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<table>
<thead>
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<th>No.</th>
<th>Generic Name</th>
<th>Page</th>
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<tbody>
<tr>
<td>1</td>
<td>Acetazolamide Suspension 25mg/mL</td>
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<tr>
<td>2</td>
<td>Allopurinol Suspension 20mg/mL</td>
<td>12-13</td>
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<tr>
<td>3</td>
<td>Amiodarone Suspension 5mg/mL</td>
<td>14</td>
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<tr>
<td>4</td>
<td>Atenolol Suspension 2mg/mL</td>
<td>15</td>
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<tr>
<td>5</td>
<td>Baclofen Suspension 5mg/mL</td>
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<tr>
<td>6</td>
<td>Baclofen Suspension 10mg/mL</td>
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<td>7</td>
<td>Captopril Syrup 1mg/mL</td>
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<td>8</td>
<td>Captopril Solution 1mg/mL</td>
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<td>Carvedilol Suspension 0.5mg/mL</td>
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<td>10</td>
<td>Carvedilol Suspension 1mg/mL</td>
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<td>11</td>
<td>Chloroquine Suspension 15mg/mL</td>
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<td>12</td>
<td>Ciprofloxacin Suspension 50mg/mL</td>
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<td>13</td>
<td>Clonazepam Suspension 0.1mg/mL</td>
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<td>14</td>
<td>Enalapril Suspension 0.1mg/mL</td>
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<td>15</td>
<td>Glycopyrrolate Syrup 0.1mg/mL</td>
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<td>16</td>
<td>Hydrochlorothiazide Suspension 5mg/mL</td>
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<td>17</td>
<td>Indomethacin Syrup 5mg/mL</td>
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<td>18</td>
<td>Isoniazid Syrup 10mg/mL</td>
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<td>19</td>
<td>Labetalol Syrup 10mg/mL</td>
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<td>20</td>
<td>Labetalol Syrup 40mg/mL</td>
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<td>21</td>
<td>Lansoprazole Suspension 3mg/mL</td>
<td>33</td>
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<td>22</td>
<td>Lorazepam Suspension 0.4mg/mL</td>
<td>34</td>
</tr>
<tr>
<td>23</td>
<td>Methylcellulose Suspending Agent 1% (0.01g/mL)</td>
<td>35</td>
</tr>
<tr>
<td>24</td>
<td>Metoprolol Suspension 10mg/ml</td>
<td>36</td>
</tr>
<tr>
<td>No.</td>
<td>Description</td>
<td>Page</td>
</tr>
<tr>
<td>-----</td>
<td>------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>25</td>
<td>Midazolam Syrup 2mg/mL</td>
<td>38</td>
</tr>
<tr>
<td>26</td>
<td>Nifedipine Suspension 1mg/mL</td>
<td>39</td>
</tr>
<tr>
<td>27</td>
<td>Nitrofurantoin Suspension 10mg/ml</td>
<td>40</td>
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<tr>
<td>28</td>
<td>Omeprazole Suspension 2mg/mL</td>
<td>41</td>
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<tr>
<td>29</td>
<td>Pentoxifylline Solution 20mg/mL</td>
<td>42</td>
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<td>30</td>
<td>Phenobarbitone Suspension 10mg/mL</td>
<td>43</td>
</tr>
<tr>
<td>31</td>
<td>Phytomenadione (Vitamin K1) Liquid 1mg/mL</td>
<td>44-45</td>
</tr>
<tr>
<td>32</td>
<td>Propranolol Suspension 1mg/mL</td>
<td>46</td>
</tr>
<tr>
<td>33</td>
<td>Pyrazinamide Suspension 10mg/mL</td>
<td>47</td>
</tr>
<tr>
<td>34</td>
<td>Pyrazinamide Syrup 100mg/mL</td>
<td>48</td>
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<tr>
<td>35</td>
<td>Sildenafil Suspension 2.5mg/mL</td>
<td>49</td>
</tr>
<tr>
<td>36</td>
<td>Spironolactone Syrup 2.5mg/ml</td>
<td>50</td>
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<tr>
<td>37</td>
<td>Topiramate Suspension 6mg/mL</td>
<td>51</td>
</tr>
<tr>
<td>38</td>
<td>Trimethoprim Suspension 10mg/mL</td>
<td>52</td>
</tr>
<tr>
<td>39</td>
<td>Trimethoprim Syrup 10mg/mL</td>
<td>53</td>
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<tr>
<td>40</td>
<td>Ursodeoxycholic Acid Suspension 50mg/mL</td>
<td>54</td>
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<tr>
<td>41</td>
<td>Verapamil Suspension 50mg/mL</td>
<td>55-56</td>
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</tbody>
</table>
INTRODUCTION

Compounding of pharmaceutical formulations remains a core skill of pharmacists and this manual is produced to include well referenced recipes that are easy to prepare, use ingredients readily available, have the longest expiry date possible and when necessary, provide more than one strength or formulation of a recipe to accommodate the unique needs of different groups of patients.

Efforts have been made to search for substantiated references in producing this manual of extemporaneous preparations. However, this list of compounded items in this manual is not exhaustive. Preparations included in the manual are for ingredients available commercially but not in the required dosage form for therapy and thus, necessitate extemporaneous preparations.

The committee has made all reasonable efforts to confirm the accuracy of the information contained in the manual and to present best practices as identified at the time of its completion. Formulations are only included where there is existence of published formulations and associated stability data.

The use of this manual requires knowledge based interpretation by health care professionals and is intended solely for use by pharmacists in healthcare facilities. All information contained in the manual has been provided with the sole intent that it be readily accessible for pharmacist’s information and as a guide for preparing extemporaneous preparations that may be prescribed.

OBJECTIVE

To standardise formulations of extemporaneous preparations and practice in healthcare facilities
POLICY

1. Always consider the use of commercially available products as far as possible.

2. If no suitable commercial product exists, consider a therapeutic alternative that is available in a suitable dosage form. This must be discussed with the physician.

3. If necessary, extemporaneous preparations should be done based on evidence-based references.

4. Preparations listed in this manual should be done according to what is stated as far as possible.

5. When no information is available, compound an oral medication by dispensing a tablet and/or capsule and directing the caregiver to mix just prior to administration.

6. Maximum quantity of the extemporaneous preparations to be dispensed should not exceed one month even if shelf life is longer than 30 days.

7. Refrain assumptions on the therapeutic equivalence in the case of suggesting alternative agents as the possibilities and supporting data may be limited.

8. Techniques in compounding preparations and manipulations should always be in line with standard Good Manufacturing Practice as delivering an accurate dose is paramount.

9. Staff and facilities are challenged to undertake intermittent competency assessments in order to achieve the standards requirement.

10. Documentation after each preparation should include details on the materials used, processes involved and the responsible personnel in charge.
CONSIDERATIONS FOR PREPARING EXTEMPORANEOUS COMPOUNDS

1. Pharmacy personnel are reminded not to empirically change flavourings or suspending agents because they can affect pH, etc. of the product and result in an unstable product.

2. Special precautions should be given to formulations for neonates to ensure that no contraindicated ingredients are used if possible (e.g., Benzyl Alcohol).

3. Mixing of a compounded formulation and/or recipe should always be in line with the following principles:
   a) Ensure that all ingredients used are within the expiry date.
   b) Ensure that all utensils are clean; including mortar and pestle, graduates, pill cutters, and stirring rods.
   c) Product should be labelled clearly and stored as recommended within the formula.
   d) For solution or suspension products, emphasise on the importance of thorough shaking before administration.

