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Health Data Nova Scotia

HDNS Data Access Request Form

Information contained on this form will be used to evaluate your request for access to HDNS data. Please complete all sections of the form and provide any additional information that is requested.

Incomplete forms will be returned to the researcher.

For more information, please contact HDNS using the information in the upper right corner of this page.

NOTE: The original of this document is 71 pages long. This Appendix illustrates the objectives and variables as well as the work that has been completed in NS for the billing data linkage. However, for the sake of brevity, we have removed large sections of this form. Thank you.

Contact Information removed for brevity

1. DATA ACCESS APPLICATION CHECKLIST removed for brevity
2. POST-APPROVAL DOCUMENT CHECKLIST removed for brevity

3. PROJECT TEAM removed for brevity

4. STUDY FUNDING

Has funding been obtained for this study?

Yes

No

Not Applicable

If yes, or pending please indicate the funding source(s):

NSHRF Establishment Grant (funding 2012-2015)

5. OVERVIEW OF THE STUDY

(a) Overview of study in lay language

This research project consists of three phases.

- Phase 1 was a previously funded study to create the tools and methods to collect data for Phase 2.
- Phase 2 collected information regarding primary care providers and their practices to create a database (Atlas) of all primary care providers in NS, accessibility to their services, models of care, and physician characteristics.
- Phase 3, the subject of this Data Access Request, involves linking the survey data from Phase 2 with administrative health data.

The project will examine key associations of key primary care provider/practice characteristics (such as location, sex, models of primary care practice, accessibility) and patient health service utilization outcomes (such as emergency department and walk-in clinic use; prevention and screening services) using information captured in provincial administrative health data. This work will be used to identify areas of primary healthcare that require enhancement, where gaps exist in accessibility, provide a baseline for evaluating future innovations, and create new knowledge of the current landscape of primary healthcare access, models of care being offered and their impacts on utilization.

(b) Study objectives and corresponding outcome measures of the study (please include specific research questions):

Objective #1

1. Is there a relationship between frequency of patients' visits to the ED and the frequency of primary care visits? "Primary care" is defined as care by an MD in Family Practice or by a Nurse Practitioner (NP).
 Note: The study team is aware that HDNS does not currently hold records for nurse practitioner billings. HDNS is pursuing acquisition of these records and, depending on the result and timing of that effort, we hope to include them.
 - 1.1. Is there a relationship between frequency of patients' visits to the ED and the number of primary care visits over 3 years and individually by each of these three years?
 - 1.1.1. Is there a relationship between the number of non-admitted ED visits and the number of visits to a primary care provider over 3 years and individually by each of these 3 years?
 - 1.1.2. In comparing those admitted at least once in 2013-2014 vs those not admitted from the ED in 2013-2014, is there a difference in the number of primary care visits in the previous 2 years?
 - 1.2. How is the relationship between ED visits and primary care visits influenced by patient characteristics, by practice & provider characteristics derived from the survey data (age, sex, hours of availability; wait times for urgent and non-urgent care)?
 - 1.3. Does ED use vary by the number of primary care providers seen by the patient (e.g., patients who have seen only 1 care provider over 1 year, 2 years, 3 years versus patients who have seen multiple providers over 1 year, 2 years, 3 years.)

(c) Provide, in plain language, a brief summary of your proposed methodology and analysis plan. Describe how you plan to use the data to achieve the study objectives:

Patients who have seen at least one provider in the MAAP-NS data set during fiscal years 2012-2014 will be selected for this analysis.

To relate patient service utilization to provider and practice characteristics, we will identify and assign a "usual" primary care provider to each patient. A patient's usual provider is the one they have seen most over the study period (FY2012-2014).

Methodology for Objective #1

- 1.1 Correlation of frequency of primary care visits per year with frequency of ED visits per year (Pearson's r for normally distributed data; Spearman's rho if the data is skewed).
 - 1.1.1 Correlation as in 1.1, using the subset of patients whose ED visits did not result in admission to hospital.
 - 1.1.2 Patients who have made ED visits in 2013-2014 will be categorized according to whether their ED visit resulted in hospital admission or not. The frequency of each groups' ED visits during the previous two years will be compared using t-tests for normally distributed data or Wilcoxon Rank Sum tests for non-normal data.
- 1.2 Multiple regression analysis predicting frequency of ED visits where the variables of patient age and sex and the characteristics of the pre-determined usual provider (age, sex, hours of availability; wait times for urgent and non-urgent care) will be included in the model.
- 1.3 Patients will be categorized according to number of primary care providers (i.e., single versus multiple) seen in one year, two years and three years. The number of ED visits by each group of primary care consumers (single versus multiple) will be compared for each of these time frames using t-tests for normally distributed data or Wilcoxon Rank Sum tests for non-normal data.

<p style="text-align: center;">Objective #2</p> <p>2. Are there more emergency department visits among patients of family physicians associated with those who do not provide afterhours care (derived from the survey data)?</p> <ul style="list-style-type: none"> 2.1. overall 2.2. among those with mental illness? 2.3. among those with specific chronic illnesses? 	<p style="text-align: center;">Methodology for Objective #2</p> <p>Family physicians can be categorized as providing after hours care (yes/no) from the MAAP-NS survey data. Chi-square analysis will compare the proportions of patients of providers in each category who accessed EDs. This comparison will be repeated using the subset of patients with mental illness codes and again for the subset of patients with any of three chronic illnesses (diabetes, COPD or cardiovascular disease) as defined by the Canadian Chronic Disease Surveillance System. Next, the contribution of after-hours care category to the ED visits will be entered into a logistic regression model. The outcome will be “ED visit (yes/no).” Other predictors included in the model will be patient’s age; sex; presence of chronic illness: COPD (y/n), diabetes (y/n), cardiovascular disease (y/n); presence of mental illness (y/n).</p>
<p style="text-align: center;">Objective #3</p> <p>3. Are wait times for urgent and non-urgent care (from survey data) associated with ED use, additional provider use (i.e., any primary care provider and specifically walk-in clinics)? We can identify which providers work in walk-in clinics from the survey data.</p> <ul style="list-style-type: none"> 3.1. overall 3.2. among those with mental illness? 3.3. among those with specific chronic illnesses? 	<p style="text-align: center;">Methodology for Objective #3</p> <p>The wait time variables (from the survey data) are both continuous (number of days) and categorical. The relationships between the wait times in days and the frequency of ED use will be examined with correlations (Pearson’s r or Spearman’s rho depending on normality of data). The frequency of ED use among the categories of urgent [i.e., same day, next day, 2-5 days, >5 days] and non-urgent [i.e., ≤1 day, 2-5 days, 6-10 days, >10 days] wait times will be examined using chi-square analyses. These analyses will be repeated with the subsets of patients having mental illness, heart disease, COPD, and diabetes.</p> <p>Patients will be categorized as having typically one or multiple primary care providers. The continuous measures of urgent and non-urgent wait times associated with the usual provider will be compared between these two groups of patients using t-tests or Wilcoxon Rank Sum tests, depending on normality of the data.</p> <p>To further delineate the contribution of wait times to frequency of ED use, a linear regression model will be constructed to predict frequency of ED use with the wait time variables as predictors as well as patient, provider and practice characteristics [e.g., patient and provider sex and age, size and model of practice, and hours of availability of provider].</p>

