

MQii Evidence Library - eCQM Evidence Grid

Measure Number & Title	Study Types	Lead Author & Year	Study Number and Population	Patient Outcomes / Impact	Citation
#3087 - Completion of a Malnutrition Screening within 24 hours of Admission	Randomized Control Trials	Deutz 2016	652 65+ patients with AMI, CHF, COPD and PN	Patient found at-risk from screening (no validated tool) and subsequently assessed for malnutrition, malnourished received nutrition support which was associated with decreased 30, 60, 90-day mortality	Deutz NE, Matheson EM, Matarese LE, et al. Readmission and mortality in malnourished, older, hospitalized adults treated with a specialized oral nutritional supplement: A randomized clinical trial. Clinical nutrition (Edinburgh, Scotland). 2016;35(1):18-26.
	Non-Randomized Cohort Studies	Sriram 2016	1,269 hospitalized adults	Intervention after screening for risk associated with decreased LOS, 30-day readmissions, no difference in ages between 18-65 and 65+ groups	Sriram K, Sulo S, VanDerBosch G, et al. A Comprehensive Nutrition-Focused Quality Improvement Program Reduces 30-Day Readmissions and Length of Stay in Hospitalized Patients. JPEN Journal of parenteral and enteral nutrition. 2016;148607116681468.
		Agrawal 2012	3122 adult hospitalized patients	Malnourished patients had greater LOS and readmissions. The odds of 90-day in hospital mortality were greater for malnourished patients.	Agarwal E, Ferguson M, Banks M, et al. Malnutrition and poor food intake are associated with prolonged hospital stay, frequent readmissions, and greater in-hospital mortality: results from the Nutrition Care Day Survey 2010. Clinical nutrition (Edinburgh, Scotland). 2013;32(5):737-745.
		Lim 2012	818 adult acute care pts.	Malnutrition associated with increased LOS, mortality and costs	Lim SL, Ong KC, Chan YH, Loke WC, Ferguson M, Daniels L. Malnutrition and its impact on cost of hospitalization, length of stay, readmission and 3-year mortality. Clinical nutrition (Edinburgh, Scotland). 2012;31(3):345-350.
		Kruizenga 2005	297 acute care patients	Decreased LOS in screened vs non-screed with low hand grip	Kruizenga HM, Van Tulder MW, Seidell JC, Thijs A, Ader HJ, Van Bokhorst-de van der Schueren MA. Effectiveness and cost-effectiveness of early screening and treatment of malnourished patients. The American journal of clinical nutrition. 2005;82(5):1082-1089.
		Allard 2016	1,015 adult acute care pts.	Malnutrition at admission associated with longer LOS	Allard JP, Keller H, Teterina A, et al. Lower handgrip strength at discharge from acute care hospitals is associated with 30-day readmission: A prospective cohort study. Clinical nutrition (Edinburgh, Scotland). 2016;35(6):1535-1542.
	Khalatbari-soltani 2016	8,541 acute care older adult pts.	Risk predicts higher mortality and costs	Khalatbari-Soltani S, Marques-Vidal P. Impact of nutritional risk screening in hospitalized patients on management, outcome and costs: A retrospective study. Clinical nutrition (Edinburgh, Scotland). 2016;35(6):1340-1346.	
	Gomes 2016	543 stroke pts.	Risk predicts higher mortality, costs & LOS	Gomes F, Emery PW, Weekes CE. Erratum to Risk of Malnutrition Is an Independent Predictor of Mortality, Length of Hospital Stay, and Hospitalization Costs in Stroke Patients: Journal of Stroke and Cerebrovascular Diseases 2016;25(4):799-806. Journal of stroke and cerebrovascular diseases : the official journal of National Stroke Association. 2016;25(8):2091.	
	Guerra 2016	637 acute care pts.	Risk predicts higher hospital costs	Guerra RS, Fonseca I, Sousa AS, Jesus A, Pichel F, Amaral TF. ESPEN diagnostic criteria for malnutrition - A validation study in hospitalized patients. Clinical nutrition (Edinburgh, Scotland). 2016.	
