



## Pressure ulcer prevention and treatment:

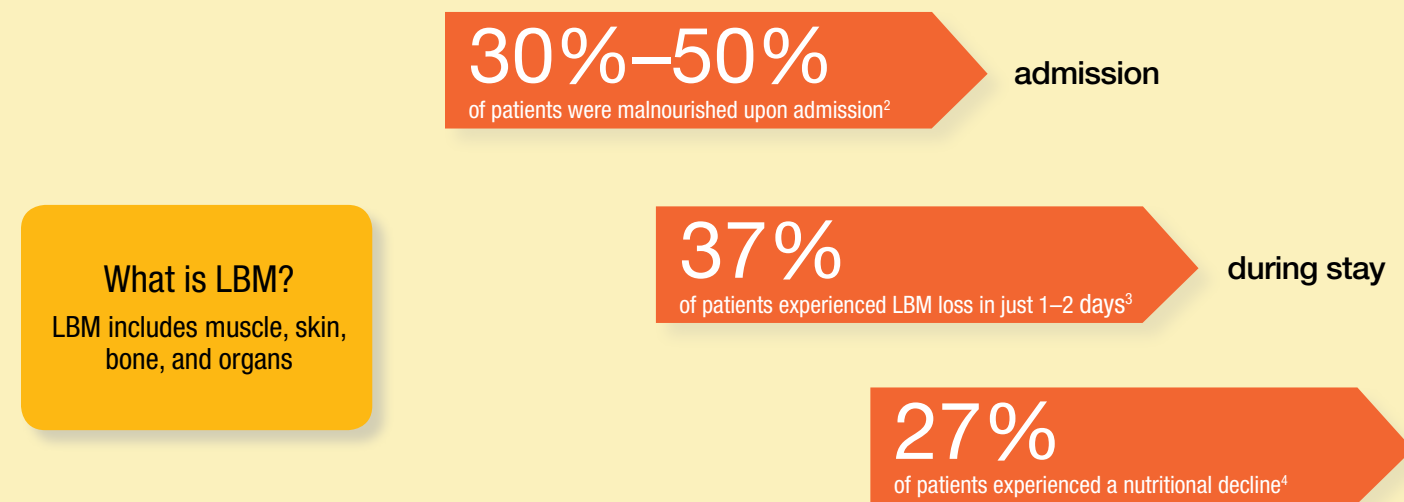
The relationship between lean body mass, nutrition, and healing



Nutrition is a key part of comprehensive care and pressure ulcer prevention and treatment

## Patients who are malnourished or who have low LBM are at increased risk for complications, including pressure ulcers<sup>1,3,7</sup>

Lean body mass (LBM) loss and malnutrition start prior to admission and accelerate through the continuum of care<sup>2-4</sup>



Complications increase with greater LBM loss and poor nutrition<sup>1\*</sup>

% Loss of Total LBM	Complications
10%	Impaired immunity, <b>increased infection</b> , mortality increased by 10%
20%	<b>Decreased healing</b> , weakness, increased infection, thinning of the skin, mortality increased by 30%
30%	Too weak to sit, <b>new pressure ulcers</b> develop, pneumonia, wound healing ceases, mortality increased by 50%
40%	<b>Death</b> , usually from pneumonia

\* In the absence of preexisting LBM loss.

