A Province-Wide, Cross-Sectional Study Of Demographics And Medication Use Of Patients In Hemodialysis Units Across Ontario
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Supplemental Material

Supplemental Table 1: Checklist of recommendations for reporting of observational studies using the REporting of studies Conducted using Observational Routinely-collected health Data (RECORD) Statement

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**Supplemental Table 1: Checklist of recommendations for reporting of observational studies using the REporting of studies Conducted using Observational Routinely-collected health Data (RECORD) Statement**

| Item No | STROBE items | RECORD items | Reported |
|---------|--------------|--------------|----------|
| **Title and abstract** | (a) Indicate the study's design with a commonly used term in the title or the abstract. (b) Provide in the abstract an informative and balanced summary of what was done and what was found. | (1.1) The type of data used should be specified in the title or abstract. When possible, the name of the databases used should be included. (1.2) If applicable, the geographic region and time frame within which the study took place should be reported in the title or abstract. (1.3) If linkage between databases was conducted for the study, this should be clearly stated in the title or abstract. | Abstract |
| **Introduction** | | | |
| Background/rationale | 2 Explain the scientific background and rationale for the investigation being reported. | | Background |
| Objectives | 3 State specific objectives, including any prespecified hypotheses. | | Background |
| **Methods** | | | |
| Study design | 4 Present key elements of study design early in the paper. | | Methods: Design and setting |
| Setting | 5 Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up, and data collection. | | Methods |
| Participants | 6 (a) Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up. (b) For matched studies, give matching criteria and number of exposed and unexposed. | (6.1) The methods of study population selection (such as codes or algorithms used to identify subjects) should be listed in detail. If this is not possible, an explanation should be provided. (6.2) Any validation studies of the codes or algorithms used to select the population should be referenced. If validation was conducted for this study and not published elsewhere, detailed methods and results should be provided. (6.3) If the study involved linkage of databases, consider use of a flow diagram or other graphical display to demonstrate the data linkage process, including the number of individuals with linked data at each stage. | Methods: Data sources, Cohort selection, Drug use and costs; Supplemental Table 2; (b) N/A |
| Variables | 7 Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable. | (7.1) A complete list of codes and algorithms used to classify exposures, outcomes, confounders, and effect modifiers should be provided. If these cannot be reported, an explanation should be provided. | Methods: Drug use and costs; Supplemental Table 2 |
| Data sources/ measurement | 8 | For each variable of interest, give sources of data and details of methods of assessment (measurement). Describe comparability of assessment methods if there is more than one group. | Methods: Data sources, Statistical analysis |

| Bias | 9 | Describe any efforts to address potential sources of bias. | Discussion |

| Study size | 10 | Explain how the study size was arrived at. | Figure 1 |

| Quantitative variables | 11 | Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen and why. | Methods: Statistical analysis |

| Statistical methods | 12 | (a) Describe all statistical methods, including those used to control for confounding.  
(b) Describe any methods used to examine subgroups and interactions.  
(c) Explain how missing data were addressed.  
(d) If applicable, explain how loss to follow-up was addressed.  
(e) Describe any sensitivity analyses. | (a, b) Methods: Statistical analysis; (c) Table footnotes; (d, e) N/A |

| Data access and cleaning methods | N/A | | Methods: Data sources, Cohort selection; Availability of data and material |

| Linkage | N/A | (12.3) State whether the study included person-level, institutional-level, or other data linkage across two or more databases. The methods of linkage and methods of linkage quality evaluation should be provided. | Methods: Data sources |

| Results | | | |

| Participants | 13 | (a) Report numbers of individuals at each stage of study—e.g. numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analyzed.  
(b) Give reasons for non-participation at each stage.  
(c) Consider use of a flow diagram. | (13.1) Describe in detail the selection of the persons included in the study (i.e., study population selection), including filtering based on data quality, data availability, and linkage. The selection of included persons can be described in the text and/or by means of the study flow diagram.  
Results: Demographics, Figure 1 |

