Supplementary Online Content


eAppendix. Descriptive (Noncontrolled) Studies
eReferences

This supplementary material has been provided by the authors to give readers additional information about their work.
## eAppendix

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<th>First Author, Yr</th>
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<th>Components of Intervention</th>
<th>Results</th>
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<tr>
<td><strong>PHARMACIST-RELATED INTERVENTIONS</strong></td>
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| Nester, 1 2002   | 100 | Pharmacist-obtained medication history on admission, reconciliation with admission orders | • 34% of patients received ≥ 1 clinical intervention  
[intervention = identification of dosage discrepancy, incomplete or missing orders, etc.]
| Gleason, 2 2004  | 204 | Pharmacist or PharmD student-obtained medication history on admission, reconciliation with admission orders | • Mean of 1.2 identified medication discrepancies/patient  
• 27% of patients received pharmacist intervention due to discrepancies  
[intervention = pharmacist discussion with physician]  
• 89.7% interventions revealed unintentional discrepancies  
• 22% of unintentional discrepancies could have caused patient harm during hospitalization, 59% could have resulted in harm post-discharge |
| Fertleman, 3 2005 | 103 | Pharmacist-obtained medication history on admission, reconciliation with physician-obtained medication list | • 98% of patients had ≥ 1 medication discrepancy |
| Carter, 4 2006   | 252 | Pharmacist-obtained medication history in the ER at time of admission, reconciliation with medication list obtained by ER providers | • Pharmacists documented 25% more medications than ER providers |
| Vira, 5 2006     | 60  | Pharmacist-obtained medication history on admission, reconciliation with admission and discharge orders | • 60% of patients had ≥ 1 unintended discrepancy at admission or discharge  
• 18% of patients had ≥ 1 clinically significant discrepancy |
| Lizer, 6 2007    | 54  | Pharmacist-obtained medication history on admission, reconciliation with admission orders | • Mean of 2.9 identified medication discrepancies/patient |
| Lubowski, 7 2007 | 330 | PharmD student-obtained medication history on admission, reconciliation with admission orders | • Mean of 2.8 medication discrepancies/patient  
• 75% of patients had ≥ 1 medication discrepancy |
| Bracey, 8 2008   | 74  | Pharmacist-obtained medication history on admission, reconciliation with admission orders | • Mean of 1.1 pharmacist “contributions”/patient  
[“contributions” = therapeutic discussion, dose adjustment, route adjustment, advised on stopping, allergy status notification] |
| Miller, 9 2008   | 234 | Pharmacist-obtained medication history within 3 days of admission, reconciliation with list obtained by admission nurse and admitting trauma team | • 15% of patients had “correctly” recorded medication lists by admission nurse or admitting trauma team (compared with pharmacist obtained list) |
| Padiyara, 10 2008 | 90  | Fourth-year PharmD student-obtained medication history on admission, reconciliation with admission orders | • Made 272 “interventions” on 90 patients – of these, 49% were correction of incorrect documentation (omission of home medications, incorrect allergies), 23% involved calling an outside pharmacy, 14% were patient counseling, 14% were initiation of pre-admission medications |
| Pippins, 11 2008 | 180 | Pharmacist-obtained medication history on admission, reconciliation with physician-obtained medication list, admission orders, and discharge orders | • Mean of 1.4 discrepancies with potential for patient harm (potential adverse drug events (PADEs)) per patient  
• 54% of patients had ≥ 1 PADE  
• 23% of PADEs were considered “serious”  
• 75% of PADEs occurred at discharge  
• Predictors of PADEs included: ≥ 4 “high risk” medications on admission, ≥ 13 outpatient visits in prior year, low patient understanding of preadmission medications, medication history taken by an intern, medication history provided by someone other than the patient, and ≥ 6 medication changes during hospitalization |
| Rabi, 12 2008    | 35  | Pharmacist-obtained medication history on admission, reconciliation with admission orders | • Made 76 “interventions” in 35 patients – of these, 58% involved restarting home medications, 17% involved vaccinations, 15% |

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<th>Reference</th>
<th>Study Year</th>
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<th>Intervention Details</th>
<th>Findings</th>
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<tr>
<td>Reeder,13 2008</td>
<td>55</td>
<td>Pharmacist-obtained medication history on admission, reconciliation with physician-obtained medication list</td>
<td>• 21% of patients had ≥ 1 medication discrepancy</td>
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<td>Gardner14, 2009</td>
<td>NR</td>
<td>Pharmacist-obtained medication history on admission, reconciliation with nurse-obtained medication list and admission orders. Also performed reconciliation at any point of transfer of care during hospitalization (e.g. to/from ICU)</td>
<td>• 15 months after implementation, pharmacist had performed 567 interventions – of these, 92% occurred during reconciliation on admission and 89% led to a change in therapy • 27% of interventions had “minimal patient impact”, 66% had “moderate patient impact”, and 7% had “severe patient impact” (e.g. continuation of tacrolimus on a transplant patient)</td>
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<td>Karapinar-Carkit,15 2009</td>
<td>262</td>
<td>Pharmaceutical counselor (pharmacy technicians with additional 3 year-degree) performed medication reconciliation and patient counseling on discharge</td>
<td>• Mean of 2.7 interventions/patient with medication reconciliation alone, and mean of 5.3 interventions/patient with medication reconciliation and patient counseling [intervention = any medication change due to recommendation by the pharmaceutical counselor]</td>
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<td>Lee,16 2010</td>
<td>129</td>
<td>Pharmacist obtained a best possible medication history and utilizing this and clinical information created a &quot;BPMTL&quot; (Best Possible Medication Transfer List) at time of patient transfer</td>
<td>• 62% of patients had at least 1 unintentional medication discrepancy • Of identified medication discrepancies, 38% were deemed “clinically significant”</td>
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<td>Steurbaut,17 2010</td>
<td>197</td>
<td>Pharmacist-obtained medication history on admission, reconciliation with physician-obtained medication list</td>
<td>• Identified mean of 1.9 medication discrepancies/patient • 60.4% of patients had ≥ 1 medication discrepancy • 49.6% of discrepancies were felt to be of “clinical importance”</td>
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<td>Pronovost,18 2003</td>
<td>NR</td>
<td>Use of a nurse-administered discharge survey at time of discharge from the ICU. Included in the survey was: (1) Reconciliation of active medication with discharge medications, (2) Review of allergy information, and (3) Review of home anti-hypertensive medications</td>
<td>• 94% of patients had ≥ 1 change in their medication orders</td>
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<td>Kramer,19 2007</td>
<td>283</td>
<td>Pharmacist and nurse collaboration to electronically complete admission and discharge medication reconciliation documentation</td>
<td>• 98% of patients had ≥ 1 medication discrepancy on admission or discharge</td>
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<td>Wortman,20 2008</td>
<td>NR</td>
<td>Multidisciplinary approach by ER nurse, ward nurse and physician to perform accurate medication history on admission and reconciliation with admission orders, using electronic program. Electronic medication lists were then generated at time of discharge for reconciliation by physician.</td>
<td>• Percent of unreconciled medications decreased from 15% on admission and 18% at time of discharge to &lt; 5% on admission and discharge (2 years after implementation)</td>
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Abbreviations: ER = Emergency Room, NR = Not Recorded, ICU = Intensive Care Unit

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eReferences


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