Community Drug Safety Program: Improves Medication Safety in Nursing Homes

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Background

- Ageing population
- In 2006 - 747 residential care homes for elderly (RCHE) caring for 59383 clients
- Over 500 of these homes are privately run
- Quality of care variable
- Staff qualification variable
2005: news reports on iatrogenic hypoglycemic drug errors
Drug incidents

  - 23 cases oral hypoglycemic medications intake by “mistake”
  - 9 involved RCHE
  - Licensing Office of RCHE (LORCHE) launched investigation
    - 5 cases related to improper dispensation
    - 2 cases wrong patient
    - 1 case wrong timing
    - 1 case wrong dosage

Social Welfare Department (SWD): prevention of medication errors

- Warning letters/ written advice
- Close monitoring
- Ongoing Educational Seminars

Local plan of action

- 5/2006 Sharing meeting on Geriatric Community Service in Kowloon Central and West Cluster
  - CGAT, CNS and doctors
    - Kowloon Hospital (KH)
    - Kwong Wah Hospital (KWH)
    - Our Lady of Maryknoll Hospital (OLMH)
    - Queen Elizabeth Hospital (QEH)
  - SWD

- Drug Safety Campaign
Objectives of this Campaign

- To increase the awareness of drug safety in RCHE
- To determine the prevalence of high risk practices
- To bring about an improvement in the knowledge, attitude and practice relating to drug safety
Methodology

- Invitations to all RCHE within the catchment area of the two clusters (n=138)

- Participation = 120 homes (86.9%).
- Total = 10731 residents

- Target staff - responsible for drug administration (nurse, health workers)
Opening Ceremony
11/8/2006
Education talk and video
Drug safety campaign
我和你有個”葯”會
Continuing on-site training

On-site training

- 3 months
- VCD for continued education

Focus on 3 major areas:

- Storage
- Documentation
- Administration
Drug Safety Survey

Structured Questionnaire

- First assessment – before training (4Q 2006)
- Second assessment - three month after the first assessment

- Independent observer (nurse other than the one responsible for the training)
Storage: 正确的貯存葯物方法
(10 items)
正確放置，以免兒童誤服

**ASP01 7 TAB**

**ASPIRIN ENTERIC COATED PELLETS CAPSULE 100MG**

餐時或餐後口服每早一次，每次一粒

必須整粒用開水吞服

<table>
<thead>
<tr>
<th>院友名稱</th>
<th>藥物名稱/成份</th>
<th>用藥指示</th>
<th>用藥注意事項</th>
</tr>
</thead>
<tbody>
<tr>
<td>陳大文</td>
<td>ASP01 7 TAB</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**CMC MED 1/11/2000 HN0000633300 100-01**

**T000 KW4C**

**HOSPITAL AUTHORITY**

**所配藥物總數**

**配藥日期**
Administration: (13 items)
安老院派藥程序 (口服藥物)
Results

- Structured Questionnaires completed by 166 staff for the pre and post training assessments
  - 9 RN
  - 21 EN
  - 136 HW

- The medication safety standards were expected to comply to SWD drug management guidelines

- Taking into account some physical restrictions of RCHE settings.
## Results: pre-training

<table>
<thead>
<tr>
<th>Category</th>
<th>No of items</th>
<th>Compliance to standard</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>&lt;90%</td>
</tr>
<tr>
<td>Storage</td>
<td>10</td>
<td>6</td>
</tr>
<tr>
<td>Documentation</td>
<td>21</td>
<td>9</td>
</tr>
<tr>
<td>Administration</td>
<td>13</td>
<td>4</td>
</tr>
</tbody>
</table>
# Results: pre-post comparison

<table>
<thead>
<tr>
<th>Drug Storage Assessment items</th>
<th>Pre (unachievable)</th>
<th>Post (unachievable)</th>
<th>Improvement</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. All medications should be put in clean, lightproof, dry, well labeled and locked location</td>
<td>9 (7.4%)</td>
<td>1 (0.8%)</td>
<td>88.9%</td>
<td>0.008</td>
</tr>
<tr>
<td>2. Individual containers</td>
<td>3 (2.5%)</td>
<td>0 (0%)</td>
<td>100%</td>
<td>0.500</td>
</tr>
<tr>
<td>3. Bulk packed or excess medication of each resident should be well labeled and put in a separate locked container</td>
<td>41 (33.6%)</td>
<td>6 (4.9%)</td>
<td>85.4%</td>
<td>0.0001</td>
</tr>
<tr>
<td>4. Drug package should be labeled with name, drug, route, dose, frequency and prescription date clearly</td>
<td>18 (14.8%)</td>
<td>3 (2.5%)</td>
<td>83.3%</td>
<td>0.001</td>
</tr>
<tr>
<td>5. Each type of medication should be put into individual packing</td>
<td>5 (4.1%)</td>
<td>3 (2.5%)</td>
<td>40.0%</td>
<td>0.727</td>
</tr>
<tr>
<td>6. Opened insulin vial should be dated and stored not exceeding 6 weeks</td>
<td>37 (30.3%)</td>
<td>10 (8.2%)</td>
<td>73.0%</td>
<td>0.000</td>
</tr>
<tr>
<td>7. Externally applied medications need to be labeled clearly and separated from oral medication</td>
<td>30 (24.6%)</td>
<td>6 (4.9%)</td>
<td>80.0%</td>
<td>0.0001</td>
</tr>
<tr>
<td>8. Medications are placed in fridge as instructed</td>
<td>8 (6.6%)</td>
<td>2 (1.6%)</td>
<td>75.0%</td>
<td>0.289</td>
</tr>
<tr>
<td>9. No drinks or food are placed in the medication fridge</td>
<td>52 (42.6%)</td>
<td>8 (6.6%)</td>
<td>84.6%</td>
<td>0.0001</td>
</tr>
<tr>
<td>10. Opened eye ointments/drops should be dated and stored not exceeding 30 days</td>
<td>25 (20.5%)</td>
<td>8 (6.6%)</td>
<td>68.0%</td>
<td>0.002</td>
</tr>
</tbody>
</table>
## Results