	Kruizenga 2016	564,063 older adult acute care pts.	Risk associated with longer LOS	Kruizenga H, van Keeken S, Weijs P, et al. Undernutrition screening survey in 564,063 patients: patients with a positive undernutrition screening score stay in hospital 1.4 d longer. The American journal of clinical nutrition. 2016;103(4):1026-1032.	

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		Jeejeebhoy 2015	1,022 acute care pts.	Severe malnutrition predicted longer LOS and increased 30-day readmissions	Jeejeebhoy KN, Keller H, Gramlich L, et al. Nutritional assessment: comparison of clinical assessment and objective variables for the prediction of length of hospital stay and readmission. The American journal of clinical nutrition. 2015;101(5):956-965.
#3087 - Completion of a Malnutrition Screening within 24 hours of Admission	Descriptive Cohort Studies	Cereda 2015	667 geriatric acute pts.	Risk predicts longer LOS	Cereda E, Klersy C, Pedrolli C, et al. The Geriatric Nutritional Risk Index predicts hospital length of stay and in-hospital weight loss in elderly patients. Clinical nutrition (Edinburgh, Scotland). 2015;34(1):74-78.
		Guerra 2015	682 acute care pts.	Risk predicts longer LOS	Guerra RS, Fonseca I, Pichel F, Restivo MT, Amaral TF. Usefulness of six diagnostic and screening measures for undernutrition in predicting length of hospital stay: a comparative analysis. Journal of the Academy of Nutrition and Dietetics. 2015;115(6):927-938.
		Kissova 2015	202 chronic pts., mean age 63.5 y/o	Malnutrition (as diagnosed by SGA) was an independent risk factor for death	Kissova V, Rosenberger J, Goboova M, Kiss A. Ten-year all-cause mortality in hospitalized non-surgical patients based on nutritional status screening. Public health nutrition. 2015;18(14):2609-2614.
		Kaiser 2010	4,770 elderly patients in 12 countries	Hospital malnutrition rate of 38.7% identified via screening	Kaiser MJ, Bauer JM, Ramsch C, et al. Frequency of malnutrition in older adults: a multinational perspective using the mini nutritional assessment. Journal of the American Geriatrics Society. 2010;58(9):1734-1738.
		Schiesser 2009	200 elective GI surgical pts.	Risk predicts postsurgical complications	Schiesser M, Kirchhoff P, Muller MK, Schafer M, Clavien PA. The correlation of nutrition risk index, nutrition risk score, and bioimpedance analysis with postoperative complications in patients undergoing gastrointestinal surgery. Surgery. 2009;145(5):519-526.
		Ozkalkani 2009	256 orthopedic pts.	Risk predicts complications	Ozkalkanli MY, Ozkalkanli DT, Katircioglu K, Savaci S. Comparison of tools for nutrition assessment and screening for predicting the development of complications in orthopedic surgery. Nutrition in clinical practice : official publication of the American Society for Parenteral and Enteral Nutrition. 2009;24(2):274-280.
		Henderson 2008	115 elderly acute care pts.	Risk predicts mortality	Henderson S, Moore N, Lee E, Witham MD. Do the malnutrition universal screening tool (MUST) and Birmingham nutrition risk (BNR) score predict mortality in older hospitalised patients? BMC geriatrics. 2008;8:26.
		Sorensen 2008	5,501 international cohort of acute care pts.	Risk predicts LOS, morbidity and mortality	Sorensen J, Kondrup J, Prokopowicz J, et al. EuroOOPS: an international, multicentre study to implement nutritional risk screening and evaluate clinical outcome. Clinical nutrition (Edinburgh, Scotland). 2008;27(3):340-349.
