**Multimorbidity and healthcare utilization among home care clients with dementia in Ontario, Canada: a retrospective analysis of a population-based cohort**

**Authors:** Luke Mondor; Colleen J. Maxwell; David B. Hogan; Susan E. Bronskill; Andrea Gruneir; Natasha E Lane; Walter P Wodchis

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<td></td>
<td>(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</td>
<td>RECORD 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. RECORD 1.2: If applicable, the geographic region and timeframe within which the study took place should be reported in the title or abstract. RECORD 1.3: If linkage between databases was conducted for the study, this should be clearly stated in the title or abstract.</td>
<td>Included in title and abstract 1.1/1.2: “A retrospective cohort study using linked administrative and clinical data from Ontario, Canada” (Abstract, Methods and Findings) 1.3: n/a</td>
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**Introduction**

Background rationale

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<tr>
<td>2</td>
<td>Explain the scientific background and rationale for the investigation being reported</td>
<td></td>
<td>Included, paragraphs 1-3 of Introduction</td>
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Objectives

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<td>3</td>
<td>State specific objectives, including any pre-specified hypotheses</td>
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<td>Included, paragraph 4 of Introduction</td>
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**Methods**

Study Design

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<td>4</td>
<td>Present key elements of study design early in the paper</td>
<td></td>
<td>Included, Methods – Study Design &amp; Setting section.</td>
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Setting

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<td>5</td>
<td>Describe the setting, locations, and relevant dates, including periods of recruitment, exposure, follow-up.</td>
<td></td>
<td>Included, Methods – Study Design &amp; Setting and Study Populations sections. Sections</td>
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| Participants | 6 | (a) Cohort study - Give the eligibility criteria, and the sources and methods of selection of participants. Describe methods of follow-up  
Case-control study - Give the eligibility criteria, and the sources and methods of case ascertainment and control selection. Give the rationale for the choice of cases and controls  
Cross-sectional study - Give the eligibility criteria, and the sources and methods of selection of participants  
(b) Cohort study - For matched studies, give matching criteria and number of exposed and unexposed  
Case-control study - For matched studies, give matching criteria and the number of controls per case |
| Variables | 7 | Clearly define all outcomes, exposures, predictors, potential confounders, and effect modifiers. Give diagnostic criteria, if applicable. |
| 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 |
| Bias | 9 | Describe any efforts to address |

**Participants**

RECORD 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.  
(RECORD 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.  
(RECORD 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.  
(a) Included, Methods – Study Population section  
6.1: S1 Table and S2 Table  
6.2: reference 24, S2 Table includes references to validated algorithms for case ascertainment  
6.3: n/a, all data used were linked deterministically and provide complete coverage (no individuals were excluded due to data linkage)
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<th>Task</th>
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<tr>
<td>Study size</td>
<td>10</td>
<td>Explain how the study size was arrived at</td>
<td>Included, S3 Table</td>
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<tr>
<td>Quantitative variables</td>
<td>11</td>
<td>Explain how quantitative variables were handled in the analyses. If applicable, describe which groupings were chosen, and why</td>
<td>Included, Methods – Exposure, Covariates, and Outcomes sections</td>
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| 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) Cohort study - If applicable, explain how loss to follow-up was addressed  
Case-control study - If applicable, explain how matching of cases and controls was addressed  
Cross-sectional study - If applicable, describe analytical methods taking account of sampling strategy  
(e) Describe any sensitivity analyses | Included, Methods – Analysis section  
(a) paragraphs 1 and 2  
(b) paragraph 2  
(c) paragraph 1  
(d) paragraph 1 (censoring)  
(e) paragraph 3 |
| Data access and cleaning methods          | ..             | RECORD 12.1: Authors should describe the extent to which the investigators had access to the database population used to create the study population.  
12.1: Included, Methods – Study Design & Setting section  
12.2: Included, S3 Table. N=124 records with data quality issues excluded from study. Methods for missing data in Methods – Analysis section. |
| Linkage                                   | ..             | RECORD 12.3: State whether the study included person-level, institutional- | 12.3: Included, Methods – Study                                          |
level, or other data linkage across two or more databases. The methods of linkage and methods of linkage quality evaluation should be provided.

### Results

| Participants | 13 | (a) Report the numbers of individuals at each stage of the study (e.g., numbers potentially eligible, examined for eligibility, confirmed eligible, included in the study, completing follow-up, and analysed)  
(b) Give reasons for non-participation at each stage.  
(c) Consider use of a flow diagram | RECORD 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. | (a) Included, S3 Table (inclusion criteria)  
(b) Included, S3 Table  
(c) n/a  
13.1: Included, Methods – Study Population section, and S3 Table |
| Descriptive data | 14 | (a) Give characteristics of study participants (e.g., demographic, clinical, social) and information on exposures and potential confounders  
(b) Indicate the number of participants with missing data for each variable of interest  
(c) Cohort study - summarise follow-up time (e.g., average and total amount) | | (a) Included, Results - paragraph 1 and Table 1  
(b) Included, Methods – Analysis section, and Table 1  
(c) Included, Table 2 |
| Outcome data | 15 | Cohort study - Report numbers of outcome events or summary measures over time  
Case-control study - Report numbers in each exposure category, or summary measures of exposure  
Cross-sectional study - Report numbers of outcome events or summary measures | | Included, Results - paragraph 2, Table 2 and S5 Table |
| Main results | 16 | (a) Give unadjusted estimates and, if applicable, confounder-adjusted  
(b) Give adjusted estimates | | (a) Included age-sex adjusted and fully adjusted regression results, Results - |
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

Discussion

Key results 18 Summarise key results with reference to study objectives

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. RECORD 19.1: Discuss the implications of using data that were not created or collected to answer the specific research question(s). Include discussion of misclassification bias, unmeasured confounding, missing data, and changing eligibility over time, as they pertain to the study being reported.

Interpretation 20 Give a cautious overall interpretation of results considering objectives, limitations, multiplicity of analyses, results from similar studies, and other relevant evidence

Generalisability 21 Discuss the generalisability (external validity) of the study results

Other Information

Funding 22 Give the source of funding and the...
| Accessibility of protocol, raw data, and programming code | .. | RECORD 22.1: Authors should provide information on how to access any supplemental information such as the study protocol, raw data, or programming code. | 22.1 Data availability section included in manuscript. |


Completed December 2016 (LM).