<p style="text-align: center;">Objective #4</p> <p>4. Is there as association between the models of primary care in which family physicians practice (and the individual characteristics of the models) and their patients' ED use? Is there as association between the models of primary care in which family physicians practice and Chronic Disease Prevention and Management?</p> <ul style="list-style-type: none"> 4.1. overall 4.2. among those with mental illness? 4.3. among those with specific chronic illnesses? 	<p style="text-align: center;">Methodology for Objective #4</p> <p>Models of primary care will be developed from the MAAP-NS survey (size, location & make-up of practice).</p> <p>Patients ED use will be a simple count of visits to ED for each fiscal year.</p> <p>Practice burden of chronic disease management will be expressed as the number of CDM codes each primary health care provider submits divided by the total number of individual patients seen by that provider in each fiscal year. Rates of CDM provision will be compared among the models of care with chi-square analysis.</p>
<p style="text-align: center;">Objective #5</p> <p>5. Is there as association between the models of primary care in which family physicians practice and Low versus high responsibility care provision?</p>	<p style="text-align: center;">Methodology for Objective #5</p> <p>The issue of low vs high responsibility will be reflected in a composite measure which will include:</p> <p>rate of referrals: the number of referrals made divided by the total number of unique patients seen by that provider over the 3-year study period</p> <p>provision of out-of-office visits, looking at patient homes, and in-hospital separately</p> <p>and, provision of the following preventative measures by the proportion of patients for each year for each physician in the study (other eligibility described below):</p> <ul style="list-style-type: none"> -proportion of one or more PAP tests for females aged 21-69 inclusive over three years and over five years -number of vaccines for tuberculosis divided by the number of patients per year per provider -number of vaccinations for measles/mumps/rubella (as a proportion of patients under the age of 5) per provider -number of vaccines for Adacel or Boostrix (diphtheria, pertussis and tetanus), Adacel-Polio, divided by the number of patients 23 years of age and older per provider, going back over 5 years of data. (they are to be given once every 5+ years) -number of vaccines for pneumococcal pneumonia divided by the number of patients >=65 seen. Looking at 5 years of data, we want to know what proportion of patients 65 and over have received this vaccination divided by all the patients in that age group, per year, per provider -number of influenza vaccinations divided by the number of patients per year for each provider -number of varicella vaccinations divided by the number of patients aged 60 and over per year, per provider -the proportion of high responsibility providers will be compared among the models of care with Chi-square analysis. These analyses will be repeated with the subset of patients with mental

	illness and those with the specific chronic diseases.
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<p style="text-align: center;">Objective #6</p> <p>6. Do patterns of family physician utilization (how many unique providers and number of visits) differ by models of primary care, geographic location, and accessibility or provider characteristics?</p> <ul style="list-style-type: none"> 6.1. overall 6.2. among those with mental illness? 6.3. among those with specific chronic illnesses? 	<p style="text-align: center;">Methodology for Objective #6</p> <p>Frequency and distribution of family physician visits will be determined for each patient linked to a provider from the MAAP-NS survey. Depending on the normality of the distribution of these visits, they will be treated as either a continuous or categorical variable (wherein the frequencies will be categorized in terms of median and above versus below the median). The frequencies (or categories) will be presented in terms of the univariate relationships to the variables: models of primary care; geographic location; after hours accessibility; and physician characteristics (age, sex, country of training). This will be done with the subsets of patients with chronic illness and those with mental illness. Regression analyses (either linear or logistic depending on how the frequency of visits is handled) will be run wherein the unique relationships between models of primary care, geographic location, accessibility, provider characteristics, and patient status (with regard to mental illness and chronic illness) and primary care utilization are examined.</p>
<p style="text-align: center;">Objective #7</p> <p>7. Are a greater number of primary healthcare screening procedures (i.e., PAP smears, immunizations specific procedures listed below in Methodology for Objective #5) and chronic disease management services for diabetes and coronary heart disease associated with different models of primary care, accessibility, or physician characteristics?</p> <ul style="list-style-type: none"> 7.1. overall 7.2. among those with mental illness? 7.3. among those with specific chronic illnesses? 	<p style="text-align: center;">Methodology for Objective #7</p> <p>Measures for screening procedures, chronic disease management, and models of primary care were explained above for Objective #4 and #5. For this objective, the rates of screening procedures will be considered outcomes whereas with Objective #5 they will be considered as provider characteristics.</p> <p>These rates will be compared among the models of primary care; among those with and without afterhours care; and among physician characteristics (age, sex, country of training). The rates will be compared with t-tests or Wilcoxon Rank Sum tests</p>

	<p>depending on the normality of the data distributions. Three years of data will be used for this objective.</p>
<p style="text-align: center;">Objective #8</p> <p>8. Do differences in scope of practice (defined by survey questions about specific services : e.g., behavioral counselling, maternity care, mental health care, outreach/home care) lead to increased ED use? To increased use of primary care providers other than the patient’s “usual” provider?</p> <ul style="list-style-type: none"> 8.1. overall 8.2. among those with mental illness? 8.3. among those with specific chronic illnesses? 	<p style="text-align: center;">Methodology for Objective #8</p> <p>Our fax survey to providers asked whether certain specific services were provided (each represented as yes/no flags). These factors will be compared with patients’ use of ED. We will also examine this for a subset of patients with mental illness, and for a subset with selected chronic illnesses. Service factors will also be compared with patients’ use of providers other than their “usual” primary care provider. Again, also looking at this for a subset of patients with mental illness, and for a subset with selected chronic illnesses.</p> <p>The frequencies will be compared with t-tests or Wilcoxon Rank Sum tests depending on the normality of the data distributions.</p>