		Scheisser 2008	608 elective GI surgical pts.	Risk predicts complications & increased LOS	Schiesser M, Muller S, Kirchhoff P, Breitenstein S, Schafer M, Clavien PA. Assessment of a novel screening score for nutritional risk in predicting complications in gastro-intestinal surgery. Clinical nutrition (Edinburgh, Scotland). 2008;27(4):565-570.
		Kyle 2006	995 acute care pts.	High nutrition risk/severe malnutrition = increased LOS	Kyle UG, Kossovsky MP, Karsegard VL, Pichard C. Comparison of tools for nutritional assessment and screening at hospital admission: a population study. Clinical nutrition (Edinburgh, Scotland). 2006;25(3):409-417.
		Stratton 2006	150 elderly acute care pts.	Risk predicts mortality and LOS	Stratton RJ, King CL, Stroud MA, Jackson AA, Elia M. 'Malnutrition Universal Screening Tool' predicts mortality and length of hospital stay in acutely ill elderly. The British journal of nutrition. 2006;95(2):325-330.

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		Amaral 2008	130 oncology patients	Risk predicts longer LOS	Amaral TF, Antunes A, Cabral S, Alves P, Kent-Smith L. An evaluation of three nutritional screening tools in a Portuguese oncology centre. Journal of human nutrition and dietetics : the official journal of the British Dietetic Association. 2008;21(6):575-583.
		Putwatana 2005	430 abdominal surgery pts.	Risk predicts postoperative complications	Putwatana P, Reodecha P, Sirapo-ngam Y, Lertsithichai P, Sumboonnanda K. Nutrition screening tools and the prediction of postoperative infectious and wound complications: comparison of methods in presence of risk adjustment. Nutrition (Burbank, Los Angeles County, Calif). 2005;21(6):691-697.
#3088 - Completion of a Nutrition Assessment for Patients Identified as At-Risk for Malnutrition within 24 hours of a	Randomized Control Trials	Deutz 2016	652 65+ patients with AMI, CHF, COPD and PN	Intervention for patients found to be malnourished after assessment associated with decreased 30, 60, 90-day mortality	Deutz NE, Matheson EM, Matarese LE, et al. Readmission and mortality in malnourished, older, hospitalized adults treated with a specialized oral nutritional supplement: A randomized clinical trial. Clinical nutrition (Edinburgh, Scotland). 2016;35(1):18-26.
		Zhong 2016	624 older acute care pts.	Economic evaluation of ONS RCT (Deutz 2016) showed intervention patients gained 0.011 more QALYs than control, reflecting significantly greater probability of survival through 90 days' follow-up, as reported by the clinical trial.	Zhong Y, Cohen JT, Goates S, Luo M, Nelson J, Neumann PJ. The Cost-Effectiveness of Oral Nutrition Supplementation for Malnourished Older Hospital Patients. Appl Health Econ Health Policy. 2017;15(1):75-83.
	Case-control or cohort studies	Lew (Review of 20 Studies, 2016)	4,219 heterogeneous acute care pts.	Malnutrition score predicts postoperative complications	Lew CC, Yandell R, Fraser RJ, Chua AP, Chong MF, Miller M. Association Between Malnutrition and Clinical Outcomes in the Intensive Care Unit: A Systematic Review. JPEN Journal of parenteral and enteral nutrition. 2016.
	Non-Randomized Cohort Studies	Kwon 2016	914 incident ESRD pts.	Patients who went from malnourished to well nourished had significantly lower mortality risk than those who were malnourished and stayed malnourished as diagnosed by SGA	Kwon YE, Kee YK, Yoon CY, et al. Change of Nutritional Status Assessed Using Subjective Global Assessment Is Associated With All-Cause Mortality in Incident Dialysis Patients. Medicine. 2016;95(7):e2714.
		Lim 2012	818 adult acute care pts.	Malnutrition associated with increased LOS, mortality and costs	Lim SL, Ong KC, Chan YH, Loke WC, Ferguson M, Daniels L. Malnutrition and its impact on cost of hospitalization, length of stay, readmission and 3-year mortality. Clinical nutrition (Edinburgh, Scotland). 2012;31(3):345-350.
