



Campaign Update

2012 marks the final year of Kidney Care Partners' Performance Excellence and Accountability in Kidney Care (PEAK) – a voluntary quality improvement campaign which set an ambitious goal of reducing first-year mortality by 20 percent by the end of 2012. This campaign, launched in 2009, has resulted in clear progress in improving survival rates among these most vulnerable dialysis patients as a result of efforts by Kidney Care Partners (KCP) members and the entire kidney community to incorporate patient, family engagement and clinical best practices into their organization's mission and patient care routine.

Background

As noted at the launch of the PEAK campaign and previous editions of *PEAKPOINTS*, KCP, with the assistance of research partners at Brown University and Quality Partners of Rhode Island, created three expert panels to gather valuable perspectives first-hand from kidney care experts, researchers, clinicians, and patients themselves on how to improve first-year survival rates.

The PEAK Campaign to improve survival in the first year is focused on patient education and key clinical care activities to achieve its goal. Throughout the campaign, KCP has disseminated information on the PEAK Best Practices identified by the expert panels through this newsletter as well as other communications vehicles.

FEATURED TECHNICAL/CLINICAL BEST PRACTICE: MANAGING NUTRITION AND INFLAMMATION

When individuals are diagnosed with kidney failure, they often have pre-existing conditions or develop conditions that can determine their quality of life, chances for hospitalization, and morbidity and mortality. Malnutrition and inflammation are two key indicators that can be measured and, more importantly, addressed to improve outcomes. **The PEAK Data Panel has found that poor nutrition at dialysis initiation (albumin \leq 3.5) is associated with a 6.1% higher probability of death in the first year.**

Malnutrition

Malnutrition is a major concern for dialysis patients. Protein-energy malnutrition occurs when the body does not have access to an adequate amount of the macronutrient. Dialysis also puts patients at risk for vitamin and mineral deficiencies. Several factors contribute to these nutritional risks, including appetite loss, endocrine dysfunction and complications such as infections or diabetes.¹ Restrictive diets also may be a contributing factor. Doctors often prescribe a diet low in potassium and phosphorus, for example, for chronic kidney disease management.

Inflammation

The continual use of foreign objects, such as catheters and dialysis solution, may trigger inflammation. Chronic inflammation may lead to appetite loss and increased protein depletion, two issues that also contribute to malnutrition. In fact, inflammation often occurs along with malnutrition issues and these two dialysis complications may co-exist as a condition called the **Malnutrition-Inflammation Complex Syndrome (MICS)**.

Malnutrition-Inflammation Complex Syndrome (MICS): Why is this important?

Protein-Energy Malnutrition (PEM) – also referred to as protein energy wasting – together with inflammation, often referred to as the **Malnutrition and Inflammation Complex Syndrome (MICS)**, may be a leading cause of mortality for those with end-stage kidney disease or chronic kidney disease.

There are many possible causes of MICS that clinicians may observe, including:

- comorbid illnesses,
- oxidative and carbonyl stress,
- nutrient loss through dialysis,
- anorexia and low nutrient intake,
- uremic toxins,
- decreased clearance of inflammatory cytokines,
- volume overload, and
- dialysis-related factors.

Further, many factors leading to these conditions overlap, as do assessment tools and criteria for diagnosing them (e.g., serum albumin, and markers of inflammation).

¹ Kalantar-Zadeh, K. Malnutrition-Inflammation Complex Syndrome in Dialysis Patients: Causes and Consequences. *Am J Kid Dis*. November 2003.

Recommended Best Practice:

The **PEAK** Technical Panel recommended monitoring for and addressing conditions that produce inflammation or result in malnutrition by systemically **evaluating and managing nutrition and inflammation – the Malnutrition and Inflammation Complex Syndrome (MICS)**. To do so, the Panel recommended:

- **In patients at CKD 4 or CKD 5, evaluate and manage inflammation and nutrition.** Involve a Registered Dietitian based on the risk for under-nutrition, a low albumin or other signs of under-nutrition. The dietitian can help determine if the observation is nutrition- or inflammation-related or to prevent under-nutrition (Medical Nutrition Therapy). This evaluation process should be shared by the primary care physician and nephrologist or ownership of the evaluation and subsequent management clearly defined by the providers.
- **Clinical team gathers data to establish baseline nutritional and inflammatory state, and monitors to trigger diagnostic evaluation and intervention as indicated, including, but not limited to albumin, body mass index, evaluation of dietary intake, ferritin or subjective global assessment.** The Malnutrition Inflammation Score (MIS) may also be used. Additional laboratory tests that may be considered are c-reactive protein and cytokine levels.
- **When increased inflammation, PEM or wasting becomes evident, identify the underlying cause(s).**
 - Generate a differential diagnosis, considering endogenous and exogenous causes. (As a place to start, refer to the abbreviated differential diagnosis lists under Tools/Resources.)
 - Determine which items in the differential diagnosis merit further evaluation.
- **Undertake interventions and a management plan directed at the cause of the under-nutrition and/or inflammation, and serially assess to monitor response and modify the plan accordingly.**
- **Dialysis catheter use increases the risk of bacterial infection and associated hospitalization and may also increase the risk of malnutrition and inflammation.** (Refer to Best Practice 1 on Catheter Avoidance)

Tools of Engagement and Resources:

For each of the Best Practices identified by the PEAK Campaign, the Panels also present Tools of Engagement to achieve the practice. Specifically, PEAK offers audio, web-based, and printed tools and resources for patients, healthcare professionals, and providers to implement these Best Practices and improve outcomes.