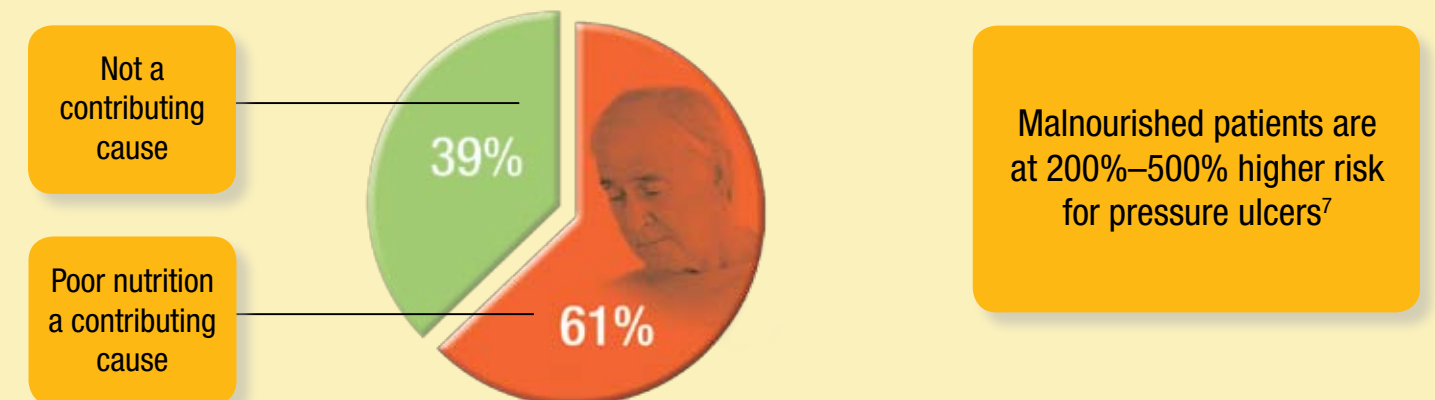


Adequate lean body mass and proper nutrition play a critical role in patient health and recovery<sup>1</sup>

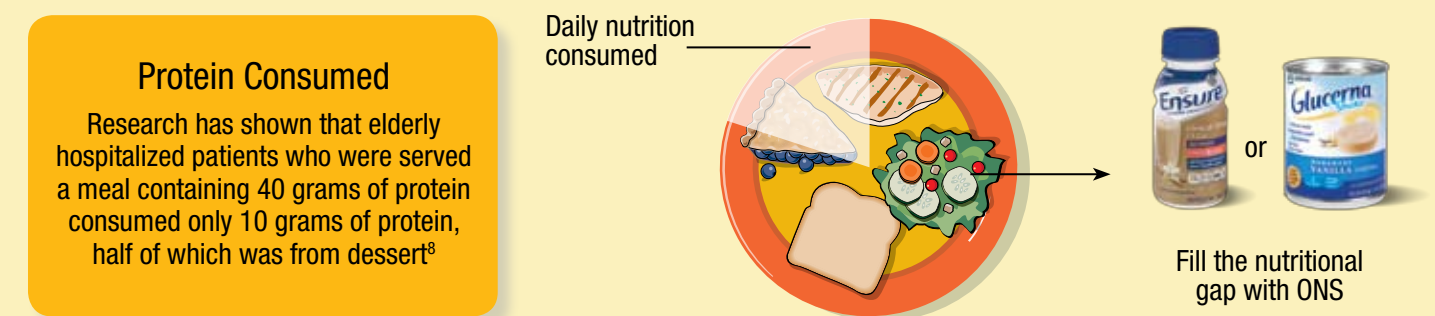
## ONS may help prevent pressure ulcers and improve pressure ulcer healing<sup>5,6</sup>

Poor nutrition is often a contributing cause of pressure ulcers<sup>5-6</sup>

Percent of pressure ulcers where nutrition plays a role<sup>5</sup>



Most of your patients don't get the nutrition they need to maintain and rebuild LBM



- A 15-study meta-analysis demonstrated that oral nutritional supplements (ONS) were associated with a lower incidence of pressure ulcers in at-risk patients<sup>6</sup>



Ensuring proper nutrition helps reduce the risk of pressure ulcers and also plays a role in pressure ulcer treatment<sup>5-6</sup>

## Nutrition has been demonstrated to reduce facility-acquired pressure ulcers as part of a comprehensive program<sup>9</sup>

According to chart reviews at Ascension Health, a nutrition consult was ordered for patients with pressure ulcers in 87% of cases; however, nutrition recommendations were followed only 35% of the time<sup>9</sup>

