

### Scenario Overview

The environment exposure scenario simulates the physiology of an adult woman who is exposed to cold weather long enough to develop hypothermia. This scenario highlights the ability of the BioGears® physiology engine to simulate physiology when the body is exposed to an abnormal environment.

Base Physiology	Insults and injuries	Assessments	Interventions
A 17 year old female with no prior history.	Cold weather exposure	Core Temperature Skin Temperature Heart Rate Respiration Rate	Removal from environment Active heating Increase clothing

### Scenario Narrative

Segment 0	Engine initialization period.
Segment 1	A 17 year old female leaves her Alaskan home in the middle of winter to retrieve a newspaper. She is wearing heavy pajamas and a robe. The woman is only going to the end of the driveway to retrieve the newspaper, so she decides not to put on extra clothing. As she exits the house and the door closes, she realizes that the door handle is locked and the keys are inside.
Segment 2	The young woman is stuck outside on a cold Anchorage morning. The temperature outside is -10 degC. She is stuck outside for about 45 minutes.
Segment 3	The woman's housemates realize that she is outside. They bring her in and sit her next to the fire. They also bring her coats and blankets. Although hypothermia had begun, the woman seems to improve with the active heating and additional clothing, so the housemates decided to continue the day as normal.

### References

#### Publications:

- 1 Herman, Irving P. *Physics of the Human Body* Pg. 345
- 2 Mallet, M. L. "Pathophysiology of Accidental Hypothermia." *Qjm* 95.12 (2002): 775–785. Print.
- 3 Reuler, James. "Hypothermia: Pathophysiology, Clinical Settings, and Management." *Annals of Internal Medicine* 89.4 (1978): 519–527. Print.
- 4 Williams, A B. "Rewarming of Healthy Volunteers after Induced Mild Hypothermia: A Healthy Volunteer Study." *Emergency Medicine Journal* 22.3 (2005): 182–184. CrossRef. Web.

#### SMEs:

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### Key

	Good Agreement with data/trends
	Agreement with most trends, some deviations from validation data/trends
	Some major disagreements with validation data/trends