<p align="center">Objective #9</p> <p>9. How well do practice size estimates from providers match the number of unique patients seen over 1 year, 2 years, and 3 years?</p>	<p align="center">Methodology for Objective #9</p> <p>The practice population estimates obtained from each survey responder will be compared to the number of unique patients linked to each responder in each year of administrative data. Also the average number of patients seen in any two consecutive years and the average number of patients seen over 3 years will be compared to each providers estimate. The analysis will be done using correlation techniques (either Pearson’s r for normally distributed data or Spearman’s rho for non-normally distributed data).</p>
<p align="center">Objective #10</p> <p>10. Can the MAAP-NS dataset and HDNS datasets be used to validate and supplement each other where each contains similar variables (i.e., provider age and sex, work in ER, inpatient hospital work, and home visits)? (see table “Variables from both MAAP-NS and HDNS data sets - Additional uses”</p>	<p align="center">Methodology for Objective #10</p> <p>Six variables appear in both the MAAP-NS survey data and in the administrative databases. Where data is missing for one dataset, it will be supplied or “filled in” by the other data set. E.g., HDNS data will serve to fill in missing data for provider age and sex and will be considered to be the “gold standard” for the values of the variables HomeVisit (y/n) and InPt (y/n) which capture primary care visits in the Home and in hospital respectively. The number of unique patients each provider sees in each of the three years of the study will be considered the standard against which the MAAP-NS variable PracPop (provider’s estimated practice size) is compared. The MAAP-NS variable ERwork will be validated and “filled in” by providers’ ER billings.</p>

7. DATA REQUESTED BELOW ARE LISTED THE VARIABLES FOR TWO ANALYSIS DATASETS: 1) Providers & 2) Patients

1) MAAP Survey – Administrative Data Link PROVIDERS

Variable Name and Description	Derivation (Including source files/variables used)	Valid Values	Coding Justification (Why is this level of detail required?)	Link to study objectives and justification
Encrypted provider identifier :“PMBnum “ in the MAAP-NS dataset; “DOCTOR” from MED Physician Billings	MAAP survey & MED Physician Billings	For every respondent in survey data set, an encrypted ID	Needed to link responders in MAAP-NS survey to their administrative data	Basis for all objectives
ProvID Identifier assigned to respondents in MAAP-NS dataset	MAAP-NS survey data	Identifier developed from within the MAAP-NS dataset, not meaningful elsewhere	Needed to link to MAAP survey data	Relevant to all objectives
Provider sex	DOCS (Licensed Provider Registry)	M (male); F(Female)	A provider characteristic, it will serve as a covariate or control in statistical analysis	It is relevant to Objectives 1, 6, & 7
Provider age	DOCS (Licensed Provider Registry)	Computed from DOB and year of survey	A provider characteristic, it will serve as a covariate or control in statistical	Relevant to Objectives 1, 6, & 7

APPENDIX E Data Pull and Analysis Plan for MAAP-NS

			analysis	
Provider birthplace	DOCS (Licensed Provider Registry)	Canada or Other	A provider characteristic, it will serve as a covariate or control in statistical analysis	Relevant to Objectives 1, 6, & 7
Provider's medical school location	EDUC (Licensed Provider Registry)	Canada/USA/other	A provider characteristic, it will serve as a covariate or control in statistical analysis	Relevant to Objectives 1, 6, & 7
Registry start date (optin)	OPTIN (Licensed Provider Registry)	SAS date	To ensure that the providers have data in administrative data bases for the time span of years requested	Necessary for defining the study sample, therefore relevant to all objectives
Registry stop date (optout)	OPTIN (Licensed Provider Registry)	SASdate		
#unique patients seen <ul style="list-style-type: none"> • Year1 • Year 2 • Year 3 • total 	MASTER (Insured Patient Registry)	# unique patient (encrypted) MSI numbers linked to each provider per year of study	The linkage of patients to providers is central to the study	Relevant to all objectives, especially Objective #9
#CDM encounters billed <ul style="list-style-type: none"> • Year1 • Year 2 • Year 3 • total 	ccpcode=CDM1;CDM2 CDM3 MED (MSI Physician Billings)		This will help inform the designation of "high" vs "low" responsibility provider	Objectives 4, 5 & 7
# referrals made <ul style="list-style-type: none"> • Year 1 • Year 2 • Year 3 • total 	"referred" MED (MSI Physician Billings)		This will help inform the designation of "high" vs "low" responsibility provider	Objective #5
Variable Name and Description	Derivation (Including source files/variables used)	Valid Values	Coding Justification (Why is this level of detail required?)	Link to study objectives and justification
# home visits made <ul style="list-style-type: none"> • Year 1 • Year 2 • Year 3 • total 	Location=HOME; HMHC MED (MSI Physician Billings)	Number of visits where the location was specified as HOME or HMHC	This will help inform the designation of "high" vs "low" responsibility provider	Objective #5
# hospital visits made <ul style="list-style-type: none"> • Year 1 • Year 2 • Year 3 • total 	Location=HOSP; Hospunit=INPT MED (MSI Physician Billings)	Count of visits per year	This will help inform the designation of "high" vs "low" responsibility provider	Objective #5
# PAP test performed on females in the age group 21-69 <ul style="list-style-type: none"> • Year 1 • Year 2 • Year 3 • Year 4 • Year 5 • total 	ccpcat=VADT; ccpcode=03.26 Ccpqual=A,C MED (MSI Physician Billings)	Number of PAP tests divided by the number of unique female patients in the 21-69 age range; Data over 5 years is needed to flag providers as high vs low responsibility (Objective #5). Data over 3 years will be used for relating	This will help inform the designation of "high" vs "low" responsibility provider; also number of primary healthcare screening procedures	Objectives #5, #7

