

Inspired by research.
Driven by compassion.

Inspiré par la recherche.
Guidé par la compassion.

TOWARDS A LIVING REVIEW OF DIABETES QI STRATEGIES

BETTER EVIDENCE FOR IMPLEMENTATION OF BEST
PRACTICES

JEREMY GRIMSHAW
SENIOR SCIENTIST AND PROFESSOR
jgrimshaw@ohri.ca

13TH SEPTEMBER 2017



**The Ottawa
Hospital**

RESEARCH
INSTITUTE

**L'Hôpital
d'Ottawa**

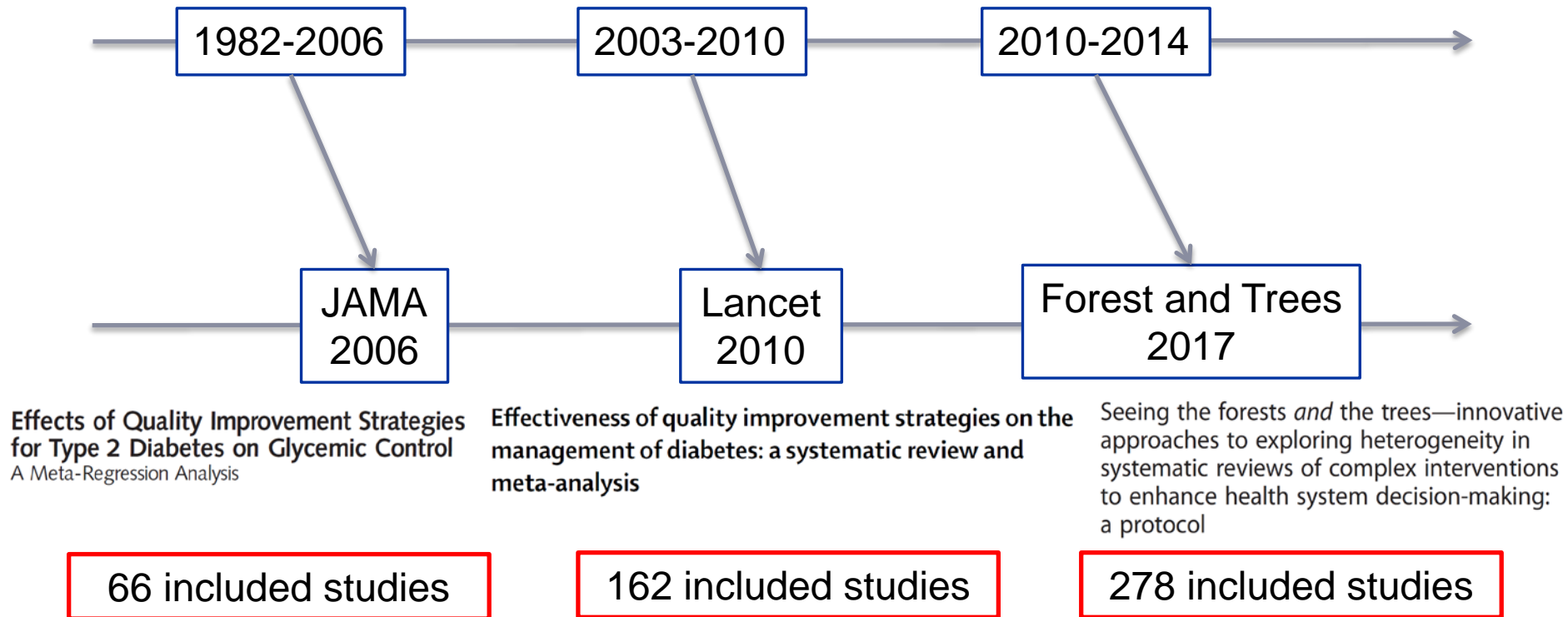
INSTITUT DE
RECHERCHE

www.ohri.ca | Affiliated with • Affilié à



uOttawa

DIABETES QI: A RAPIDLY EVOLVING FIELD



DIABETES QI REVIEW INCLUSION CRITERIA

► **P:** Type 1 or 2 diabetes, outpatient

► **I:** Cochrane's EPOC taxonomy (adapted)

