MODULE 3 HEAT ILLNESSES: Who Is at Risk & Why?

SESSION DURATION: 35–40 MINUTES

MODULE OVERVIEW:

This module introduces audiences to different groups that are more at risk for heat illnesses and explains why they are more at risk. Presenters are encouraged to use relevant slides from this module to customize their presentations to community audiences. For example, if the presenter is presenting to an audience of parents, they might use slide 11 (Infants and Children) and slide 15 (Outdoor Activities/Sports). However, presenters may also choose to use all of the slides where appropriate.

SLIDE I: Heat Illnesses: Who Is at Risk & Why?

PURPOSE: To introduce Module 3, which is focused on identifying who is more at risk for heat illnesses and why. Successfully conveying this information will help audiences be able to recognize whether they, their families, and members of their communities are more at risk. This knowledge is critical for increasing audience member awareness about who should take extra precautions during a heat wave and why. Presenters are therefore invited to use the below talking points but are also encouraged to frame the importance of these topics in terms they know will resonate strongly with their audiences.

KEY TALKING POINTS:

- I. This module is designed to help you understand who is more at risk for heat illnesses and why.
- 2. It's important to remember that heat illnesses can affect anyone, but there are some groups that are more at risk.
- 3. Understanding who is more at risk can help us to know who should take extra precautions or who we should check in on during a heat wave.

KEY TALKING POINTS

SLIDE 2: Objectives

PURPOSE: To introduce the objectives for Module 3 and to provide audience members with an overview of what they will learn. This is the Module 3 roadmap.

KEY TALKING POINTS:

- 1. This module has two objectives designed to help you understand who is more at risk for heat illnesses and why.
- 2. The two objectives are:
 - a. To learn which groups are more at risk for heat illnesses
 - b. To understand why those groups are more at risk
- 3. During this module, we will talk about each of these topics in detail.

KEY TALKING POINTS

SLIDE 3: Who Is More at Risk?

PURPOSE: To provide audiences with a basic overview of what groups are more at risk for heat illnesses before discussing each group (or certain groups chosen by the presenter) in more detail. Presenters who used the full Module 2 slides (Heat Illnesses: What Are They & How Do You Treat Them?) will have already shown audience members a list of who is most at risk, in which case, here it can be acknowledged that the list is being shown again.

KEY TALKING POINTS:

- 1. Like we've talked about before, heat illnesses can affect anyone, including people who consider themselves to be acclimatized! However, these groups are more at risk:
 - a. People who are unsheltered or unhoused
 - b. People with limited resources
 - c. People who experience social, cultural, or linguistic isolation
 - d. People with certain medical conditions
 - e. People taking certain medicines/medications
 - f. People with certain physical disabilities
 - g. Infants and children (<4)
 - h. People who are pregnant and/or nursing
 - i. Older adults (60+)
 - j. Outdoor workers
 - k. People who do outdoor activities/play outdoor sports

KEY TALKING POINTS

SLIDE 4: Conversation Starter

PURPOSE: This Conversation Starter is designed to create a break in the presentation and to help audiences start thinking critically about at-risk groups. Presenters may choose to ask audiences only to reflect on the question or to discuss it with the people around them and/or with the broader audience. Note that this Conversation Starter is optional. Presenters are also encouraged to create their own questions (or their own Conversation Starters at other points in the presentation) that they know will resonate strongly with their audiences.

KEY TALKING POINTS:

- I. Let's pause for a moment.
- 2. Choose one of the groups shown on the slide for discussion.
 - a. Why do you think that group is more at risk?
- 3. Would anyone like to share their ideas with the group?

KEY TALKING POINTS

SLIDE 5: Unsheltered or Unhoused

PURPOSE: This slide can be used in presentations where audience members include (or are likely to include) people who are unsheltered or unhoused, or others who work with them. The purpose of this slide is to help audiences understand why, specifically, people who are unsheltered or unhoused are considered more at risk for heat illnesses.