4. If compounding a preparation using contents from an ampoule, remember to withdraw the solution (medication) from the ampoule using a filter needle to ensure no glass particles are incorporated into the compound.

5. Place tablet(s) within mortar and pestle to grind tablets to a fine powder. For film-coated tablets, it may be necessary to add a small amount of diluent such as water, to soften the coating prior to grinding the tablets. This will ensure that the compound will not have an eggshell appearance from the film coating floating throughout the suspension. If you are using capsules, open the capsule and empty the powder into the mortar and discard the capsule shell.

6. Solutions will have a clearer appearance versus a compounded suspension.

7. Manupulations of the available dosage forms in order to fulfil the unusual practitioner’s request may impose risks such as preparation and administration errors as well as unpredictable bioavailability, compatibility and stability profile.

8. Understand the roles of excipients in certain formulations and consider their risks over benefits limitation.
WORK FLOW CHART 1: SOURCING THE COMPOUNDING FORMULARY LIST OF EXTEMPORANEOUS PREPARATION MEDICINES

1. Identify list of extemporaneous medicines currently being used
2. Check appropriateness of medicine
3. Check registration status
4. Determine FUKKM status
5. Check commercial availability
6. Check cost of commercial product versus cost of preparing medicine
7. Propose hospital to purchase

Do not proceed

Get company / manufacturer to register / produce

Apply to get it into the FUKKM list if used extensively

Prepare and dispense extemporaneous medicine

Prepare and dispense extemporaneous medicine
## CHECKLIST 1: SOURCING THE COMPOUNDING FORMULARY LIST OF EXTEMPORANEOUS PREPARATION MEDICINES

<table>
<thead>
<tr>
<th>NO</th>
<th>ACTION</th>
<th>TICK (✓)</th>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Identify list of extemporaneous medicines currently being used</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>Check appropriateness of medicine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>Check registration status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4.</td>
<td>Determine FUKKM status</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5.</td>
<td>Check commercial availability</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6.</td>
<td>Check cost of commercial product versus cost of preparing medicine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7.</td>
<td>Propose hospital to purchase</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
WORK FLOW CHART 2: HANDLING OF PRESCRIPTIONS WITH EXTEMPORANEOUS PREPARATION MEDICINES IN THE DISPENSARY

Receive prescription

Dispense

YES

Check availability of medicine in pharmacy

Dispense alternative medicine

YES

Discuss with medical practitioner on alternative medicine

NO

NO

Check commercially available status at pharmacy retail outlet

Obtain and dispense within 24 hours

YES

Search for "evidence-based" reference to prepare extemporaneous medicine

Prepare and dispense extemporaneous medicine

YES

Instruct patient on how to prepare prior to administration, if needed to prepare stat each time

Dispense tablet / capsule and counsel patient accordingly

NO

NO
# CHECKLIST 2: HANDLING OF PRESCRIPTIONS WITH EXTEMPORANEOUS PREPARATION MEDICINES IN THE DISPENSARY

<table>
<thead>
<tr>
<th>NO</th>
<th>ACTION</th>
<th>TICK (✓)</th>
<th>NOTE</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Receive prescription</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Check availability of medicine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Discuss with medical practitioner on alternative medicine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Check commercially available status at retail pharmacy outlet</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Search for evidence-based reference to prepare extemporaneous medicine</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Instruct patient / caregiver on how to prepare prior to administration of medicine, if needed to prepare stat each time</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Dispense medicine and counsel patient / caregiver accordingly</td>
<td></td>
<td></td>
</tr>
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</table>
The proposed label for extemporaneous preparations must have the information as shown below:

<table>
<thead>
<tr>
<th>Details of Hospital/ Klinik Kesehatan</th>
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</thead>
<tbody>
<tr>
<td>Jalan Alamat 1, Poskod 12345 Daerah, Negeri Tel: 03-98765432</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Details of patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>NAMA:</td>
</tr>
<tr>
<td>R/N:</td>
</tr>
<tr>
<td>TARIKH:</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Administration instructions</th>
</tr>
</thead>
<tbody>
<tr>
<td>MINUM: mL setiap kali</td>
</tr>
<tr>
<td>PAGI</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expiry date</th>
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</thead>
<tbody>
<tr>
<td>ARAHAN: Goncang botol sebelum guna</td>
</tr>
<tr>
<td>Simpan di peti sejuk (2-8°C)</td>
</tr>
<tr>
<td>Simpan pada suhu bilik</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Expiry date</th>
</tr>
</thead>
<tbody>
<tr>
<td>GUNA SEBELUM:</td>
</tr>
<tr>
<td>NAMA UBAT:</td>
</tr>
<tr>
<td>UBAT TERKAWAL</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drug’s name with strength</th>
</tr>
</thead>
</table>

- Details of Hospital/ Klinik Kesehatan:
  - Jalan Alamat 1, Poskod 12345 Daerah, Negeri Tel: 03-98765432

- Details of patient:
  - NAMA: (name)
  - R/N: (refills)
  - TARIKH: (date)

- Administration instructions:
  - MINUM: mL setiap kali
  - PAGI | TENGAH HARI | PETANG | MALAM
  - ARAHAN: Goncang botol sebelum guna
  - Simpan di peti sejuk (2-8°C)
  - Simpan pada suhu bilik

- Expiry date:
  - GUNA SEBELUM:
    - NAMA UBAT:
    - UBAT TERKAWAL | JAUHI DARIPADA KANAK KANAK

- Drug’s name with strength:
GENERIC NAME : Acetazolamide

INDICATION : Reduction of intra-ocular pressure in open-angle glaucoma, secondary glaucoma and peri-operatively in angle-closure glaucoma

DOSAGE FORM : Suspension

STRENGTH : 25mg/mL

STABILITY : 60 days

STORAGE : Refrigerate (preferable) or at room temperature.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acetazolamide</td>
<td>250mg</td>
<td>12 tablets</td>
</tr>
<tr>
<td>Vehicle</td>
<td>qs</td>
<td>120mL</td>
</tr>
</tbody>
</table>

Vehicle Choice:
- Ora-Sweet® : Ora-Plus® (1:1)
- or Ora-Sweet SF® : Ora-Plus® (1:1)
- or Ora-Blend SF®
- or Cherry syrup
- or equivalent vehicle to Ora-Sweet® : Ora-Plus® (1:1)

PROCEDURE:
1. Crush tablets in a mortar to a fine powder.
2. Levigate the powder with small amount of vehicle until a smooth paste is formed.
3. Add more vehicle to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional vehicle to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with vehicle.
6. Shake well and label.

NOTES:

REFERENCES:
 GENERIC NAME : Allopurinol
 INDICATION : Gout or uric acid and calcium oxalate renal stones
 DOSAGE FORM : Suspension
 STRENGTH : 20mg/mL
 STABILITY : 60 days
 STORAGE : Refrigerate (preferable) or at room temperature. Protect from light.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allopurinol</td>
<td>300mg</td>
<td>8 tablets</td>
</tr>
<tr>
<td>Vehicle</td>
<td>qs</td>
<td>120mL</td>
</tr>
</tbody>
</table>

Vehicle Choice:
- Ora-Sweet® : Ora-Plus® (1:1)
- or Ora-Sweet SF®: Ora-Plus® (1:1)
- or Ora-Blend
- or Ora-Blend SF®
- or Cherry syrup
- or equivalent vehicle to Ora-Sweet® : Ora-Plus® (1:1)

PROCEDURE:
1. Crush tablets in a mortar to a fine powder.
2. Levigate the powder with small amount of vehicle until a smooth paste is formed.
3. Add more vehicle to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional vehicle to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with vehicle.
6. Shake well and label.