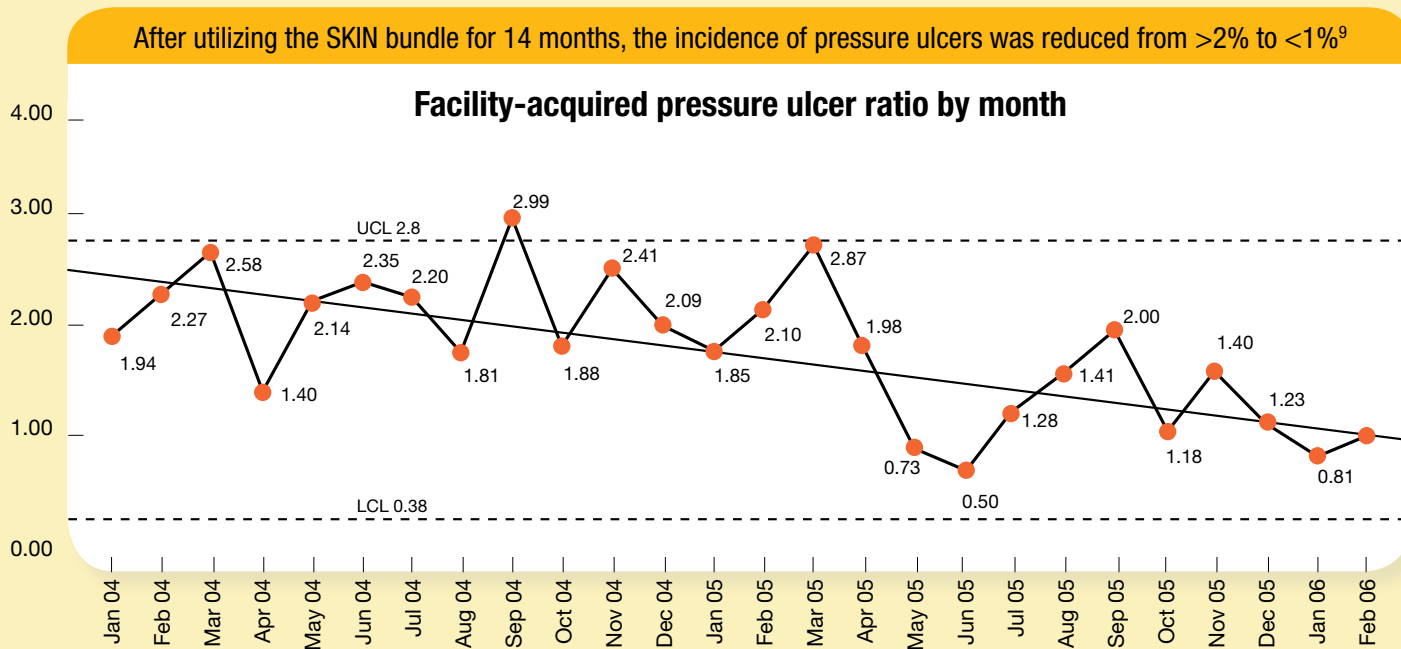
Ascension Health developed a bundle of interventions, which included nutrition, called SKIN to reduce the incidence of pressure ulcers in all at-risk patients<sup>9</sup>

**Surface:** Be sure patient is on the correct type of mattress

**Keep turning:** Reposition patient at least every 2 hours when in bed

**Incontinence:** Offer toilet assistance every 2 hours

**Nutrition:** Monitor patient nutrition, carry out nutrition orders, and record supplement and meal intake



There were no new facility-acquired stage III/IV pressure ulcers during the last 18 months of the study

## Evidence-based guidelines support nutrition intervention as part of pressure ulcer prevention and treatment

### According to the National Pressure Ulcer Advisory Panel<sup>10\*</sup>

*“Offer high-protein mixed oral nutritional supplements (ONS) and/or tube feeding, in addition to the usual diet, to patients with nutritional risk and pressure ulcer risk because of acute or chronic diseases, or following a surgical intervention.” (Strength of Evidence = A).*

