Analytical Protocol

Evaluation of a Randomized Trial of Personalized Physician Prescribing Portraits for Uncomplicated Acute Cystitis

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A. Study Aim, Questions and Hypotheses

Aim: Determine the impact of personal prescribing feedback portraits on family physician prescribing of antibiotics for uncomplicated acute bacterial cystitis (UAC).

Questions: Primary analysis: Determine the change in antibiotic prescribing in the group of physicians who received a personal prescribing portrait for UAC

Secondary analysis: If a change in antibiotic prescribing in the intervention group is observed, measure persistence throughout the one-year post intervention period.

Hypothesis: The personal prescribing feedback portrait will be associated with an increase in nitrofurantoin prescribing, and a decrease in ciprofloxacin and TMP-SMX prescribing, in the treatment of UAC. No change in the proportion of patients receiving no drug therapy for a diagnosis of UAC.

B. Background

The discovery of antibiotics is one of the most important advancements in modern medicine. Antibiotics are regularly used to treat infections caused by bacteria. The emergence of bacteria resistant to antibiotics is a common phenomenon. As bacterial strains increase resistance to an antibiotic, the antibiotic becomes less effective.

Incorrect or inappropriate antibiotic prescribing can lead to an increase in antibacterial-resistant bacteria. Knowledge translation initiatives are needed to reduce the misuse and overuse of antibiotics.

Cystitis Treatment

Cystitis is a bacterial infection of the bladder or lower urinary tract. Most cases are caused by a type of Escherichia coli (E. Coli) bacteria. Ciprofloxacin, a fluoroquinolone antibiotic, and timethoprim-sulfamethoxazole (TMP-SMX) have been used as standard drug therapy for treating Cystitis in British Columbia. According to The Do Bugs Need Drug surveillance report, E. Coli resistance to ciprofloxacin and TMP-SMX now exceeds 20% in BC, thus limiting the

effectiveness of these treatments. [i] Due to increased resistance, Nitrofurantoin is now the best evidence supported treatment of infections caused by E. Coli or Staphylococcus Saprophyticus.[ii]

Physician Educational Intervention Effectiveness

Knowledge translation initiatives have the potential to produce evidence-based changes in prescribing practices at a relatively low cost. Several systematic reviews have identified key strategies for developing and implementing educational interventions to improve prescribing practices.[iii,iii,iv]

Systematic reviews have shown that educational interventions that rely on passive information transfer, including providing unsolicited medication information, tend to have a minimal effect on changing actual prescribing practice.[v] Alternatively, educational outreach as well as audit and feedback are among the most consistently effective interventions for prescribing improvement.[vi] Feedback including individualized messages with a specific recommendation is more likely to improve prescribing practice.[vii] Multifaceted interventions targeting different barriers of practice changes demonstrate more effective changes compared to a single intervention.[viii]

Education for Quality Improvement in Patient Care (EQIP) Program

The Education for Quality Improvement in patient Care (EQIP) program is a joint initiative of the British Columbia Ministry of Health, the BC Medical Association, and the University of British Columbia's Therapeutics Initiative. The program focuses on improving prescribing practices that will lead to health outcome improvements for patients and result in expense reductions for the health care system. EQIP, in collaboration with the *Do Bugs Need Drugs?* program, developed a two-page personalized prescribing portrait on treating UAC.

This analysis examines the impact of the EQIP portrait on prescribing of nitrofurantoin, ciprofloxacin, TMP-SMX, and other antibiotics for the treatment of UAC. The analysis methods specified in this protocol builds upon the concepts previously described by Maclure, 2005[ix] and Dormuth 2012.[x]

C. EQIP Uncomplicated Acute Cystitis Portrait Mail-Out

The portraits were developed using de-identified data provided by the British Columbia Ministry of Health. The data consisted of PharmaNet's ClaimsHist prescription claims, Medical Services Plan physician visits, Discharge Abstract Database hospitalization records, and patient and physician demographic information. The portraits were generated using PL/SQL, SAS, and Jaspersoft's iReport software.

Physicians were sent a registration package several months before the portraits were mailed. The registration packages contained an information letter about the EQIP program and provided the physicians with the opportunity to opt out of EQIP or agree to a paid follow-up interview.

The intervention group consisted of 1,026 family physicians. Their individualized portraits were initially mailed on December 03, 2010. However, due to a printing error that caused some distortion in the antibiotic prescribing graph (Appendix 1b) a corrected portrait was re-mailed on February 28th, 2011 (Appendix 1a).

There were 2,345 physicians in the control group (delayed mailing). Their individualized portraits were mailed on February 10, 2012.

D. Evaluation Overview

A paired community design was used. Communities were paired according to the number of physicians and geographic similarity. The study population included family physicians from British Columbia who prescribed drug therapy for patients with UAC. The intervention was a personalized prescribing portrait on antibiotic prescribing in British Columbia that included evidence-based messaging supporting nitrofurantoin as first-line therapy.