| Descriptive data | 14 | (a) Give characteristics of study participants (e.g. demographic, clinical, social) and information on exposures and potential confounders.  
(b) Indicate number of participants with missing data for each variable of interest.  
(c) Summarize follow-up time (e.g. average and total amount). | Table 1, Table 2, Supplemental Table 3 |

| Outcome data | 15 | Report numbers of outcome events or summary measures over time. | Figure 2, Table 3 |

| Main results | 16 | (a) Give unadjusted estimates and, if applicable, confounder-adjusted | N/A |
estimates and their precision (e.g. 95% confidence interval). Make clear which confounders were adjusted for and why they were included.
(b) Report category boundaries when continuous variables were categorized.
(c) If relevant, consider translating estimates of relative risk into absolute risk for a meaningful time period.

| Other analyses | 17 | Report other analyses done (e.g. analyses of subgroups and interactions, and sensitivity analyses). | N/A |
| Key results | 18 | Summarize key results with reference to study objectives. | Discussion |
| Limitations | 19 | Discuss limitations of the study, taking into account sources of potential bias or imprecision. Discuss both direction and magnitude of any potential bias. | Discussion |
| Interpretation | 20 | Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence. | Discussion |
| Generalizability | 21 | Discuss the generalizability (external validity) of the study results. | Discussion |
| **Other information** |  |  |  |
| Funding | 22 | Give the source of funding and the role of the funders for the present study and, if applicable, for the original study on which the present article is based. | Funding |
| Accessibility of protocol, raw data, and programming code | N/A | (22.1) Authors should provide information on how to access any supplemental information such as the study protocol, raw data, or programming code. | Availability of data and material |
### Supplemental Table 2: Study Drug List

