Drug: METFORMIN  
  
# Available Drug Strengths  
METFORMIN 250MG TAB;  
METFORMIN 500MG TAB;  
METFORMIN 850MG TAB;  
METFORMIN 1000MG XR TAB  
  
# Mechanism of Action & How it Works / Helps  
Metformin controls diabetes by helping your body to use insulin better. It also decreases the amount of sugar made by your liver, therefore reducing your sugar levels in the blood. It works together with lifestyle changes, such as having a healthy diet and regular exercise, to reduce blood sugar levels.  
  
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# Indication Information for Metformin  
  
## Indication 1: Type 2 Diabetes (T2DM)  
  
### Summary Of Disease Condition  
Diabetes means your blood sugar level is higher than normal. Type 2 Diabetes, is usually found in people aged 40 and above who are overweight and physically inactive. In some people, the condition is mild and they are able to control their blood glucose with just diet and exercise. However, if the condition gets worse, they may require oral medication or insulin injections in addition to making lifestyle changes.  
  
### Additional Information On Disease  
People with Type 2 diabetes can feel well and not experience any symptoms at all. However, there may also be symptoms that develop gradually and are sometimes so mild they go unnoticed, such as the following: Having blurred vision, feeling thirsty despite drinking lots of water, poor healing of cuts and wounds, feeling tired, feeling hungry all the time, losing weight despite good appetite or frequent urination. The high blood glucose (hyperglycemia) levels in uncontrolled diabetes can damage both nerves and blood vessels. As blood vessels supply blood to various organs, this can eventually lead to complications such as:   
Kidney disease  
Foot disease such as numbness, ulcers, and even gangrene  
Eye disease  
Nerve disease which can lead to problems such as erectile dysfunction and diarrhoea  
Heart disease such as angina and heart attack  
Stroke  
  
### Disease Aetiology  
Type 2 Diabetes usually occurs when the body's cells do not respond well or are resistant to the body's own insulin. It is commonly associated with being overweight and having excessive body fat (under the skin and around the internal organs). Typically, it develops in older adults (risk increases for those above 40 years).  
  
### Non Pharmacological Counselling  
Here are some lifestyle tips if you have diabetes:  
1. Lose weight if you are overweight. Aim for a healthy Body Mass Index (BMI) ranging from 18.5 to 22.9kg/m2 to reduce the risk of heart disease and insulin resistance.   
2. Maintain an active lifestyle. This helps to maintain healthy body weight. Engage in 150 minutes of moderate-intensity activity per week e.g. brisk walking, cycling, jogging, swimming, dancing where possible or as advised by your doctor.  
3. Follow the healthy plate concept which helps you remember the right proportions of each food group in a well-balanced meal. Here's how:  
Fill Quarter plate with wholegrains  
Fill Quarter plate with good sources of protein  
Fill Half plate with fruit and vegetables  
4. Eat more fibre-rich food. Fibre helps to slow down the rate at which sugar is being released into the bloodstream, keeps you full and improves bowel function.  
Include two servings each of fruit and vegetables daily.  
1 serving of fruit = 1 small apple or 1 wedge papaya or 10 grapes (small)  
1 serving of vegetables = 100g cooked vegetables (¾ mug) or 150g raw vegetable  
4. Include wholegrain products in your diet such as wholegrain or whole-meal bread, oats, chapati, brown rice, whole-meal biscuits etc.  
5. Have regular meals at similar timings each day. This provides a regular and constant amount of sugar from the food you eat to reduce fluctuations in your blood sugar level.  
This is also important for those on medications and/or insulin therapy to allow the action of the medication/insulin to match your food intake, hence preventing hypoglycaemia (low blood sugar).  
6. Quit smoking as smoking increases insulin resistance, risk of diabetes and its complications.  
  
