Taking care of yourself in daily life for patients with diabetes

A noncommunicable disease education manual for primary health care professionals and patients
Taking care of yourself in daily life for patients with diabetes

A noncommunicable disease education manual for primary health care professionals and patients
The Noncommunicable Disease Education Manual for Primary Health Care Professionals and Patients results from the contributions and hard work of many people. Its development was led by Dr Hai-Rim Shin, Coordinator, and Dr Warrick Junsuk Kim, Medical Officer, of the Noncommunicable Diseases and Health Promotion unit at the WHO Regional Office for the Western Pacific (WHO/WPRO/NCD) in Manila, Philippines.

WHO graciously acknowledges the intellectual contributions of Dr Jung-jin Cho, Co-director, Community-based Primary Care Project Committee and Professor, Department of Family Medicine, Hallym University Sacred Heart Dongtan Hospital, Republic of Korea; Dr Hyejin Lee, Volunteer, WHO/WPRO/NCD (currently PhD candidate, Department of Family Medicine, Seoul National University, Republic of Korea); Ms Saki Narita, Volunteer, WHO/WPRO/NCD (currently PhD candidate, Department of Global Health Policy, Graduate School of Medicine, University of Tokyo, Japan); and Mr Byung Ki Kwon, Technical Officer, WHO/WPRO/NCD (currently Director, Division of Health Promotion, Ministry of Health and Welfare, Republic of Korea).

Many thanks to Dr Albert Domingo, Dr Sonia McCarthy, Ms Marie Clem Carlos, Dr Katrin Engelhardt, Mr Kelvin Khow Chuan Heng and Dr Roberto Andres Ruiz from the WHO Regional Office for the Western Pacific and Dr Ma. Charina Benedicto, Physician-in-Charge, Bagong Barangay Health Center & Lying-in Clinic, Pandacan, Manila, Philippines for reviewing the draft publication.

Financial support for this publication was received from the Korea Centers for Disease Control and Prevention, Republic of Korea.

No conflict of interest was declared.

This is a translation of a manual published by the Ministry of Health and Welfare and Community-based Primary Care Project Committee in the Republic of Korea. Some of the content has been adapted, with permission, to align with current WHO recommendations and policies. However, the views expressed in the manual do not necessarily reflect the policies of the World Health Organization. The source publication was developed under the leadership of Dr Jung-jin Cho (also mentioned above); Mr Hyunjun Kim, Co-director, Community-based Primary Care Project Committee and Director General, Bureau of Health Policy, Ministry of Health and Welfare, Republic of Korea; and Dr Sunghoon Jung, Deputy Director, Division of Health Policy, Ministry of Health and Welfare, Republic of Korea.

All illustrations were provided by the source publication.

Photo credits
©Shutterstock: pages 3-6, 9-10, 15-19

ISBN 978 92 9061 809 6
© World Health Organization 2017
Some rights reserved. This work is available under the CC BY-NC-SA 3.0 IGO licence.
Noncommunicable disease education manual for primary health care professionals and patients

Part 1  Prevention and management of hypertension
- Module 1  Diagnosis and management
- Module 2  Healthy lifestyles
- Module 3  Healthy eating habits
- Module 4  Low-salt diet
- Module 5  Physical activity
- Module 6  Medication and management of associated diseases
- Module 7  Complication prevention

Part 2  Prevention and management of diabetes
- Module 1  Diagnosis and management
- Module 2  Healthy lifestyles
- Module 3  Healthy eating habits 1
- Module 4  Healthy eating habits 2
- Module 5  Physical activity
- Module 6  Taking care of yourself in daily life
- Module 7  Complication prevention

Part 3  Quit smoking
How to use this manual

This book is one of fifteen modules of the “Noncommunicable disease education manual for primary health care professionals and patients”. This manual is intended to provide health information on the prevention and control of hypertension and diabetes.

This will be used in the form of a flip chart for health professionals to educate their patients with either hypertension or diabetes.