<table>
<thead>
<tr>
<th>Documentation</th>
<th>Pre (unachievable)</th>
<th>Post (unachievable)</th>
<th>Improvement</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individual chart</td>
<td>5 (4.1%)</td>
<td>1 (0.8%)</td>
<td>80.0%</td>
<td>0.219</td>
</tr>
<tr>
<td>Medication list of each resident should be checked after discharge and follow up</td>
<td>13 (10.7%)</td>
<td>2 (1.6%)</td>
<td>84.6%</td>
<td>0.007</td>
</tr>
<tr>
<td>Drug chart of each resident is updated</td>
<td>20 (16.4%)</td>
<td>4 (3.3%)</td>
<td>80.0%</td>
<td>0.001</td>
</tr>
<tr>
<td>Staff signature after medication is prepared</td>
<td>12 (9.8%)</td>
<td>3 (2.5%)</td>
<td>75.0%</td>
<td>0.035</td>
</tr>
<tr>
<td>Staff signature after medication is checked</td>
<td>25 (20.5%)</td>
<td>5 (4.1%)</td>
<td>80.0%</td>
<td>0.0001</td>
</tr>
<tr>
<td>Staff signature is documented after medication is given to resident</td>
<td>11 (9%)</td>
<td>4 (3.3%)</td>
<td>63.6%</td>
<td>0.092</td>
</tr>
<tr>
<td>Labeling: name of resident</td>
<td>2 (1.6%)</td>
<td>0 (0%)</td>
<td>100%</td>
<td>0.500</td>
</tr>
<tr>
<td>Labeling: name of medication</td>
<td>1 (0.8%)</td>
<td>0 (0%)</td>
<td>100%</td>
<td>1.000</td>
</tr>
<tr>
<td>Labeling: dosage</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>-</td>
<td>1.000</td>
</tr>
<tr>
<td>Labeling: route of administration</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>-</td>
<td>1.000</td>
</tr>
<tr>
<td>Labeling: frequency</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>-</td>
<td>1.000</td>
</tr>
<tr>
<td>Labeling: time of administration</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>-</td>
<td>1.000</td>
</tr>
<tr>
<td>Labeling: organization of issue</td>
<td>10 (8.2%)</td>
<td>7 (5.7%)</td>
<td>30.0%</td>
<td>0.581</td>
</tr>
<tr>
<td>Labeling: date of issue</td>
<td>1 (0.8%)</td>
<td>0 (0%)</td>
<td>100%</td>
<td>1.000</td>
</tr>
<tr>
<td>Labeling: amount of issue</td>
<td>13 (10.7%)</td>
<td>2 (1.7%)</td>
<td>84.6%</td>
<td>0.003</td>
</tr>
<tr>
<td>Labeling: specific instructions</td>
<td>5 (4.1%)</td>
<td>1 (0.8%)</td>
<td>80.0%</td>
<td>0.219</td>
</tr>
<tr>
<td>Allergy history documented on drug chart</td>
<td>45 (36.9%)</td>
<td>13 (10.7%)</td>
<td>48.9%</td>
<td>0.0001</td>
</tr>
<tr>
<td>PRN medication is documented in drug chart once given to resident</td>
<td>28 (23.0%)</td>
<td>2 (1.6%)</td>
<td>92.9%</td>
<td>0.0001</td>
</tr>
<tr>
<td>Others: reason for omitting dose</td>
<td>18 (14.8%)</td>
<td>4 (3.3%)</td>
<td>77.8%</td>
<td>0.004</td>
</tr>
<tr>
<td>Others: side effects of drug</td>
<td>17 (13.9%)</td>
<td>2 (1.6%)</td>
<td>88.2%</td>
<td>0.007</td>
</tr>
<tr>
<td>Others: management of drug side effects</td>
<td>14 (11.5%)</td>
<td>0 (0%)</td>
<td>100%</td>
<td>0.002</td>
</tr>
</tbody>
</table>
### Results