The UAC portrait was the fourth EQIP portrait developed. Physicians who had not previously received an EQIP intervention received a registration package containing the following materials:

- Letter introducing the EQIP program with URL links for more information and contract information for the EQIP office (Appendix V).
- Registration Questionnaire with options to participate in a paid interview or to decline future EQIP mailings (Appendix VI).

The UAC intervention package contained:

- Personalized prescribing portrait on antibiotic prescribing for patients diagnosed with UAC (Appendix Ia)
- Reflective exercise to qualify for One MainPro-M1 Continuing Medical Education credit (Appendix VII)
- Urinary Tract Infection (UTI) Frequently Asked Questions (Appendix VIII)

We extract administrative health claim records for eligible patients from the source population with a diagnosis of UAC and look forward up to two days to determine antibiotic treatment type (or no treatment).

The evaluation design is a 4-way comparison of numerators. The ratio of change in the intervention group between the pre-intervention period to the post-intervention period is compared to the saem ratio of change (or non-change) in the delayed control group.

E. Study Population

1. Participating Physicians:

All active family physicians in the province were eligible to receive the EQIP UAC Portrait. Physicians were randomized into the intervention or control group if they met all of the following criteria:

1. Did not opt out of the program via their registration package
2. Were not retired, defined as having Medical Services Plan billings in the most recent quarter of data available.
3. Had a valid encrypted MSP Billing Number in both the Medical Services Plan Registration & Billing information system and the Health*ideas* practitioner roster.
4. Categorized as a 'Private Practice General Practitioner' in the Medical Services Plan Registration & Billing information system.

The early intervention group consists of 1,026 family physicians who received a portrait (with a printing error) on December 03, 2010, and a corrected portrait on February 28, 2011.

The delay control group consists of the 2,345 family physicians who received a portrait on February 10, 2012.

2. Cystitis Patient Episodes

UAC is defined using Medical Services Plan claims for participating family physicians who met the criteria in section E.1. UAC episodes are identified using the following steps:

1. Include female patients only.
2. Extract Medical Service Plan claims where the first 3 digits of the ICD-9 diagnosis code are 595.
3. Exclude reversed medical services billing claims from above.
4. Exclude episodes that meet the "complicating" factors as described in Appendix III – UTI Complicating Factors for Acute Cystitis

3. Study Period

Due to the printing error and subsequent corrected mailing, two possible exposure periods are defined for the primary analysis:

1. December 03, 2010 to February 28, 2011
2. February 28, 2011 to February 09, 2012
3. February 10, 2012 to February 09, 2014

4. A time series analysis will look at antibiotic prescribing and UTI diagnostic coding from January 01, 2001 to Dec 31, 2019

4. Eligible patients

Female patients who visited a family physician during the study period, or one-year prior to the study period, where the primary diagnosis code on the Medical Services Plan billing record was coded as 595.x (Cystitis). Reversed billing claims are excluded.

F. Outcomes

The study outcome is a filled prescription for an antibiotic in one of the following categories:

1. Antibiotic Groupings

Antibiotic chemicals are grouped into the four categories (See Appendix II – Antibiotics DIN List for drug grouping details):

i. Nitrofurantoin
ii. Ciprofloxacin
iii. TMP-SMX
iv. Other

No drug treatment will also be included as an outcome.

2. Linking Treatment to Diagnosis

Treated UAC defined as a prescription fill for an antibiotic, from F.1 above, within 2 days of a physician visit (prescription fill date minus Physician visit date must be between 0 and 2, inclusive) the meets the eligibility criteria of a UAC episode as describing in Section E.2

3. Follow-up Time

Patients are followed from the day they are diagnosed with a UAC episode until two days after their diagnosis, for a 3 day total follow-up window to determine if they received antibiotic treatment.

Date range for Claims History drug dispensing (all patients who filled a prescription at a community pharmacy) data to identify antibiotic prescribing in the follow-up window is from December 04, 2009 to February 09, 2012.

4. Adjustment for past prescribing

Adjust for chance imbalances in group preferences at baseline by adjusting the odds ratio for past prescribing (See Outcome Tables 2a and 2b); the pre-intervention period will be the 12 months prior to the study period start date.

