



Diabetes Care Related Response to Natural Disasters in China

Chinese Diabetes Society

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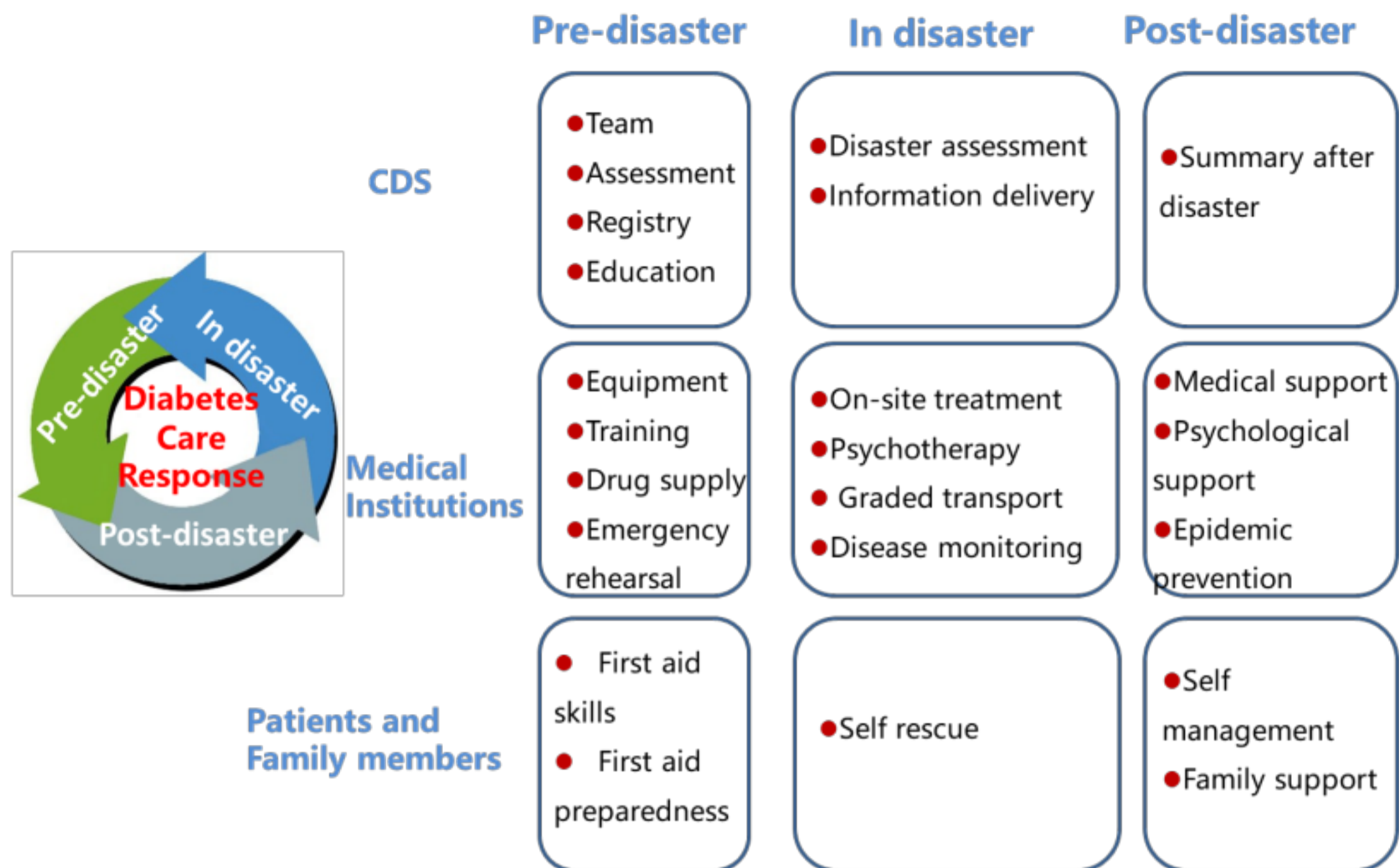
With the modernization of lifestyle and the aging of the population, diabetes has become the third chronic non-communicable disease following cancer and cardiovascular disease in China. According to the latest data from the International Diabetes Federation (IDF), up till 2019, the total number of adult patients with diabetes in China is about 116.4 million, the largest number of patients with diabetes in the world.