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# Administration Instructions  
- You can take this medication with or after food. This lowers your chances of getting stomach discomfort, nausea or diarrhoea.  
- Dosage form: tablet  
- Can it be crushed (METFORMIN 250MG TAB; METFORMIN 500MG TAB; METFORMIN 850MG TAB): Yes  
- Can it be crushed (METFORMIN 1000MG XR TAB): Do not cut or crush the tablet.

# Counselling Points for Metformin  
  
## Counselling Point 1: Fasting Blood Glucose Testing  
If you need to do fasting blood tests, do not take your medication until your blood has been taken and you have eaten.  
  
## Counselling Point 2: Scans and Procedures  
If you have planned scans, x-rays or surgery, please inform your healthcare professional. You may need to stop taking metformin for a couple of days.  
  
# Medication Storage  
Store your medication in a cool, dry place away from heat, moisture and direct sunlight, such as in a cupboard  
  
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# Pregnancy & Breastfeeding Considerations  
- Pregnancy: please inform your healthcare professional if you are pregnant, planning to become pregnant or breastfeeding  
- Breastfeeding: please inform your healthcare professional if you are pregnant, planning to become pregnant or breastfeeding  
  
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# Side Effects of Metformin  
  
## Side Effect 1: Allergy Reaction  
  
### Likelihood of side effect  
Rare but severe  
  
### Side effect symptoms  
Swelling of eyes and/or lips; rashes throughout the body; difficulty breathing; faintness  
  
### Management of side effects  
Seek immediate medical attention or visit the emergency department if symptoms are severe  
  
## Side Effect 2: Diarrhoea  
  
### Likelihood of side effect  
Common  
  
### Side effect symptoms  
Diarrhoea  
  
### Management of side effects  
Taking the medication with of after food may reduce the side effects. Avoid food that is too rich, spicy or has strong smells  
  
## Side Effect 3: Nausea / Vomitting  
  
### Likelihood of side effect  
Common  
  
### Side effect symptoms  
Nauseau / Vomitting  
  
### Management of side effects  
Taking the medication with of after food may reduce the side effects. Avoid food that is too rich, spicy or has strong smells  
  
## Side Effect 4: Stomach Discomfort / Abdominal Pain  
  
### Likelihood of side effect  
Common  
  
### Side effect symptoms  
Stomach Discomfort  
  
### Management of side effects  
Taking the medication with of after food may reduce the side effects. Avoid food that is too rich, spicy or has strong smells  
  
## Side Effect 5: Lactic Acidosis  
  
### Side effect class specificity  
Metformin  
  
### Likelihood of side effect  
Rare but severe  
  
### Cause of side effect  
A serious medical condition in which there is a build-up of lactic acid in th body, causing your blood to be more acidic  
  
### Side effect symptoms  
Symptoms include decreased appetite, vomiting, stomach pains, a general feeling of being unwell accompanied with feeling cold or excessive tiredness, fast and shallow breathing  
  
### Management of side effects  
Seek immediate medical attention at the hospital emergency department  
  
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# Drug Interactions of Metformin  
  
## Interaction 1: Alcohol  
  
### Drug interaction class specificity  
Metformin  
  
### Impact of interaction  
Alcohol further increases the build-up of lactic acid (also called lactic acidosis), and is a serious medical problem. Symptoms include, decreased appetite, vomiting, continous stomach pain, fast and shallow breathing, coldness and excessive tiredness.  
  
### Management of interaction  
Avoid taking alcohol with this medication as it increases the risk of lactic acid building up in your body.  
  
## Interaction 2: Charcoal, Kaolin and Smecta  
  
### Impact of interaction  
These anti-diarrhoeal medication may reduce the absorption of other medication  
  
### Management of interaction  
Take these medication at least 2 hours apart from other medications/.  
  
## Interaction 3: Traditional Medicines  
  
### Impact of interaction  
Traditional medicines, such as traditional chinese medication, may lead to certain, unexpected interactions that could be harmful.   
  
### Management of interaction  
In general, it is always check with your doctor or pharmacist if it is ok to take particular traditional medicine.