5. Outcome Tables

Outcome tables 2a and 2b calculate the change in overall physician prescribing preference by comparing their 'before' preference to their 'after' preference. The before period is the 12 month period prior to each of the two study period start dates (December 03, 2010 and February 28, 2011)

Odds Ratios are adjusted for:

- Intervention period (=1 for year after, =0 for year before)
- Physician group (=1 for early intervention group, =0 for delay group)

*Estimate adjusted odds ratios using logistic regression (proc logistic)

* Delete records where Physician has unknown or invalid sex

F. Statistical Analysis Plan

1. Assemble the physician cohorts and complete baseline characteristics table 1a. Calculate standardized differences to identify imbalances.
2. Identify eligible patients and their UAC episodes

   2b) exclude UAC episodes that meet the criteria for complicating factors in Appendix-III
3. Complete baseline characteristics table 1b. Calculate standardized differences to identify imbalances
4. Extract antibiotic prescription records for eligible patients.
5. Apply the prescription to diagnosis linkage as described in F.2.
6. Sum group prescribing by drug, by month for each physician group. Create figures 1a-1d shown in Appendix IV – Monthly trend
7. Complete the Outcomes Tables 2a and 2b for the two study periods.
8. Calculate Odds Ratio, adjusting for factors listed in F.5.

G. Outcome Tables

Table 1a: Baseline Characteristics of Intervention Group and Control Group Family Physicians

Physician Characteristics	Acute Cystitis Intervention Group	Delayed Control Group
Family physicians (n)		
Women physicians (n, %)		
Age as of July 01, 2011 (mean, IQR)		
Age < 30, %		
Age 30-39, %		
Age 40-49, %		
Age 50-59, %		
Age 60-69, %		
Age >= 70, %		
Years since graduation as of July 01, 2011 (mean, sd)		
Geographical Distribution by Health Authority		
01-Interior		
02-Fraser		
03-Vancouver Coastal		
04-Island Health		
05-Northern		
Unknown		
Average Practice Size (unique patient visits in 2011)		

Table 1b: Baseline Characteristics of Uncomplicated Acute Cystitis Cases

Acute Cystitis Cases	Acute Cystitis Intervention Group	Delayed Control Group
Total eligible cases of uncomplicated acute cystitis		
12 months after first mail-out (Dec 03, 2010)		
12 months after corrected mail-out (Feb 28, 2011)		
Patient age as of July 01, 2011 (mean, IQR)		
Age < 30, %		
Age 30-64, %		
Age 65-84, %		
Age >= 85, %		
Family Income (n,%)		
$0-21250		
$21251-45000		
$45001-70833		
>$97500		
Unknown		
Prior Health Services[1]		
ER Visit (yes/no)		
Hospital admission (mean, sd)		
Number visits to a family physician (mean, sd)		
Prior Medical Diagnosis[2] (n,%)		
Urinary Tract Infection		
Catheterization		
Cancer		
Crohn's disease		
Pelvic inflammatory disorder		
Drug use in past two years[3] (n,%)		
Antibiotic use		
Vitamins/Supplements		
Opioids		
NSAID		
Total number drugs (mean, sd)		

Notes:

1) Twelve months prior to initial mail-out date (Dec 03, 2010)
2) Twenty-four months prior to initial mail-out date
3) Twenty-four months prior to initial mail-out date

Table 2a: Prescribing Outcomes, 12 months after initial mail-out (Dec 03, 2010)														
Acute cystitis episodes, n=xx,xxx		**Intervention Physicians**				**Delayed Contol Physicians**				**Change in Preference**				
Outcome Measures	**Expected Change**	**Dec 04, 2009 to Dec 03, 2010**		**Dec 03, 2010 to Dec 02, 2011**		**Dec 04, 2009 to Dec 03, 2010**		**Dec 03, 2010 to Dec 02, 2011**		**Crude OR**	**Adjusted OR**	**p-value**	**95% CL**	
		YES	NO	YES	NO	YES	NO	YES	NO					
Nitrofurantoin	+													
Ciprofloxacin	-													
TMP-SMX	-													
Other	-													
No Treatment	n/c													

Table 2b: Prescribing Outcomes, 12 months after corrected mail-out (Feb 28, 2011)														
Acute cystitis episodes, n=xx,xxx		**Intervention Physicians**				**Delayed Contol Physicians**				**Change in Preference**				
Outcome Measures	**Expected Change**	**Mar 01, 2010 to Feb 28, 2011**		**Feb 28, 2011 to Feb 09, 2012**		**Mar 01, 2010 to Feb 28, 2011**		**Feb 28, 2011 to Feb 09, 2012**		**Crude OR**	**Adjusted OR**	**p-value**	**95% CL**	
		YES	NO	YES	NO	YES	NO	YES	NO					
Nitrofurantoin	+													
Ciprofloxacin	-													
TMP-SMX	-													
Other	-													
No Treatment	n/c													

Notes:
Odds Ratio adjusted for total volume of patients who visited group doctors, years since graduation from medical school (5-year categories), physician geography, physician sex, and patient age (5-year categories)
n/c=No change
CL=Confidence Limit
OR=Odds Ratio
TMP-SMX=Timethoprim/sulfamethoxazole

Appendix Ia – Acute Cystitis Sample Portrait

Page 1 of 2

How often is nitrofurantoin your first choice for UTI?

