers with palliative care expertise
Agreement assessed (sub-set) with a third, blinded palliative care/family physician

Data Management: Lime Survey structured form

Reporting Checklist



Practical aspects of chart abstraction

Welcome to the EMR jungle

Clinisys

CANADIAN HEALTH SYSTEMS INC.

CHS

ACCURO®
Electronic Medical Records

OSCAREMR

PointClickCare®
Care confidently.™

Welcome to the EMR jungle

- Wide variety of EMR systems in use
- Some are focused on Primary Care, while others are more common in Long Term Care or Hospital settings
  - OSCAR, PointClickCare, PS Suite, AccuroEMR, etc
- While common elements exist, each has their own layout and design.
- Each site and clinician will use the same EMR differently

Areas to find data

- Progress Notes (TP roll in OSCAR)
- Medications
- Disease Registry/Medical History
- Documents
- Demographics
- Labs/Results
- Consults

OSCAR demonstration

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Department of Family Medicine
Michael G. DeGroote School of Medicine
Faculty of Health Sciences

fammedmcmaster.ca
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