APPENDIX E Data Pull and Analysis Plan for MAAP-NS

		number of screening procedures to models of care (Objective #7)		
# TB vaccines given <ul style="list-style-type: none"> Year 1 Year 2 Year 3 Year 4 Year 5 total 	ccpcat=VADT; ccpcode=13.13 MED (MSI Physician Billings)	Number of TB vaccinations divided by the number of unique patients; Data over 5 years is needed to flag providers as high vs low responsibility (Objective #5). Data over 3 years will be used for relating number of screening procedures to models of care (Objective #7)	This will help inform the designation of “high” vs “low” responsibility provider; also number of primary healthcare screening procedures	Objective #5, #7
# MMR vaccines given <ul style="list-style-type: none"> Year 1 Year 2 Year 3 Year 4 Year 5 total 	ccpcat=ADON; ccpcode=13.59; ccpqual=L; RO=MMAR MED (MSI Physician Billings)	Number of MMR vaccines divided by the number of unique patients under the age of 5 years; data over 5 years is needed to flag providers as high vs low responsibility (Objective #5); data over 3 years will be used for relating number of screening procedures to models of care (Objective #7)	This will help inform the designation of “high” vs “low” responsibility provider; also number of primary healthcare screening procedures	Objectives #5, #7
Variable Name and Description	Derivation (Including source files/variables used)	Valid Values	Coding Justification (Why is this level of detail required?)	Link to study objectives and justification
# Diphtheria/pertussis/tetanus/polio vaccines given <ul style="list-style-type: none"> Year 1 Year 2 Year 3 Year 4 Year 5 total 	ccpcat=ADON; ccpcode=13.59; ccpqual=L; RO=ADAC; ADPO; BOTR;PENT;QUAD MED (MSI Physician Billings)	Number of these vaccines given divided by the number of unique patients aged 23 and over; data over 5 years is needed to flag providers as high vs low responsibility (Objective #5); data over 3 years will be used for relating number of screening procedures to models of care (Objective #7)	This will help inform the designation of “high” vs “low” responsibility provider; also number of primary healthcare screening procedures	Objective #5, #7
# pneumococcal pneumonia vaccines given <ul style="list-style-type: none"> Year 1 Year 2 Year 3 	ccpcat=ADON; ccpcode=13.59; ccpqual=L; RO=PNEU MED (MSI Physician Billings)	Number of PNEU vaccines given divided by the number of unique patients aged 65	This will help inform the designation of “high” vs “low” responsibility provider; also	Objectives #5, #7

APPENDIX E Data Pull and Analysis Plan for MAAP-NS

<ul style="list-style-type: none"> Year 4 Year 5 total 		and over; data over 5 years is needed to flag providers as high vs low responsibility (Objective #5); data over 3 years will be used for relating number of screening procedures to models of care (Objective #7)	number of primary healthcare screening procedures	
# influenza vaccines given <ul style="list-style-type: none"> Year 1 Year 2 Year 3 Year 4 Year 5 total 	ccpcat=ADON; ccpcode=13.59; ccpqual=I RO=INFL MED (MSI Physician Billings)	Number of influenza vaccinations divided by the number of unique patients ; data over 5 years is needed to flag providers as high vs low responsibility (Objective #5); data over 3 years will be used for relating number of screening procedures to models of care (Objective #7)	This will help inform the designation of “high” vs “low” responsibility provider	Objectives #5, #7
Variable Name and Description	Derivation (Including source files/variables used)	Valid Values	Coding Justification (Why is this level of detail required?)	Link to study objectives and justification
# varicella vaccines given <ul style="list-style-type: none"> Year 1 Year 2 Year 3 Year 4 Year 5 total 	ccpcat=ADON; ccpcode=13.59; ccpqual=I RO=VARI MED (MSI Physician Billings)	Number of varicella vaccinations given divided by the number of unique patients aged 60 and over; data over 5 years is needed to flag providers as high vs low responsibility (Objective #5); data over 3 years will be used for relating number of screening procedures to models of care (Objective #7)	This will help inform the designation of “high” vs “low” responsibility provider; also number of primary healthcare screening procedures	Objectives #5, #7
Provider’s office location: numeric nominal	MAAP-NS	DHA	Practice characteristic	Objective #6
Provider’s practice size: numeric	MAAP-NS	actual number of providers (continuous); categories of practice size (ordinal); Solo vs multiple (nominal)	A practice characteristic	Objective #1
Group: numeric nominal	MAAP-NS	Identifier of practice	This will allow us to address the question of whether patients who	Relevant to Objectives #6 & #8

APPENDIX E Data Pull and Analysis Plan for MAAP-NS

			see more than one provider see co-located providers.	
ProvType Provider type: character	MAAP-NS	FP (Family Physician) or NP (Nurse Practitioner) We are aware that NP data may not be available	In case NP data can be retrieved, this will distinguish the two types of providers	Relevant to all objectives
PracPop: numeric continuous	MAAP-NS	Provider's estimate of practice size	A practice characteristic	Relevant to Objectives #1.#2 & #9
PPopcat: numeric ordinal	MAAP-NS	Practice population size categories, based on quartiles	A practice characteristic	Relevant to Objectives #1.#2 & #9
Solo: numeric nominal	MAAP-NS	Is it a solo practice (y/n)	A practice characteristic will play a role in developing "models of care"	Relevant to Objectives #4,#5,#6,#7
CompsetSize: numeric ordinal	MAAP-NS	Categories of practice size	A practice characteristic will play a role in developing "models of care"	Relevant to Objectives #4,#5,#6,#7
Variable Name and Description	Derivation (Including source files/variables used)	Valid Values	Coding Justification (Why is this level of detail required?)	Link to study objectives and justification
Practype: Character	MAAP-NS	Type of Practice (walk-in/mixed/no walk-in)	A practice characteristic that will play a role in developing "models of care"	Objective #3, also as an aspect of models of care Objectives #1,#4,#5,#6,#7
Anywalkin: numeric nominal	MAAP-NS	Practice is a walk-in or has a walk-in component (y/n)	Derived from above variable; will play a role in developing "models of care"	Objective #3
Interdisc: numeric nominal	MAAP-NS	Practice has an interdisciplinary component (y/n)	Practice characteristic that could play a role in the development of models of care	Objectives #1,#4,#5, #6, #7
Nurse: numeric nominal	MAAP-NS	Nurse present in practice (y/n)	Practice characteristic that could play a role in the development of models of care	Objectives #1,#4,#5,#6,#7
Afterhours: numeric nominal	MAAP-NS	Does FP/NP provide coverage for this clinic after the office is closed? (y/n)	Relates to the issue of accessibility	Objective #2
Weekend: numeric nominal	MAAP-NS	Do you provide weekend care at your main practice? (y/n)	Relates to the issue of accessibility	Objective #2
Evening: numeric nominal	MAAP-NS	Do you provide evening care at your main practice? (y/n)	Relates to the issue of accessibility	Objectives #2,#6,#7
Evening_Times: numeric continuous • Monday • Tuesday	MAAP-NS	Hours for each day that the office is open after 5 p.m.	Relates to the issue of accessibility	Objectives #2,#6,#7