FOR PATIENTS
On one side of the flip chart is the ‘For patients’ page. This side has simple images and key messages that are easy to understand. However, health professionals may need to provide education for patients to fully understand the content.

FOR PHYSICIANS
On the other side of the flip chart is the ‘For physicians’ page. This side includes information that the health professional can read out to the patient during counselling. Professional information is also provided for further understanding. A small image of the ‘For patients’ side is included so that the health professional is aware of what the patient is looking at.

This publication is intended to serve as a template to be adapted to national context. Images and graphs that have been watermarked should be replaced with images or graphs that represent the national situation. If assistance is required, or if you have any questions related to the publication, please contact the Noncommunicable Diseases and Health Promotion unit at WHO Regional Office for the Western Pacific (wproncd@who.int).
# Table of contents

Module 6

**Taking care of yourself in daily life** for patients with diabetes

1. What is hypoglycaemia?
2. Symptoms of hypoglycaemia
3. Risk factors for hypoglycaemia (1)
4. Risk factors for hypoglycaemia (2)
5. Managing hypoglycaemia
6. Loss of consciousness due to hypoglycaemia
7. Hyperglycaemic coma
8. Management of diabetes when acutely ill
9. Get vaccinated
10. Things to bring when travelling
11. Self-monitoring of blood glucose
12. How to use a glucometer
13. Take-home message
What is hypoglycaemia?

What happens when blood sugar drops drastically?

Hypoglycaemia
Unconsciousness
Death
What is hypoglycaemia?

Patient education

- Hypoglycaemia can occur in people with diabetes.
- Symptoms of hypoglycaemia are mainly autonomic nerve symptoms such as sweating, anxiety and increased heart rate.
- In severe cases, it can cause loss of consciousness and death.
- Hypoglycaemia usually presents when blood glucose level is below 70 mg/dL.
- However, when hyperglycaemia lasts for a long time, or blood sugar levels fall dramatically, symptoms of hypoglycaemia can occur in blood sugar levels above 70 mg/dL.

Professional information

- Hypoglycemia is defined as serum blood sugar concentration below 70 mg/dL.

What happens when blood sugar drops drastically?

REFERENCES:
Symptoms of hypoglycaemia

- Dizziness and nausea
- Weakness
- Fatigue
- Hunger
- Sweating, chills and clamminess
- Rapid heartbeat
- Anxiety
Symptoms of hypoglycaemia

Patient education

- Early signs and symptoms of hypoglycaemia are weakness and hunger, sweating and dizziness.
- When blood sugar levels decrease rapidly, you can even lose consciousness.
- Therefore, it is important to know what the symptoms of hypoglycaemia are, to monitor your blood sugar levels regularly and keep track of how you are feeling when your blood sugar is low.

REFERENCE:
Risk factors for hypoglycaemia (1)

Hypoglycaemia can occur when you are taking diabetic medications (oral medications or insulin)

- Too much diabetes medication or insulin overdose
- Irregular intake of oral medications or injection of insulin
- Under-eating
- Drinking alcohol, especially on an empty stomach.
Risk factors for hypoglycaemia (1)

Patient education

- The risk factors of hypoglycaemia include taking too much insulin or diabetes medications, or not taking them at the right time.
- Lack of food is also a cause.
- Drinking alcohol on an empty stomach is another risk, as our bodies use up glucose to break down alcohol.

REFERENCE:
Risk factors for hypoglycaemia (2)

Too much physical activity

- Exercising on an empty stomach
- Intense or prolonged physical activity
Risk factors for hypoglycaemia (2)

Patient education

- Doing vigorous exercise for a long time or exercising on an empty stomach are also risk factors for hypoglycaemia.
- Prevention includes being consistent in the amount you eat and the timing of your meals. Regular physical activity and taking medication on time are important.

Too much physical activity

- Exercising on an empty stomach
- Intense or prolonged physical activity

REFERENCE:
Managing hypoglycaemia

Eat or drink adequate amounts of sugar/sweets to increase blood sugar levels.