Your personal prescribing portrait for uncomplicated acute cystitis[1,2]

Clinical Vignette

An otherwise healthy 30-year-old woman presents with frequency and dysuria. Her dipstick is positive for leukocytes and nitrites, which confirms your diagnosis of uncomplicated acute bacterial cystitis.

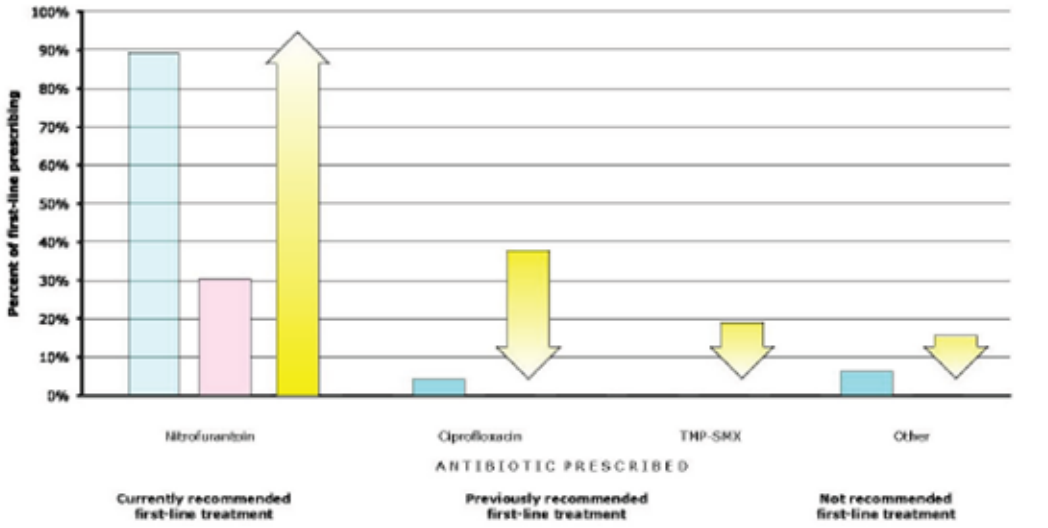
What would YOU prescribe?

Nitrofurantoin is now the first-line* (empiric) treatment for uncomplicated acute cystitis.

Escherichia coli (E. coli) resistance to ciprofloxacin and trimethoprim-sulfamethoxazole (TMP-SMX) now exceeds 20% in BC, thus limiting the effectiveness of these treatments.

Your First-Line* Prescribing for Cystitis in 2009 with BC Average and Target BC Average First-Line Prescribing[2,3]

Prescribing data only shown for patients coded ICD-9:**595** (cystitis): Your Prescribing | Provincial Prescribing | Target Provincial Prescribing



*First-line, in this portrait, refers to the first antibiotic dispensed within 48 hours of coding 595 in an MSP claim, i.e. generally before results of a culture.

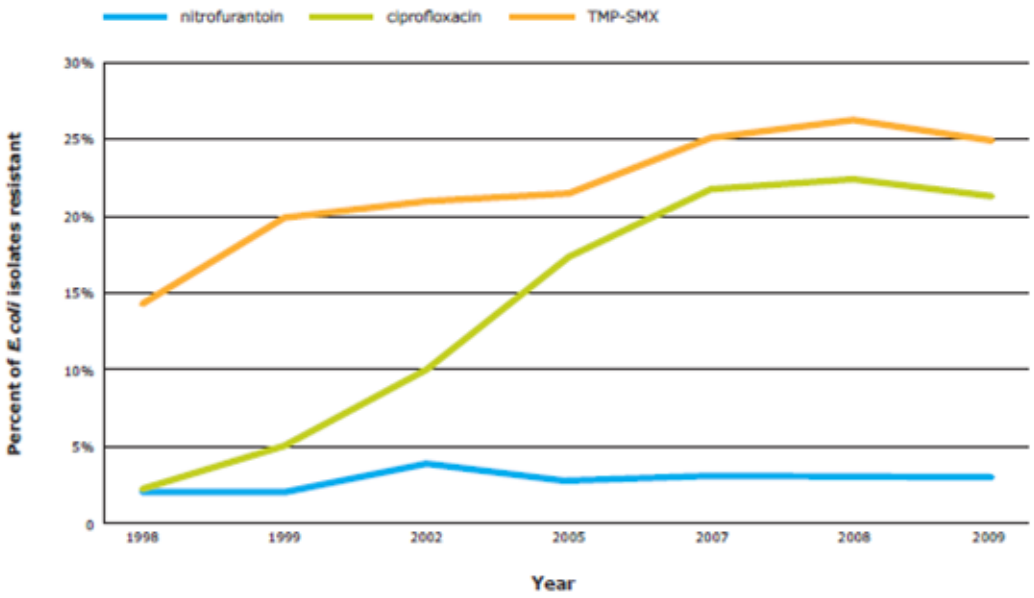
Fluoroquinolones and trimethoprim-sulfamethoxazole are not first-line treatments for uncomplicated acute cystitis.