NOTES:

REFERENCES:

GENERIC NAME: Allopurinol
INDICATION: Gout or uric acid and calcium oxalate renal stones
DOSAGE FORM: Suspension
STRENGTH: 20mg/mL
STABILITY: 56 days
STORAGE: Refrigerate (preferable) or at room temperature.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Allopurinol</td>
<td>300mg</td>
<td>8 tablets</td>
</tr>
<tr>
<td>Vehicle</td>
<td>qs</td>
<td>120mL</td>
</tr>
</tbody>
</table>

Vehicle Choice:
- Methylcellulose 1% : Simple Syrup (1:1)

PROCEDURE:
1. Crush tablets in a mortar to a fine powder.
2. Levigate the powder with small amount of vehicle until a smooth paste is formed.
3. Add more vehicle to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional vehicle to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with vehicle.
6. Shake well and label.

NOTES:

REFERENCES:
GENERIC NAME: Amiodarone

INDICATION: Arrhythmias

DOSAGE FORM: Suspension

STRENGTH: 5mg/mL

STABILITY: 90 days (refrigerate) or 42 days (room temperature)

STORAGE: Refrigerate (preferable) or at room temperature.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amiodarone</td>
<td>200mg</td>
<td>3 tablets</td>
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<tr>
<td>Vehicle</td>
<td>qs</td>
<td>120mL</td>
</tr>
</tbody>
</table>

Vehicle Choice:
- Methylcellulose 1% : Simple Syrup (1:1)

PROCEDURE:
1. Crush tablets in a mortar to a fine powder.
2. Levigate the powder with small amount of vehicle until a smooth paste is formed.
3. Add more vehicle to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional vehicle to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with vehicle.
6. Shake well and label.

NOTES:

REFERENCES:

GENERIC NAME: Atenolol

INDICATION: Hypertension, angina pectoris, myocardial infarction and arrhythmias

DOSAGE FORM: Suspension

STRENGTH: 2mg/mL

STABILITY: 14 days or 90 days

STORAGE: Refrigerate

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Atenolol</td>
<td>100mg</td>
<td>1 tablet</td>
</tr>
<tr>
<td>Glycerin</td>
<td></td>
<td>2mL</td>
</tr>
<tr>
<td>Vehicle</td>
<td>qs</td>
<td>50mL</td>
</tr>
</tbody>
</table>

Vehicle Choice:
- Simple Syrup (stability 14 days)
- or Ora-Sweet (stability 14 days)
- or Ora-Sweet SF (stability 90 days)

PROCEDURE:
1. Crush tablets in a mortar to a fine powder.
2. Levigate the powder with glycerin until a smooth paste is formed.
3. Add vehicle to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional vehicle to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with vehicle.
6. Shake well and label.

NOTES:

REFERENCES:
GENERIC NAME: Baclofen

INDICATION: Spasticity of the skeletal muscle

DOSAGE FORM: Suspension

STRENGTH: 5mg/mL

STABILITY: 35 days


<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baclofen</td>
<td>10mg</td>
<td>30 tablets</td>
</tr>
<tr>
<td>Glycerine</td>
<td></td>
<td>3mL</td>
</tr>
<tr>
<td>Simple Syrup</td>
<td>qs</td>
<td>60mL</td>
</tr>
</tbody>
</table>

PROCEDURE:
1. Crush tablets in a mortar to a fine powder.
2. Levigate the powder with glycerine until a smooth paste is formed.
3. Add vehicle to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional vehicle to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with vehicle.
6. Shake well and label.

NOTES:
Another Baclofen preparation is 10mg/mL (Additional)

REFERENCES:
GENERIC NAME : Baclofen

INDICATION : Spasticity of the skeletal muscle

DOSAGE FORM : Suspension

STRENGTH : 10mg/mL

STABILITY : 60 days

STORAGE : Refrigerate (preferable) or at room temperature. Protect from light.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baclofen</td>
<td>10mg</td>
<td>120 tablets</td>
</tr>
<tr>
<td>Vehicle</td>
<td>qs</td>
<td>120mL</td>
</tr>
</tbody>
</table>

Vehicle Choice:
- Ora-Sweet® : Ora-Plus® (1:1)
- or equivalent vehicle to Ora-Sweet® : Ora-Plus® (1:1)

PROCEDURE:
1. Crush tablets in a mortar to a fine powder.
2. Levigate the powder with vehicle until a smooth paste is formed.
3. Add more vehicle to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional vehicle to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with vehicle.
6. Shake well and label.

NOTES:
Another Baclofen preparation is 5mg/mL

REFERENCES:
GENERIC NAME : Captopril

INDICATION : i) Hypertension ii) Congestive heart failure iii) Post-myocardial infarction iv) Diabetic nephropathy

DOSAGE FORM : Syrup

STRENGTH : 1mg/mL

STABILITY : 30 days

STORAGE : Refrigerate. Amber glass bottle.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Captopril</td>
<td>25mg</td>
<td>4 tablets</td>
</tr>
<tr>
<td>Simple Syrup</td>
<td>qs</td>
<td>100mL</td>
</tr>
</tbody>
</table>

PROCEDURE:
1. Crush tablets in a mortar to a fine powder.
2. Levigate the powder with simple syrup until a smooth paste is formed.
3. Add more simple syrup to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional vehicle to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with vehicle.
6. Shake well and label.

NOTES:

REFERENCES:
GENERIC NAME: Captopril
INDICATION: i) Hypertension ii) Congestive heart failure iii) Post-myocardial infarction iv) Diabetic nephropathy
DOSAGE FORM: Solution
STRENGTH: 1mg/mL
STABILITY: 56 days
STORAGE: Refrigerate

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Captopril</td>
<td>25mg</td>
<td>4 tablets</td>
</tr>
<tr>
<td>Ascorbic Acid</td>
<td>500mg</td>
<td>1 tablet</td>
</tr>
<tr>
<td>Distilled Water</td>
<td>qs</td>
<td>100mL</td>
</tr>
</tbody>
</table>

PROCEDURE:
1. Crush tablets in a mortar to a fine powder.
2. Levigate the powder with distilled water until a smooth paste is formed.
3. Add more distilled water to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional vehicle to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with vehicle.
6. Shake well and label.

NOTES:

REFERENCES:
GENERIC NAME: Carvedilol

INDICATION: Treatment of stable moderate to severe congestive cardiac failure in addition to ACEI's and diuretics.

DOSAGE FORM: Suspension

STRENGTH: 0.5 mg/mL

STABILITY: 30 days

STORAGE: Room temperature. Amber glass bottle.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carvedilol</td>
<td>12.5 mg</td>
<td>4 tablets</td>
</tr>
<tr>
<td>Vehicle</td>
<td>qs</td>
<td>100mL</td>
</tr>
</tbody>
</table>

Vehicle Choice:
- Ora-Sweet® : Ora-Plus® (1:1)
- or Ora-Blend®
- or equivalent vehicle to Ora-Sweet® : Ora-Plus® (1:1)

PROCEDURE:
1. Crush tablets in a mortar to a fine powder.
2. Levigate the powder with small amount of vehicle until a smooth paste is formed.
3. Add more vehicle to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional vehicle to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with vehicle.
6. Shake well and label.