### WOCN Guidelines for Prevention and Management of Pressure Ulcers<sup>11†</sup>

*“Elderly patients recovering from acute illness develop fewer pressure ulcers when given two daily nutritional supplement drinks.”*

*“Enteral nutrition support with high protein can significantly reduce the risk of development of pressure ulcers.”*

### ESPEN recommends the use of ONS to reduce pressure ulcers and improve healing<sup>12‡</sup>

	Recommendation	Grade
<b>Pressure ulcer prevention</b>	“Oral nutritional supplements, particularly with high protein content, can reduce the risk of developing pressure ulcers.”	A
<b>Pressure ulcer treatment</b>	“Based on positive clinical experience, enteral nutrition is also recommended in order to improve healing of pressure ulcers.”	C

\*Cited with permission from the NPUAP

†Cited with Permission from the WOCN Society

‡ESPEN=European Society for Clinical Nutrition and Metabolism



A nutrition protocol, including ONS, is an effective component of a comprehensive program<sup>9</sup>



Key associations promote proactive use of ONS<sup>10-12</sup>

As part of a comprehensive program,

# The cost of ONS for prevention of pressure ulcers is negligible compared to the cost of pressure ulcer treatment<sup>9,13-16</sup>

The cost of treating just 1 pressure ulcer can provide 13 days of nutritional supplementation for 846 patients<sup>12\*</sup>



The additional cost of treating 1 pressure ulcer

Nutritional support for 846 patients

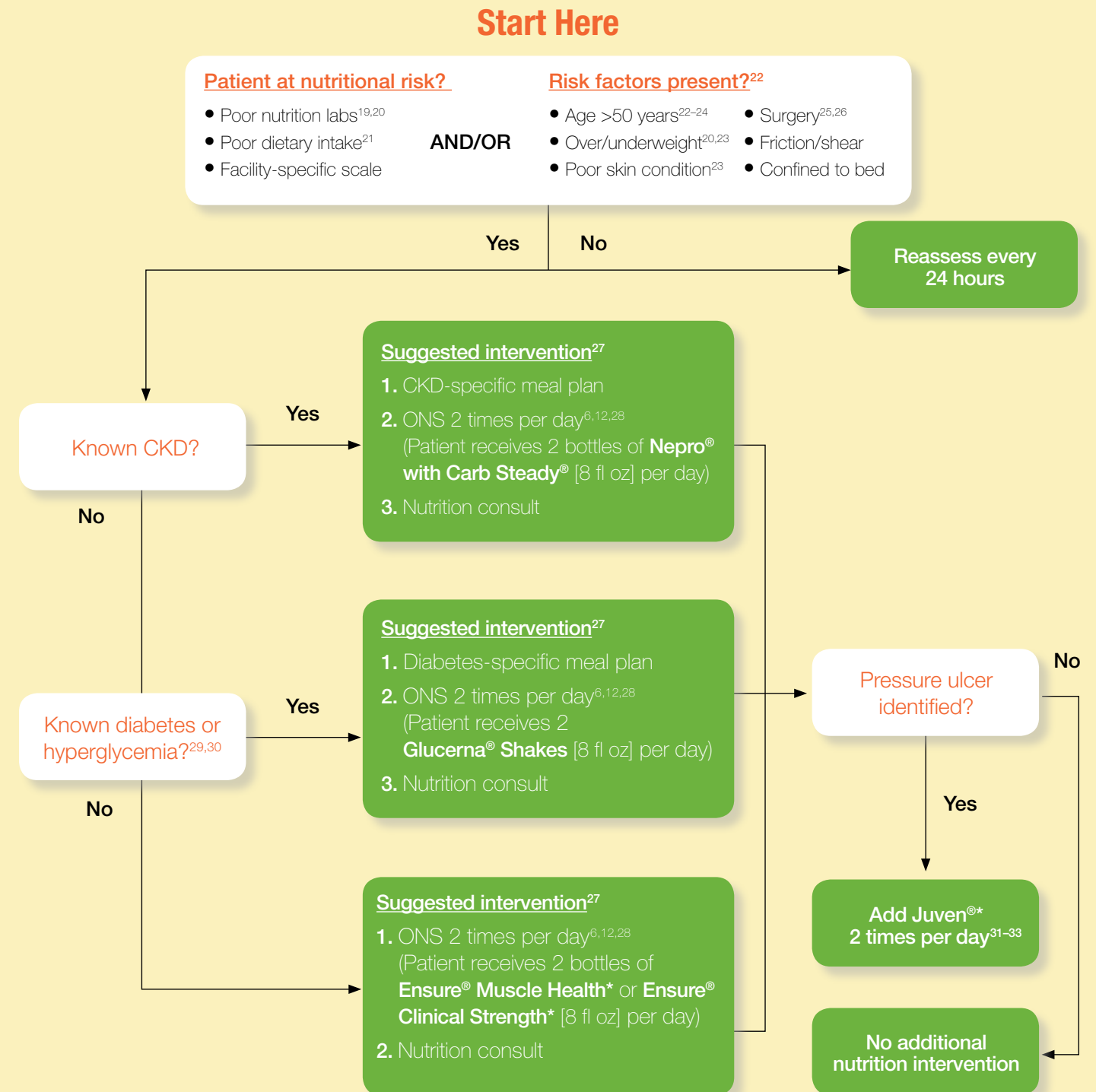
- The estimated annual per-patient cost for pressure ulcers ranges from \$11,000 to \$70,000, with 73% of costs associated with nursing care<sup>13-16</sup>
- Pressure ulcers extend the average hospital stay by 5-13 days, resulting in an increase in per-patient cost<sup>17,18</sup>