Rates of *E. coli* resistance to ciprofloxacin mirror the increase in fluoroquinolone utilization.

Overuse of fluoroquinolones is contributing to resistance in other enteric Gram negative organisms.

Nitrofurantoin is a narrow spectrum antibiotic that acts only on urinary pathogens. Rates of *E. coli* resistance to nitrofurantoin have remained at 5% or less in BC over the past 15 years, despite increasing utilization.[4]

Rates of *E. coli* Resistance to Ciprofloxacin, Nitrofurantoin and TMP-SMX[4]



Notes

Inaccuracy in your personal prescribing portrait may arise from incomplete patient visit data or imprecise diagnosis coding.

1. **A detailed explanation of the definitions and assumptions used to create this portrait is available at www.eqip.ca/UTI**

   Messages and resistance data provided by the BC Centre for Disease Control's *Do Bugs Need Drugs?* program.

2. Where identifiable in the data, patients with complicating factors have been removed from your portrait. Approximately 25% of patients province-wide have been removed according to these criteria. Refer to www.eqip.ca/UTI for a comprehensive list of exclusions; refer to www.bugsanddrugs.ca for detailed treatment recommendations.

3. "Target Provincial Prescribing" of nitrofurantoin is set at greater than 75% but less than 100% to allow for patients for whom nitrofurantoin is not indicated, such as those with an eGFR ≤60mL/min. For these patients, nitrofurantoin may not reach adequate concentration in the urine.

4. Epidemiology Services British Columbia Centre for Disease Control. Antibiotic resistance trends in the Province of British Columbia. August 2008. BC Centre for Disease Control. Available online: www.bccdc.ca/prevention/AntibioticResistance/default.htm

Appendix Ib: Printing Error – Portrait

Appendix II: Antibiotic Drug List

Antibiotic DIN List for UTI Portrait.xls

Appendix III – Complicating Factors for Acute Cystitis

Description	ICD 9	ICD 10	MSP fee items / Drugs	Time Period	Criteria
Structureal, Anatomical, or Functional Abnormality of the Genitourinary Tract					
Tuberculosis of genitourinary system	16.9	A181		April 01, 2007 to Feb 09, 2014	1 MSP claim or 1 Hospitalization*
Sequelae of genitourinary tuberculosis	137.2	B901			
Other postprocedural disorders of genitourinary system	997.5	N998			
Postprocedural disorder of genitourinary system, unspecified	997.5	N999			
Foreign body in other and multiple parts of genitourinary tract	939.3	T198			
Foreign body in genitourinary tract, part unspecified	939.9	T199			
Burn of internal genitourinary organs	947.4	T283			
Corrosion of internal genitourinary organs	947.4	T288			
Personal history of diseases of the genitourinary system	V130	Z874			
Pregnant Females					
Normal delivery and other indications for care in pregnancy labour and delivery	650-659.9			Jan 01, 2009 to Feb 09, 2014	1 MSP claim or 1 Hospitalization*
Complications occurring mainly in the course of labour and delivery	660-669.9			Jan 01, 2009 to Feb 09, 2014	1 MSP claim or 1 Hospitalization*
Delivery and postnatal care			14104	Jan 01, 2009 to Feb 09, 2014	1 MSP Fee Item
Delivery - attendance - emergency caesarean section			14109		
Complicated delivery - midcavity surgical delivery			4014		
Caesarean section - high risk			4025		
Caesarean section - elective			4050		
Caesarean section - emergency			4052		
Post-natal care and delivery			4104		
Caesarean section			4105		
Caesarean hysterectomy			4106		
Delivery, attendance			4109		
Impaired Renal Function					
Acute Glomerulonephritis	580-588.9	N00, N01, N03-N05, N07, N08, N12, N14, N17-N19		Apr 01, 2007 to Feb 09, 2014	2 MSP claims or 1 Hospitalization*
Nephrotic Syndrome					
Chronic glomerulonephritis					
Nephritis and nephropathy, not specified as acute or chronic					
Acute renal failure					
Chronic renal failure					
Renal failure, unspecified					
Renal sclerosis, unspecified					
Disorders resulting from impaired renal function					
Spinal Cord Injury					
Malignant neoplasm of the spinal cord	192.2	C720, C721		Apr 01, 2006 to Feb 09, 2014	2 MSP claims or 1 Hospitalization
Secondary malignant neoplasm of the brain & spinal cord	198.3	C793			
Benign neoplasm of the spinal cord	225.3	D334			
neoplasm of the brain and spinal cord	237.5	D431, D432, D434			
Diseases of the spinal cord	336.x	G320,G551,G950, G951,G952,G958-G959,G992			
Other specified anomalies of the spinal cord	742.5	Q060-Q064, Q068			
Injury to spine and spinal cord	767.4	P115			
Fracture of vertebral column with spinal cord lesion	806.x	T080, T081			
Late effect of fracture of spine & trunk	905.1	T911, T912			
Late effect of spinal cord injury	907.2	T913			
Spinal cord lesion without evidence of spinal bone injury	952.x	S140, S141.x			
Injury to nerve roots and spinal plexus	953.x	S142.x, S143.x			
Multiple Sclerosis					
Multiple sclerosis	340.x	G35.x		Apr 01, 2000 to Feb 09, 2014	2 MSP claims or 1 Hospitalization*
Recurrent UTI					
Acute Cystitis	595			Jan 01, 2007 to Feb 09, 2014	4 or more MSP visits
Other Disorders of Urethra and UT	599			Jan 01, 2007 to Feb 09, 2014	4 or more MSP visits
Diabetics					