APPENDIX E Data Pull and Analysis Plan for MAAP-NS

<ul style="list-style-type: none"> Wednesday Thursday Friday 				
Morning_times: numeric continuous <ul style="list-style-type: none"> Monday Tuesday Wednesday Thursday Friday 	MAAP-NS	Hours for each day that the office is open between 7 and 9 a.m.	Relates to the issue of accessibility	Objectives #2, #6, #7,
Hours_per_day: numeric continuous <ul style="list-style-type: none"> Monday Tuesday Wednesday Thursday Friday 	MAAP-NS	For each day of the week, the hours worked	Relates to the issue of accessibility	Objective #2, #6, #7
Variable Name and Description	Derivation (Including source files/variables used)	Valid Values	Coding Justification (Why is this level of detail required?)	Link to study objectives and justification
Weeklyhrs	MAAP-NS	Total office hours worked in a week	Relates to the issue of accessibility	Objective #2, #6, #7
Nexturg: numeric continuous	MAAP-NS	Next urgent appointment wait time (days)	An indication of wait times	Objective #3
Nextnon: numeric continuous	MAAP-NS	Next non-urgent appointment wait time (days)	An indication of wait times	Objective #3
Sharepts: numeric nominal	MAAP-NS	Do providers share patients (y/n)	Practice characteristic that could play a role in the development of models of care	Objectives #4, #5,#6,#7
Sharequ: numeric nominal	MAAP-NS	Do providers share equipment? (y/n)	Practice characteristic that could play a role in the development of models of care	Objectives #4, #5,#6,#7
Sharerec: numeric nominal	MAAP-NS	Do providers share patients' records? (y/n)	Practice characteristic that could play a role in the development of models of care	Objectives #4, #5,#6,#7
Sharestaff: numeric nominal	MAAP-NS	Do providers share staff? (y/n)	Practice characteristic that could play a role in the development of models of care	Objectives #4, #5,#6,#7
emgMinor	MAAP-NS	Provide care for an urgent but minor problem? (y/n)	Relates to Scope of practice	Objective #8
Nonurg	MAAP-NS	Non urgent care (y/n)	Relates to Scope of practice	Objective #8
Rehab	MAAP-NS	Rehabilitation services (y/n)	Relates to Scope of practice	Objective #8
Minorproc	MAAP-NS	Minor office procedures? (y/n)	Relates to Scope of practice	Objective #8
PreNat	MAAP-NS	Prenatal care? (y/n)	Relates to Scope of practice	Objective #8

APPENDIX E Data Pull and Analysis Plan for MAAP-NS

IPcare	MAAP-NS	Intrapartum care? (y/n)	Relates to Scope of practice	Objective #8
PPcare	MAAP-NS	PostPartum care? (y/n)	Relates to Scope of practice	Objective #8
BCTob	MAAP-NS	Behavioural Counselling re tobacco? (y/n)	Relates to Scope of practice	Objective #8
BCEating	MAAP-NS	Behavioural Counselling re Health Eating? (y/n)	Relates to Scope of practice	Objective #8
BCPhys	MAAP-NS	Behavioural Counselling re Physical Activity (y/n)	Relates to Scope of practice	Objective #8
HealthPro	MAAP-NS	Other health promotion/prevention services (y/n)	Relates to Scope of practice	Objective #8
MHserv	MAAP-NS	Mental Health services? (y/n)	Relates to Scope of practice	Objective #8
Variable Name and Description	Derivation (Including source files/variables used)	Valid Values	Coding Justification (Why is this level of detail required?)	Link to study objectives and justification
PSserv	MAAP-NS	PsychoSocial Services? (y/n)	Relates to Scope of practice	Objective #8
LiaiseHome	MAAP-NS	Liaison with Home Care Services? (y/n)	Relates to Scope of practice	Objective #8
HomeVisit	MAAP-NS	Provision of home visits (y/n)	Relates to Scope of practice	Objective #8
Outreach	MAAP-NS	Outreach services to special/vulnerable populations (y/n)	Relates to Scope of practice	Objective #8
SpecProg	MAAP-NS	Specialized programs for vulnerable or special needs (other than outreach) e.g., seniors or adults with disabilities	Relates to Scope of practice	Objective #8
EOLHome	MAAP-NS	End of life home care? (y/n)	Relates to Scope of practice	Objective #8
PCLongterm	MAAP-NS	Primary Care in Long Term care facilities? (y/n)	Relates to Scope of practice	Objective #8
ownpts	MAAP-NS	Primary Care in Long Term care facilities – only for own patients (y/n)	Relates to Scope of practice	Objective #8
ComOutRch	MAAP-NS	Community Outreach (e.g. School/youth health centre/MH clinics/correctional centres) (y/n)	Relates to Scope of practice	Objective #8
ERwork	MAAP-NS	Provide care in ER? (y/n)	Relates to Scope of practice	Objective #8
ColIEC	MAAP-NS	Provide care in	Relates to Scope of	Objective #8

APPENDIX E Data Pull and Analysis Plan for MAAP-NS

		Collaborative Emergency Centre? (y/n)	practice	
InPt	MAAP-NS	In-Patient care (for your pts in hospital) (y/n)	Relates to Scope of practice	Objective #8
FFserv	MAAP-NS	Paid by fee for service? (y/n)	All variables dealing with remuneration will contribute to our formulation of “models of care”	Objectives #1,#4,#5,#6,#7
Salary	MAAP-NS	Paid by salary? (y/n)		
Sessional	MAAP-NS	Paid Sessional/per diem/hourly? (y/n)		
ServiceCon	MAAP-NS	Paid by service Contract? (y/n)		
IncentPR	MAAP-NS	Paid by incentives/Premiums? (y/n)		
Other	MAAP-NS	Other payment? (y/n)		
Variable Name and Description	Derivation (Including source files/variables used)	Valid Values	Coding Justification (Why is this level of detail required?)	Link to study objectives and justification
Privilege	MAAP-NS	Has hospital privileges (y/n)	Relates to models of care	Objectives #1,#4,#5,#6,#7
LimitQ	MAAP-NS	Do you have a policy that you will only address a limited number of issues per appointment? (y/n)	Relates to models of care and accessibility	Objectives #1,#4,#5,#6,#7
email	MAAP-NS	Is there an e-mail where you would respond to patient questions? (y/n)	Relates to models of care and accessibility	Objectives #1,#4,#5,#6,#7
Managed	MAAP-NS	How is practice managed? (1 of 6 possible responses)	Relates to models of care	Objectives #1,#4,#5,#6,#7
GrExch	MAAP-NS	Group practice informal exchanges (y/n)	Relates to models of care	Objectives #1,#4,#5,#6,#7
GrOrg	MAAP-NS	Group practice regular team meetings re organizational administration (y/n)	Relates to models of care	Objectives #1,#4,#5,#6,#7
GrCase	MAAP-NS	Group practice regular team meetings for case management (y/n)	Relates to models of care	Objectives #1,#4,#5,#6,#7
GrProto	MAAP-NS	Group Practice pre- established protocols for specific client groups or problems (y/n)	Relates to models of care	Objectives #1,#4,#5,#6,#7
GrVisn	MAAP-NS	Group practice shared vision for the practice (y/n)	Relates to models of care	Objectives #1,#4,#5,#6,#7
GrWrkshp	MAAP-NS	Group Practice team building workshops (y/n)	Relates to models of care	Objectives #1,#4,#5,#6,#7

