PHARMACY PRACTICE RESEARCH - The missing link

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Research is not just for academics

A great deal of research takes place at grass roots level

Research findings can impact on all sectors of the pharmacy profession

- A culture change is needed whereby pharmacists see research as a core part of their normal daily practice

- There is a need for more practice research to help the profession meet its aspirations

- Pharmacists need help and advice about how to get involved (Roberts and Kenningtin, PJONLINE 2010)
Pharmaceutical Care

- Is the responsible provision of drug therapy for the purpose of achieving definite outcomes that improve a patient’s quality of life

- Helper, DD and Strand, LM, AJPE 1989
A useful definition of pharmacy practice research has been provided by the King’s Fund (1997), which describes it as research which attempts

- to inform and understand pharmacy and the way in which it is practised,
- to support the objectives of pharmacy practice
- to ensure that pharmacists’ knowledge and skills are used to best effect in solving the problems of the health service and
- On meeting the health needs of the population.\(^1\)
As the area of pharmacy concerned with the science and practice of rational medication use.

I. Embraces the philosophy of pharmaceutical care
II. Blends a caring orientation with specialized therapeutic knowledge, experience and judgement for the purpose of ensuring optimal patient outcomes
III. Has the obligation to contribute to the generation of new knowledge that advances health and quality of life

Building block model of quality measures for MTA Clinic

**Patient Enrollment**
- Ease of access
- Retention
  - Received MTA
  - Did not received MTA
  - Number of MTA visits

**Provision of care**
- Face to face
- Telephone
- Pharmacy
- Clinic

**Location of service**
- Pharmacist
- Physician
- Nurse
- Physician Asst

**Practitioner providing service**
- Face to face
- Telephone
- Pharmacy
- Clinic

**Outcomes**
- Utilization benchmark, refills, generic use, vaccination rate, high risk drugs
- Clinical benchmark HbA1c, BP, LDL levels, INR values

**Quality Targets**
- ED visits, admission, total health care expenses, physicians visits, adverse drug events, quality of life

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• Definition
• “the clinical, cost-effective and safe use of medicines to ensure that patients get the maximum benefit from the medicines they need, while at the same time minimizing potential harm”
  · RPSGB Research Policy
<table>
<thead>
<tr>
<th>Study type</th>
<th>N(%) - poster</th>
<th>N(%) - clinical</th>
<th>N(%) - practice</th>
<th>N(%) - others</th>
<th>All</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audit/DUE/Pharmacoepidemiology</td>
<td>8 (22.2)</td>
<td>4 (16.0)</td>
<td>4 (14.8)</td>
<td>2 (7.7)</td>
<td>18 (15.9)</td>
</tr>
<tr>
<td>Service evaluation (provider)</td>
<td>7 (19.4)</td>
<td>2 (8.0)</td>
<td>8 (29.6)</td>
<td>11 (42.3)</td>
<td>27 (23.9)</td>
</tr>
<tr>
<td>Service evaluation (patient)</td>
<td>15 (41.7)</td>
<td>1 (4.0)</td>
<td>5 (18.5)</td>
<td>10 (38.5)</td>
<td>31 (27.4)</td>
</tr>
<tr>
<td>Outcome/others</td>
<td>6 (16.7)</td>
<td>18 (72.0)</td>
<td>10 (37.0)</td>
<td>3 (11.5)</td>
<td>37 (32.7)</td>
</tr>
<tr>
<td>Total</td>
<td>36</td>
<td>25</td>
<td>27</td>
<td>25</td>
<td></td>
</tr>
</tbody>
</table>
Areas where research is active

Stage in medication process

- Administration/supply of a medicine
- Preparation and dispensing
- Prescribing
- Monitoring
- Other
- Not stated
Medication incidents by stage of medication process of all settings.

