

Version	Date	Comments / Changes
1.0	July 2022	Initial Clinical Practice Guideline Released

1. FOCUS

To provide guidelines for staff to prevent, identify, and care for residents with heat-related illness in Long-Term Care (LTC) homes.

This clinical practice guideline and its related resources are highly recommended for Assisted Living providers to use as reference.

Licensing Requirements

Each LTC home will have a plan in place to provide comfort and safety to all residents and staff in LTC in the event of a prolonged period of heat. This heat response plan must include standard, escalated and emergency measures and any implementation instructions required.

1. Indoor room temperature:

- Measurement of indoor room temperature is required by licensing between May 1 – September 30 or any day where exterior temperature exceeds 22 °C
- Measure more frequently if temperature may approach or exceed 26 °C or in event of heat alert
- Keep indoor temperature logs on file for licensing review

2. BACKGROUND

Climate change has increased the frequency and severity of heat waves. A large number of residents of LTC homes are at increased risk for heat-related illness during heat waves, due to their increased age and health conditions.

Evidence-based literature demonstrates that as ambient temperatures increase above a threshold value, morbidity and mortality also increase. As climate change continues to progress, extreme heat events are projected to increase in frequency. Thus, it is imperative that as healthcare practitioners, we recognize the signs and symptoms of heat-related illness in older adults, as well as develop tools to prevent and manage it. Heat-related illnesses occur when the body gains heat faster than it can cool itself down, resulting in symptoms of weakness, disorientation, and exhaustion. In severe cases, it can lead to heat stroke, also known as sunstroke. Heat stroke is a life-threatening medical emergency. Heat-related illnesses can almost always be prevented and are often exacerbated by decreased hydration ^(1, 2, 3, 4).

3. DEFINITIONS

Dehydration occurs when the body contains an insufficient amount of water and electrolytes to carry out its normal functions. The process of water loss occurs via urine, sweat, feces, and respiratory vapor; this process reduces total body water ^(4, 5, 6).

Heat rash, also known as prickly heat, is a skin irritation caused by excessive sweating with exposure to hot, humid weather. Sweat glands may become clogged with sweat trapped beneath the skin surface and unable to evaporate causing mild inflammation or a rash ^(4, 5, 6).

Heat cramps are muscle pains or spasms. Excessive sweating depletes the body's salt and moisture. The low salt level in the muscles causes painful cramps ^(4, 5, 6).

Heat exhaustion is a milder form of heat-related illness that can develop after several days of exposure to high temperatures and inadequate or unbalanced replacement of fluids. Core body temperature is less than 40.5 °C (4, 5, 6).

Heat stroke is the most serious heat-related illness. It occurs when the body becomes unable to control its temperature. The body temperature rises rapidly when the sweating mechanism fails and the body is unable to cool down. Core body temperature is equal or exceeds 40.5 °C (4, 5, 6).

4. EXPECTED OUTCOMES

- LTC home leadership will ensure:
 - staff, residents, families, and visitors are familiar with this decision support tool, the plans and procedures relating to hot weather prevention and management
 - a consistent application of this clinical practice guideline
- Staff are aware that they are also at risk of heat-related illness and are equipped with tools to stay healthy in the heat. Staff should report to their supervisors if they are experiencing any signs and symptoms of heat-related illness.
- Residents are assessed for risk of heat-related illness, care plans are developed and interventions are followed.

5. ASSESSMENT

A. Risk Identification:

While all older adults are at risk during heat events, there are some who are at higher risk during heat events. We recommend using the criteria below [i.e., resident factor(s) and environmental factor(s)] to identify those who are at the higher risk.