NOTES:
Another Carvedilol preparation is 1mg/mL

REFERENCES:
1. Nationwide Children's Hospital, reviewed 11/2/2010
GENERIC NAME: Carvedilol

INDICATION: Treatment of stable moderate to severe congestive cardiac failure in addition to ACEI's and diuretics

DOSAGE FORM: Suspension

STRENGTH: 1mg/mL

STABILITY: 84 days

STORAGE: Room temperature. Amber glass bottle.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carvedilol</td>
<td>12.5 mg</td>
<td>8 tablets</td>
</tr>
<tr>
<td>Sterile water for irrigation</td>
<td></td>
<td>10ml</td>
</tr>
<tr>
<td>Vehicle</td>
<td>qs</td>
<td>100mL</td>
</tr>
</tbody>
</table>

Vehicle Choice:
- Ora-Sweet® : Ora-Plus® (1:1)
- or Ora-Blend *
- or equivalent vehicle to Ora-Sweet® : Ora-Plus® (1:1)

PROCEDURE:
1. Crush tablets in a mortar to a fine powder.
2. Levigate the powder with 10ml of sterile water for irrigation until a smooth paste is formed.
3. Add more vehicle to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional vehicle to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with vehicle.
6. Shake well and label.

NOTES:
Another Carvedilol preparation is 0.5mg/mL

REFERENCES:
GENERIC NAME: Chloroquine

INDICATION: Treatment of malaria - acute attack

DOSAGE FORM: Suspension

STRENGTH: 15mg/mL

STABILITY: 60 days

STORAGE: Refrigerate (preferable) or at room temperature. Amber plastic bottle.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chloroquine</td>
<td>250 mg</td>
<td>6 tablets</td>
</tr>
<tr>
<td>Vehicle</td>
<td>qs</td>
<td>100 mL</td>
</tr>
</tbody>
</table>

Vehicle Choice:
- Ora-Sweet® : Ora-Plus® (1:1)
- or Ora-Sweet SF®: Ora-Plus® (1:1)
- or Ora-Blend® or Ora-Blend SF®
- or Cherry syrup
- or equivalent vehicle to Ora-Sweet® : Ora-Plus® (1:1)

Ora-Sweet SF® and Ora-Blend® SF should not be used in neonates ≤ 28 days corrected age.

PROCEDURE:
1. Crush tablets in a mortar to a fine powder.
2. Levigate the powder with small amount of vehicle until a smooth paste is formed.
3. Add more vehicle to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional vehicle to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with vehicle.
6. Shake well and label.

NOTES:

REFERENCES:
**GENERIC NAME**: Ciprofloxacin

**INDICATION**: Treatment of infections due to susceptible bacterial strains

**DOSAGE FORM**: Suspension

**STRENGTH**: 50mg/mL

**STABILITY**: 91 days (4°C); 70 days (25°C)

**STORAGE**: Refrigerate (preferable) or at room temperature. Plastic bottle.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ciprofloxacin</td>
<td>500mg</td>
<td>20 tablets</td>
</tr>
<tr>
<td>Vehicle</td>
<td>qs</td>
<td>200 mL</td>
</tr>
</tbody>
</table>

*Vehicle Choice:*
- Ora-Sweet® : Ora-Plus® (1:1)
- or equivalent vehicle to Ora-Sweet® : Ora-Plus® (1:1)
- Methylcellulose 1%: Simple syrup (1:1)

**PROCEDURE:**
1. Crush tablets in a mortar to a fine powder.
2. Levigate the powder with small amount of vehicle until a smooth paste is formed.
3. Add more vehicle to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional vehicle to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with vehicle.
6. Shake well and label.

**NOTES:**

**REFERENCES:**
GENERIC NAME : Clonazepam

INDICATION : i) Epilepsy ii) Non-epileptic myoclonus

DOSAGE FORM : Suspension

STRENGTH : 0.1mg/ml

STABILITY : 60 days

STORAGE : Refrigerate or at room temperature
Amber Glass Bottle

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clonazepam</td>
<td>2 mg</td>
<td>6 tablets</td>
</tr>
<tr>
<td>Vehicle</td>
<td>qs</td>
<td>120 mL</td>
</tr>
</tbody>
</table>

VEHICLE CHOICES:
- Ora-Blend® or Ora-Blend SF®
  (Ora-Sweet SF® and Ora-Blend SF® should not be used in neonates ≤ 28 days corrected age)
- Ora-Plus®: Ora-Sweet® (1:1)
- Ora-Plus®: Ora-Sweet SF® (1:1)
- Cherry Syrup
- or equivalent vehicle to Ora-Sweet® : Ora-Plus® (1:1)

PROCEDURE:
1. Grind up tablets in mortar.
2. Levigate powders with small amount of vehicle until homogenous.
3. Make up to the final volume using vehicle.

NOTES: Clonazepam solutions should not be stored in polyvinyl chloride (plastic) bottle or polypropylene (oral syringes) for longer than 24 hours.

REFERENCES:
GENERIC NAME: Enalapril

INDICATION: i) Hypertension ii) Congestive heart failure

DOSAGE FORM: Suspension

STRENGTH: 0.1mg/mL

STABILITY: 6 weeks

STORAGE: Room temperature

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enalapril</td>
<td>10mg</td>
<td>5 tablets</td>
</tr>
<tr>
<td>Distilled water</td>
<td>qs</td>
<td>500ml</td>
</tr>
</tbody>
</table>

PROCEDURE:
1. Crush tablets in a mortar to make fine powders.
2. Levigate powders with small amount of distilled water until homogenous.
3. Make up to the final volume using distilled water.

NOTES:

REFERENCES:
GENERIC NAME: Glycopyrrolate
INDICATIONS: To reduce excessive drooling
DOSAGE FORM: Syrup
STRENGTH: 0.1mg/mL
STABILITY: 14 days
STORAGE: Refrigerate (preferable) or at room temperature. Amber plastic bottle.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Glycopyrrolate injection</td>
<td>200mcg/ml</td>
<td>5mL</td>
</tr>
<tr>
<td>Simple Syrup</td>
<td>qs</td>
<td>10mL</td>
</tr>
</tbody>
</table>

PROCEDURE:
1. Break the ampoule and syringe out the content of glycopyrrolate from the ampoule with 5 µm filter into a mortar.
2. Add the sufficient quantity of simple syrup and stir well.
3. Use additional simple syrup to rinse the remaining drug from the mortar and pour into the container.
4. Make up to final volume with simple syrup.
5. Shake well and label.

NOTES:

REFERENCES:
GENERIC NAME  : Hydrochlorothiazide

INDICATION  : Diuretic, hypertension

DOSAGE FORM  : Suspension

STRENGTH  : 5mg/ mL

STABILITY  : 60 days

STORAGE  : Refrigerate
            Protect from light

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hydrochlorothiazide</td>
<td>25 mg</td>
<td>20 tablets</td>
</tr>
<tr>
<td>X-Temp</td>
<td>qs</td>
<td>100 mL</td>
</tr>
</tbody>
</table>

PROCEDURE:
1. Crush tablets in mortar to make fine powders.
2. If needed, soak tablets in a small amount of vehicle.
3. Add vehicle in small quantities until a smooth paste is formed. Add more vehicle to the paste until a liquid is formed.
4. Transfer the contents to a graduate cylinder.
5. Use additional vehicle to rinse the remaining drug from the mortar and add it to the graduate.
6. Make up to final volume with vehicle. Stir well.
7. Transfer suspension to final container and label.