APPENDIX E Data Pull and Analysis Plan for MAAP-NS

GrConEd	MAAP-NS	Group Practice Continuing Education sessions (y/n)	Relates to models of care	Objectives #1,#4,#5,#6,#7
GrColl	MAAP-NS	Group practice collaborative practice arrangement (y/n)	Relates to models of care	Objectives #1,#4,#5,#6,#7
GrWrit	MAAP-NS	Group practice written roles and responsibilities of team members (y/n)	Relates to models of care	Objectives #1,#4,#5,#6,#7
CompUse	MAAP-NS	Do you use a computer in your practice? (y/n)	Relates to models of care	Objectives #1,#4,#5,#6,#7
CompApp	MAAP-NS	Computer used to make appointments (y/n)	Relates to models of care	Objectives #1,#4,#5,#6,#7
CompRx	MAAP-NS	Computer used for issuing prescriptions(y/n)	Relates to models of care	Objectives #1,#4,#5,#6,#7
Variable Name and Description	Derivation (Including source files/variables used)	Valid Values	Coding Justification (Why is this level of detail required?)	Link to study objectives and justification
CompWarn	MAAP-NS	Computer used for electronic warning of adverse prescribing and/or drug interactions (y/n)	Relates to models of care	Objectives #1,#4,#5,#6,#7
CompSpCo	MAAP-NS	Computer used for specialist consultative report (y/n)	Relates to models of care	Objectives #1,#4,#5,#6,#7
CompRef	MAAP-NS	Computer used for sending referral letters to medical specialists (y/n)	Relates to models of care	Objectives #1,#4,#5,#6,#7
CompDx	MAAP-NS	Computer used for storage of diagnostic test results (y/n)	Relates to models of care	Objectives #1,#4,#5,#6,#7
CompSrch	MAAP-NS	Computer used for searching medical information on the internet (y/n)	Relates to models of care	Objectives #1,#4,#5,#6,#7
CompRxS	MAAP-NS	Computer used for sending prescriptions to the pharmacy (y/n)	Relates to models of care	Objectives #1,#4,#5,#6,#7
CompQual	MAAP-NS	Computer used for quality improvement (y/n)	Relates to models of care	Objectives #1,#4,#5,#6,#7
CompRec	MAAP-NS	Computer used for electronic records to enter and retrieve patient notes (y/n)	Relates to models of care	Objectives #1,#4,#5,#6,#7
CompRem	MAAP-NS	Computer used for electronic reminders of recommended patient care (y/n)	Relates to models of care	Objectives #1,#4,#5,#6,#7
CompPtFu	MAAP-NS	Computer used for	Relates to models of	Objectives

APPENDIX E Data Pull and Analysis Plan for MAAP-NS

		patient follow-up (y/n)	care	#1,#4,#5,#6,#7
Numcalls	MAAP-NS	Total number of calls required to complete survey	Relates to accessibility	Objective 6
NPnum	MAAP-NS	Number of PHC Nurse practitioners in the practice	Relates to models of care	Objectives #1,#4,#5,#6,#7
NPref	MAAP-NS	How are patients referred to NP? (self/physician/both)	Relates to models of care	Objectives #1,#4,#5,#6,#7
FPNnum	MAAP-NS	Number of family practice nurses in the practice	Relates to models of care	Objectives #1,#4,#5,#6,#7
FPNref	MAAP-NS	How are patients referred to FPN? (self/physician/both)	Relates to models of care	Objectives #1,#4,#5,#6,#7
Variable Name and Description	Derivation (Including source files/variables used)	Valid Values	Coding Justification (Why is this level of detail required?)	Link to study objectives and justification
MHNnum	MAAP-NS	Number of Mental Health nurses in the practice	Relates to models of care	Objectives #1,#4,#5,#6,#7
MHNref	MAAP-NS	How are patients referred to FPN? (self/physician/both)	Relates to models of care	Objectives #1,#4,#5,#6,#7
SWnum	MAAP-NS	Number of social workers in the practice	Relates to models of care	Objectives #1,#4,#5,#6,#7
SWref	MAAP-NS	How are patients referred to Social Worker?(self/physician/both)	Relates to models of care	Objectives #1,#4,#5,#6,#7
PsyMDnm	MAAP-NS	Number of Psychiatrists in the practice	Relates to models of care	Objectives #1,#4,#5,#6,#7
PsyMDref	MAAP-NS	How are patients referred to psychiatrist? (self/physician/both)	Relates to models of care	Objectives #1,#4,#5,#6,#7
Psychnum	MAAP-NS	Number of psychologists in the practice	Relates to models of care	Objectives #1,#4,#5,#6,#7
Psychref	MAAP-NS	How are patients referred to Psychologist?(self/physician/both)	Relates to models of care	Objectives #1,#4,#5,#6,#7
Pharmnum	MAAP-NS	Number of pharmacists in the practice	Relates to models of care	Objectives #1,#4,#5,#6,#7
Pharmref	MAAP-NS	How are patients referred to Pharmacist? (self/physician/both)	Relates to models of care	Objectives #1,#4,#5,#6,#7
Dietnum	MAAP-NS	Number of dieticians in the practice	Relates to models of care	Objectives #1,#4,#5,#6,#7
Dietref	MAAP-NS	How are patients referred to Dietician? (self/physician/both)	Relates to models of care	Objectives #1,#4,#5,#6,#7
Physionm	MAAP-NS	Number of physiotherapists in the practice	Relates to models of care	Objectives #1,#4,#5,#6,#7
Physioref	MAAP-NS	How are patients referred to Physiotherapist?(self/physician/both)	Relates to models of care	Objectives #1,#4,#5,#6,#7
OTnum	MAAP-NS	Number of Occupational Therapists in the practice	Relates to models of care	Objectives #1,#4,#5,#6,#7
OTref	MAAP-NS	How are patients referred to the Occupational Therapist? (self/physician/both)	Relates to models of care	Objectives #1,#4,#5,#6,#7