* ICD 10 codes are evaluated in all 25 diagnosis fields on hospital discharge records

Appendix IV – Monthly Prescribing Trends

Figure 1a – Nitrofurantoin

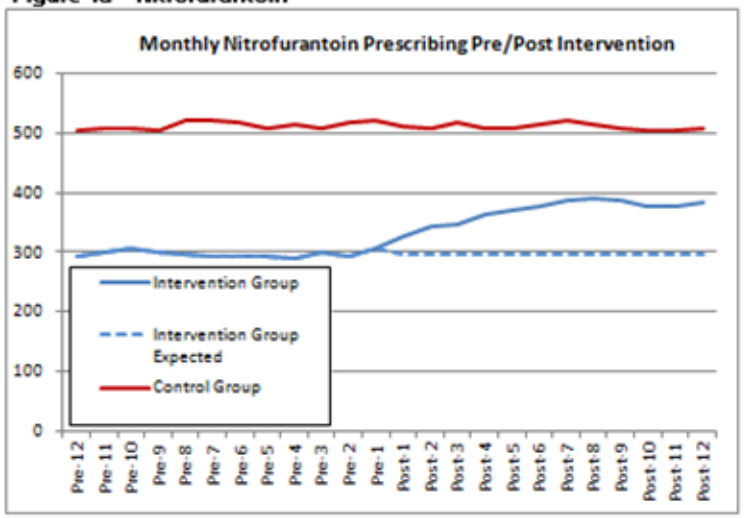


Figure 1b – Ciprofloxacin

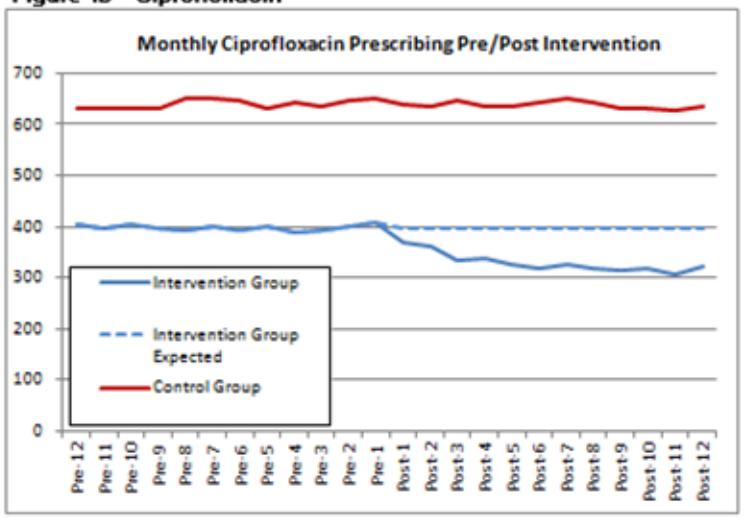


Figure 1c – TMP-SMX

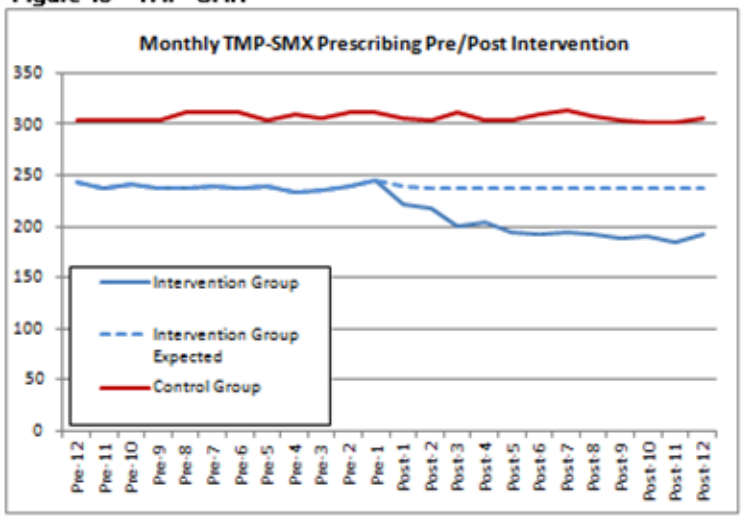
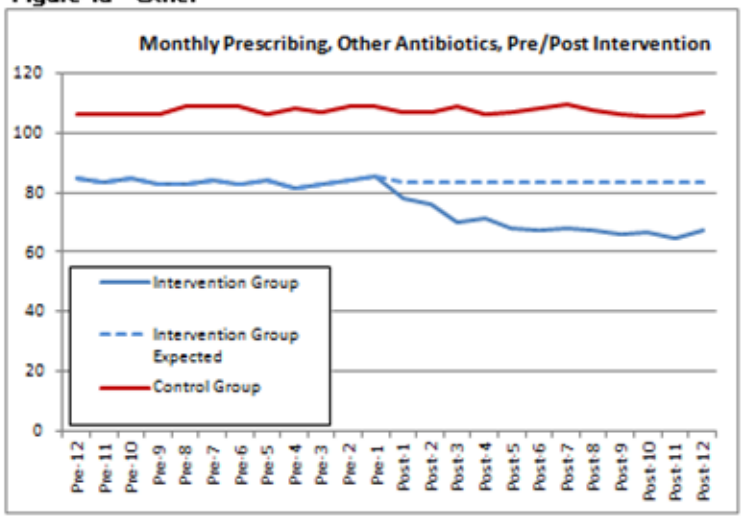


Figure 1d – Other



Appendix V – EQIP Introduction Letter

Date

Dr. «First_Name» «Last_Name»
«Address_1»
«Address_2»
«Address_3»
«City», «Province» «Postal_Code»

Dear Dr. «Last_Name»:

Education for Quality Improvement in Patient Care (EQIP) is a joint initiative of the BCMA, the BC Ministry of Health and the University of BC. We have heard from physicians that they want information about their prescribing practices in relation to scientific evidence and in relation to their peers' prescribing. EQIP provides this information in the form of topic-specific personalized prescribing portraits.

Enclosed you will find a **personalized prescribing portrait showing your prescribing for uncomplicated urinary tract infections** (coded as 595) in 2010. Your prescribing information is provided for your knowledge only. It is completely confidential and is never used to audit your practice.

For the current topic, EQIP collaborated with the BC Centre for Disease Control's *Do Bugs Need Drugs? (DBND)* program. *DBND* is a community education program that addresses the growing problem of antibiotic resistance by providing treatment guidelines and educational materials for healthcare professionals, educators, and the public. More information on *DBND* can be found at www.bccdc.ca/dbnd.