Consult your physician about preventing future hypoglycaemic episodes.
Managing hypoglycaemia

Patient education

- When you have symptoms of hypoglycaemia you need to eat or drink foods containing simple carbohydrates which will quickly increase your blood sugar level.

- Examples of simple carbohydrates are sweet drinks, sugar and candy; 15 g of sugar increases blood glucose by about 30 mg/dL.

- Three to five pieces of candy, or half a glass of cola or orange juice, is equivalent to 15 g of sugar.

- It is important to visit your doctor if you have had hypoglycaemia because you may need a change of medication or dosage.

Eat or drink adequate amounts of sugar/sweets to increase blood sugar levels.
Consult your physician about preventing future hypoglycaemic episodes.

REFERENCES:
Diabetes advanced theory course. Centers for Disease Control and Prevention, Republic of Korea. 2016. (http://www.kncd.org/down/sub09/01/9_1_2_2.pdf, accessed 28 September 2016)
Loss of consciousness due to hypoglycaemia

- Get the patient to the emergency department at a hospital as soon as possible.
- Do not try to force the patient to eat.
Loss of consciousness due to hypoglycaemia

Patient education

• When the patient loses consciousness due to hypoglycaemia, do not try to force-feed.
• Head straight to a hospital emergency department.

• Get the patient to the emergency department at a hospital as soon as possible.
• Do not try to force the patient to eat.

REFERENCES:
Diabetes advanced theory course. Centers for Disease Control and Prevention, Republic of Korea. 2016. (http://www.kncd.org/down/sub09/01/9_1_2_2.pdf, accessed 28 September 2016)
Hyperglycaemic coma

- Complications that occurs when blood sugar levels are too high include:
  - feeling thirsty, urinating frequently, vomiting, abdominal pain
  - delirium, unconsciousness, coma.

- If hyperglycaemic coma is suspected, go to the emergency department immediately.
Hyperglycaemic coma

Patient education

- Hyperglycaemic coma is a complication that occurs when blood sugar levels are extremely elevated.
- Skipping medications, infection, or severe diseases can cause hyperglycaemic coma.
- Symptoms include dehydration, frequent urination, vomiting, abdominal pain and loss of consciousness.
- In severe cases, it can lead to death. Hospitalization is vital.
- In the case of suspected hyperglycaemic coma, the patient must be taken to the nearest hospital immediately.

- Complications that occurs when blood sugar levels are too high include:
  - feeling thirsty, urinating frequently, vomiting, abdominal pain
  - delirium, unconsciousness, coma.

- If hyperglycaemic coma is suspected, go to the emergency department immediately.

REFERENCES:
Management of diabetes when acutely ill

- Acute diseases such as the common cold and diarrhoea can cause hyperglycaemia.
- Management of diabetes when acutely ill:

  Never skip or quit medications without consulting your doctor.

  Drink enough water.

  Rest, do not exercise.
Management of diabetes when acutely ill

Patient education

• When you are sick and have high fever, general weakness, vomiting or dehydration, your blood glucose level can increase continuously.
• You should never skip or quit diabetic medications or insulin at this time.
• But you may need to reduce the dosage so consult your doctor about your physical state and medication.
• Drink enough water to prevent dehydration.
• Rest, and do not overly exert yourself.

• Acute diseases such as the common cold and diarrhoea can cause hyperglycaemia.
• Management of diabetes when acutely ill:

  - Never skip or quit medications without consulting your doctor.
  - Drink enough water.
  - Rest, do not exercise.
Get vaccinated

Diabetic patients are more vulnerable to infection

- influenza vaccination (yearly)
- pneumonia vaccination
- basic vaccinations:
  - hepatitis B, tetanus, diphtheria
Get vaccinated

Patient education

• Diabetic patients are more vulnerable to infection.
• Some of the vaccinations needed for diabetic patients are influenza, pneumococcus and hepatitis B.