APPENDIX E Data Pull and Analysis Plan for MAAP-NS

Pednum	MAAP-NS	How many pediatricians are in the practice?	Relates to models of care	Objectives #1,#4,#5,#6,#7
Pedref	MAAP-NS	How are patients referred to Pediatrician? (self/physician/both)	Relates to models of care	Objectives #1,#4,#5,#6,#7
Podnum	MAAP-NS	Number of podiatrists in the practice	Relates to models of care	Objectives #1,#4,#5,#6,#7
Podref	MAAP-NS	How are patients referred to Podiatrist?(self/physician/both)	Relates to models of care	Objectives #1,#4,#5,#6,#7
Othernum	MAAP-NS	Number of other professionals in practice	Relates to models of care	Objectives #1,#4,#5,#6,#7
Otherref	MAAP-NS	How are patients referred to Other professionals? (self/physician/both)	Relates to models of care	Objectives #1,#4,#5,#6,#7
Newpts	MAAP-NS	Is the provider currently accepting new patients (yes unconditionally/yes with conditions/no)	Central to the issue of accessibility	Objectives #6 & #7
Variable Name and Description	Derivation (Including source files/variables used)	Valid Values	Coding Justification (Why is this level of detail required?)	Link to study objectives and justification
Except	MAAP-NS	If no to new patients, are there exceptions? (y/n)	Central to the issue of accessibility	Objectives #6 & #7
dropin	MAAP-NS	Can a regular patient come to your office for a same-day unscheduled appointment (y/n)	Central to the issue of accessibility	Objectives #6 & #7
urgsquez	MAAP-NS	How urgent pts are scheduled: Between appts/squeezed in? (y/n)	Central to the issue of accessibility	Objectives #6 & #7
urgres	MAAP-NS	How urgent pts are scheduled: time slot reserved for urgent episodic care? (y/n)	Central to the issue of accessibility	Objectives #6 & #7
urgnext	MAAP-NS	How urgent pts are scheduled: scheduled into next available appointment (y/n)	Central to the issue of accessibility	Objectives #6 & #7
EMR	MAAP-NS	Does your office use Electronic Medical Records (y/n)	Relates to models of care	Objectives #1,#4,#5,#6,#7
EMRsch	MAAP-NS	EMR used for patient scheduling (y/n)	Relates to models of care	Objectives #1,#4,#5,#6,#7
EMRrec	MAAP-NS	EMR used for recording patient encounters? (y/n)	Relates to models of care	Objectives #1,#4,#5,#6,#7
EMRlab	MAAP-NS	EMR used for lab results? (y/n)	Relates to models of care	Objectives #1,#4,#5,#6,#7
EMRbill	MAAP-NS	EMR used for billing? (y/n)	Relates to models of care	Objectives #1,#4,#5,#6,#7
EMRfu	MAAP-NS	EMT used to prompt calls for patient follow-up?	Relates to models of care	Objectives #1,#4,#5,#6,#7
Meets	MAAP-NS	Does the practice have regularly scheduled meetings/ (y/n)	Relates to models of care	Objectives #1,#4,#5,#6,#7

2) MAAP Survey - Administrative Data Link PATIENTS				
Variable Name and Description	Derivation (Including source files/variables used)	Valid Values	Coding Justification (Why is this level of detail required?)	Link to study objectives and justification
MSI – encrypted patient ID	MASTER Insured Patient Registry		To link to provider	All Objectives
Patient sex	MASTER Insured Patient Registry	M (Male); F (Female)	A defining patient characteristic that will serve as control/covariate in statistical analyses	Objectives #1,#2,# 5,#7
Patient age	MASTER Insured Patient Registry	Derived from DOB, calculated for each year of study; important in determining age group of patient for preventative health measures	A patient characteristic important in defining patient subgroups and will be included (control/covariate) in statistical analyses	Objective #5, #7
Diabetes (y/n)	From MED: DxCode1- DxCode3 From CIHI DAD: DxCode1 – DxCode25	Canadian Chronic Disease Surveillance System (CCDSS) algorithms for Diabetes, type unspecified, GDM excluded : One or more hospitalizations or two or more physician claims within two years. Prevalent for life; for the period 1995-2014 E10 to E14 (3 digits) 250 (3 digits)	To identify subsets of patients	Objectives #2, #3, #4, #6,#7,#8
COPD (y/n)	From MED or CIHI DAD: DxCode1	CCDSS algorithms for(#8) Chronic Obstructive Pulmonary Disease : One or more hospitalizations or one or more physician claims; for the period 1995-2014 J41to J44 (3 digits) 491, 492, 496 (3 digits)	To identify subsets of patients	Objectives #2, #3, #4, #6,#7,#8
Variable Name and Description	Derivation (Including source files/variables used)	Valid Values	Coding Justification (Why is this level of detail required?)	Link to study objectives and justification
Cardiovascular disease	From MED: DxCode1- DxCode3 From CIHI DAD: DxCode1 –	CCDSS algorithms for Hypertension : One or more hospitalizations or two or more physician claims within two years; for the period 1995-2014 Ischemic Heart Disease: One or more hospitalizations or procedure code or two or more physician claims within one year; for the period 1995-	To identify subsets of patients	Objectives #2, #3, #4, #6,#7,#8