		Hiller 2016	404 veteran patients with 13 different groups of diagnoses	Malnourished patients had higher rates of readmission, higher mortality rates (30, 60, 90), and longer lengths of stay and were more likely to be discharged to nursing homes.	Hiller LD, Shaw RF, Fabri PJ. Difference in Composite End Point of Readmission and Death Between Malnourished and Nonmalnourished Veterans Assessed Using Academy of Nutrition and Dietetics/American Society for Parenteral and Enteral Nutrition Clinical Characteristics. JPEN Journal of parenteral and enteral nutrition. 2016.
		Mosquera 2016	490 pts with major abdominal surgery	Assessment criteria consistently identifies patients at risk of negative outcomes who may benefit from perioperative nutritional support	Mosquera C, Koutlas NJ, Edwards KC, et al. Impact of malnutrition on gastrointestinal surgical patients. The Journal of surgical research. 2016;205(1):95-101.
		Lim 2012	818 adult acute care pts.	Malnutrition associated with increased LOS, mortality and costs	Lim SL, Ong KCB, Chan YH, Loke WC, Ferguson M, Daniels L. Malnutrition and its impact on cost of hospitalization, length of stay, readmission and 3-year mortality. Clinical Nutrition.31(3):345-350.

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24 hours of a Malnutrition Screening	Descriptive Cohort Studies	Ozkalkanli 2009	256 orthopedic pts.	Malnutrition diagnosed by nutrition assessment associated with increased ICU LOS, ICU readmission, and in-hospital mortality	Ozkalkanli MY, Ozkalkanli DT, Katircioglu K, Savaci S. Comparison of tools for nutrition assessment and screening for predicting the development of complications in orthopedic surgery. Nutrition in clinical practice : official publication of the American Society for Parenteral and Enteral Nutrition. 2009;24(2):274-280.
		Atalay 2008	119 critically ill elderly pts.	Malnutrition did not predict mortality	Atalay BG, Yagmur C, Nursal TZ, Atalay H, Noyan T. Use of subjective global assessment and clinical outcomes in critically ill geriatric patients receiving nutrition support. JPEN Journal of parenteral and enteral nutrition. 2008;32(4):454-459.
		Sungurtekin 2008	124 critically ill pts.	Malnutrition scores predict morbidity and mortality rates	Sungurtekin H, Sungurtekin U, Oner O, Okke D. Nutrition assessment in critically ill patients. Nutrition in clinical practice : official publication of the American Society for Parenteral and Enteral Nutrition. 2008;23(6):635-641.
		Wakahara 2007	262,100 cancer pts.	Malnutrition score predicts LOS	Wakahara T, Shiraki M, Murase K, et al. Nutritional screening with Subjective Global Assessment predicts hospital stay in patients with digestive diseases. Nutrition (Burbank, Los Angeles County, Calif). 2007;23(9):634-639.
		Kuzu 2006	460 elective surgery pts.	Malnutrition score predicts infection and other complications	Kuzu MA, Terzioglu H, Genc V, et al. Preoperative nutritional risk assessment in predicting postoperative outcome in patients undergoing major surgery. World journal of surgery. 2006;30(3):378-390.
		Kyle 2006	995 acute care pts.	Severely malnourished predict increased LOS	Kyle UG, Kossovsky MP, Karsegard VL, Pichard C. Comparison of tools for nutritional assessment and screening at hospital admission: a population study. Clinical nutrition (Edinburgh, Scotland). 2006;25(3):409-417.
		Martineau 2005	73 acute stroke pts.	Malnutrition score predicts increased LOS and complications	Martineau J, Bauer JD, Isenring E, Cohen S. Malnutrition determined by the patient-generated subjective global assessment is associated with poor outcomes in acute stroke patients. Clinical nutrition (Edinburgh, Scotland). 2005;24(6):1073-1077.
