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## Malnutrition universal screening tool: a risk factor for *Clostridium difficile* infection in hospital?

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*Clostridium difficile*-associated disease is principally hospital acquired. Severe diarrhoea is common and can escalate to fulminant colitis, sometimes fatal. Its impact is rising and the recent emergence of more virulent antibiotic-resistant strains poses a major health threat<sup>(1)</sup>. Antibiotic therapy, old age and immunodeficiency are clear risk factors<sup>(2)</sup>, but the impact of nutritional state on risk has not been formally assessed. Nutritional screening of all patients has recently been made mandatory on admission to this hospital, using the malnutrition universal screening tool (MUST). The data are immediately logged onto the electronic patient record. A detailed MUST audit was undertaken in 2007; 19% of all patients scored as 'high risk' on admission. This tool has now been applied to consecutive *C. difficile* cases during the same period to assess whether poor nutrition is associated with risk of acquiring this infection.

A 10-month retrospective electronic audit (January 2007–October 2007) was conducted of all patients with hospital-acquired *C. difficile*. Key variables were patient demographics and MUST score, recorded on admission and at the time of *C. difficile* diagnosis. Key outcomes were referral to the dietetic team and the nutritional plan instituted.

Of 85 084 patients admitted to hospital in this period 215 (0.25%) contracted *C. difficile* and 73% were >65 years of age. Pivotaly, 135 of these patients (63%) had nutritional issues based on a high MUST score, triggering some form of nutritional intervention, v. 19% of unselected admissions. In thirty *C. difficile* cases MUST score increased from admission to time of diagnosis, while ten patients maintained a high MUST score from admission to time of diagnosis. In total 101 patients (47%) were referred to the dietetic team for individual assessment and nutritional intervention, action usually triggered by a high MUST score. Interventions were: high-protein and energy diets, 40%; tube feeds, 45%; renal advice, 13%; parenteral nutrition, 2%.

These data strongly suggest that malnutrition increases the risk of *C. difficile* infection in hospitalised patients. Deteriorating or refractory nutritional state may further indicate increased risk. There is an urgent need and opportunity to establish an evidence base for optimal nutritional management in the 'at risk' population. The advent of compulsory nutritional screening on admission and real-time access to electronic patient records of all hospitalised patients now provides a powerful mechanism to prospectively assess the impact of nutritional interventions on clinical outcomes.

1. Gould CV & McDonald LC (2008) *Crit Care* **12**, 203.

2. Bartlett JG & Gerding DN (2008) *Clin Infect Dis* **46**, Suppl. 1, S12–S18.