DISPENSING DOSAGE CALCULATOR FOR CAPECITABINE (XELODA®)
Focus on medication dispensing safety

- Out-patient Rx using Medication Order Entry (MOE)

Medication Dispensing Process:

**INTRODUCTION**

**PHARMACY**

PRESCRIPTION VETTING

DISPENSING LABEL PREPARATION

**PRESCRIBED DOSE = DOSAGE INSTRUCTIONS**

**DRUG PICKING**

CHECK & ISSUE

- Rx: Xeloda 1300mg PO BD
- Xeloda 500mg tab
  - Take 2 tab BD
- Xeloda 150mg tab
  - Take 2 tab BD
### AUTOMATIC VS MANUAL CONVERSION TO DISPENSING DOSE

#### Automatic conversion

Drug, Dosage and Qty automatically converted.

#### Manual conversion

Drug, Dosage and Qty need to be entered manually.
Manual conversion / manual input necessary for complex prescription dosing:
- Multiple dosage lines + 2 or more drug strengths
- Step up/step down
- Cyclic regimen
Background

- Capecitabine (Xeloda) for breast, colorectal cancer, stomach cancer, and gastroesophageal junction adenocarcinoma with a fourteen days regimen.
- Dosage according to BSA, 1g/m² BD x 2/52 (rest 1/52); 3 week cycle
  - Rx doses e.g. 1500mg bd; 900mg om & 1300mg pm from day 1 to 14

Dispensing

- Only 500mg and 150mg tablets available
- Usually MOE > pharmacy interface with auto dosage conversion
  - Not cyclic regimen etc…. 
  
**Rx: 900mg om & 1300mg pm x 2/52 (day 1-14)**
  - Dispense WHAT and HOW MANY? Patient instructions?

Risk

- 4 reported incidents or wrong instruction / qty between Aug 2012 to April 2014
Traditional method: reference tables?

Rx:
900mg om & 1300mg pm

<table>
<thead>
<tr>
<th>Xeloda</th>
<th>500mg</th>
<th>150mg</th>
</tr>
</thead>
<tbody>
<tr>
<td>500</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>600</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>650</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>750</td>
<td>0</td>
<td>5</td>
</tr>
<tr>
<td>800</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>900</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>950</td>
<td>1</td>
<td>3</td>
</tr>
<tr>
<td>1000</td>
<td>2</td>
<td>0</td>
</tr>
<tr>
<td>1100</td>
<td>1</td>
<td>4</td>
</tr>
<tr>
<td>1150</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>1250</td>
<td>1</td>
<td>5</td>
</tr>
<tr>
<td>1300</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>1450</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>1500</td>
<td>3</td>
<td>0</td>
</tr>
<tr>
<td>1600</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>1650</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>1750</td>
<td>2</td>
<td>5</td>
</tr>
<tr>
<td>1800</td>
<td>3</td>
<td>2</td>
</tr>
<tr>
<td>1950</td>
<td>3</td>
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<tr>
<td>2000</td>
<td>4</td>
<td>0</td>
</tr>
<tr>
<td>2100</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>2150</td>
<td>4</td>
<td>1</td>
</tr>
<tr>
<td>2250</td>
<td>3</td>
<td>5</td>
</tr>
</tbody>
</table>
## Xeloda Dosage Calculator

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Xeloda dose calculator</td>
<td>select</td>
<td>500mg</td>
<td>150mg</td>
<td>duration</td>
</tr>
<tr>
<td>2</td>
<td>am dose</td>
<td>1000</td>
<td>2</td>
<td>14</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>pm dose</td>
<td>1250</td>
<td>1</td>
<td>70</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>qty</td>
<td>42</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Dispensing labels

- **500mg tablets**
  - 2 tablets in the morning
  - 1 tablet at night/afternoon
  - **Total: 42 tablets**

- **150mg tablets**
  - 0 tablets in the morning
  - 5 tablets at night/afternoon
  - **Total: 70 tablets**

Display resemble dispensing label instruction format
**XELODA DOSAGE CALCULATOR: STUDY**

- **Study Design:**
  - 10 questions are prepared: 10 prescriptions + 10 dispensing labels
  - Check if dosage conversion correct

<table>
<thead>
<tr>
<th>Prescription</th>
<th>Label</th>
<th>True/False</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 Capecitabine (Xeloda) tablet 1150mg am (from day 1 to day 14 treatment cycle) and 650mg pm (from day 1 to day 14 treatment cycle) for 2 weeks</td>
<td>Capecitabine 500mg tablet 42tabs 口服(每週期第一天至第十四天)早上一次，每次兩粒另(每週期第一天至第十四天)下午一次，每次一粒</td>
<td>False</td>
</tr>
<tr>
<td>Capecitabine 150mg tablet 28tabs 口服(每週期第一天至第十四天)早上一次，每次一粒另(每週期第一天至第十四天)下午一次，每次一粒</td>
<td></td>
<td>False</td>
</tr>
</tbody>
</table>

4 out of 10 labels are intentionally wrong.
**Method:**
- 10 volunteers are assigned in two groups

<table>
<thead>
<tr>
<th></th>
<th>Group A (5 staff)</th>
<th>Group B (5 staff)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>First 5 questions</strong></td>
<td>Using Xeloda dosage calculator</td>
<td>Using reference tables</td>
</tr>
<tr>
<td><strong>Last 5 questions</strong></td>
<td>Using reference tables</td>
<td>Using Xeloda dosage calculator</td>
</tr>
</tbody>
</table>

- Measure TIME taken and ACCURACY
**XELODA DISPENSING DOSAGE CALCULATOR**

1) **Enter the Rx information**

2) **Dispensing information displayed**

3) **Label printed and affixed to Rx for checking**

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### XELODA Dosage Conversion

**Date:** 09/05 [0077]
- **900 mg** AM and **1300 mg** PM for **14 days**

- **Xeoda 500mg tablets**
  - Take 2 tablets in the afternoon/at night
  - 28 tablets

- **Xeoda 150mg tablets**
  - Take 6 tablets in the morning,
  - Take 2 tablets in the afternoon/at night
  - 112 tablets

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**KCC Pharmacy**

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- Main Menu:
  - Home
  - QE Mains
  - eFormulary Lite
  - Useful Links
  - Special Labels
  - Time Capture
  - IV Ref. Guide
  - Drug Information Kiosk

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**QE H Pharmacy - Clinical Calculators**

<table>
<thead>
<tr>
<th>Calculator type</th>
<th>Xeloda Dose Calculator</th>
</tr>
</thead>
<tbody>
<tr>
<td>AM Dose</td>
<td>Please select dosage ▼ mg</td>
</tr>
<tr>
<td>PM Dose</td>
<td>Please select dosage ▼ mg</td>
</tr>
<tr>
<td>Duration</td>
<td>14 ▼</td>
</tr>
</tbody>
</table>
WORKFLOW

Calculator:
- Input dose and duration
- Print label
No reported incidents or near miss episodes since calculator implementation in May 2014
Address Root Causes:
- Change Rx practice > simply BD prescription orders
- IT enhancements

Other Applications:
- A new Warfarin ODD/EVEN DAY DOSE Calculator was developed on November 2014
- Replace Decision Tree for complicated procedures
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• Ms. Karen Mak, Senior Dispenser
• Ms. Patrick Lam, Senior Dispenser
THANK YOU