NOTES:

REFERENCES:
GENERIC NAME: Indomethacin

INDICATION: Pain and inflammation in rheumatic disease

DOSAGE FORM: Syrup

STRENGTH: 5mg/mL

STABILITY: 60 days

STORAGE: Refrigerate. Protect from light.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Indomethacin</td>
<td>25mg</td>
<td>20 capsules</td>
</tr>
<tr>
<td>Simple syrup</td>
<td>qs</td>
<td>100mL</td>
</tr>
</tbody>
</table>

PROCEDURE:
1. Open capsules and empty the contents into a mortar.
2. Levigate the powder with small amount of simple syrup until a smooth paste is formed.
3. Add more simple syrup to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional simple syrup to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with simple syrup.
6. Shake well and label.

NOTES:

REFERENCES:
GENERIC NAME  : Isoniazid
INDICATION  : i) Tuberculosis ii) Tuberculous meningitis
DOSAGE FORM  : Syrup
STRENGTH  : 10mg/mL
STABILITY  : 21 days
STORAGE  : Refrigerate

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Isoniazid</td>
<td>100mg</td>
<td>10 tablets</td>
</tr>
<tr>
<td>Distilled water</td>
<td></td>
<td>10mL</td>
</tr>
<tr>
<td>Sorbitol 70%</td>
<td>qs</td>
<td>100mL</td>
</tr>
</tbody>
</table>

PROCEDURE:
1. Crush tablets in a mortar to a fine powder.
2. Levigate the powder with 10mL of distilled water until a smooth paste is formed.
3. Add Sorbitol 70% to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional Sorbitol 70% to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with Sorbitol 70%.
6. Shake well and label.

NOTES:
Do not use sugar based syrups.

REFERENCES:
GENERIC NAME: Labetalol

INDICATION: Hypertension

DOSAGE FORM: Syrup

STRENGTH: 10 mg/mL

STABILITY: 28 days

STORAGE: Refrigerate (preferable) or at room temperature.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labetalol</td>
<td>100mg</td>
<td>12 tablets</td>
</tr>
<tr>
<td>Simple syrup</td>
<td>qs</td>
<td>120mL</td>
</tr>
</tbody>
</table>

PROCEDURE:
1. Crush tablets in a mortar to a fine powder.
2. Levigate the powder with small amount of Simple syrup until a smooth paste is formed.
3. Add more Simple syrup to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional vehicle to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with vehicle.
6. Shake well and label.

NOTES:

REFERENCES:
GENERIC NAME : Labetalol
INDICATION : Hypertension
DOSAGE FORM : Syrup
STRENGTH : 40 mg/mL
STABILITY : 60 days
STORAGE : Refrigerate (preferable) or at room temperature. Amber clear plastic (polyethylene terephthalate) bottle. Protect from light.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Labetalol</td>
<td>100mg</td>
<td>48 tablets</td>
</tr>
<tr>
<td>Vehicle</td>
<td>qs</td>
<td>120mL</td>
</tr>
</tbody>
</table>

Vehicle Choice:
- Ora-Sweet® : Ora-Plus® (1:1)
- or Ora-Blend ®
- or equivalent vehicle to Ora-Sweet® : Ora-Plus® (1:1)

PROCEDURE:
1. Crush tablets in a mortar to a fine powder.
2. Levigate the powder with small amount of vehicle until a smooth paste is formed.
3. Add more vehicle to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional vehicle to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with vehicle.
6. Shake well and label.

NOTES:

REFERENCES:
GENERIC NAME: Lansoprazole

INDICATION: i) Peptic ulcer disease ii) Reflux oesophagitis iii) Zollinger-Ellison Syndrome iv) For eradication of Helicobacter pylori in combination with antibiotic

DOSAGE FORM: Suspension

STRENGTH: 3mg/mL

STABILITY: 14 days

STORAGE: Refrigerate (preferable) or at room temperature (8 hours). Keep in amber plastic bottle/ oral syringes.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lansoprazole</td>
<td>30mg</td>
<td>10 capsules</td>
</tr>
<tr>
<td>Sodium bicarbonate 8.4% injection</td>
<td>qs</td>
<td>100mL</td>
</tr>
</tbody>
</table>

PROCEDURE:
1. Open capsules and empty the contents into a mortar.
2. Syringe out sodium bicarbonate 8.4% injection solution from ampoule using 5µ filter.
3. Levigate the powder with small amount of sodium bicarbonate solution until a smooth paste is formed.
4. Add more sodium bicarbonate solution to the paste until a liquid is formed and transfer the liquid into the container.
5. Use additional sodium bicarbonate solution to rinse the remaining drug from the mortar and pour into the container.
6. Make up to final volume with sodium bicarbonate solution.
7. Shake well and label.

NOTES:

REFERENCES:
 GENERIC NAME  : Lorazepam  
 INDICATION  : i) Severe anxiety ii) Insomnia  
 DOSAGE FORM  : Syrup  
 STRENGTH  : 0.4mg/mL  
 STABILITY  : 30 days  
 STORAGE  : Refrigerate  

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lorazepam</td>
<td>2mg</td>
<td>15 tablets</td>
</tr>
<tr>
<td>Simple syrup</td>
<td>qs</td>
<td>75mL</td>
</tr>
</tbody>
</table>

PROCEDURE:
1. Crush tablets in a mortar to a fine powder
2. Levigate the powder with small amount of simple syrup until a smooth paste is formed.
3. Add more simple syrup to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional simple syrup to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with simple syrup.
6. Shake well and label.

NOTES:

REFERENCES:
2. AHC Compounding Manual 2004
GENERIC NAME: Methylcellulose  
DOSAGE FORM: Suspending Agent  
STRENGTH: 1% (0.01g/mL)  
STABILITY: 6 months  
STORAGE: Room temperature  

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylcellulose Powder</td>
<td>CPS 1500</td>
<td>10 g</td>
</tr>
<tr>
<td>Sodium Benzoate Powder</td>
<td></td>
<td>2 g</td>
</tr>
<tr>
<td>Distilled Water</td>
<td>qs</td>
<td>1000 ml</td>
</tr>
</tbody>
</table>

PROCEDURE:  
1. Dissolve Sodium Benzoate in 200 mL of boiling distilled water.  
2. Add Methylcellulose Powder and stir well for 2-3 minutes (use blender if available).  
3. Add 800 mL ice cold water (carefully but quickly) and stir or blend well for 10 minutes.  
4. Transfer to a 1 litre bottle.  
5. Place on side and refrigerate overnight (minimum 4 hours) until liquid converts to gel.