KEY TALKING POINTS:

- 1. People who are unsheltered or unhoused are especially at risk for heat illnesses because they may lack access to resources that are essential for staying cool, including:
 - a. Water
 - b. Shade
 - c. Air-conditioning (AC)
 - d. Transportation to public places with AC (e.g., cooling centers, shopping malls, libraries)
 - e. Ways to receive public health and emergency warnings (i.e., they may lack access to the internet or cell phones)

KEY TALKING POINTS

ADDITIONAL (OPTIONAL) INFORMATION:

What is a cooling center and are there any in San Diego County? A cooling center is a public, indoor, air-conditioned facility (often a library, community or senior center, school, or shopping mall) where anyone can go to cool off during hot summer days. Cooling centers are open to everyone and there is no cost. In San Diego County, the county libraries serve as cooling centers (called "Cool Zones"), and they are typically open between June 1st and October 31st. More information (including hours and locations) is available here: https://www.sandiegocounty.gov/hhsa/programs/ais/cool_zones/

SLIDE 6: Limited Resources

PURPOSE: This slide can be used in presentations where audience members include (or are likely to include) people who have limited resources, or people who work with resource-limited individuals or communities. The purpose of this slide is to help audiences understand why, specifically, people with limited resources are considered to be more at risk for heat illnesses.

KEY TALKING POINTS:

- 1. People who have limited financial resources are more at risk for heat illnesses because they may lack access to material and other resources that are essential for staying cool, including:
 - a. Air-conditioning (AC) or the money to pay electric bills
 - b. Transportation to public places with AC (e.g., cooling centers, shopping malls, libraries)
 - c. Housing that allows modification (e.g., addition of AC or shade awnings for renters)
 - d. Material resources (e.g., water or light-weight clothing) to cope with high temperatures
 - e. Ways to receive public health and emergency warnings (i.e., they may lack access to the internet or cell phones)

KEY TALKING POINTS

SLIDE 7: Isolation

PURPOSE: This slide can be used in presentations where audience members include (or are likely to include) people who are linguistically, culturally, and/or socially isolated, or people who work with them. The purpose of this slide is to help audiences understand why, specifically, people who are isolated are considered more at risk for heat illnesses.

KEY TALKING POINTS:

- 1. People who experience linguistic, cultural, and/or social isolation tend to be more at risk for heat illnesses.
- 2. With respect to linguistic isolation, language barriers or low literacy can limit access to or understanding of public health and emergency warnings.
- 3. With respect to cultural isolation, lack of familiarity with protection measures, or different cultural practices, can inhibit action.
- 4. With respect to social isolation, lack of a support system can prevent people from seeking or receiving help, especially if they have limited mobility (e.g., if they are homebound).

KEY TALKING POINTS

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SLIDE 8: Medical Conditions

PURPOSE: This slide can be used in presentations where audience members include (or are likely to include) people with certain medical conditions, such as diabetes, heart disease, and neurodegenerative disorders. The purpose of this slide is to help audiences understand why, specifically, people with certain medical conditions are considered more at risk for heat illnesses.

KEY TALKING POINTS:

- I. Certain medical conditions can affect the body's ability to maintain a normal temperature.
- 2. Examples include (but are not limited to):
 - a. Diabetes
 - b. Heart disease
 - c. Neurodegenerative disorders
- 4. If you have an existing medical condition, check with your doctor to learn if you are at risk.

KEY TALKING POINTS

ADDITIONAL (OPTIONAL) INFORMATION:

Why are people with diabetes more at risk for heat illnesses? Certain diabetes complications, like damage to blood vessels and nerves, can affect sweat glands and therefore the ability of the body to cool down. People with diabetes also dehydrate more quickly. Lastly, high temperatures can affect how the body uses insulin (meaning that a person with diabetes may need to test their blood sugar more often and adjust their insulin doses with what they eat and drink).

Why are people with heart disease more at risk for heat illnesses? Exposure to high heat puts increased strain on the heart and can lead to heat illnesses if the cardiovascular system fails to properly regulate internal body temperature.

Why are people with neurodegenerative disorders more at risk for heat illnesses? People with neurodegenerative disorders can have varying degrees of difficulty regulating body temperature and therefore may overheat more quickly.

Someone asked if mental health conditions make someone more at risk for heat illnesses. Tell them: Currently there is less research available on mental health conditions as a risk factor in comparison to other medical conditions. However, people with mental health conditions may be taking medicines/medications that can increase risk (e.g., certain brands of antidepressants or antipsychotics). Mental health conditions may also affect the ability of a person to think clearly and assess changes in the environment and body.