		Sungurtekin 2004	100 abdominal surgery pts.	Malnutrition associated w/ increased complications & mortality	Sungurtekin H, Sungurtekin U, Balci C, Zencir M, Erdem E. The influence of nutritional status on complications after major intraabdominal surgery. Journal of the American College of Nutrition. 2004;23(3):227-232.
		#3089 - Nutrition Care Plan for Patients Identified	Systematic Review	Cawood Review of 36 studies, 2012)	10,187 older patients who received oral protein and energy supplementation
Milne (Review of 62 studies, 2009)	652 65+ patients with AMI, CHF, COPD and PN			Intervention for patients found to be malnourished after assessment associated with decreased 30, 60, 90-day mortality	Milne AC, Potter J, Vivanti A, Avenell A. Protein and energy supplementation in elderly people at risk from malnutrition. The Cochrane database of systematic reviews. 2009(2):Cd003288.
Randomized Control Trials	Deutz 2016		3,790 mostly older adult patients in a range of clinical settings	Delivery of ONS associated with reductions in complications and readmissions to the hospital	Deutz NE, Matheson EM, Matarese LE, et al. Readmission and mortality in malnourished, older, hospitalized adults treated with a specialized oral nutritional supplement: A randomized clinical trial. Clinical nutrition (Edinburgh, Scotland). 2016;35(1):18-26
	Sriram 2016		1,269 hospitalized adults	Intervention after screening for risk associated with decreased LOS, 30-day readmissions, no difference in ages between 18-65 and 65+ groups	Sriram K, Sulo S, VanDerBosch G, et al. A Comprehensive Nutrition-Focused Quality Improvement Program Reduces 30-Day Readmissions and Length of Stay in Hospitalized Patients. JPEN Journal of parenteral and enteral nutrition. 2016;148607116681468.

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Patients Identified as Malnourished after a Completed Nutrition Assessment	Non-Randomized Cohort Studies	Norman 2008	80 malnourished pts.	Pts. with intervention had improved hand-grip strength	Norman K, Kirchner H, Freudenreich M, Ockenga J, Lochs H, Pirlich M. Three month intervention with protein and energy rich supplements improve muscle function and quality of life in malnourished patients with non-neoplastic gastrointestinal disease--a randomized controlled trial. Clinical nutrition (Edinburgh, Scotland). 2008;27(1):48-56.
		Persson 2007	54 nutritionally at-risk pts.	Pts. with intervention had weight maintained & improved ADLs	Persson M, Hytter-Landahl A, Brismar K, Cederholm T. Nutritional supplementation and dietary advice in geriatric patients at risk of malnutrition. Clinical nutrition (Edinburgh, Scotland). 2007;26(2):216-224.
	Descriptive Cohort Studies	Meehan 2016	19,867 adult patient records before and after a quality improvement program	Post-quality improvement program, pressure ulcer incidence, length of stay, 30-day readmissions, and costs of care were reduced.	Meehan A, Loose C, Bell J, Partridge J, Nelson J, Goates S. Health System Quality Improvement: Impact of Prompt Nutrition Care on Patient Outcomes and Health Care Costs. Journal of nursing care quality. 2016;31(3):217-223.
		Snider 2015	14,326 Medicare hospitalizations where oral nutrition supplements were provided	ONS may be associated with reduced LOS, hospital costs, and readmission risk	Snider JT, Jena AB, Linthicum MT, et al. Effect of hospital use of oral nutritional supplementation on length of stay, hospital cost, and 30-day readmissions among Medicare patients with COPD. Chest. 2015;147(6):1477-1484.
	#3090- Appropriate Documentation of Malnutrition Diagnosis	Systematic Review	Cawood Review of 36 studies, 2012)	10,187 older patients who received oral protein and energy supplementation	Reduced risk of complications and mortality in undernourished patients who received oral protein and energy supplementation
Descriptive Cohort Studies		Meehan 2016	19,867 adult patient records before and after a quality improvement program	Post-quality improvement program, pressure ulcer incidence, length of stay, 30-day readmissions, and costs of care were reduced.	Meehan A, Loose C, Bell J, Partridge J, Nelson J, Goates S. Health System Quality Improvement: Impact of Prompt Nutrition Care on Patient Outcomes and Health Care Costs. Journal of nursing care quality. 2016;31(3):217-223.