| Study Drug Name/Class         | Drug Names Included                                                                                                                                 |
|------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Allopurinol                  | Allopurinol                                                                                                                                          |
| Alpha-Adrenergic Blockers    | Benazepril Chlorohydrate, Benazepril HCl, Captopril, Cilazapril, Enalapril Sodium, Fosinopril, Fosinopril Sodium, Hydrochlorothiazide & Lisinopril, Lisinopril, Perindopril Tert. Butylamine, Quinapril, Ramipril, Trandolapril |
| Angiotensin-Converting Enzyme (ACE) Inhibitors | Amlodipine Besylate & Telmisartan, Candesartan Cilexetil, Candesartan Cilexetil & Hydrochlorothiazide, Eprosartan Mesylate, Eprosartan Mesylate & Hydrochlorothiazide, Hydrochlorothiazide & Irbesartan, Hydrochlorothiazide & Losartan Potassium, Hydrochlorothiazide & Olmesartan Medoxomil, Hydrochlorothiazide & Telmisartan, Hydrochlorothiazide & Valsartan, Irbesartan, Losartan Potassium, Olmesartan Medoxomil, Telmisartan, Valsartan |
| Angiotensin Receptor Blockers | Amlodipine Besylate & Telmisartan, Candesartan Cilexetil, Candesartan Cilexetil & Hydrochlorothiazide, Eprosartan Mesylate, Eprosartan Mesylate & Hydrochlorothiazide, Hydrochlorothiazide & Irbesartan, Hydrochlorothiazide & Losartan Potassium, Hydrochlorothiazide & Olmesartan Medoxomil, Hydrochlorothiazide & Telmisartan, Hydrochlorothiazide & Valsartan, Irbesartan, Losartan Potassium, Olmesartan Medoxomil, Telmisartan, Valsartan |
| Anticonvulsants              | Gabapentin, Gabapentin & Lactose, Gabapentin & Nortriptyline HCl & Lipoderm, Pregabalin                                                                 |
| Antidepressants              | Amitriptyline, Amitriptyline HCl & Baclofen, Amitriptyline HCl & Perphenazine, Amoxapine, Bupropion HCl, Citalopram HBr, Clomipramine, Clomipramine HCl, Desipramine HCl, Doxepin HCl, Duloxetine, Imipramine HCl, Isocarboxazid, Maprotiline HCl, Mirtazapine, Moclobemide, Nortriptyline, Nortriptyline HCl, Phenelzine Sulfate, Prazosin HCl, Selegiline HCl, Tranylcypromine Sulfate, Trazodone HCl, Trimipramine, Trimipramine Maleate |
| Typical Antipsychotics       | Chlorpromazine, Chlorpromazine HCl, Chlorpromazine HCl & Lactose, Chlorpromazine HCl & Lactose, Desipramine HCl, Doxepin HCl, Duloxetine, Imipramine HCl, Isocarboxazid, Maprotiline HCl, Mirtazapine, Moclobemide, Nortriptyline, Nortriptyline HCl, Phenelzine Sulfate, Prazosin HCl, Selegiline HCl, Tranylcypromine Sulfate, Trazodone HCl, Trimipramine, Trimipramine Maleate |
| Prescription Aspirin         | Alprazolam, Bromazepam, Chloralhydrate, Chloralhydrate & Lactose, Chloralhydrate & Lactose, Chloralhydrate & Lactose, Desipramine HCl, Doxepin HCl, Duloxetine, Imipramine HCl, Isocarboxazid, Maprotiline HCl, Mirtazapine, Moclobemide, Nortriptyline, Nortriptyline HCl, Phenelzine Sulfate, Prazosin HCl, Selegiline HCl, Tranylcypromine Sulfate, Trazodone HCl, Trimipramine, Trimipramine Maleate |
| Benzodiazepines / Hypnotics  | Alprazolam, Bromazepam, Chloralhydrate, Chloralhydrate & Lactose, Chloralhydrate & Lactose, Chloralhydrate & Lactose, Desipramine HCl, Doxepin HCl, Duloxetine, Imipramine HCl, Isocarboxazid, Maprotiline HCl, Mirtazapine, Moclobemide, Nortriptyline, Nortriptyline HCl, Phenelzine Sulfate, Prazosin HCl, Selegiline HCl, Tranylcypromine Sulfate, Trazodone HCl, Trimipramine, Trimipramine Maleate |
| Beta Blockers                | Acebutolol, Acebutolol HCl, Atenolol, Betaxolol, Bisoprolol Fumarate, Brimonidine Tartrate & Timolol Maleate, Carvediol, Labetalol HCl, Levobunolol, Levobunolol HCl, Metoprolol, Metoprolol Succinate, Metoprolol Sulfate, Metoprolol Tartrate, Nadolol, Oxprenolol HCl, Pindolol, Propranolol HCl, Sotalol, Sotalol HCl, Timolol, Timolol Maleate, Timolol Maleate & Tartrate, Timolol Maleate & Travoprost |
| Bisphosphonates              | Alendronate, Alendronate Sodium, Alendronate Sodium & Cholecalciferol, Calcium Carbonate & Etidronic Acid Disodium, Clodronic Acid Disodium, Etidronic Acid Disodium, Risedronate Sodium, Zoledronic Acid |
| Bowel Prokinetics            | Domperidone, Domperidone Maleate, Metoclopramide HCl                                                                                                                                                   |