SLIDE 9: Medicines/Medications

PURPOSE: This slide can be used in presentations where audience members include (or are likely to include) people who take certain classes of medicines/medications, such as antidepressants, antihistamines, antipsychotics, antihypertensives, and diuretics (among others). The purpose of this slide is to help audiences understand why, specifically, people who take certain medicines/medications are considered more at risk for heat illnesses.

KEY TALKING POINTS:

- I. Certain medicines/medications can affect the body's ability to cool down.
- 2. Examples include, but are not limited to:
 - a. Antidepressants (medicine for depression and anxiety)
 - b. Antihistamines (medicine for allergies)
 - c. Antipsychotics (medicine for psychotic disorders, like schizophrenia)
 - d. Antihypertensives (medicine for high blood pressure)
 - e. Diuretics (medicine to increase urine production)
- 3. This does not apply to all brands of these medicines/medications.
- 4. If you take any medicines/medications, check with your doctor to learn if you are at risk.

KEY TALKING POINTS



I don't know how to answer that question. What do I do? Someone asked if a specific medicine/medication they are taking makes them more at risk for heat illnesses. Tell them: If you are taking any medicines/ medications, it is important for you to check with your doctor to know if you are at risk because he/she will be able to comment on your particular case. For example, your doctor will know what condition you have, what medicines/medications you are taking, and how you may be affected when exposed to heat.

SLIDE 10: Disabilities

PURPOSE: This slide can be used in presentations where audience members include (or are likely to include) people with certain disabilities and/or caretakers of people with certain disabilities. The purpose of this slide is to help audiences understand why, specifically, people with certain disabilities are considered more at risk for heat illnesses.

KEY TALKING POINTS:

- I. Certain disabilities can worsen during heat or interfere with cooling down. For example:
 - a. Some multiple sclerosis symptoms worsen in heat
 - b. Some spinal cord injuries prevent sweating
 - c. People with limited mobility may not be able to access place with AC (e.g., cooling centers, shopping malls, libraries)
- 2. Some visual impairments can impede access to public health and emergency warnings.
- 3. If you have a disability, check with your doctor to know if you are at risk.

KEY TALKING POINTS

ADDITIONAL (OPTIONAL) INFORMATION:

Why do some multiple sclerosis symptoms worsen in heat? Multiple sclerosis damages the protective sheath around nerve cells in the brain and spinal cord. This slows down nerve signals, so the body does not always respond to stimuli the way it should. Heat can slow down these signals even more, causing symptoms like fatigue and pain to flare up.

Why do some spinal cord injuries prevent sweating? The part of the brain that controls sweating is the hypothalamus. If that part of the brain is affected by injury or stroke, it can impact the ability to sweat.

I don't know how to answer that question. What do I do? Someone asked if a specific disability they have makes them more at risk for heat illnesses. Tell them: If you have a disability, it is important for you to check with your doctor to know if you are at risk because he/she will be able to comment on your particular case. For example, your doctor will know what disability you have, what (if any) medicines/medications you are taking, and how you may be affected when exposed to heat.

SLIDE II: Infants & Children (<4 years of age)

PURPOSE: This slide can be used in presentations where audience members include (or are likely to include) parents or caretakers of infants and/or young children. The purpose of this slide is to help audiences understand why, specifically, infants and young children are considered more at risk for heat illnesses.

KEY TALKING POINTS:

- I. There are several reasons why infants and young children are more at risk for heat illnesses.
 - a. They overheat quickly.
 - b. They dehydrate quickly.
 - c. They sweat less.
 - d. Also, they may not be able to communicate symptoms (e.g., in the case of babies and small children).

KEY TALKING POINTS

ADDITIONAL (OPTIONAL) INFORMATION:

Why do children overheat quickly? Compared to adults, babies and children have higher metabolic rates and so generate more heat relative to body mass during activity, such as walking or running.

Why do children dehydrate quickly? Compared to adults, babies and children have a greater need for baseline fluids due to their higher metabolic rates. They also have higher evaporative loss of water due to their higher body surface area per pound of weight. Babies and children can also lose a lot of water from vomiting and diarrhea when they are sick.