NOTES:  

REFERENCES:  
1. CSHP, Extemporaneous Oral Liquid Dosage Form Preparations, 1988: p 6
GENERIC NAME : Metoprolol

INDICATION : Hypertension, angina, myocardial infarction, arrhythmias

DOSAGE FORM : Suspension

STRENGTH : 10mg/mL

STABILITY : 60 days

STORAGE : Refrigerate (preferable) or at room temperature.
Amber plastic bottle.
Protect from light.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Metoprolol</td>
<td>100 mg</td>
<td>12 tablets</td>
</tr>
<tr>
<td>Vehicle</td>
<td>qs</td>
<td>120 mL</td>
</tr>
</tbody>
</table>

Vehicle Choice:
- Ora-Sweet® : Ora-Plus® (1:1)
- or Ora-Sweet SF® : Ora-Plus® (1:1)
- or Ora-Blend ® or Ora-Blend SF®
- or Cherry syrup
- or equivalent vehicle to Ora-Sweet® : Ora-Plus® (1:1)
  Ora-Sweet SF® and Ora-Blend® SF should not be used in neonates ≤ 28 days corrected age.

PROCEDURE:
1. Crush tablets in a mortar to a fine powder.
2. Levigate the powder with small amount of vehicle until a smooth paste is formed.
3. Add more vehicle to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional vehicle to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with vehicle.
6. Shake well and label.

NOTES:
REFERENCES:


GENERIC NAME: Midazolam

INDICATION: Pre-operative sedation, induction of general anaesthesia, premedication and sedation in ICU and sedation for minor procedures

DOSAGE FORM: Syrup

STRENGTH: 2mg/mL

STABILITY: 56 days

STORAGE: Refrigerate (preferable) or at room temperature. Amber glass bottle.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Midazolam injection</td>
<td>5 mg/ml</td>
<td>48 mL</td>
</tr>
<tr>
<td>Simple Syrup</td>
<td>qs</td>
<td>120 mL</td>
</tr>
</tbody>
</table>

PROCEDURE:
1. Break the ampoule and syringe out the content of Midazolam from the ampoule with 5 µm filter into a mortar.
2. Add the sufficient quantity of simple syrup and stir well.
3. Use additional simple syrup to rinse the remaining drug from the mortar and pour into the container.
4. Make up to final volume with simple syrup.
5. Shake well and label.

NOTES: Undiluted injection can be administered orally. Injection may contain benzyl alcohol

REFERENCES:
2. Pharmacy Compounding Manual, Alberta Health Services 2011 p141
GENERIC NAME: Nifedipine

INDICATION: Hypertension

DOSAGE FORM: Suspension

STRENGTH: 1mg/mL

STABILITY: 28 days

STORAGE: Refrigerate (preferable) or at room temperature.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nifedipine</td>
<td>10 mg</td>
<td>5 tablets</td>
</tr>
<tr>
<td>Methylcellulose 1%</td>
<td>qs</td>
<td>50 mL</td>
</tr>
</tbody>
</table>

*Hydroxypropylmethyl-cellulose Solution (In reference)

PROCEDURE:
1. Crush tablets in a mortar to a fine powder.
2. Levigate the powder with small amount of Methylcellulose 1% until a smooth paste is formed.
3. Add more Methylcellulose 1% to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional Methylcellulose 1% to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with Methylcellulose 1%.
6. Shake well and label.

NOTES:

REFERENCES:
2. Frank Shann. Drug Doses, fourteenth edition, Royal Children’s Hospital, Australia, 2008
3. Formulasi Sediaan Ekstemporaneous, Farmasi Hospital Tuanku Ja’afar Seremban. Edisi Pertama (Februari 2010) p29
GENERIC NAME: Nitrofurantoin

INDICATION: Uncomplicated lower urinary tract infections

DOSAGE FORM: Suspension

STRENGTH: 10mg/mL

STABILITY: 91 days

STORAGE: Refrigerate (preferable) or at room temperature. Keep in amber bottle and protect from light.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nitrofurantoin</td>
<td>100mg</td>
<td>10 tablets</td>
</tr>
<tr>
<td>Vehicle</td>
<td>qs</td>
<td>100mL</td>
</tr>
</tbody>
</table>

Vehicle Choice:
- Ora-Sweet® : Ora-Plus® (1:1)
- or equivalent vehicle to Ora-Sweet® : Ora-Plus® (1:1)

PROCEDURE:
1. Crush tablets in a mortar to a fine powder.
2. Levigate the powder with small amount of vehicle until a smooth paste is formed.
3. Add more vehicle to the paste until a liquid is formed and transfer the liquid into a container.
4. Use additional vehicle to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with vehicle.
6. Shake well and label.

NOTES:

REFERENCES:
2. Australian Medicines Handbook 2010
GENERIC NAME: Omeprazole

INDICATION: i) Reflux oesophagitis, eradication of H. Pylori infection, benign peptic ulcer not responding to conventional therapy, Zollinger-Ellison Syndrome ii) Endoscopically confirmed peptic ulcer

DOSAGE FORM: Suspension

STRENGTH: 2mg/mL

STABILITY: 14 days at room temperature of 25°C or 30 days under refrigeration at 2-8°C

STORAGE: Refrigerate (preferable) or at room temperature. Keep in amber glass bottle and protect from light.

### Ingredients

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Omeprazole Capsules</td>
<td>20mg</td>
<td>10 capsules</td>
</tr>
<tr>
<td>Sodium Bicarbonate Injection</td>
<td>8.4%</td>
<td>10 amp x 10ml</td>
</tr>
</tbody>
</table>

### PROCEDURE:

1. Open capsules and empty the contents into a mortar.
2. Syringe out Sodium Bicarbonate 8.4% with 5μm filter into a beaker.
3. Add about half of Sodium Bicarbonate 8.4% into Omeprazole powder in the mortar.
4. Let mixture sit with occasional stirring (at least 20 minutes) until a white suspension is formed.
5. Transfer the contents to an amber glass bottle.
6. Use the balance of Sodium Bicarbonate 8.4% to rinse the remaining drug from the mortar and pour into the amber glass bottle.
7. Make up to final volume with Sodium Bicarbonate 8.4%.
8. Shake well and label.

### NOTES:

### REFERENCES:

1. American Journal of Health-Systems Pharmacy, Aug 15 1997 (54); p 1833
3. Micromedex Inc., Vol 148
GENERIC NAME : Pentoxifylline  
INDICATION : Peripheral vascular disease  
DOSAGE FORM : Solution  
STRENGTH : 20mg/mL  
STABILITY : 91 days  
STORAGE : Refrigerate (preferable) or at room temperature.  
Keep in amber glass bottle and protect from light.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pentoxifylline Tablets</td>
<td>400mg</td>
<td>12 tablets</td>
</tr>
<tr>
<td>Distilled Water</td>
<td>qs</td>
<td>240 ml</td>
</tr>
</tbody>
</table>

PROCEDURE:
1. Crush tablets in a mortar to a fine powder.
2. Levigate the powder with small amount of Distilled Water until a smooth paste is formed.
3. Add more Distilled Water to the paste until a liquid is formed and transfer the liquid into a container.
4. Use additional Distilled Water to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with Distilled Water.
6. Shake well and label.

NOTES:

REFERENCES:
1. American Journal of Health-System Pharmacy, 1997; p 1301  
3. Micromedex Inc., Vol 148  
GENERIC NAME : Phenobarbitone

INDICATION : Epilepsy

DOSAGE FORM : Suspension

STRENGTH : 10mg/mL

STABILITY : 115 days

STORAGE : Room temperature.

