

## INTRODUCTION

The Malnutrition-Inflammation Score (MIS) is a composite score used to risk-stratify the nutritional status of hemodialysis (HD) patients. This risk assessment tool is based on 10 components in the categories of nutrition history, physical examination, body mass index and laboratory values. MIS scores range from 0 (normal, healthy) to 30 (severely malnourished), as described in Figure 1. Long-term, 5-year mortality rates have been shown to be associated with MIS scores but little is known about MIS scores and mortality in incident HD patients.



Figure 1. Malnutrition-Inflammation Score Scale

## METHODOLOGY

*We tested the hypothesis that higher MIS score correlates with increased mortality risk in incident HD patients.*

- MIS scores were collected for in-center HD patients during the first quarter of 2009 by over 1100 dietitians on both incident (n=9441) and prevalent (n=19174) patients.
- For MIS assessments completed within 30 days of the first treatment of dialysis at the facility (defined as incident patients), MIS scores were divided into quartiles and compared to incident mortality rates.
- Incident mortality rates were defined as deaths occurring within 90 days of the first treatment at the facility per 100 patient years.
- Trends across quartiles 1 through 4 were examined by p-for-trend.
- The model was adjusted for age, diabetes, race, ethnicity and vintage.

## RESULTS

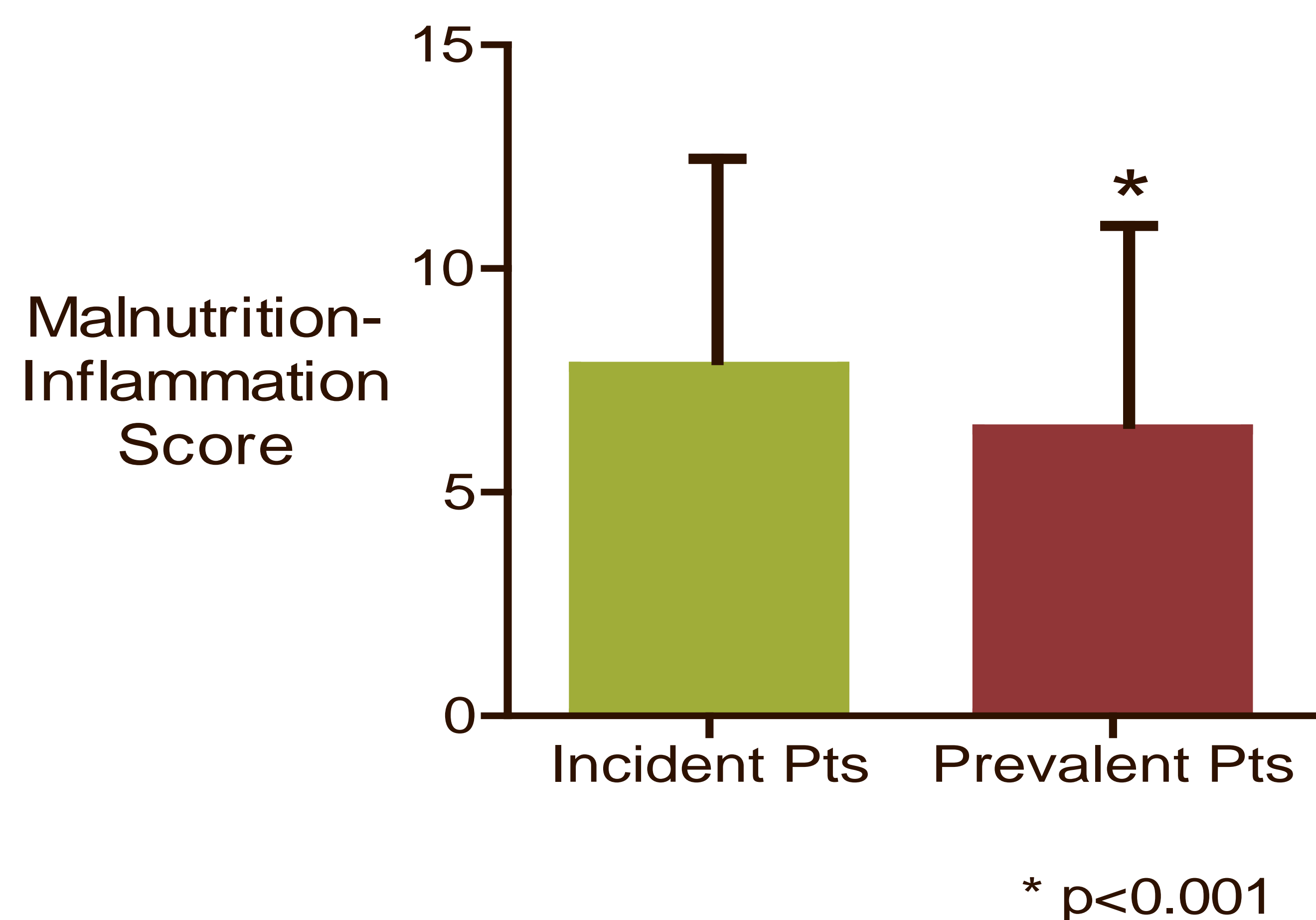


Figure 2. Average Malnutrition-Inflammation Score in Incident and Prevalent (>90 Days on in-center HD) Patients

Table 1. Incident Mortality Rates According to MIS Quartile

	MIS score 0-3	MIS score 4-5	MIS score 6-8	MIS score ≥9
N	7151	5840	6919	8708
Deaths per 100 patient years	4.88	9.09	15.25	41.75
p-for-trend	<0.0001	<0.0001	<0.0001	<0.0001

## CONCLUSIONS

- As shown in Figure 2, incident patients (≤90 days on in-center HD at the facility) had higher MIS scores (7.8 ± 4.4) than prevalent (>90 days on in-center HD) patients (6.4 ± 4.5, p<0.001).
- Mortality rates increased with increasing MIS scores in incident hemodialysis patients (Table 1).

## KEY LEARNINGS

- ✓ Higher MIS scores in incident patients indicate incident patients are at greater risk of malnutrition and inflammation than prevalent patients overall.
- ✓ For incident patients, MIS score correlated with relative risk of mortality within 90 days after beginning dialysis at the facility.
- ✓ Further research is needed to evaluate specific interventions and strategies that might be employed during the first 90 days to positively impact the risk status of incident patients.