► **C:** 'Usual care' or active intervention

- Audit and Feedback

► **O:** Range of process and patient indicators of quality of care

- Case management
- Team changes

Domain	Process measure	Intermediate outcome
Glycemic control	Facilitated relay of information	Mean HbA1c
Vascular risk factor management	<ul style="list-style-type: none"> • Clinician education • Clinician reminders • Continuous QI 	Mean LDL Mean SBP Mean DBP
Retinopathy screening	<ul style="list-style-type: none"> • Financial Incentives • Patient education* 	
Foot screening	<ul style="list-style-type: none"> • Promotion of self-management* 	
Renal function	<ul style="list-style-type: none"> • Patient reminder systems* 	
Smoking cessation		# pts quit

WHAT IS THE BEST APPROACH TO SYNTHESIZE THE EVIDENCE?

We know that the QI interventions are effective in improving diabetes QI

For diabetes QI review: 2^{12} intervention combinations=4,096

Options:

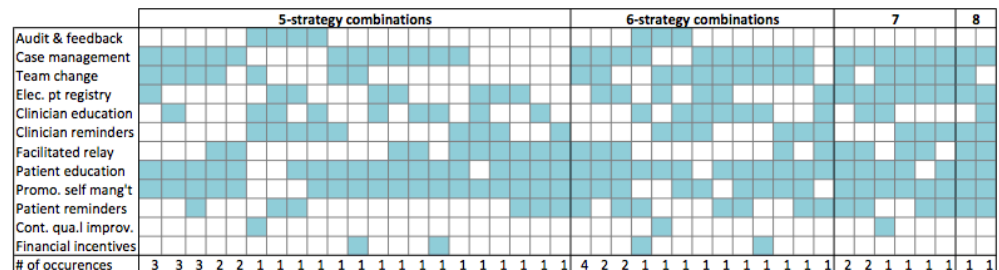
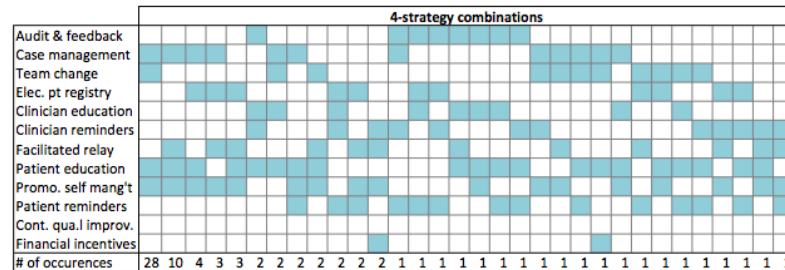
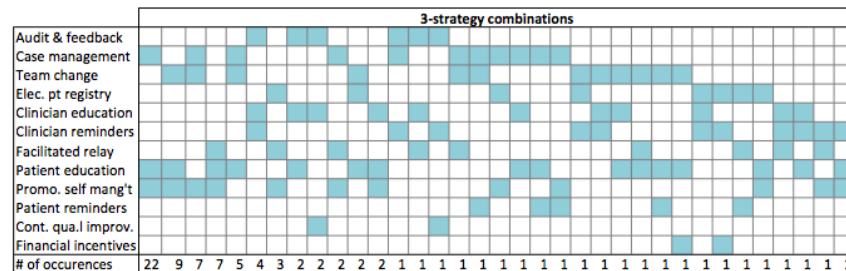
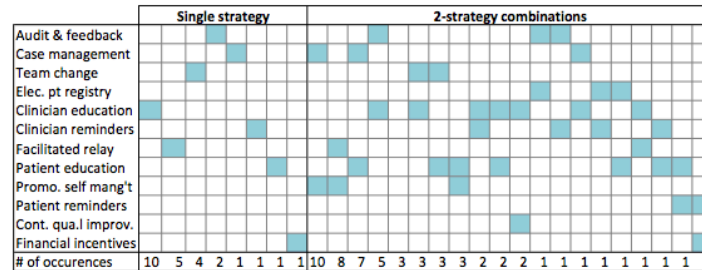
- Single trial, 4,096 arms
- 4,096 independent trials
- Network meta-analysis with 4,096 nodes

Alternative (feasible) approach to capture complexity and inform future directions?