| Calcitriol                   | Calcitriol                                                                                                                                                                                                |
| Calcium Channel Blockers     | Amlodipine Besylate, Amlodipine Besylate & Atorvastatin Calcium, Diltiazem, Diltiazem HCl, Erythritol Tetracitrate, Felodipine, Nicardipine HCl, Nifedipine, Nifedipine, Verapamil HCl |
| Digoxin                      | Digoxin                                                                                                                                                                                                   |
| Diuretics                    | Amiloride HCl, Amiloride HCl & Hydrochlorothiazide, Acetazolamide, Bumetanide, Chlorothalidone, Eplerenone, Ethacrynic Acid, Furosemide, Hydrochlorothiazide, Hydrochlorothiazide & Spironolactone, Hydrochlorothiazide & Triamterene, Indapamide, Metolazone, Spironolactone, Triamterene |
| Category               | Examples                                                                 |
|------------------------|---------------------------------------------------------------------------|
| Dopamine Agonists      | Pramipexole HCl, Ropinirole HCl                                           |
| Fibrates               | Bezafibrate, Clofibrate, Fenofibrate, Gemfibrozil                         |
| H2 Receptor Antagonists| Bismuth Citrate & Ranitidine, Cimetidine, Cimetidine HCl, Famotidine, Nizatidine, Ranitidine HCl |
| Oral Hypoglycemics     | Acarbose, Acetohexamide, Canagliflozin, Chlorpropamide, Dapagliflozin, Empagliflozin, Glimepiride, Glyburide, Linagliptin, Linagliptin & Metformin HCl, Metformin HCl, Metformin HCl & Saxagliptin, Metformin HCl & Sitagliptin Phosphate, Nateglinide, Pioglitazone HCl, Repaglinide, Rosiglitazone Maleate, Saxagliptin HCl, Sitagliptin Phosphate, Tolbutamide |
| Insulin                | Human Insulin Isophane Recombinant, Human Insulin Recombinant, Human Insulin Recombinant & Human Insulin Isophane Recombinant, Human Insulin Zinc Recombinant, Insulin, Insulin & Insulin Isophane, Insulin (Zinc) Beef, Insulin Aspart Recombinant, Insulin Glargine Recombinant, Insulin Glulisine Recombinant, Insulin Isophane, Insulin Lispro Recombinant, Insulin Lispro Recombinant & Insulin Lispro Protamine Recombinant, Insulin Porcine Base, Insulin Porcine Base Isophane, Insulin Protamine Zinc, Insulin Zinc |
| Levodopa and Combinations | Benserazide HCl & Levodopa, Carbipoda & Entacapone & Levodopa, Carbipoda & Levodopa, Carbipoda Monohydrate & Levodopa, Levodopa |
| Nonsteroidal Anti-Inflammatory Drugs (NSAIDs) | Cannabidiol & Tetrahydrocannabinol, Celecoxib, Diclofenac, Diclofenac Sodium, Diclofenac Sodium & Misoprostol, Diflunisal, Etodolac, Fenoprofen Calcium, Floctafenine, Flurbiprofen, Glucosamine & Chondroitin, Ibuprofen, Indomethacin, Ketoprofen, Ketorolac Tromethamine, Mefenamic Acid, Meloxicam, Nabumetone, Naproxen, Naproxen Sodium, Oxaprozin, Phenylbutazone, Piroxicam, Rofecoxib, Sulindac, Tenoxicam, Tiaprofenic Acid, Tolmetin Sodium, Valdecoxib |
| Opioids                | Acetaminophen & Caffeine & Codeine Phosphate, Acetaminophen & Caffeine Citrate & Codeine Phosphate, Acetaminophen & Codeine Phosphate, Acetaminophen & Oxycodone HCl, Acetylsalicylic Acid & Oxycodone HCl, Anileridine HCl, Belladona & Opium, Belladona Extract For Oral Use & Opium Powder, Buprenorphine HCl & Naloxone HCl, Codeine Phosphate, Codeine Sulfate, Dextropropoxyphene HCl, Dextropropoxyphene Napsylate, Fentanyl, Fentanyl Citrate, Hydromorphone, Hydromorphone HBr, Hydromorphone HCl, Levorphanol Tartrate, Meperidine HCl, Methadone, Methadone HCl, Morphine, Morphine HCl, Morphine Sulfate, Naltrexone HCl, Opium, Oxycodone HCl, Oxymorphone HCl, Propranoxyphene HCl, Sufentanil Citrate |
| Proton Pump Inhibitors | Amoxicillin Trihydrate & Clarithromycin & Lansoprazole, Esomeprazole Magnesium, Lansoprazole, Omeprazole, Pantoprazole Magnesium, Pantoprazole Sodium, Rabeprazole Sodium |
| Statins                | Atorvastatin Calcium, Cerivastatin Sodium, Fluvastatin, Fluvastatin Sodium, Lovastatin, Pravastatin, Pravastatin Sodium, Rosuvastatin Calcium, Simvastatin |
| Tamsulosin             | Dutasteride & Tamsulosin HCl, Tamsulosin HCl                              |
| Warfarin               | Warfarin, Warfarin Sodium                                                 |
**Supplemental Table 3: Prevalence of co-morbidities by study drug use a**