Diabetic patients are more vulnerable to infection

• influenza vaccination (yearly)
• pneumonia vaccination
• basic vaccinations:
  - hepatitis B, tetanus, diphtheria

Professional information

• The American Diabetes Association (ADA) 2014 guidelines state that influenza, pneumococcus and hepatitis B vaccinations are recommended for diabetic patients.

REFERENCE:
Things to bring when travelling

Pack your:
- prescription drugs
- diabetes patient card
- snacks in case of hypoglycaemia
- comfortable shoes and clothes
Things to bring when travelling

Patient education

- When travelling, diabetes patients should bring comfortable shoes to protect their feet and snacks in case of hypoglycaemia.
- If you carry your diabetes card, it will be very helpful in the event of loss of consciousness due to hypoglycaemia.
- Preparing other emergency drugs can be helpful. If you are using insulin, do not forget to bring your glucometer.

Pack your:
- prescription drugs
- diabetes patient card
- snacks in case of hypoglycaemia
- comfortable shoes and clothes

REFERENCE:
Self-monitoring of blood glucose

The benefit of self-monitoring blood glucose:

- Enables the patient to figure out when and why their blood glucose levels are beyond the normal range
- Check blood glucose levels as advised by your doctor

<table>
<thead>
<tr>
<th>Date</th>
<th>Medication</th>
<th>Blood glucose level (mg/dL)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Before breakfast</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Two hours after breakfast</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Before dinner</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Before bedtime</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Date</th>
<th>Medication</th>
<th>Before breakfast</th>
<th>Two hours after breakfast</th>
<th>Before dinner</th>
<th>Before bedtime</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Self-monitoring of blood glucose

Patient education

- Monitoring your own blood glucose is important for checking whether treatment goals are reached, and if not, figuring out why your blood sugar level is too low or too high.

- Consult your doctor about your target sugar level, since treatment goals are personalized according to age, co-morbid disease, medications and lifestyle.

- Self-monitoring of blood glucose is especially helpful for people on insulin treatment, or when patients have hypoglycaemic symptoms.

Professional information

- For patients not on insulin, there is debate as to whether self-monitoring of blood glucose helps reach treatment goals.

The benefit of self-monitoring blood glucose:

- Enables the patient to figure out when and why their blood glucose levels are beyond the normal range

- Check blood glucose levels as advised by your doctor

<table>
<thead>
<tr>
<th>Blood glucose level (mg/dL)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date</td>
</tr>
<tr>
<td>------</td>
</tr>
<tr>
<td></td>
</tr>
<tr>
<td></td>
</tr>
</tbody>
</table>

REFERENCES:
How to use a glucometer

Step 1
Turn on the glucometer

Step 2
Prepare lancing device

Step 3
Take the blood sample

Step 4
Place sample on glucometer for results
How to use a glucometer

Patient education

• First, turn on the glucometer.
• Remove the cap of the lancing device and insert a new lancet.
• Twist off the protective cap of the new lancet, and replace the cap of lancing device.
• Wash your hands, or swab the fingertip you are going to use to draw your sample with alcohol.
• Adjust the puncture depth on the lancing device.
• Usually depth 2 is enough for most people.
• After pricking your fingertip for the blood sample, place a drop of blood on the test strip of the glucometer.
• Do not squeeze blood to place it on the test strip.
• Most strips have a “wicking” action that will draw the blood up into the test strip.

Professional information

• The accuracy of blood glucose self-monitoring depends highly on the glucometer itself and the patient.
• Therefore, to check whether the self-measured blood glucose readings are accurate, compare to blood tests done at the hospital at least once a year.
Take-home message
Taking care of yourself in daily life

• Be aware of the symptoms of hypoglycaemia and what to do when you have hypoglycaemic symptoms.
• Be aware of how to manage yourself when acutely ill.
• Get required vaccinations.
• Be aware of what to pack when travelling.