Keep in amber plastic bottle.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phenobarbitone</td>
<td>30mg</td>
<td>20 tablets</td>
</tr>
<tr>
<td>Vehicle</td>
<td>qs</td>
<td>60mL</td>
</tr>
</tbody>
</table>

Vehicle Choice:
- Ora-Sweet® : Ora-Plus® (1:1)
- or Ora-Sweet SF®: Ora-Plus® (1:1)
- or equivalent vehicle to Ora-Sweet® : Ora-Plus® (1:1)

PROCEDURE:
1. Crush tablets in a mortar to a fine powder.
2. Levigate the powder with small amount of vehicle until a smooth paste is formed.
3. Add more vehicle to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional vehicle to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with vehicle.
6. Shake well and label.

NOTES : May mix dose with chocolate syrup (1:1 volume) immediately before administration to mask the bitter after taste.

REFERENCES:
GENERIC NAME: Phytomenadione (Vitamin K1)

INDICATIONS: Vitamin K deficiency due to liver failure.

DOSAGE FORM: Liquid

STRENGTH: 1mg/mL

STABILITY: Sterile water (preferred): 104 days
            Simple Syrup: 111 days

STORAGE: Refrigerate or at room temperature.
          Keep in amber glass bottle.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phytomenadione Injection</td>
<td>10mg</td>
<td>1 mL</td>
</tr>
<tr>
<td>Sterile Water or Simple Syrup</td>
<td>qs</td>
<td>10mL</td>
</tr>
</tbody>
</table>

PROCEDURE:
1. Using a 5µM filter withdraw the required amount of Vitamin K1 and transfer into an amber glass bottle.
2. Add vehicle and mix well.

NOTES: Sterile water formulation is preferred in neonates due to absence of dyes and lower osmolarity

REFERENCES:
1. Pharmacy Compounding Manual 2008, Calgary Health Region Pharmacy, p 192
2. Pharmacy Compounding Manual May 2011, Alberta Health Services Calgary and Area, p 169
GENERIC NAME: Phytomenadione (Vitamin K1)

INDICATIONS: Vitamin K deficiency due to liver failure.

DOSAGE FORM: Liquid

STRENGTH: 1mg/mL

STABILITY: Use immediately once opened

STORAGE: Protect from light

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phytomenadione Injection</td>
<td>1mg</td>
<td>1 mL</td>
</tr>
</tbody>
</table>

PROCEDURE:
1. Using a 5µM filter withdraw the required amount of Vitamin K1 using syringe.
2. Remove filter and administer contents of syringe directly into patient’s mouth.

NOTES: Wash down with fluid after administration.
Should not be diluted.

REFERENCES:
1. [http://www.medicines.ie/medicine/3236/SPC/Konakion](http://www.medicines.ie/medicine/3236/SPC/Konakion) MM Ampoules 10mg/ml Solution for Injection and Oral Solution
GENERIC NAME: Propranolol

INDICATION: Dysrhythmias, tachycardia, hypertrophic obstructive cardiomyopathy (For cardiologist only)

DOSAGE FORM: Suspension

STRENGTH: 1mg/mL

STABILITY: 45 days


### Ingredients

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Propranolol</td>
<td>40mg</td>
<td>6 tablets</td>
</tr>
<tr>
<td>Distilled Water (wetting agent)</td>
<td></td>
<td>4.8 mL</td>
</tr>
<tr>
<td>Citric Acid Solution</td>
<td>25%</td>
<td>1 mL</td>
</tr>
<tr>
<td>Simple Syrup</td>
<td>qs</td>
<td>240mL</td>
</tr>
</tbody>
</table>

**PROCEDURE:**

1. Crush tablets in a mortar to a fine powder.
2. Levigate the powder with distilled water until a smooth.
3. Add a small amount of simple syrup to form a smooth paste. Add more syrup until a liquid is formed and transfer the contents into a graduate cylinder. Use additional simple syrup to rinse the remaining drug from the mortar.
4. Add citric acid to the suspension in the graduate. Mix well.
5. QS to final volume with simple syrup.
6. Transfer the suspension into the amber bottle.
7. Shake well and label.

**REFERENCES:**

1. Pharmacy Compounding Manual 2008, Calgary Health Region Pharmacy, p 204
2. Pharmacy Compounding Manual May 2011, Alberta Health Services Calgary and Area, p 179
GENERIC NAME  : Pyrazinamide
INDICATION  : Tuberculosis
DOSAGE FORM  : Suspension
STRENGTH  : 10mg/mL
STABILITY  : 60 days
STORAGE  : Refrigerate (preferable) or at room temperature. Amber bottle.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pyrazinamide</td>
<td>500mg</td>
<td>3 tablets</td>
</tr>
<tr>
<td>Vehicle</td>
<td>qs</td>
<td>150mL</td>
</tr>
</tbody>
</table>

Vehicle Choice:
- Ora-Sweet® : Ora-Plus® (1:1)
- or Ora-Sweet SF®: Ora-Plus® (1:1)
- or Ora-Blend SF®
- or Cherry syrup
- or equivalent vehicle to Ora-Sweet® : Ora-Plus® (1:1)

PROCEDURE:
1. Crush tablets in a mortar to a fine powder.
2. Levigate the powder with small amount of vehicle until a smooth paste is formed.
3. Add more vehicle to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional vehicle to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with vehicle.
6. Shake well and label.

NOTES:

REFERENCES:
GENERIC NAME : **Pyrazinamide**

INDICATION : Tuberculosis

DOSAGE FORM : Syrup

STRENGTH : 100mg/mL

STABILITY : 60 days

STORAGE : Refrigerate (preferable) or at room temperature. Amber bottle.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pyrazinamide</td>
<td>500mg</td>
<td>200 tablets</td>
</tr>
<tr>
<td>Simple Syrup</td>
<td>qs</td>
<td>1000mL</td>
</tr>
</tbody>
</table>

PROCEDURE:
1. Crush tablets in a mortar to form a fine paste.
2. Levigate the powder with small amount of simple syrup until a smooth paste is formed.
3. Add more simple syrup to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional simple syrup to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with simple syrup.
6. Shake well and label.

NOTES:

REFERENCES:
2. Pharmacy Compounding Manual, Alberta Health Services 2011; 181
**GENERIC NAME**: Sildenafil  
**INDICATION**: Pulmonary hypertension  
**DOSAGE FORM**: Suspension  
**STRENGTH**: 2.5mg/mL  
**STABILITY**: 91 days  
**STORAGE**: Refrigerate (preferable) or at room temperature. Amber plastic bottle.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sildenafil</td>
<td>50mg</td>
<td>5 tablets</td>
</tr>
<tr>
<td>Vehicle</td>
<td>qs</td>
<td>100mL</td>
</tr>
</tbody>
</table>

**Vehicle Choice:**  
- Ora-Sweet® : Ora-Plus® (1:1)  
- Methylcellulose 1%: Simple Syrup (1:1)  
- or equivalent vehicle to Ora-Sweet® : Ora-Plus® (1:1)

**PROCEDURE:**  
1. Crush tablets in a mortar to form a fine paste.  
2. Levigate the powder with small amount of vehicle until a smooth paste is formed.  
3. Add more vehicle to the paste until a liquid is formed and transfer the liquid into the container.  
4. Use additional vehicle to rinse the remaining drug from the mortar and pour into the container.  
5. Make up to final volume with vehicle.  
6. Shake well and label.