| Study drug | N    | Arrhythmia | Atrial fibrillation | Chronic liver disease | Chronic lung disease | Coronary artery disease | Coronary revascularization | Diabetes mellitus | Heart failure | Myocardial infarction | Peripheral vascular disease | Stroke or TIA |
|------------|------|------------|---------------------|-----------------------|----------------------|------------------------|---------------------------|-------------------|--------------|-----------------------|-----------------------------|---------------|
| Total b    | 3094 | 29.3%      | 21.6%               | 11.1%                 | 42.0%                | 61.8%                  | 4.9%                      | 52.6%             | 51.5%        | 16.8%                | 15.3%                       | 7.3%          |
| Allopurinol| 508  | 32.7%      | 25.6%               | 9.8%                  | 43.3%                | 67.7%                  | 3.7%                      | 52.0%             | 53.5%        | 15.7%                | 18.9%                       | 6.1%          |
| Alpha-adrenergic blockers | 353 | 24.4%      | 13.3%               | 12.5%                 | 42.2%                | 60.9%                  | 4.8%                      | 60.1%             | 47.0%        | 14.7%                | 14.4%                       | 7.6%          |
| ACE inhibitors | 621 | 25.9%      | 17.7%               | 12.4%                 | 41.2%                | 64.9%                  | 7.2%                      | 56.0%             | 55.1%        | 21.1%                | 17.1%                       | 8.2%          |
| Angiotensin receptor blockers | 730 | 25.5%      | 16.8%               | 8.9%                  | 41.5%                | 60.5%                  | 3.8%                      | 59.6%             | 51.8%        | 16.4%                | 14.4%                       | 6.4%          |
| Anticonvulsants | 346 | 34.7%      | 26.0%               | 11.0%                 | 47.4%                | 68.8%                  | 6.6%                      | 63.6%             | 60.1%        | 18.5%                | 25.4%                       | 0.0%          |
| Antidepressants | 476 | 31.9%      | 23.3%               | 11.7%                 | 48.8%                | 66.9%                  | 6.9%                      | 57.7%             | 55.6%        | 20.5%                | 16.8%                       | 9.6%          |
| Antipsychotics | 33  | 30.3%      | 24.2%               | ≤15.2%                | 42.4%                | 60.6%                  | ≤15.2%                    | 51.5%             | 54.5%        | ≤15.2%               | 18.2%                       | ≤15.2%        |
| Aspirin     | 111  | 20.7%      | 10.8%               | 10.8%                 | 34.2%                | 58.6%                  | 10.8%                     | 62.2%             | 42.3%        | 18.9%                | 21.6%                       | 9.9%          |
| Benzodiazepines/ hypnotics | 583 | 30.2%      | 24.0%               | 11.8%                 | 43.7%                | 64.8%                  | 5.3%                      | 49.1%             | 52.5%        | 15.4%                | 17.2%                       | 9.4%          |
| Beta blockers | 1659 | 33.5%      | 25.6%               | 10.7%                 | 44.4%                | 70.0%                  | 6.4%                      | 56.8%             | 59.9%        | 22.8%                | 16.3%                       | 8.1%          |
| Bisphosphonates | 65  | 27.7%      | 21.5%               | 9.2%                  | 40.0%                | 50.8%                  | ≤8.8%                     | 38.5%             | 33.8%        | 12.3%                | 0.0%                        | ≤8.8%         |
| Bowel prokinetics | 287 | 30.7%      | 22.6%               | 13.9%                 | 45.3%                | 62.7%                  | 5.9%                      | 63.1%             | 57.8%        | 15.3%                | 13.9%                       | 9.4%          |