BAYESIAN MULTIVARIATE HIERARCHAL META-REGRESSION

Using this statistical approach allows us to:

- 1) Do multi-arm comparisons rather than pairwise
- 2) Look at the individual components of these multifaceted, complex interventions in an additive way



COMPARISON OF APPROACHES

Intervention	Traditional meta-analyses	Hierarchical meta-regression
Promotion of self management	-0.57 (-0.71, -0.31) [1]	-0.15 (-0.27, -0.05) [3]
Team changes	-0.57 (-0.71, -0.42) [2]	-0.21 (-0.32, -0.10) [1]
Case management	-0.50 (-0.65, -0.36) [3]	-0.04 (-0.15, 0.05) [8]
Patient education	-0.48 (-0.61, -0.34) [4]	-0.12 (-0.22, -0.003) [5]
Facilitated relay	-0.46 (-0.60, -0.33) [5]	-0.19 (-0.31, -0.07) [2]
Electronic patient registry	-0.42 (-0.61, -0.24) [6]	-0.15 (-0.29, -0.02) [4]
Patient reminders	-0.39 (-0.65, -0.12) [7]	-0.004 (-0.14, 0.13) [10]
Audit and feedback	-0.26 (-0.44, -0.08) [8]	-0.02 (-0.24, 0.09) [9]
Clinician education	-0.19 (-0.35, 0.03) [9]	-0.05 (-0.23, 0.14) [7]
Clinician reminders	-0.16 (-0.31, -0.02) [10]	0.08 (-0.05, 0.20) [6]

- Effects are smaller due to isolation of individual components
- Rankings are altered
- Fewer effective components

CONSIDERATIONS FOR TRANSITIONING TO A LSR

The large scale of our LSR and use of complex analytical methods raises unusual:

Screening

- Search and screen every 3 months

Data Analysis

- Updated every 6 months, with new evidence flagged until incorporation

SUPPORTING EVIDENCE INFORMED POLICY MAKING

- ▶ Evidence on effectiveness insufficient to support evidence needs of decision makers
- ▶ Opportunities to build additional resources around living systematic reviews to more fully address decision makers needs
- ▶ Ongoing commitment (and likely reduced intensity of LSR work facilitates this)



The Ottawa
Hospital
RESEARCH
INSTITUTE

L'Hôpital
d'Ottawa
INSTITUT DE
RECHERCHE

Affiliated with • Affilié à



uOttawa

SUPPORTING EVIDENCE INFORMED POLICY MAKING

Added features

► Our vision

To be the gold standard resource for best evidence pertaining to diabetes quality interventions

► Resources

- Cochrane living review regularly updated
- Diabetes QI website
 - Bibliographic information of included articles and related documents
 - Data from abstracted studies
 - Additional information provided by authors (e.g. educational documents used in intervention)
 - Additional related resources for different audiences (policy makers and healthcare managers, healthcare professionals, consumers and the public, researchers)
- Evidence summaries

Acknowledgements

Scientific team

Issa Dahabreh
Kristin Danko
Sathya Karunanathan
John Lavis
David Moher
Tim Ramsay
Sharon Straus
Katrina Sullivan
Thomas Trikalinos
Andrea Tricco

Knowledge users

Alun Edwards
Michael Hillmer
Braden Manns
Alison Paprica
Peter Sargious
Kaveh Shojania
Marcello Tonelli
Catherine Yu

Screeners/Extractors

Mostafa Alabousi
Pauline Barbeau
James Newham
Vanessa Lybanon
Samir Nazarali

Funders

CIHR (Forest and Trees)
KT Canada (BCT study)
Diabetes Canada (Living SR)



THANK YOU

jgrimshaw@ohri.ca



The Ottawa
Hospital

RESEARCH
INSTITUTE

L'Hôpital
d'Ottawa

INSTITUT DE
RECHERCHE

Affiliated with • Affilié à



uOttawa