One Mainpro-M1 Continuing Medical Education credit is available for completing the enclosed reflective exercise and faxing it to Continuing Professional Development at UBC (604) 875-5078. Individual responses will remain confidential and will not be available to any regulatory or government agency. Data will only be analyzed and reported in anonymous, aggregate form.

Correspondence regarding these materials can be directed to the EQIP program by e-mailing info@eqip.ca or by telephoning 250-405-1940.

Sincerely,

David Blair, BSP, MD, MHA
Clinical Lead, EQIP

David Patrick, MD, FRCPC, MHSc
Medical Epidemiology Lead
Antimicrobial Resistance and *Do Bugs Need Drugs?*
BC Centre for Disease Control

Appendix VI – Registration Questionnaire

INFORMATION FOR EQIP (UTI) | FAX TO: 604-875-5078

Information on *this page* will be forwarded to the EQIP program.
Please complete and fax ***this page*** if you want to:

1. Update your contact information
2. Participate in a paid interview or focus group to provide EQIP with feedback
3. Decline future topics

The information collected on this form will be used only to determine participation in the EQIP UTI initiative. All personal information is collected under the authority of the B.C. Continuing Care Act and will be collected, used, disclosed and provided security in accordance with the B.C. Freedom of Information and Protection of Privacy Act. If you have any questions about the collection of this information, please contact an EQIP representative at the telephone numbers provided.

1. Contact Information Update

Please correct if necessary. We need your **main practice** address and numbers.