| Calcitriol  | 1097 | 28.5%      | 20.8%               | 9.1%                  | 40.2%                | 61.0%                  | 4.7%                      | 51.2%             | 51.4%        | 16.8%                | 17.0%                       | 6.5%          |
| Calcium channel blockers | 1492 | 24.9%      | 16.4%               | 10.1%                 | 41.4%                | 57.8%                  | 4.6%                      | 59.5%             | 49.9%        | 16.2%                | 15.1%                       | 7.6%          |
| Digoxin    | 118  | 72.0%      | 66.1%               | 13.6%                 | 56.8%                | 75.4%                  | 9.3%                      | 47.5%             | 77.1%        | 19.5%                | 24.6%                       | 11.0%         |
| Diuretics  | 1183 | 30.2%      | 21.1%               | 10.4%                 | 45.0%                | 64.8%                  | 5.7%                      | 63.7%             | 60.2%        | 18.5%                | 12.7%                       | 6.3%          |
| H2 receptor antagonists | 168 | 24.4%      | 17.3%               | 8.3%                  | 42.3%                | 63.1%                  | ≤3.3%                     | 49.4%             | 49.4%        | 20.2%                | 11.3%                       | 6.5%          |
| Hypoglycemics | 399 | 26.1%      | 18.0%               | 10.8%                 | 42.9%                | 61.2%                  | 4.5%                      | 99.2%             | 52.4%        | 14.3%                | 11.3%                       | 7.8%          |
| Insulin    | 934  | 28.9%      | 18.8%               | 10.9%                 | 44.1%                | 70.2%                  | 7.2%                      | 98.8%             | 60.3%        | 21.2%                | 15.8%                       | 7.8%          |
| Levodopa   | 79   | 29.1%      | 21.5%               | 7.6%                  | 41.8%                | 68.4%                  | ≤6.3%                     | 45.6%             | 58.2%        | 11.4%                | 12.7%                       | 7.6%          |
| NSAIDs     | 173  | 27.2%      | 19.7%               | 9.2%                  | 42.2%                | 65.3%                  | 4.6%                      | 51.4%             | 48.6%        | 16.8%                | 17.3%                       | 4.6%          |
| Opioids    | 800  | 32.6%      | 25.5%               | 12.3%                 | 47.6%                | 67.4%                  | 6.4%                      | 54.0%             | 56.0%        | 17.6%                | 18.9%                       | 8.0%          |
| PPIs       | 1653 | 32.4%      | 25.0%               | 12.3%                 | 45.6%                | 66.7%                  | 5.7%                      | 54.1%             | 55.6%        | 19.7%                | 16.3%                       | 7.8%          |
| Statins    | 2020 | 30.5%      | 22.3%               | 9.6%                  | 43.1%                | 69.2%                  | 5.7%                      | 60.0%             | 55.1%        | 21.0%                | 16.6%                       | 8.6%          |
| Tamsulosin | 231  | 31.2%      | 24.7%               | 14.3%                 | 45.5%                | 69.3%                  | 4.8%                      | 49.8%             | 51.1%        | 20.3%                | 18.6%                       | 8.7%          |
| Warfarin   | 528  | 63.7%      | 58.8%               | 12.1%                 | 46.7%                | 73.0%                  | 6.0%                      | 53.5%             | 67.7%        | 16.4%                | 16.4%                       | 11.2%         |

Abbreviations: ACE, angiotensin-converting-enzyme; PPI, proton pump inhibitor; TIA, transient ischemic attack

a Some results have been suppressed due to privacy regulations (sample size too small). Results for dopamine and fibrate users are not presented due to small sample size

b Based on prescription closest to October 1, 2013