Why do children sweat less? Humans have three different types of sweat glands: eccrine, apocrine, and apoeccrine. Apocrine sweat glands are not activated until hormonal changes of puberty.

SLIDE 12: Pregnant and/or Nursing

PURPOSE: This slide can be used in presentations where audience members include (or are likely to include) people who are pregnant and/or nursing, or families. The purpose of this slide is to help audiences understand why, specifically, people who are pregnant and/or nursing, are considered more at risk for heat illnesses.

KEY TALKING POINTS:

- 1. There are several reasons why people who are pregnant and/or nursing are more at risk for heat illnesses.
 - a. Their bodies have to work harder to cool both the pregnant person and the baby.
 - b. They are more likely to become dehydrated.
 - c. Heat exhaustion and heat stroke can occur more quickly.

KEY TALKING POINTS

ADDITIONAL (OPTIONAL) INFORMATION:

Why are people who are pregnant and/or nursing more likely to become dehydrated? Pregnancy places additional demands on the body and requires more water. For example, water plays an important role in helping to form the placenta and amniotic sac. Symptoms of morning sickness, like vomiting and diarrhea, also cause water loss. Water is also lost through nursing.

Why can heat exhaustion and heat stroke occur more quickly in people who are

pregnant and/or nursing? Heat exhaustion and heat stroke can occur more quickly in people who are pregnant because their bodies have to work harder to cool down both themselves and the baby. People who are pregnant and/or nursing may also feel hotter and sweat more because of hormone changes taking place in the body associated with pregnancy/nursing.

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SLIDE 13: Older Adults (60+)

PURPOSE: This slide can be used in presentations where audience members include older adults and/or caretakers of older adults. The purpose of this slide is to help audiences understand why, specifically, older adults are considered more at risk for heat illnesses. Here, "older adult" is defined as anyone 60 years or older.

KEY TALKING POINTS:

- I. There are several reasons that older adults are more at risk for heat illnesses.
 - a. Their bodies don't cool down as easily.
 - b. They are more likely to have an existing medical condition that affects the body's ability to maintain a normal temperature.
 - c. They are more likely to take medicines/medications that affect the body's ability to cool down.
 - d. Also, they may be homebound or have limited ability for accessing public places with airconditioning (e.g., cooling centers, shopping malls, libraries).

KEY TALKING POINTS

ADDITIONAL (OPTIONAL) INFORMATION:

Why do the bodies of older adults not cool down as easily? As a person ages, the body's natural cooling mechanisms become less effective. For example, they have decreased cardiac function, meaning that they are not able to send as much blood to the skin (vasodilation). They also have less body water content, meaning that they become dehydrated more easily.

Why are older adults more likely to have an existing medical condition that affects the **body's ability to maintain a normal temperature?** Aging increases the risk of medical conditions, including some that may affect the body's ability to maintain a normal temperature. Examples of these medical conditions include (but are not limited to) diabetes, heart disease, and neurodegenerative disorders.

Why are older adults more likely to take medicines/medications that affect the body's ability to cool down? Older adults are more likely to take medicines/medications because they are more likely to have existing medical conditions. Examples of these medicines/medications include (but are not limited to) <u>some</u> antihypertensives (i.e., medicine for high blood pressure) and diuretics ((i.e., medicine to increase urine production).

I don't know the answer to that question. What do I do? Someone asked if an older adult who is experiencing dementia is more at risk for heat illnesses. Tell them: An older adult who is experiencing dementia may have trouble processing information about heat illnesses and remembering what actions to take to stay cool (or to prevent heat illnesses), and therefore should be considered high risk. In this case, it may be important to consult with a medical professional about how best to help the older adult manage their risk for heat illnesses. I don't know the answer to that question. What do I do? Someone asked if caretakers of older adults are more at risk for heat illnesses if they spend time in homes where there is no AC, or where the AC is not used. Tell them: Anyone who lacks access to AC or who stays indoors where the AC is not used on a hot day may be increasing their risk for heat illnesses. Caretakers of older adults who find themselves in this position are advised to (1) consult directly with their employers, and (2) take extra precautions for preventing heat illnesses when in homes where AC is absent or not used.