<table>
<thead>
<tr>
<th>Stage in the medication process</th>
<th>Total</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration/supply of a medicine</td>
<td>35,982</td>
<td>50</td>
</tr>
<tr>
<td>Preparation and dispensing</td>
<td>12,726</td>
<td>18</td>
</tr>
<tr>
<td>Prescribing</td>
<td>11,819</td>
<td>16</td>
</tr>
<tr>
<td>Monitoring</td>
<td>3,253</td>
<td>5</td>
</tr>
<tr>
<td>Other</td>
<td>8,699</td>
<td>12</td>
</tr>
<tr>
<td>Not stated</td>
<td>3</td>
<td>&lt;1</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>72,482</td>
<td>100</td>
</tr>
</tbody>
</table>
Medication incidents that report death and severe harm by stage of medication process.

<table>
<thead>
<tr>
<th>Stage</th>
<th>Death</th>
<th>Severe harm</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prescribing</td>
<td>12</td>
<td>20</td>
<td>32</td>
</tr>
<tr>
<td>Preparation/dispensing</td>
<td>5</td>
<td>11</td>
<td>16</td>
</tr>
<tr>
<td>Administration</td>
<td>17</td>
<td>29</td>
<td>46</td>
</tr>
<tr>
<td>Monitoring</td>
<td>3</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>37</td>
<td>63</td>
<td>100</td>
</tr>
</tbody>
</table>
Relationship between adverse drug events (ADEs), potential ADEs, and medication error. Adapted from (Morimoto, 2004).
Numerous studies on medication administration error focus on error rates using Total Opportunity for Error (TOE) as the denominator and used prospective observational method described a greatly varied error rate. (Keers, Williams, Cooke, & Ashcroft, 2013)

Studies on medication administration error in developed countries (UK, US, Spain, France) range from 4.9% to 28.3% if wrong time error rate was considered.

Administration errors
Maricle et al reported 74 errors from a total of 1514 doses of administered medicine.

The main error type according were wrong technique (34%), inaccurate time (32%) and omission (19.5%).

Result of Ghaleb et al from UK was consistent with Barker et al from US - reported 19% of error rate.

Ghaleb et al reported the wrong rate of intravenous administration as the common error (Ghaleb, Barber, Franklin, & Wong, 2010) while Barker stated the most error was wrong time (43%) (Barker, Flynn, Pepper, et al., 2002).
Wrong time error (WTE) was excluded, the reductions on the error rate were seen in all studies.

Eg, Barker et al, Poon et al, Maricle et al and Poon et al reported error rate without wrong time error was 11.5% compared with 28.3% error rate with wrong time error (Poon et al., 2010)
- Local result from Chua et al, the error rate - Chua et al reported 11.4% errors from total of 1118 opportunities for error (S S Chua, Tea, & Rahman, 2009).
  - This error rate decreased to 8.7% only when incorrect time was excluded.
- In pediatric setting, the error rate is reduced from 11.7% to 7.8% for the same situation (Siew Siang Chua, Chua, & Omar, 2010).
• Other study reported corticosteroid as the most drug involved in error.
• In Ethiopia had reported antibiotics as a common drugs involved in error (Agalu, Ayele, Bedada, & Woldie, 2012).
• Frequency of Malaysian hospital of medication administration error is likely to be like the error rate in developed countries???
<table>
<thead>
<tr>
<th>Department- adult wards</th>
<th>N(%)</th>
<th>Error(%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Medical</td>
<td>453(34.5)</td>
<td>113(25.3)</td>
</tr>
<tr>
<td>Orthopedic</td>
<td>291(22.2)</td>
<td>126(28.3)</td>
</tr>
<tr>
<td>Surgical</td>
<td>569(43.3)</td>
<td>207(46.4)</td>
</tr>
<tr>
<td>Total</td>
<td>1313 (100)</td>
<td>Overall errors 446 (33.97)</td>
</tr>
</tbody>
</table>
As a pharmacist, our research should be

- About **real issues** that affect pharmacists and the patients we see every day
- To meet the **policy aspirations** for the pharmacy profession
- To lead pharmacist in the **direction** pharmacist wish to take it
THANK YOU

WASSALAM