Examples of resources for evaluating and managing MICS include:

- **Web-Based Tools and Resources featuring Nutrition/Diet Patient Education Materials, from member and other kidney community groups, including:**
 - **American Association of Kidney Patients**
(https://www.aakp.org/aakplibrary/dsp_dialysisCats.cfm?cat=7)
 - **American Dietetic Association Renal Nutrition Forum**
(<http://www.renalnutrition.org/index.php>) Members only
 - **DaVita, Inc.** (<http://www.davita.com/diet-and-nutrition/>)
 - **Fresenius Medical Care**
(<https://www.ultracaredialysis.com/engine/renderpage.asp?pid=s0102>)
 - **Kidney School** (<http://www.kidneyschool.org/m09/>)
 - **National Kidney Foundation**
(http://www.kidney.org/atoz/atozTopic_Nutrition-Diet.cfm/)
 - **Renal Support Network**
(<http://kidneytimes.com/recipes.php?criteria=Recipes>)
- **Clinical Practice Guidelines, including:**
 - **Clinical Practice Guidelines for Nutrition in Chronic Renal Failure**
(National Kidney Foundation/KDOQI --
http://www.kidney.org/professionals/kdoqi/guidelines_updates/doqi_nut.html)
 - **Differential Diagnosis List (Abbreviated Differential Diagnosis for Under Nutrition and Malnutrition --**
<http://www.kidneycarequality.com/PDF/PEAKTechnical3Malnutritio04-05-10.pdf>)
 - **Differential Diagnosis List (Abbreviated Differential Diagnosis for Inflammation --**
<http://www.kidneycarequality.com/PDF/PEAKTechnical3Inflammation04-05-10.pdf>)
 - **Inflammation Guidelines (National Kidney Foundation/KDOQI --**
http://www.kidney.org/professionals/kdoqi/guidelines_cvd/inflammation.html)
 - **Malnutrition Guidelines (National Guideline Clearinghouse --**
http://www.guideline.gov/summary/summary.aspx?doc_id=11985&nbr=6169#1188)
 - **Medical Nutrition Therapy Protocols (Centers for Medicare and Medicaid Services --** <http://www.cms.gov/MedicalNutritionTherapy/>) and

(American Dietetic Association --
<http://www.eatright.org/Shop/Categories.aspx?id=384>)

- **Clinical Practice Guideline for Nutrition in Children with CKD: 2008 Update** (National Kidney Foundation/KDOQI --
http://www.kidney.org/professionals/kdoqi/guidelines_updates/pdf/CPGPedNutr2008.pdf)
- **Standards of Practice for Registered Dietitians in Nephrology Care** (<http://www.eatright.org/HealthProfessionals/content.aspx?id=6867> available to American Dietetic Association or National Kidney Foundation - Council of Renal Nutrition members only)
- **Other Supporting Literature and Books, including titles such as:**
 - **ADA and NKF standards of practice and standards of professional performance for registered dietitians** ([http://www.jrnjournal.org/article/S1051-2276\(09\)00171-X/abstract](http://www.jrnjournal.org/article/S1051-2276(09)00171-X/abstract))
 - **Persistent inflammation as a catalyst for other risk factors in chronic kidney disease: A hypothesis proposal** (http://cjasn.asnjournals.org/cgi/content/abstract/4/Supplement_1/S49)
 - **Predicting six-month mortality for patients who are on maintenance hemodialysis** (<http://cjasn.asnjournals.org/cgi/content/abstract/CJN.03860609v1>)
 - ***A Clinical Guide to Nutrition Care in Kidney Disease.*** (American Dietetic Association, 2004.)
 - ***Pocket Guide to Nutrition Assessment of the Patient with CKD,*** (4th ed). (National Kidney Foundation)

Conclusion: The Final Stretch

While the PEAK Campaign's data analyses find that the first-year mortality rate is trending downward, the kidney care community must continue to focus on implementing the spotlighted – and all – the PEAK Best Practices to ensure a reduction in mortality of 20 percent by the end of this year. Through PEAKPOINTS and other communications channels, we will continue to share Best Practices and Tools and Resources with our partners and the broader kidney care community to achieve PEAK's goal of improving survivability among first-year dialysis patients.

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