Evaluation of Resident's Risk Identification:

- All residents' risk identification is to be assessed and evaluated via [Resident Assessment Instrument \(RAI\) MDS 2.0](#) on move in, at least quarterly and when any significant changes
- Any resident identified as being identified at risk:
 - will have their goals of care reviewed and all documentation and the Care Plans are to be updated
 - a site specific communication system and process is to be developed to flag residents at risk, i.e., sunshine sticker to be placed on resident's chart and resident's room

I. Resident's factor(s) (1, 2, 3, 4)

- Age 65 and above
- Cognitive losses: dementia, depression or other mental health conditions
- Functional/cognitive losses impacting ability to move to a cooler area or obtain fluids independently
- Previous heat stroke
- Specific chronic conditions: heart disease, diabetes, respiratory or renal insufficiency, Parkinson's disease, obesity, dysphagia and skin disorders that impact sweating
- Medications that cause dehydration or reduce heat dissipation: anticholinergics, vasoconstrictors, antihistamines, diuretics, antihypertensive and psychoactive drugs
- Residents on current isolation precautions in their room

II. Environmental factor(s) (1, 2, 3, 4)

- Resident room is exposed to sunshine
- Room has little circulating air
- Room has lack of cooling system
- Resident clothing is too heavy and dark for the weather

B. Recognizing signs and symptoms of heat-related illness:**I. Signs and Symptoms of Dehydration** ^(3, 4, 5, 6)

- Dry mucous membranes, cracked lips, furrowed tongue, and decreased salivation, mouth odour
- Difficulty speaking
- Skin colour, temperature, sensation
- Decrease in skin wound healing, new skin breakdown areas
- Weakness, fatigue, dizziness
- Change in mental status and change in behaviours
- Rapid weight loss
- Rapid pulse
- Decrease in orthostatic blood pressure
- Decreased urine output
- Constipation
- Decrease in ability to feed self and decrease in swallowing abilities
- Urine colour (dark yellow)
- Recent fever, delirium, vomiting ⁽²⁾
- See [SBAR - Dehydration - Long-Term Care - Form \(Appendix A\)](#)

II. Signs and Symptoms Heat Exhaustion ^(3, 4, 5, 6) (If left untreated, in the presence of ongoing heat, heat exhaustion can worsen and become heat stroke):

- Resident core body temperature is less than 40.5 °C
- Anxiety, confusion
- Postural hypotension, dizziness and light-headedness
- Headache
- Cutaneous flushing (hot, red skin)
- Muscle cramps / spasms
- Sweating present
- Nausea, vomiting
- Tachycardia

III. Signs and Symptoms Heat Stroke ^(3, 4, 5, 6) **Medical Emergency**

- Resident core body temperature is equal or exceeds 40.5 °C
- Delirium, hallucination, confusion
- Agitation
- Seizures
- Loss of consciousness
- Lack of sweating (dry armpits)
- Tachycardia and cardiac arrhythmia
- Shock
- Tachypnea
- Hot, red, dry skin
- In later stage: pulmonary edema, hepatic failure, renal failure, disseminated intravascular coagulopathy (DIC), rhabdomyolysis (muscle fiber breakdown) and death

See [Identification and Management of Heat-Related Illnesses \(Appendix B\)](#)