		Snider 2015	14,326 Medicare hospitalizations where oral nutrition supplements were provided	ONS may be associated with reduced LOS, hospital costs, and readmission risk	Snider JT, Jena AB, Linthicum MT, et al. Effect of hospital use of oral nutritional supplementation on length of stay, hospital cost, and 30-day readmissions among Medicare patients with COPD. Chest. 2015;147(6):1477-1484.

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Definition of Malnutrition	Malnutrition is most simply defined as the inadequate intake of protein and/or energy over prolonged periods of time resulting in loss of fat stores and/or muscle wasting including starvation-related malnutrition, chronic disease-related malnutrition and acute disease or injury-related malnutrition.	Correia MI, Waitzberg DL. The impact of malnutrition on morbidity, mortality, length of hospital stay and costs evaluated through a multivariate model analysis. Clin Nutr. 2003;22(3):235-9.	2003
Gaps in Quality of Care	The under-recognition of malnutrition is likely because malnutrition care in the hospital setting lacks consistent and widely adopted standards of practice and measurement.	Patel V, Romano M, Corkins MR, et al. Nutrition Screening and Assessment in Hospitalized Patients: A Survey of Current Practice in the United States. Nutr Clin Pract. 2014;29(4):483-490.	2014
Gaps in Quality of Care	Lack of identification and treatment of malnutrition risk and malnutrition translates into a broader burden for the healthcare system regardless of setting.	Buys DR, Roth DL, Ritchie CS, et al. Nutritional risk and body mass index predict hospitalization, nursing home admissions, and mortality in community-dwelling older adults: results from the UAB Study of Aging with 8.5 years of follow-up. J Gerontol A Biol Sci Med Sci. 2014;69(9):1146-1153.	2014
Malnutrition Costs	Average hospital costs for all non-neonatal and non-maternal hospital stays were \$12,500, while patients diagnosed with malnutrition had hospital costs averaging up to \$25,200 depending on the type of malnutrition indicated.	Weiss AJ, Fingar KR, Barrett ML, Elixhauser A, Steiner CA, Guenter P, Brown MH. Characteristics of Hospital Stays Involving Malnutrition, 2013. HCUP Statistical Brief #210. September 2016. Agency for Healthcare Research and Quality, Rockville, MD. http://www.hcup-us.ahrq.gov/reports/statbriefs/sb210-Malnutrition-Hospital-Stays-2013.pdf .	2016
Malnutrition Costs	Hospital costs for malnutrition totaled \$42 Billion in 2013 for all patients	Weiss AJ, Fingar KR, Barrett ML, Elixhauser A, Steiner CA, Guenter P, Brown MH. Characteristics of Hospital Stays Involving Malnutrition, 2013. HCUP Statistical Brief #210. September 2016. Agency for Healthcare Research and Quality, Rockville, MD. http://www.hcup-us.ahrq.gov/reports/statbriefs/sb210-Malnutrition-Hospital-Stays-2013.pdf .	2016
Malnutrition Costs	Cost per readmission for patients with malnutrition was \$17,500; 26-34% higher (depending on the specific type of malnutrition) versus patients readmitted without malnutrition.	Fingar KR, et al. All-Cause Readmissions Following Hospital Stays for Patients With Malnutrition, 2013. HCUP Statistical Brief #218. December 2016. Agency for Healthcare Research and Quality, Rockville, MD.	2016
Malnutrition Costs	\$157 Billion in disease-associated malnutrition (DAM) annual economic burden on our society and our healthcare system across settings	Snider JT, Jena AB, Linthicum MT, et al. Effect of hospital use of oral nutritional supplementation on length of stay, hospital cost, and 30-day readmissions among Medicare patients with COPD. Chest. 2015;147(6):1477-1484.	2015