<table>
<thead>
<tr>
<th>Drug Administration Assessment items</th>
<th>Pre (unachievable)</th>
<th>Post (unachievable)</th>
<th>Improvement</th>
<th>P value</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Only HCW or nurse authorized to administer drugs</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>-</td>
<td>1.000</td>
</tr>
<tr>
<td>2 Proper hand washing and drying up</td>
<td>42 (34.4%)</td>
<td>7 (5.7%)</td>
<td>83.3%</td>
<td>0.0001</td>
</tr>
<tr>
<td>3.1 First check: when taking out of locked container</td>
<td>9 (7.4%)</td>
<td>5 (4.1%)</td>
<td>44.4%</td>
<td>0.289</td>
</tr>
<tr>
<td>3.2 Second check: when taking drug out of package</td>
<td>19 (15.6%)</td>
<td>2 (1.6%)</td>
<td>89.5%</td>
<td>0.0001</td>
</tr>
<tr>
<td>3.3 Third check: when putting drug back into locked container</td>
<td>19 (15.6%)</td>
<td>8 (6.6%)</td>
<td>57.9%</td>
<td>0.027</td>
</tr>
<tr>
<td>4 Abnormalities found or expired drugs should not be given to resident – enquire PRN</td>
<td>3 (2.5%)</td>
<td>4 (3.3%)</td>
<td>-33.3%</td>
<td>0.688</td>
</tr>
<tr>
<td>5.1 First right: right medication</td>
<td>5 (4.1%)</td>
<td>0 (0%)</td>
<td>100%</td>
<td>0.063</td>
</tr>
<tr>
<td>5.2 Second right: right dosage</td>
<td>5 (4.1%)</td>
<td>0 (0%)</td>
<td>100%</td>
<td>0.063</td>
</tr>
<tr>
<td>5.3 Third right: right resident</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>-</td>
<td>1.000</td>
</tr>
<tr>
<td>5.4 Fourth right: right time</td>
<td>3 (2.5%)</td>
<td>0 (0%)</td>
<td>100%</td>
<td>0.250</td>
</tr>
<tr>
<td>5.5 Fifth right: right route</td>
<td>0 (0%)</td>
<td>0 (0%)</td>
<td>-</td>
<td>1.000</td>
</tr>
<tr>
<td>6 Ensure each resident takes the medication completely</td>
<td>5 (4.1%)</td>
<td>0 (0%)</td>
<td>100%</td>
<td>0.063</td>
</tr>
<tr>
<td>7 Cleansing of mortar</td>
<td>34 (27.9%)</td>
<td>15 (12.3%)</td>
<td>54.3%</td>
<td>0.002</td>
</tr>
</tbody>
</table>
Summary: Drug Storage

- Storing of excess medication (85% improvement)
- Storing in designated fridge (85%)
- Using open insulin vials (85%)
Summary: Documentation

- Drug allergy history (71% improvement)
- Immediate recording of PRN medication (93%)
- Signature after checking (80%)
- Keeping updated drug charts for each resident (80%)
Summary: Administration

- Proper hand washing (83% improvement)
- Immediate cleansing of mortar after use (56%)
- Performing 2\textsuperscript{nd} and 3\textsuperscript{rd} checks when preparing medications (90%)
Overcoming difficulties

- Environmental restrictions
- Lack of resources
- Lack of awareness
- Fault-finding

VS

- Creative solutions
- Local resources
- Education and training
- Partnership
Conclusion

The standard of medication safety in RCHE

- Variable standard on initial assessment
- Required constant reminders and education
- Significant improvement in many important aspects after on-site training
- Room for further improvement
- Successful collaboration
Acknowledgement

KCC, KWC, KEC

- Dr. Daisy Dai
- Dr. CT Hung (CCE/KCC)
- Dr. Derrick Au (HCE/KH)
- Dr. Helen Tinsley (CCE/KWC)
- Dr. CH Tang (HCE/KWH)
- Dr. CC Luk (CCE/KEC)
- Miss Alice Tso (CGMN/KCC)
- Mr. SY Kwan (GMN/KH)
- Miss SH Yuen (SNM/KWH)
- Dr Hobby Cheung (COS/KH rehab)

Licensing Office of Residential Care Home for Elderly

- Miss SM Ip

Medical Departments

- Dr. Patrick Li (QEH)
- Dr. MH Chan (KWH)
- Dr. TC Wong (TKOH)
- Miss Amy Tsoi (QEH/DOM)
- Miss Anita Chau (KH/DOM)
- Miss CC Cheng (KWH/DOM)
- Mr. Peter Fung
Acknowledgement

Members
- Miss Nelly Ho (KH)
- Miss W H Li (KH)
- Miss Natalie Lui (KH)
- Miss Wandi Lai (QEH)
- Miss C Y Lau (QEH)
- Miss L S Leung (QEH)
- Miss Miss WM Ling (KWH)
- Miss Salome Yip (KWH)
- Miss So Man Ching (OLMH)
- CNS and CGAT nurses

RCHE
- Staff and operators