6. INTERVENTION (3, 4, 5, 6, 7)

- All staff to:
 - Monitor fluid intake and observe for changes that put residents at risk for heat-related illness and report to nurse when identified
 - Fluids are to be offered in an easily held, sturdy, cup throughout the day, before, during and after meals; before or after toileting; while giving medications, during family visits, recreational activities, before settling for a nap or bed and during the night if the person awakens
 - Water is the first fluid of choice, then fruit and vegetable juices, milk, soft drinks or gelatin, coffee and tea
 - Identify fluids preferred by the resident, the temperature they prefer, and how they like them presented and build these facts into their daily schedule
 - Volunteers and care providers should check with the professional staff or unit system which says which residents can have what type of fluids before giving fluids
 - All staff are aware of their site specific heat response plan (i.e. at huddles / staff shift change) and to ensure and implement the following interventions during heat alert:
 - Encourage resident to wear loose, lightweight cotton clothing
 - Provide additional fluids around the clock particularly water and juices, in various forms such as popsicles (when possible, non-caffeinated fluids are preferred)
 - Provide cool foods high in water content, such as fruits and salads
 - Ensure residents are in the coolest parts of the care home during the day
 - Encourage residents to enjoy outside areas in the early morning or in the evening and if going outside stay in the shade and wear sun protection
 - Move outdoor visits to indoor visits, or reschedule a visit at another time
 - Ensure residents are wearing weather appropriate clothing
 - Only use thin sheets on residents when in bed
 - Resident should be checked in regularly
 - Apply appropriate product if a heat rash is noted
 - Treat sunburn with cool compresses and aloe based products
 - Keep resident cool: use cool water to sponge or bath, soak hands with a wet cloth to put on neck and/or armpits, spray skin while fanning
 - When resident is in bed during the day, ensure:
 - they are able to stay cool by shielding them from direct sun e.g. draw curtains
 - they are wearing weather appropriate clothing and only using thin sheets when in bed
 - to check in regularly
- Nurse to:
 - Monitor residents for signs and symptoms of heat-related illness
 - Notify Most Responsible Prescriber (MRP) as soon as possible if resident has any signs and symptoms of heat-related illness and ensure the cooling measures are started
 - Ensure all residents' goals of care are up to date
 - Promote maintenance of resident's hydration status:
 - Monitor and stabilize chronic diseases
 - Review medication profile for health benefits with MRP & pharmacist
 - Clearly identify if resident is able to feed self or requires assistance. If assistance is required to feed then appropriate persons are available e.g. to set up tray, family/volunteer to cue and encourage, facility staff to guide utensils or to feed
 - Mouth care provided in AM, PM and if indicated before meals
 - Clearly identify residents with dysphagia:
 - For a resident on thickened fluid diet, consider further dysphagia assessment to develop an individualized care plan to support provision of supplementary thin fluids

- To minimize risk for aspiration pneumonia ensure thorough mouth care is given prior to offering water
 - When there is concern for a resident's hydration status:
 - Have all care providers and visitors record the consumed amounts on a Fluid Intake
 - Complete intake and output sheet for 3 days and develop an individualized Care Plan
 - Residents with volume overload disorders (heart failure, cirrhosis, nephrotic syndrome):
 - Require a conservative fluid replacement plan which will be individually determined by the interdisciplinary care team
 - Residents who are NPO and/or have a feeding tube:
 - Require an individualized care plan determined by the interdisciplinary care team, i.e., dietitian and/or MRP
 - For resident with signs and symptoms of dehydration, complete the [SBAR - Dehydration - Long-Term Care - Form \(Appendix A\)](#) and fax it to MRP
 - Manage pain at a tolerable level so resident is comfortable while drinking and eating
 - Review medications with MRP or pharmacist
 - If a heat rash is noted, apply appropriate product
 - Treat sunburn with cool compresses and proper skin products
- Leadership to:
 - Implement heat event interventions to maintain a cool environment in the care home:
 - Complete recommended activities that are identified via your heat event interventions tool

7. DOCUMENTATION

- Staff observe and document all residents for signs and symptoms of heat-related at each encounter and document the unusual findings
- The resident's care plan will reflect:
 - risk status of heat-related illness
 - heat-related illness interventions and evaluation dates
 - hydration interventions and evaluation dates
- Documentation should include:
 - Resident risk factors for heat-related illness
 - Residents at high risk are identified and documented on the chart
 - Document baseline criteria (e.g. core body temperature, vitals)
 - Individualized cooling and hydration interventions for residents as risk are included in the care plan / care guide
 - Signs and symptoms of heat-related illness illnesses (see assessment section for signs and symptoms), interventions implemented and response
 - Residents at risk are flagged using site specific identification process Site specific identification process of residents with a high risk status
 - Indicate if residents' rooms exceeds recommended temperatures and what mitigation measures have been implemented