**NOTES:**

**REFERENCES:**  
2. Pharmacy Compounding Manual, Alberta Health Services 2011; 190
**GENERIC NAME**: Spironolactone  
**INDICATION**: Oedema and ascites in cirrhosis of the liver, congestive heart failure  
**DOSAGE FORM**: Syrup  
**STRENGTH**: 2.5mg/mL  
**STABILITY**: 60 days  
**STORAGE**: Refrigerate (preferable) or at room temperature. Amber glass bottle.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spironolactone</td>
<td>25mg</td>
<td>4 tablets</td>
</tr>
<tr>
<td>Sterile water for injection</td>
<td></td>
<td>5mL</td>
</tr>
<tr>
<td>Simple Syrup</td>
<td>qs</td>
<td>40mL</td>
</tr>
</tbody>
</table>

**PROCEDURE:**
1. Crush tablets in a mortar to form a fine paste.
2. Levigate the powder with sterile water for injection until a smooth paste is formed.
3. Add simple syrup to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional simple syrup to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with simple syrup.
6. Shake well and label.

**NOTES:**

**REFERENCES:**
GENERIC NAME: Topiramate

INDICATION: Add-on therapy for intractable partial epilepsy

DOSAGE FORM: Suspension

STRENGTH: 6mg/mL

STABILITY: 90 days

STORAGE: Refrigerate (preferable) or at room temperature. Amber plastic bottle.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Topiramate</td>
<td>100mg</td>
<td>6 tablets</td>
</tr>
<tr>
<td>Methylcellulose 1%</td>
<td></td>
<td>10mL</td>
</tr>
<tr>
<td>Simple Syrup</td>
<td>qs</td>
<td>100mL</td>
</tr>
</tbody>
</table>

Other Vehicle Choice:
- Ora-Sweet® : Ora-Plus® (1:1)
- or equivalent vehicle to Ora-Sweet® : Ora-Plus® (1:1)

PROCEDURE:
1. Crush tablets in a mortar to a fine powder.
2. Levigate the powder with small amount of vehicle until a smooth paste is formed.
3. Add more vehicle to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional vehicle to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with vehicle.
6. Shake well and label.

NOTES:

REFERENCES:
2. Pharmacy Compounding Manual, Alberta Health Services 2011; 210
GENERIC NAME : Trimethoprim
INDICATION : Treatment of urinary tract infections due to susceptible pathogens
DOSAGE FORM : Suspension
STRENGTH : 10mg/mL
STABILITY : 6 weeks at 25°C; 3 months at 4°C
STORAGE : Refrigerate (preferable) or at room temperature. Amber plastic bottle.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trimethoprim</td>
<td>100mg</td>
<td>10 tablets</td>
</tr>
<tr>
<td>Vehicle</td>
<td>qs</td>
<td>100mL</td>
</tr>
</tbody>
</table>

Vehicle Choice:
- Methylcellulose 1% : Simple Syrup (1:1)

PROCEDURE:
1. Crush tablets in a mortar to a fine powder.
2. Levigate the powder with small amount of vehicle until a smooth paste is formed.
3. Add more vehicle to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional vehicle to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with vehicle.
6. Shake well and label.

NOTES:
* A suspending base of methylcellulose 1 - 2% without syrup can be used if preferred.

REFERENCES:
GENERIC NAME: Trimethoprim
INDICATION: Treatment of urinary tract infections due to susceptible pathogens
DOSAGE FORM: Syrup
STRENGTH: 10mg/mL
STABILITY: 30 days
STORAGE: Refrigerate (preferable) or at room temperature. Amber plastic bottle.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trimethoprim</td>
<td>100mg</td>
<td>10 tablets</td>
</tr>
<tr>
<td>Simple Syrup</td>
<td>qs</td>
<td>100mL</td>
</tr>
</tbody>
</table>

PROCEDURE:
1. Crush tablets in a mortar to a fine powder.
2. Levigate the powder with small amount of vehicle until a smooth paste is formed.
3. Add more vehicle to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional vehicle to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with vehicle.
6. Shake well and label.

NOTES:

REFERENCES:
2. Pharmacy Compounding Manual, Alberta Health Services 2011; 216
GENERIC NAME: Ursodeoxycholic Acid

INDICATION: Cholestatic liver diseases (eg. primary biliary cirrhosis, primary cholangitis etc)

DOSAGE FORM: Suspension

STRENGTH: 50mg/mL

STABILITY: 90 days

STORAGE: Refrigerate (preferable) or at room temperature. Amber plastic bottle.

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ursodeoxycholic Acid</td>
<td>250mg</td>
<td>12 tablets</td>
</tr>
<tr>
<td>Vehicle</td>
<td>qs</td>
<td>60mL</td>
</tr>
</tbody>
</table>

Vehicle Choice:
- Ora-Sweet® : Ora-Plus® (1:1)
- or equivalent vehicle to Ora-Sweet® : Ora-Plus® (1:1)

PROCEDURE:
1. Crush tablets in a mortar to a fine powder.
2. Levigate the powder with small amount of vehicle until a smooth paste is formed.
3. Add more vehicle to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional vehicle to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with vehicle.
6. Shake well and label.

NOTES:

REFERENCES:
2. Micromedex® 2011
GENERIC NAME : Verapamil

INDICATION : i) Supraventricular tachyarrhythmia (SVT) prophylaxis ii) angina

DOSAGE FORM : Suspension

STRENGTH : 50mg/mL

STABILITY : 60 days

STORAGE : Refrigerate (preferable) or at room temperature. Amber clear plastic (polyethylene terephthalate) bottle

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verapamil hydrochloride</td>
<td>40mg</td>
<td>150 tablets</td>
</tr>
<tr>
<td>Vehicle</td>
<td>qs</td>
<td>120mL</td>
</tr>
</tbody>
</table>

Vehicle Choice:
- Ora-Sweet® : Ora-Plus® (1:1)
- or Ora-Sweet SF® : Ora-Plus® (1:1)
- or equivalent vehicle to Ora-Sweet® : Ora-Plus® (1:1)

PROCEDURE:
1. Crush tablets in a mortar to a fine powder.
2. Levigate the powder with small amount of vehicle until a smooth paste is formed.
3. Add more vehicle to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional vehicle to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with vehicle.
6. Shake well and label.

NOTES:

REFERENCES:
GENERIC NAME: Verapamil

INDICATION: i) Supraventricular tachyarrhythmia (SVT) prophylaxis ii) angina

DOSAGE FORM: Suspension

STRENGTH: 50mg/mL

STABILITY: 91 days

STORAGE: Refrigerate (preferable) or at room temperature. Amber plastic / glass bottle

<table>
<thead>
<tr>
<th>Ingredients</th>
<th>Strength</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Verapamil hydrochloride</td>
<td>40mg</td>
<td>150 tablets</td>
</tr>
<tr>
<td>Purified water, USP</td>
<td>3mL</td>
<td></td>
</tr>
<tr>
<td>Vehicle</td>
<td>qs</td>
<td>120mL</td>
</tr>
</tbody>
</table>

Vehicle Choice:
- Methylcellulose 1%: Simple syrup (1:1)

PROCEDURE:
1. Crush tablets in a mortar to a fine powder.
2. Levitate the powder with purified water until a smooth paste is formed.
3. Add vehicle to the paste until a liquid is formed and transfer the liquid into the container.
4. Use additional vehicle to rinse the remaining drug from the mortar and pour into the container.
5. Make up to final volume with vehicle.
6. Shake well and label.

NOTES:

REFERENCES:
Abbreviations:

mg - milligram
ml - millilitre
qs - up to