Please Print Corrections Below

Name	«First_Name» «Last_Name»	_____
Address	«Address_1»	_____
	«Address_2»	_____
	«Address_3»	_____
City	«City», «Province» «Postal_Code»	_____
Telephone #	«Phone» **Fax #** «Fax»	_____

2. Portrait Development and Feedback

I would like to be invited to participate in the development or evaluation of EQIP materials

I am interested in:

- ○ A paid 15-minute telephone interview concerning my opinions about EQIP materials
- ○ Participating in a paid focus group
- ○ Participating in a paid one-on-one usability test of the materials

If you prefer to be contacted by e-mail, provide your e-mail address below. Otherwise, you will be contacted at the telephone number listed above.

E-mail address: _____

3. Option to Decline Future Topics

☐ **Check this box if you do NOT wish to receive any future communications from EQIP**

Future portraits will address different topics. Please visit www.eqip.ca for examples of other prescribing portraits. You may opt back into the program at any time using the contact form on the EQIP website.

Appendix VII – CME Reflective Exercise

MAINPRO-M1 STUDY CREDIT FORM | **FAX TO: 604-875-5078** | **1**

Complete this reflective activity for One MainPro-M1 Study Credit

Applicant Information

First name (required): Last name (required):

CFPC member# | CFPC ID (required):

Please Note: the information above is required in order for you to receive your study credit. If you have forgotten your CFPC identification number please contact the CFPC CPD Department at **(905) 629-0900 | 1-(800) 387-6197, Ext 204.** Your National College ID Number is requested due to an arrangement between the College of Family Physicians of Canada and UBC Continuing Professional Development (UBC CPD) to provide automatic electronic transfer of continuing education credits to your college maintenance of certification profile.

In order to obtain one Mainpro-M1 study credit, please reflect on your enclosed UTI prescribing data and then complete the following form. **All your responses will be treated confidentially and only reported in aggregate with those of others.**

Your Urinary Tract Infection Prescribing Portrait for 2010

1. Do you think that your prescribing data accurately reflect your first-line prescribing for cystitis (based on MSP code 595)?

☐ **Yes** ☐ **No**

If ***Yes***, please indicate whether or not you were surprised by the results and how. If ***No***, please explain:

2. Were you surprised by the rates of E. coli resistance to ciprofloxacin, TMP-SMX, and nitrofurantoin?

☐ **Yes** ☐ **No**

If ***No***, where did you previously see this information?

3. What sources do you regularly use for information on bacterial resistance and updated antimicrobial guidelines?

UTI - December 2011

Appendix VIII – Portrait FAQ

UTI Frequently Asked Questions

Q1: Why didn't I receive a UTI portrait?
A1: EQIP portraits are distributed using a *designed delay* process to allow for evaluation; prescribing portraits are initially mailed to participating physicians in the *Early Group* and after a delay of approximately 1 year to the *Delayed Group*. Physicians must satisfy all of the following criteria to be eligible to receive a UTI portrait:

1. Physicians in the Early Group (December 2010) must have prescribed an antibiotic for at least 1 patient whose initial visit was coded as 595 during the study period
2. Physicians in the Delayed Group (December 2011) must have prescribed an antibiotic for at least 1 patient whose initial visit was coded as 595 OR had a practice with >100 patients *and* >25 antibiotic prescriptions in 2010
3. Be defined as a *General Practitioner* by the BC Medical Services Plan
4. Have a License Status equal to *Private Practice* according to the BC Medical Service Plan
5. Not be retired by 2010 (Fee for Service payments > $0 in the first quarter of 2010)
6. Must have a valid encrypted identifier in both the Medical Services Plan and Pharmaceutical Services Division databases at the Ministry of Health Services
7. Must have a valid address

Q2: How do you determine resistance rates?
A2: The BC Centre for Disease Control collaborates with BC Biomedical Laboratories, which is a community based laboratory servicing the lower mainland of BC. BC Biomedical Laboratories shares anonymized data with BCCDC on antibiotic susceptibility tests performed at their laboratory. Resistance is determined on a per-isolate basis. Updated reports on resistance trends in BC, as available, can be found at http://www.bccdc.ca/prevention/AntibioticResistance/default.htm

Q4: How does nitrofurantoin compare to other treatments?
A4: "A 5-day course of nitrofurantoin is equivalent clinically and microbiologically to a 3-day course of trimethoprim-sulfamethoxazole and should be considered an effective fluoroquinolone-sparing alternative for the treatment of acute cystitis in women."[1]

Q5: When is nitrofurantoin not appropriate?
A5: Nitrofurantoin is recommended for empiric treatment of acute uncomplicated cystitis. *Escherichia coli* causes 85-90% of UTIs. Nitrofurantoin has no activity against *Enterobacter*, *Morganella*, *Proteus mirabilis*, *Serratia marcescens*, and *P. aeruginosa*.

[1] Gupta K. et al. Short-Course Nitrofurantoin for the Treatment of Acute Uncomplicated Cystitis in Women. Arch Intern Med. 2007;167(20):2207-2212

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