8. EDUCATION

- Educate (or refresh) staff annually on signs and symptoms of heat illnesses: dehydration, heat cramps, heat exhaustion, and heat stroke
- Ensure staff are aware and follow heat-related illness signs and symptoms, prevention and management
- Ensure staff are aware of the care home heat plan and the responses

9. EVALUATION

- Each LTC home will have a plan in place to provide comfort and safety to all residents and staff in LTC in the event of a prolonged period of heat
- LTC home leads / managers ensure all staff have reviewed this decision support tool and are aware of the site heat plan recommendations.
- Staff are aware of signs and symptoms of heat-related illnesses: heat rash, heat cramps, heat exhaustion and heat stroke
- Staff are trained to identify, manage, and prevent heat-related illness
- Staff observe all residents for signs and symptoms of heat stroke, etc. at each encounter
- Effective cooling interventions are included in the residents' care plans
- Care home staff will conduct ongoing review of clinical management for residents at high risk
- Care home has a process in place for staff to notify MRP when residents are experiencing signs and symptoms of heat-related illness
- Staff are aware that heat stroke is a medical emergency and requires immediate action to cool resident to below 39 °C. If resident has signs and symptoms of heat stroke, staff notify MRP as soon as possible and discuss need for further interventions based on residents' goals of care

10. MONITORING

- Assessment, management and documentation of resident risk assessment is completed
- Heat-related care plans are developed and re-evaluated on a quarterly basis

11. RELATED RESOURCES

- [Advance Care Planning - Adult - Living with Life Limiting Conditions - Clinical Protocol](#)
- [Challenging Responsive Behaviours: Adult - Identification and Management, Acute Care - Clinical Practice Guideline](#)
- [Constipation Management - Long-Term Care - Pre-Printed Order](#)
- [Delirium Clinical Decision Making Guide \(CDMG\) - Form](#)
- [Dementia Observation System \(DOS\) - Long-Term Care - Form](#)
- [Hypodermoclysis - Long Term Care - Clinical Protocol](#)
- [Integrating a Palliative Approach to Care - Long-Term Care - Clinical Practice Guideline](#)
- [PIECES Assessment Worksheet](#)
- [Urinary Tract Infection: Prevention, Diagnosis, and Management, Residential Care - Clinical Protocol](#)
- [Urinary Tract Infection: Prevention, Diagnosis, and Management, Residential Care - Clinical Protocol \(Appendix H: Hydration\)](#)

Heat Resources:

- [HealthLinkBC - Beat the Heat](#)
- [HealthLinkBC - Heat-related Illness](#)
- [Public Weather Alerts for British Columbia - Environment Canada](#)
- [WeatherCAN - Canada.ca](#)

12. REFERENCES

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2. Armstrong L, Grandjean, A. Hydration and health promotion. Journal of the American College of Nutrition. 2007. 26(5).
3. Benjamin O. Ross J. A Comparison of heat wave response plans from an aged care facility perspective. International perspectives. 2022. 79(8)

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5. HealthlinkBC. Heat-related Illness. 2021. Available from: [Heat-related Illness | Health Link BC](#)
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7. Health Canada. Health Facilities Preparation for Extreme Heat: Recommendations for Retirement and Care Facility Managers. 2020. Available from: https://www.canada.ca/content/dam/hc-sc/migration/hc-sc/ewh-semt/alt_formats/hecs-sesc/pdf/pubs/climat/health_facilit_instal_sante/health_facilit_instal_sante-eng.pdf

13. APPENDICES

[Appendix A: SBAR - Dehydration - Long-Term Care - Form](#)

[Appendix B: Identification and Management of Heat-Related Illnesses](#)

Appendix A: [SBAR - Dehydration - Long-Term Care - Form](#)