Malnutrition Costs	\$51.3 Billion in disease-associated malnutrition borne by the elderly U.S. population annually	Snider JT, Jena AB, Linthicum MT, et al. Effect of hospital use of oral nutritional supplementation on length of stay, hospital cost, and 30-day readmissions among Medicare patients with COPD. Chest. 2015;147(6):1477-1484.	2015
Malnutrition Costs	Malnutrition associated with an up to 300% increase in costs.	Krishnan K. Critical Nutrients for Surgical and Trauma Wounds. Support Line. December 2015;37(6): 3-8.	2015
Malnutrition Costs	Malnutrition Costs can be up to 300% greater for malnourished patients	Correia MI, Waitzberg DL. The impact of malnutrition on morbidity, mortality, length of hospital stay and costs evaluated through a multivariate model analysis. Clin Nutr. 2003;22(3):235-9.	2003

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Malnutrition in Older Adults	Older adults ages 65+ are at an increased risk for malnutrition and its associated complications.	Norman K, Pichard C, Lochs H, Pirlich M. Prognostic impact of disease-related malnutrition. Clin Nutr. 2008;27(1):5-15.	2008
Malnutrition in Older Adults	Older adults ages 65+ are at an increased risk for malnutrition and its associated complications (i.e. readmissions, HAIs, falls, pressure ulcers, and slower wound healing)	Correia MI, Waitzberg DL. The impact of malnutrition on morbidity, mortality, length of hospital stay and costs evaluated through a multivariate model analysis. Clin Nutr. 2003;22(3):235-9.	2003
Malnutrition Prevalence	7% of hospitalized patients typically diagnosed	Weiss AJ, Fingar KR, Barrett ML, Elixhauser A, Steiner CA, Guenter P, Brown MH. Characteristics of Hospital Stays Involving Malnutrition, 2013. HCUP Statistical Brief #210. September 2016. Agency for Healthcare Research and Quality, Rockville, MD. http://www.hcup-us.ahrq.gov/reports/statbriefs/sb210-Malnutrition-Hospital-Stays-2013.pdf .	2016
Malnutrition Prevalence	39% of older adults are at-risk or malnourished	Pereira GF, Bulik CM, Weaver MA, Holland WC, Platts-mills TF. Malnutrition among cognitively intact, noncritically ill older adults in the emergency department. Ann Emerg Med. 2015;65(1):85-91.	2015
Malnutrition Prevalence	20-50% of adults are malnourished or at-risk upon hospital admission	Barker LA, Gout BS, and Crowe TC. Hospital malnutrition: prevalence, identification, and impact on patients and the healthcare system. Int J Environ Res and Public Health. 2011;8:514-527.	2011
Malnutrition Prevalence	1 in 2 at-risk or malnourished	Kaiser MJ, Bauer JM, R�amsch C, et al. Frequency of malnutrition in older adults: a multinational perspective using the mini nutritional assessment. J Am Geriatr Soc. 2010;58(9):1734-8.	2010
Nutrition Assessment	Nutrition assessments performed by a qualified dietitian can properly identify patients who are malnourished, ultimately identifying patients who are at highly significantly risk of readmission within 30 days, mortality within 90 days as well as longer lengths of stay.	Hiller LD, Shaw RF, Fabri PJ. Difference in Composite End Point of Readmission and Death Between Malnourished and Nonmalnourished Veterans Assessed Using Academy of Nutrition and Dietetics/American Society for Parenteral and Enteral Nutrition Clinical Characteristics. JPEN Journal of parenteral and enteral nutrition. 2016.	2016
Nutrition Assessment	The completion of a nutrition assessment provides the foundation for all subsequent malnutrition care a patient receives.	Tappenden KA, Quatrara B, Parkhurst ML, Malone AM, Fanjiang G, Ziegler TR. Critical role of nutrition in improving quality of care: an interdisciplinary call to action to address adult hospital malnutrition. J Acad Nutr Diet. 2013;113(9):1219-1237.	2013