\*"Twice-daily nutritional supplementation can be provided at \$1 per day-\$13 per person for an average 13-day stay. \$11,000 all-in cost to care for a pressure ulcer/\$13 per person for nutritional supplementation = 846 people fed."

**References:** 1. Demling RH. *Eplasty*. 2009;9:65-94. 2. Schiesser M, Kirchhoff P, Müller MK, et al. *Surgery*. 2009;145(5):519-526. 3. Pichard C, Kyle UG, Morabia A, et al. *Am J Clin Nutr*. 2004;79(4):613-618. 4. Incalzi RA, Gemma A, Capparella O, et al. *Arch Intern Med*. 1996;156(4):425-429. 5. Voss AC, Bender SA, Ferguson ML, et al. *J Am Geriatr Soc*. 2005;53(9):1587-1592. 6. Stratton RJ, Ek A-C, Engfer M, et al. *Ageing Res Rev*. 2005;4(3):422-450. 7. Banks M, Bauer J, Graves N, et al. *Nutrition*. 2010;26(9):896-901. 8. Paddon-Jones D. In: Gussler J (ed): *Role of Nutrition in the Accretion, Retention, and Recovery of Lean Body Mass*, Report of the 110th Abbott Nutrition Research Conference; Selected Summaries. Columbus, Ohio: Abbott Nutrition, 2009; 12-18. 9. Gibbons W, Shanks HT, Kleinhelter P, et al. *Jt Comm J Qual Patient Saf*. 2006;32(9):488-496. 10. Dornier B, Posthauer ME, Thomas D; National Pressure Ulcer Advisory Panel. *Adv Skin Wound Care*. 2009;22(5):212-221. 11. Ratliff C, Tomaselli N. *WOCN Guidelines for Prevention and Treatment of Pressure Ulcers*, 2010. 12. Volkert D, Berner YN, Berry E, et al. *Clin Nutr*. 2006;25(2):330-360. 13. Bergstrom N, Braden B. *J Am Geriatr Soc*. 1992;40(8):747-758. 14. Department of Health and Human Services. Book 2. *Federal Register*. 2008;73:48433-49084. 15. Reddy M, Gill SS, Rochon PA. *JAMA*. 2006;296(8):974-984. 16. Frantz RA, Berquist S, Specht J. *Adv Wound Care*. 1995;8(1):36-45. 17. Russo CA, Steiner C, Spector W. <http://www.hcup-us.ahrq.gov/reports/statbriefs/sb64.pdf>. Published December 2008. Accessed September 10, 2009. 18. Kerstein MD, Gemmen E, van Rijswijk L. *Dis Manag Health Outcomes*. 2001;9(11):651-663. 19. Holmes R, Macchiano K, Jhangiani SS, et al. *Am J Nurs*. 1987;87(10):1301-1303. 20. Braunschweig C, Gomez S, Sheehan PM. *J Am Diet Assoc*. 2000;100:1316-1322. 