Iowa Medicaid PDL Request for Levemir (insulin detemir)

Dear Iowa Medicaid P and T Committee:

I have reviewed the proposed PDL for the upcoming year. I noticed that Levemir (insulin detemir) was moved to non preferred and Lantus (insulin glargine) will be the preferred basal insulin. I request that Levemir be given the same status as Lantus. As a patient safety and diabetes specialist I do not use Lantus for my patients with diabetes. In 2009 there were four studies evaluating an increased risk for cancer associated with Lantus.[1] In 2010 there was a study analyzing if the dose of Lantus had an effect on cancer incidence.[2] The conclusion of the study was, "whereas higher mean daily doses of glargine, but not of other types of insulin, were associated with cancer after adjusting for confounders." Lantus has an affinity for the insulin growth factor 1 receptor, a receptor thought to increase cancer risk, of 641 compared to human insulin of 100, and Levemir of 16.[3] An analysis proved that there was no increased risk of cancer with Levemir.[4] This affinity and potential risk for cancer with Lantus is one of the main reasons I would not subject our patients to it. Other reasons we choose Levemir over Lantus include:

1. In-use duration of 42 days vs. 28 days with Lantus. Patients would need to take 24 units or more per day to finish a vial of Levemir, but would have to take 36 units or more per day to finish a vial of Lantus. Many patients would not be able to use this much insulin, especially when initiating therapy, so the cost savings would be negated. If patients continued to use a vial of Lantus until the vial is empty they would have suboptimal control because the insulin would not be 100% potent. I have witnessed this often in the past when my patients were on Lantus.
2. The two main side effects of any insulin is hypoglycemia and weight gain. Levemir has proven to have less intrapatient variability, which could lead to less hypoglycemia.[5] It has also proven to have less weight gain compared to Lantus.[6] Preventing weight gain or increasing weight loss is at the forefront of type 2 diabetes management.
3. Levemir has a pH of 7, similar to the body's physiologic pH, whereas Lantus has a pH of 4. Since it is more acidic patients have complained that it stings when injected. Patients will omit doses due to this which affects adherence and blood glucose control.
4. Both insulins when dosed once daily use about the same daily dose.[5]

Please consider safety ahead of price when preferring medications that appear on the Institute of Safe Medication Practices (ISMP) List of High Alert Medications. By having the same preferred status Levemir can be used for patients, which could improve control, prevent harmful and unwanted side effects, improve compliance with injections, and most importantly mitigate any potential risk of cancer.

1. *Diabetologia* 2009 52(9):1732-1744, 1745-1754, 1755-1765, 1766-1777.
2. Mannucci E, Monami M, Balzi D, et al. Doses of insulin and its analogues and cancer occurrence in insulin-treated type 2 diabetic patients. *Diabetes Care* 2010 33:1997-2003.
3. Kurtzhals P, Schäffer L, Sørensen A, et al. Correlations of receptor binding and metabolic and mitogenic potencies of insulin analogs designed for clinical use. *Diabetes.* 2000 Jun 49(6):999-1005.
4. Dejgaard A, Lynggaard H, Råstam J, and Krogsgaard Thomsen M. No evidence of increased risk of malignancies in patients with diabetes treated with insulin detemir: a meta-analysis. *Diabetologia* 2009 52:2507–2512.
5. Klein O, Lynge J, Endahl L, Damholt B, Nosek L, Heise T. Albumin-bound basal insulin analogues (insulin detemir and NN344): comparable time-action profiles but less variability than insulin glargine in type 2 diabetes. Diabetes Obes Metab 2007;9:290-9.
6. Hollander P, Cooper J, Bregnhoj J, Pedersen CB. A 52-week, multinational, open-label, parallel-group, noninferiority, treat-to-target trial comparing insulin detemir with insulin glargine in a basal-bolus regimen with mealtime insulin aspart in patients with type 2 diabetes. Clin Ther 2008;30:1976-87.

Sincerely,