How accurate are diagnoses recorded in administrative databases: A systematic review

Maria Cassandre Médoc BSc (student), Amanda Vandyk RN, PhD
Faculty of Health Sciences, University of Ottawa

Background

Diagnostic codes (such as ICD codes) recorded in administrative databases are often used in clinical research to identify participant diagnoses.

De Coster and al. (2006) specify 13 priorities for research on administrative databases, including the need for studies assessing diagnostic congruence with medical records.

Preliminary evidence suggests that at least 2 ICD codes are necessary to accurately identify individuals with confirmed chronic conditions (Goldberg and al., 2013)

Unfortunately, researchers continue to use single ICD codes to identify study participants (Krueger and al., 2011)

Furthermore, the methods used to assign ICD codes may also jeopardize the reliability and validity of the diagnoses documented.

More work is needed to understand the strengths and limitations of using ICD codes when to identify participant diagnoses.

Objective

To assess the accuracy of diagnostic information captured in administrative systems, compared to most responsible physician diagnosis, for individuals with chronic and complex health conditions.

Search Strategy

- A comprehensive three-step search of online health care literature published within the most relevant databases

- Subject headings and keywords were identified and verified using the thesaurus feature in each database

- References of all included articles were hand-searched

- A library scientist at the University of Ottawa helped design the search strategies in an effort to avoid missing pertinent literature

Methods

Inclusion Criteria

Identified using PICO tool (Stone, 2002)

Population: Individuals with a chronic illness

Intervention: Identification of DX using admin. codes and physician record

Context: All tertiary health care settings

Outcome: Concordance between admin. assigned and physician documented DX

Study Design: All quantitative study designs

Language: English or French

Exclusion Criteria

Study Design: Qualitative studies, abstracts, books, and conference proceedings

Language: Other than English or French

Data Extraction

Structured abstract designed for this purpose:

1. Study characteristics
2. Illness
3. Number of participants with DX in administrative database
4. Number of participants with DX in medical record
5. Number of participants with DX in both admin. and medical records

Preliminary Results

Comparison of diagnoses recorded in administrative databases and medical records (N = 3 studies)

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>Diagnosis identified in medical record N</th>
<th>Diagnosis identified by ICD code N</th>
<th>ICD diagnosis congruence +/- N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acute myocardial infarction</td>
<td>25</td>
<td>19</td>
<td>- 6 (24)</td>
</tr>
<tr>
<td>Acute posthemorrhage anemia</td>
<td>29</td>
<td>44</td>
<td>+ 15 (41)</td>
</tr>
<tr>
<td>Acute renal failure</td>
<td>45</td>
<td>39</td>
<td>- 6 (13)</td>
</tr>
<tr>
<td>Atrial fibrillation</td>
<td>113</td>
<td>102</td>
<td>- 11 (10)</td>
</tr>
<tr>
<td>Atelectasis</td>
<td>112</td>
<td>42</td>
<td>- 70 (63)</td>
</tr>
<tr>
<td>Bowel obstruction</td>
<td>77</td>
<td>76</td>
<td>- 1 (1)</td>
</tr>
<tr>
<td>Cerebrovascular disease</td>
<td>54</td>
<td>34</td>
<td>- 20 (57)</td>
</tr>
<tr>
<td>Congestive heart failure</td>
<td>129</td>
<td>113</td>
<td>- 16 (12)</td>
</tr>
<tr>
<td>Pleural effusion</td>
<td>135</td>
<td>63</td>
<td>- 72 (53)</td>
</tr>
<tr>
<td>Pneumonia</td>
<td>105</td>
<td>88</td>
<td>- 17 (16)</td>
</tr>
<tr>
<td>Respiratory failure</td>
<td>45</td>
<td>30</td>
<td>- 15 (33)</td>
</tr>
<tr>
<td>Urinary tract infection</td>
<td>51</td>
<td>51</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Deep Vein Thrombosis</td>
<td>232</td>
<td>72</td>
<td>- 170 (73)</td>
</tr>
<tr>
<td>Pulmonary Embolism</td>
<td>95</td>
<td>23</td>
<td>- 72 (76)</td>
</tr>
<tr>
<td>Intracerebral hemorrhage</td>
<td>19</td>
<td>67</td>
<td>+ 48 (252)</td>
</tr>
</tbody>
</table>

Accuracy of the diagnoses captured in administrative databases compared to medical records

References


Acknowledgements

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