21. Berlowitz DR, Wilking SVB. *J Am Geriatr Soc*. 1989;37:1043-1050. 22. McWhirter JP, Pennington CR. *BMJ*. 1994;308:945-948. 23. Schoonhoven L, Grobbee DE, Donders AR, et al. *Qual Saf Health Care*. 2006;15(1):65-70. 24. Weekes E. *Proc Nutr Soc*. 1999;58:126A. 25. Frankel H, Sperry J, Kaplan L. *Am Surg*. 2007;73(12):1215-1217. 26. Versluis V, et al. *BMJ*. 1986;292:1311-1313. 27. Gibbons W, Shanks HT, Kleinhelter P, et al. *Jt Comm J Qual Patient Saf*. 2006;32(9):8731-8735. 28. Bourdel-Marchessin I, Barateau M, Rondeau V, et al. *Nutrition*. 2000;16(1):1-5. 29. Resnick HE, Heineman J, Stone R, et al. *Diabetes Care*. 2008;31(2):287-288. 30. Fromy B, Abraham P, Bouvet C, et al. *Diabetes*. 2002;51(4):1214-1217. 31. May PE, Barber A, D'Olimpio JT, et al. *Am J Surg*. 2002;183(4):471-479. 32. Clark RH, Feleke G, Din M, et al. *JPEN J Parenter Enteral Nutr*. 2000;24(3):133-139. 33. Williams JZ, Abumrad N, Barbul A. *Ann Surg*. 2002;236(3):369-375.

# Provide ONS to patients at risk for or with pressure ulcers

## Decision tree for oral nutritional supplements (ONS)



\* Ensure Clinical Strength twice daily has 3 g Revigor™ (Ca HMB). Juven twice daily has 3 g of Revigor. Revigor is self-affirmed GRAS up to 6 g per day.



**Therapeutic nutrition is a highly cost-effective intervention to help reduce and treat pressure ulcers<sup>9,13</sup>**

As part of a comprehensive program,

Intervene with oral nutritional supplements to support pressure ulcer prevention and improve pressure ulcer healing

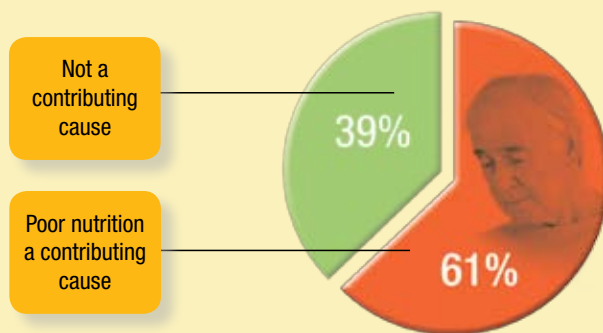
Lean Body Mass (LBM) loss and malnutrition start prior to admission and accelerate through the continuum of care<sup>2-4</sup>

Pre-Admission

Hospital Stay

Loss of LBM can result in serious complications, including impaired wound healing and development of pressure ulcers<sup>1</sup>

Percent of pressure ulcers where nutrition plays a role<sup>5</sup>



Aligned with evidence-based guidelines, ONS helps reduce the risk of pressure ulcers and also plays a role in pressure ulcer treatment<sup>6</sup>

Provide ONS to patients at risk for or with pressure ulcers