**SBAR – Dehydration
Long-Term Care**


Form ID: NUAS107614A

New: July 08, 2022

Page: 1 of 2

Date: _____	Time: _____	Writer's Name: _____
Writer's Contact Information: _____		Writer's Signature: _____
Site: _____	Neighborhood: _____	Fax Number: _____
Resident's allergies: _____		
Resident's Age: _____ Weight: _____ MOST: _____ SDM Name and Number: _____		
Prescriber's Name and Fax Number: _____		
Situation	_____ has signs and symptoms of dehydration (name of resident)	
Background	RR: _____ Temp: _____ BP: _____ O2 sat: _____ Pulse: _____	
	Admission Weight (kg): _____ Current Weight (kg): _____	
	Fluid intake and output over the last 3 days:	
	Date	Intake (mL)
	Resident has history of: <input type="checkbox"/> Dysphagia <input type="checkbox"/> Congestive Heart Failure <input type="checkbox"/> Chronic Renal Disease <input type="checkbox"/> Malnutrition <input type="checkbox"/> Nursing Interventions that have been initiated: _____ _____	
Assessment	The resident has the following signs or symptoms of dehydration: <input type="checkbox"/> Cracked lip and/or dry skin and/or poor skin turgor at clavicle <input type="checkbox"/> Complains of thirst and/or has increased requests for fluids <input type="checkbox"/> Loss of appetite <input type="checkbox"/> Dizziness/vertigo <input type="checkbox"/> Increased confusion, lethargy and/or change in level of consciousness <input type="checkbox"/> Decreased blood pressure <input type="checkbox"/> Increased pulse <input type="checkbox"/> Decreased urine output <input type="checkbox"/> Urine colour (dark yellow) <input type="checkbox"/> Complains of nausea, vomiting and/or diarrhea <input type="checkbox"/> Other: _____	
(Nurse's Recommendation)	Resident has signs and symptoms of dehydration, which started on _____ Resident requires: <input type="checkbox"/> Lab tests <input type="checkbox"/> Hypodermoclysis <input type="checkbox"/> Other: _____	

Note: This screenshot may not reflect the latest version of this form.

**SBAR – Dehydration
Long-Term Care**

Page: 2 of 2

The SBAR framework provides a consistent, organized structure when communicating resident information with the Most Responsible Practitioner (MRP).

Use this SBAR to communicate signs of resident dehydration with the MRP.

S = Situation

Resident has signs and symptoms of dehydration

B = Background

Add the resident clinical background information in relation to dehydration

A = Assessment

Document your assessment

R = Recommendation

Ask for recommendations to manage resident's dehydration

Please enter the requested information and upon completion:

1. Fax the completed dehydration SBAR to MRP
2. After faxing, if no reply within 4 to 6 hours, call the MRP

Note: This screenshot may not reflect the latest version of this form.

Appendix B: [Identification and Management of Heat-Related Illnesses](#)

Definitions	Signs & Symptoms	Prevention & Interventions
Dehydration		
<p>Dehydration occurs when the body contains an insufficient amount of water and electrolytes to carry out its normal functions. The process of water loss occurs via urine, sweat, feces, and respiratory vapor; this process reduces total body water.</p>	<ul style="list-style-type: none"> • Dry mucous membranes, eyes and mouth • Cracked lips, furrowed tongue, • Decreased salivation, unusual mouth odour, difficulty speaking • Poor skin turgor, decrease in skin wound healing • Change in mental status and change in behaviours • Weakness, fatigue, dizziness, delirium • Decreased urine output, dark urine colour (dark yellow) • Rapid weight loss • Rapid pulse • Decrease in orthostatic blood pressure • Constipation • Decrease in ability to feed self and decrease in swallowing abilities • Recent fever, vomiting 	<p style="text-align: center;">Check On Residents Regularly!</p> <ul style="list-style-type: none"> ➤ Nurse to complete the SBAR Dehydration - Long-Term Care - Form, fax it to MRP. If not hearing back from MRP after 4 to 6 hours, nurse to call MRP. ➤ Ensure following cooling measures are started: <p>Fluids and Food</p> <ul style="list-style-type: none"> • Monitor fluid intake and output • Offer fluids throughout the day - provide additional fluids around the clock particularly water and juices <ul style="list-style-type: none"> ○ Water is the first fluid of choice, then fruit and vegetable juices, milk, soft drinks or gelatin, popsicles, coffee and tea • When there is concern for a resident's hydration status: <ul style="list-style-type: none"> ○ Have all care providers and visitors record the consumed amounts on a fluid intake sheet ○ Complete the Fluid Intake - Long-Term Care - Form for 3 days and develop an individualized care plan • Residents with volume overload disorders (heart failure, cirrhosis, nephrotic syndrome) require a conservative fluid replacement plan which will be individually determined by the interdisciplinary care team • Residents who are NPO and/or have a feeding tube require an individualized care plan • Provide cool foods high in water content, such as fruits and salads <p>Clothing</p> <ul style="list-style-type: none"> • Encourage resident to wear weather appropriate clothing (i.e., loose, lightweight cotton clothing) <p>Environment and cooling strategies</p> <ul style="list-style-type: none"> • Encourage residents to enjoy outside areas in the early morning or in the evening and stay in the shade and wear sun protection • Move outdoor visits to indoor visits, or reschedule a visit at another time