SLIDE 14: Outdoor Workers

PURPOSE: This slide can be used in presentations where audience members include (or are likely to include) people who work outdoors and/or supervisors of outdoor workers. The purpose of this slide is to help audiences understand why, specifically, people who work outdoors are considered more at risk for heat illnesses.

KEY TALKING POINTS:

- 1. There are several reasons why people who work outdoors like in construction, transportation, agriculture, and road maintenance are more at risk for heat illnesses.
 - a. Physical activity increases body temperature.
 - b. Working on a hot day can make it harder for the body to get rid of extra heat, especially if it's humid.
 - c. Outdoor workers are often exposed to heat throughout the day and may lack shade during breaks/lunch.
 - d. New workers may not be acclimated to heat.
 - e. Not drinking enough fluids during the day can lead to dehydration.
 - f. Heavier, darker colored, and less breathable work clothing traps heat.

KEY TALKING POINTS

ADDITIONAL (OPTIONAL) INFORMATION:

Do outdoor workers have rights and protections with respect to heat? Yes, the State of California (under the Division of Occupational Safety and Health, commonly known as Cal/OSHA) has specific laws governing occupational heat exposure. In brief, employers are required to: 1) train all employees and supervisors about heat illness prevention; 2) provide a certain amount of available fresh water for each employee; 3) provide access to shade and encourage employees to take breaks; and 4) develop and implement written procedures for complying with the Cal/OSHA Heat Illness Prevention Standard. More information is available here: https://www.dir.ca.gov/dosh/heatillnessinfo.html.

Are indoor workers also more at risk for heat illnesses? Not all indoor workers are more at risk. However, people who work indoors in hot environments, such as bakeries, restaurant kitchens, boiler rooms, and factories can be more at risk, especially if measures are not taken to keep those environments cool and if workers are not given adequate water and breaks.

SLIDE 15: Outdoor Activities/Sports

PURPOSE: This slide can be used in presentations where audience members include (or are likely to include) people who engage in outdoor activities (e.g., hiking), or outdoor sports (e.g., soccer), or coaches of youth athletics. The purpose of this slide is to help audiences understand why, specifically, people who do outdoor activities or play outdoor sports are considered more at risk for heat illnesses.

KEY TALKING POINTS:

- 1. There are several reasons why people who do outdoor activities or play outdoor sports are more at risk for heat illnesses.
 - a. Exercising increases body temperature.
 - b. Exercising on a hot day can make it harder for the body to get rid of extra heat, especially if it's humid.
 - c. Not drinking enough fluids during outdoor activity/sport can cause dehydration.
 - d. Also, synthetic turf fields can become superheated on warm, sunny days.

KEY TALKING POINTS

SLIDE 16: Conversation Starter

PURPOSE: This Conversation Starter is designed to create a break in the presentation and to help audiences think critically about the potential for a person to be in more than one at-risk group. Presenters may choose to ask audiences only to reflect on the question or to discuss it with the people around them and/or with the broader audience. Note that this Conversation Starter is optional. Presenters are also encouraged to create their own questions (or their own Conversation Starters at other points in the presentation) that they know will resonate strongly with their audiences.

KEY TALKING POINTS:

- 1. Let's pause for a moment to think about this question, and feel free to discuss it with the people around you.
 - a. Can a person be in more than one at-risk group? If so, what are some examples?
- 2. Would anyone like to share their ideas with the group?

KEY TALKING POINTS

SLIDE 17: Summary

PURPOSE: To reinforce the objectives of this module by highlighting key takeaways.

KEY TALKING POINTS:

- I. As we conclude this module, remember these three key takeaways:
 - a. Heat illnesses can affect anyone, but some groups are more at risk.
 - b. A person can be in more than one at-risk group.
 - c. People in at-risk groups should take extra precautions to prevent heat illnesses.

KEY TALKING POINTS

SLIDES 18–20: Module 3 Templates

PURPOSE: These Module 3 slide templates are included so that presenters can add additional information in the presentation that they consider important for audiences to know. For example, if a presenter is aware of local community resources for at-risk groups, they could create a "Community Resources Slide" and list those resources in the body of the template. If a presenter needs more templates, they can simply copy those provided here.