With vast territory and large population, China is one of the countries prone to natural disasters, including earthquake, floods, typhoon, rainstorm, etc. Among those, the most serious ones were the Tangshan earthquake and the Sichuan earthquake. The Tangshan earthquake, a 7.8 magnitude earthquake, occurred on the 28th of July, 1976, with the 2nd largest death toll from the earthquake history in the 20th century, and the biggest intensity of 11 degree, leading to 242,769 dead, and 164,851 wounded. The Sichuan earthquake, occurred on the 12th of May, 2008, an 8.0 magnitude earthquake, with the biggest intensity of 11 degree, leading to 69,227 dead, and 17,923 missing, 4.3 million wounded, and more than 96,000 hospitalized. Obvious shakings occurred in most of the regions in the country and in some neighboring countries. In the past 10 years, the annual economic loss caused by natural disasters in China was more than 200 billion RMB. Following Japan and USA, China has become the 3rd seriously affected by natural disasters. With the characteristics of complexity, high frequency, and wide-spread, natural disasters severely damaged the public health system, and affected the development of economy and the stability of the society to various extents.

In the event of a disaster, blood glucose control was seriously affected due to the interruption/closure of medical facilities, the loss of medical records, a lack of diabetes drugs (especially insulin), and abrupt change in dietary intake and/or composition. At the same time, patients are prone to acute complications such as ketoacidosis, hyperglycemic hyperosmolar status (HHS) and hypoglycemia. After a disaster, due to the financial loss, the loss of personal belongings, occasionally bereavement and a lack of adequate counseling, lots of problems can be caused by disasters, including severe depression, increased mental and physical stress, increased diabetes, and poor control of diabetes, etc.

With the rapid development of social economy and the increasing expectation of the public for disaster relief, the Chinese government has been paying more attention to disaster emergency relief and investment these years. Especially after the Sichuan earthquake in 2008, great attention has been paid to the construction of disaster prevention and mitigation system and disaster emergency rescue. In May of 2018, the 10th anniversary of the Sichuan earthquake, the China Disaster Prevention and Emergency Response Alliance was established in Chengdu. However, there is a lack of guidance in the diabetes care related response to natural disasters. The focus of this is to minimize the damages through scientific response to natural disasters.

In order to strengthen the scientific diabetes care related response to natural disasters and minimize the harm of disasters to patients with diabetes in China, the Chinese Diabetes Society has invited relevant experts to develop this expert consensus. Diabetes care related response to natural disasters consists of three parts, including pre-disaster, in the mid of a disaster, and post-disaster stage. It needs the collaboration of Chinese Diabetes Society, medical institutions, patients with diabetes and families.



Part I: Before a disaster. Focus on the establishment of professional rescue teams and popular science training.

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Develop guidelines, resource assessment, and set up work plans for diabetes care response in natural disasters.

(1) Team building. The professional rescue teams of diabetes care, consisting of clinically experienced endocrinologists, psychologists and nurses, closely work with the National Disaster Rescue team as needed. The team is responsible for guideline development, scientific training, patient registration, and resource assessment.

(2) Resource assessment. Use modern technologies such as the Internet, artificial intelligence and big data to do the resource assessment for the government. Assess the quantity of medical resources such as insulin, medicine, blood glucose test strips and medicine donation procedures by international community and WHO.

(3) Patient registration. Develop a registration system for patients with diabetes who are most likely to be affected by disasters, such as type 1 diabetes patients, type 2 diabetes patients with severe cardiovascular and cerebrovascular diseases, and those in urgent need of insulin treatment in disasters.

(4) Disaster preparedness. Provide emergency training for patients with diabetes and their families and disaster preparedness education through the CDS network.

2. Medical institutions

(1) Equipment preparedness. Strengthen the construction of mobile hospitals and equipment, including diabetes related laboratory testing equipment, such as routine examination of blood and urine, electrolytes, blood gas analysis, blood glucose meter for blood glucose monitoring and HbA1c rapid detection instrument, etc.

(2) Emergency response training. Diabetes disaster emergency rescue team should be familiar with the procedures of diabetes care response in emergency, including insulin and drug conversion methods under stress, and emergency treatment for hypoglycemia and hyperglycemia. Nurses should be familiar with self-blood glucose monitoring, diabetic foot care, treatment of hypoglycemia and hyperglycemia, and improvement of lifestyle in disasters, etc.