Definitions	Signs & Symptoms	Prevention & Interventions
		<ul style="list-style-type: none"> • Ensure residents are in the coolest parts of the care home during the day • Keep resident cool: use cool water to sponge or bath, soak hands with a wet cloth to put on neck and/or armpits, spray skin while fanning • When resident is in bed during the day, ensure: <ul style="list-style-type: none"> ○ they are able to stay cool by shielding them from direct sun e.g. draw curtains ○ they are wearing weather appropriate clothing ○ only use thin sheets on residents when in bed
Heat Exhaustion		
<p>Heat exhaustion can develop after several days of exposure to high temperatures and inadequate or unbalanced replacement of fluids. Core body temperature is less than 40.5 °C.</p>	<ul style="list-style-type: none"> • Resident core body temperature is less than 40.5 °C • Anxiety, confusion • Postural hypotension, dizziness and light-headedness • Headache • Cutaneous flushing (hot, red skin) • Muscle cramps / spasms • Sweating present • Nausea, vomiting • Tachycardia 	<p style="text-align: center;">Act Quickly!</p> <p>If left untreated, in the presence of ongoing heat, heat exhaustion can worsen and become heat stroke.</p> <ul style="list-style-type: none"> • Call MRP • Provide hydration and encourage frequent sips of cool water • Move to cooler space • Cool the resident with cold compresses or have residents wash their head, face, and neck with cold water • Consider initiating the Hypodermoclysis in Long-Term Care - Clinical Protocol and Hypodermoclysis in Long-Term Care - Pre-Printed Order
Heat Stroke		
<p>Heat stroke is the most serious heat-related illness. It occurs when the body becomes unable to control its temperature. The body temperature rises rapidly when the sweating mechanism fails and the body is unable to cool down. Core body temperature is equal or exceeds 40.5 °C.</p>	<ul style="list-style-type: none"> • Resident core body temperature is equal or exceeds 40.5 °C • Delirium, hallucination, confusion • Agitation • Seizures • Loss of consciousness • Lack of sweating (dry armpits) • Tachycardia and cardiac arrhythmia • Shock • Tachypnea • Hot, red, dry skin • In later stage: pulmonary edema, hepatic failure, renal failure, DIC, rhabdomyolysis (muscle fiber breakdown) and death 	<p style="text-align: center;">Medical Emergency!</p> <ul style="list-style-type: none"> • Call 911 and MRP • Do NOT give ORAL fluids if the resident has a decreased level of consciousness due to an aspiration/choking risk • Use cooling strategies to help lower body temperature <ul style="list-style-type: none"> ○ Move resident to a shaded and cool area. Place cold wet cloths or ice on the head, neck, armpits, and groin; or soak the clothing with cool water ○ Circulate the air around the resident to speed cooling