APPENDIX E Data Pull and Analysis Plan for MAAP-NS

	DxCode25	2014 I10 to I15 (hypertension) I20 to I25 (ischemic heart disease) 401-405, 641-676 (hypertension) 410-414 (ischemic heart disease)		
Mental Illness	From MED or CIHI DAD: DxCode1	CCDSS algorithms for Mental Illness Omnibus; Mood and Anxiety Disorders; Schizophrenia and Delusional Disorders: One or more hospitalizations or one or more physician claims within one year (same algorithm for each mental illness condition); for the period 1995-2014 F00-F99 (any mental illness)F30-F42 F44-F48, F68 mood&anxiety disorders) F20, F21, F23.1, F23.2, F23.3, F24, F25 (schizophrenia) 290-319 (any mental illness) 296,300,311 (mood&anxiety disorders) 295,297 (schizophrenia)	To identify subsets of patients	Objectives #2, #3, #4, #6,#7,#8
Variable Name and Description	Derivation (Including source files/variables used)	Valid Values	Coding Justification (Why is this level of detail required?)	Link to study objectives and justification
Usual provider	DOCTORS (Licensed provider registry)	Encrypted provider ID	Linkage is central to study	All objectives
Number of primary care visits • Year 1 • Year 2 • Year 3 • total	MED (Physician Billing)			Objective #1,& #6
Number of primary care providers seen • Year 1 • Year 2 • Year 3 • total	MED (Physician Billing)	Number of unique encrypted physician identifiers associated with each patient per year.	As well as an indication of frequency of primary care visits per patient, this will also provide an estimate of the number of unique patients each provider sees in a year.	Objective #1.3, #3, #6, #8
# ER visits total • Year 1 • Year 2 • Year 3 • total	MED (MSI Physician Billings) location Hospunit dxdate	=HOSP =EMCC =SAS date [can yield year; also relationship to hospital admission date]	The major focus of the linkage between MAAP-NS data and administrative data is to examine relationship between ED use and primary health care use	Objectives #1, #2, #3, #4, #6, #8
# ER visits resulting in admission to hospital • Year 1 • Year 2 • Year3 • total	MED (MSI Physician Billings) location Hospunit addate	=HOSP =EMCC =SAS date [can yield relationship to admission date]	ED visits which result in hospitalization must be distinguished from those which do not in order to examine the use of EDs in place of primary care office visits	Objective #1
(a) As all variables from the source databases have been listed in the previous tables for the Analysis Datasets, they will not be repeated here. These are the source data sets from which data will be extracted and linked.				
Source dataset	MED (MSI Physician Billings)			

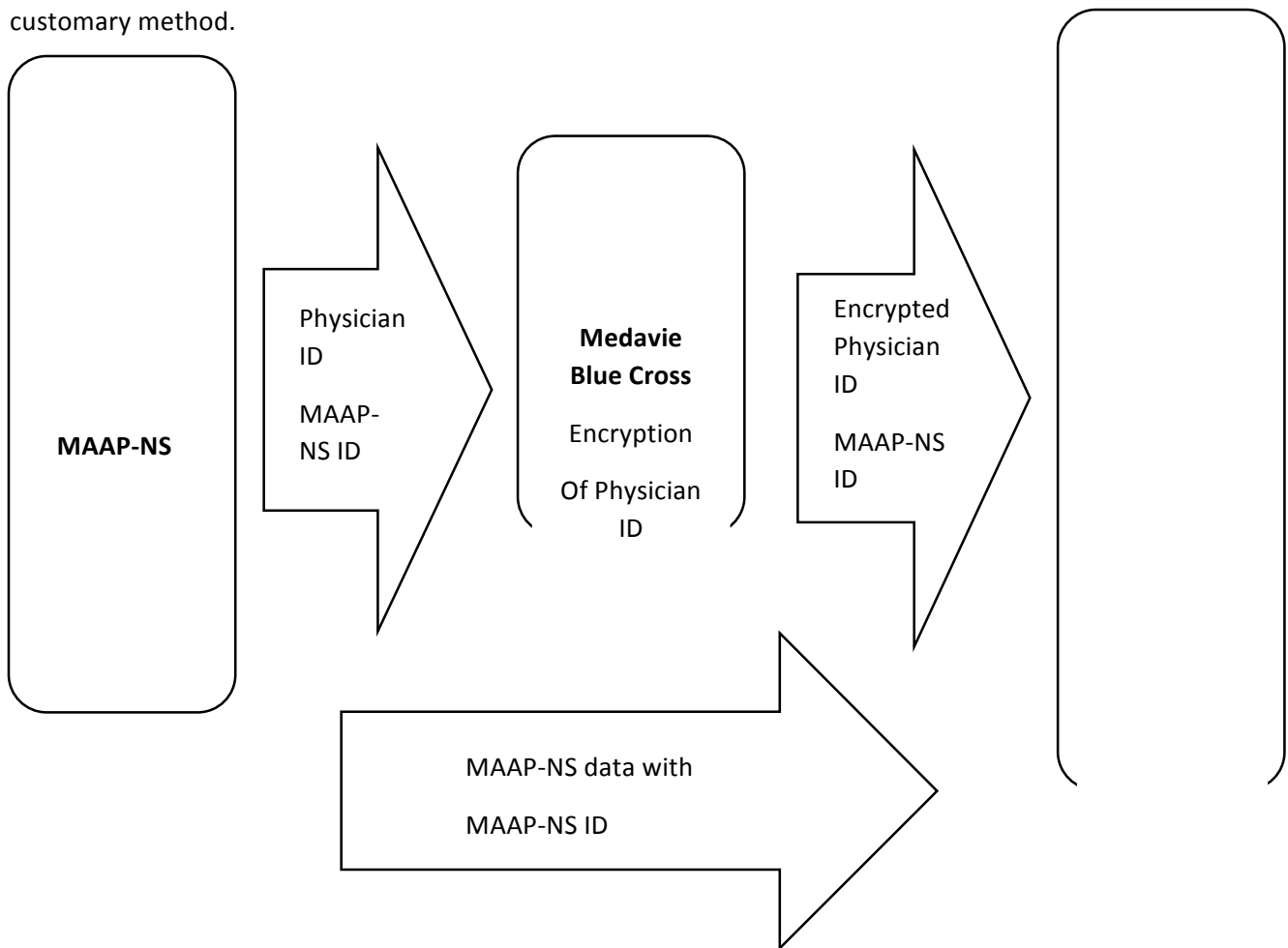
APPENDIX E Data Pull and Analysis Plan for MAAP-NS

(HDNS)	CIHI Discharge Abstract Database
	MASTER (Insured Patient Registry)
	DOCS (Licensed Provider Registry)
	EDUC (Licensed Provider Registry)
	OPTIN (Licensed Provider Registry)
Source dataset (MAAP-NS)	MAAP-NS Practice & Provider survey

(b) Will data held by HDNS be linked/matched with the above data? Yes No

If yes, describe the nature of the linkage, including the process for linking data from varied sources. Include a flow diagram.

MAAP-NS survey data will be sent in part directly to HDNS and in part through Medavie Blue Cross, per the customary method.



(a) **Estimated Time Period for Data Use:** Specify the time that these data will be actively used.

1 Year 3 Years 5 Years Other _____

Please note: Researchers must forward a copy of the Research Ethics Board annual renewal letter of approval to HDNS on an annual basis in order to maintain ongoing access beyond one year.

Encrypted IDs of survey responders
linked to encrypted IDs of
patients seen by survey responders
at least once between
April 1 2013 and March 31, 2014

MAAP-NS Data Linkage to HDNS