(3) Medicine supply. Medical institutions should prepare adequate anti-hyperglycemic medicine, including insulin and other oral hypoglycemic agents.

(4) Emergency rehearsal. Identify the workflows in natural disasters with the collaboration of the Red Cross and government organizations. Provide emergency rescue knowledge and skills training. Enhance diabetes care response capability through emergency rehearsal.

3. Patients with diabetes and families

(1) Daily education and training. It is recommended that all patients with diabetes should receive education and be familiar with first aid knowledge and skills, to increase the ability of self-rescue and mutual support.

(2) First aid preparedness. A waterproof and insulated first aid kit should be prepared including medical records, blood glucose test strips, oral hypoglycemic agents and insulin, insulin injection pens or syringes and needles, food in case of hypoglycemia, alcohol cotton balls or paper towels, emergency contacts and contact information, etc.

Part II. In the mid of a Disaster. Focus on rescue and treatment.

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(1) Disaster assessment. Rapid and accurate medical assessment is the basis for on-site medical rescue in disasters. It should include the key areas of rescue, geographical environment, equipment and resources needed, etc.

(2) Information Delivery. Provide prompt information to patients with diabetes. Contact the Red Cross and government agencies to identify the types of aids needed.

2. Medical institutions

(1) On-site treatment. It includes the assessment of the on-site first aid needs of acute complications of diabetes in disasters, such as diabetic ketoacidosis, HHS and severe hypoglycemia.

(2) Psychotherapy intervention. Psychological intervention should be carried out in disaster areas to reduce the acute stress response for patients with diabetes.

(3) Graded transport. The patients with diabetes should be classified according to the national unified deployment of on-site injury classification, and be transferred to different levels of hospitals for further treatment.

(4) Disease monitoring. For critically ill patients, blood glucose monitoring and acute diabetic complications should be monitored as soon as possible. Those patients with chronic complications should also be followed up.

3. Patients with diabetes and families

(1) Self-rescue. Patients' diseases may be aggravated due to disasters. Try to adhere to the use of conventional medicine and regular food as much as possible. Implement self management, including wound care, blood glucose, and blood pressure monitoring etc. If it is unable to do the self-rescue, try seeking help from family members and rescue teams.

(2) Family support. Family members should pay close attention to the status of patients with diabetes in disasters and assist patients to complete the basic management of diabetes as much as possible, such as blood glucose monitoring, insulin injection, wound care, etc. Also ensure the supply of food, water and other daily necessities.

Part III. After a disaster. Epidemic prevention and post-disaster reconstruction in disaster areas.

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The CDS working group should summarize and review problems of diabetes care response to disasters, to put forward suggestions for further improvement.

2. Medical institutions

(1) Medical support. Medical institutions should assess the health status of patients with diabetes suffering from natural disasters and provide long-term, continuous and comprehensive follow up. Follow up include medication treatment, diet and lifestyle suggestions, as well as psychological interventions.

(2) Psychological support. According to the evaluation results of psychosocial function, provide long-term psychological support in time to help diabetic patients recover from the disasters as soon as possible.

(3) Epidemic prevention in disaster areas. According to the unified deployment of the government, the national and local CDCs implement health and epidemic prevention in the following areas including post-earthquake environment, water source, and food safety, etc.

3. Patients with diabetes and families

(1) Self-management. Rebuild self-confidence for rapid recovery from the disaster. Restore daily self-management of diabetes as soon as possible. Actively interact with medical staff, to supplement inadequate diabetes medicine and seek psychological support.

(2) Family support. To provide comfortable living environment for patients with diabetes, and provide patients with regular diet and exercise support. Assist patients to solve difficulties regarding diabetes care.

(3) Post-disaster reconstruction. Actively participate in post-disaster reconstruction.

Appendix: List of preparedness items for patients with diabetes.

Emergency contact information.

Medical record and copy of prescription.

Insulin and oral hypoglycemic medicine for daily use.

Blood taking needle.

Blood glucose meter and strips.

Alcohol cotton ball/cotton pad.

Rapid-rising sugar food (eg, candy, glucose, fruit juice, etc.)