Patient Outcomes	Malnourished patients are 5 times more likely to result in in-hospital death/mortality	Weiss AJ, Fingar KR, Barrett ML, Elixhauser A, Steiner CA, Guenter P, Brown MH. Characteristics of Hospital Stays Involving Malnutrition, 2013. HCUP Statistical Brief #210. September 2016. Agency for Healthcare Research and Quality, Rockville, MD. http://www.hcup-us.ahrq.gov/reports/statbriefs/sb210-Malnutrition-Hospital-Stays-2013.pdf .	2016
Patient Outcomes	Malnourished patients have up to 2x longer lengths of stay versus non-malnourished patients	Weiss AJ, Fingar KR, Barrett ML, Elixhauser A, Steiner CA, Guenter P, Brown MH. Characteristics of Hospital Stays Involving Malnutrition, 2013. HCUP Statistical Brief #210. September 2016. Agency for Healthcare Research and Quality, Rockville, MD. http://www.hcup-us.ahrq.gov/reports/statbriefs/sb210-Malnutrition-Hospital-Stays-2013.pdf .	2016

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Patient Outcomes	Malnourished patients have a 54% higher likelihood of hospital 30-day readmissions	Fingar KR, et al. All-Cause Readmissions Following Hospital Stays for Patients With Malnutrition, 2013. HCUP Statistical Brief #218. December 2016. Agency for Healthcare Research and Quality, Rockville, MD.	2016
Patient Outcomes	Malnutrition diagnosed by completion of nutrition assessments was associated with poorer clinical outcomes for ICU patients including increased ICU length of stay, ICU readmission, and risk of in-hospital mortality.	Lew CC, Yandell R, Fraser RJ, Chua AP, Chong MF, Miller M. Association Between Malnutrition and Clinical Outcomes in the Intensive Care Unit: A Systematic Review. JPEN Journal of parenteral and enteral nutrition. 2016.	2016
Patient Outcomes	Reduced complications from timely screening and assessment followed by intervention for adults.	Tappenden KA, Quatrara B, Parkhurst ML, Malone AM, Fanjiang G, Ziegler TR. Critical role of nutrition in improving quality of care: an interdisciplinary call to action to address adult hospital malnutrition. J Acad Nutr Diet. 2013;113(9):1219-1237.	2013
Patient Outcomes	Malnutrition is a leading cause of mortality, especially among older adults	Barker LA, Gout BS, and Crowe TC. Hospital malnutrition: prevalence, identification, and impact on patients and the healthcare system. Int J Environ Res and Public Health. 2011;8:514-527.	2011
Patient Outcomes	Malnutrition is associated with an increased length of stay between 4-6 days.	Barker LA, Gout BS, Crowe TC. Hospital malnutrition: prevalence, identification and impact on patients and the healthcare system. Int J Environ Res Public Health. 2011;8(2):514-27.	2011
Nutrition Intervention	Thirty-day readmissions (27%) and LOS (up to 1.9 days) were significantly lowered for malnourished inpatients by use of an EMR-cued MST, prompt provision of ONS, patient/caregiver education, and sustained nutrition support.	Sriram K, Sulo S, Vanderbosch G, et al. A Comprehensive Nutrition-Focused Quality Improvement Program Reduces 30-Day Readmissions and Length of Stay in Hospitalized Patients. JPEN J Parenter Enteral Nutr. 2016;	2016
Nutrition Professionals	Nutrition Professionals Improve Clinical and Financial Outcomes in Patients Receiving Parenteral Nutrition	Nishnick A. Nutrition Professionals Improve Clinical and Financial Outcomes in Patients Receiving Parenteral Nutrition. Critical Nutrients for Surgical and Trauma Wounds. Support Line. December 2015;37(6): 17-18.	2015