



## Therapeutic Class Review<sup>SM</sup>

### Pramlintide acetate (Symlin<sup>®</sup>)

November 2005

New Product(s) for Review:  
 Pramlintide acetate (Symlin<sup>®</sup>) - Amylin Pharmaceuticals, Inc

Dossier Provided by Manufacturer: yes

#### Available Therapeutic Alternatives

##### Insulins

Preferred/Formulary	Non-Preferred/Non-Formulary
<i>Short-Acting Insulin</i>	
regular human insulin: (Humulin <sup>®</sup> R) [Eli Lilly]	
regular human insulin: (Novolin <sup>®</sup> R) [Novo Nordisk ]	
insulin aspart: (Novolog <sup>®</sup> ) [Novo Nordisk ]	
insulin lispro: (Humalog <sup>®</sup> ) [Eli Lilly]	
<i>Intermediate-Acting Insulin</i>	
insulin NPH: (Humulin <sup>®</sup> N) [Eli Lilly]	
insulin NPH: (Novolin <sup>®</sup> N) [Novo Nordisk ]	
zinc suspension: (Humulin <sup>®</sup> L) [Eli Lilly]	
<i>Long-Acting Insulin</i>	
glargine: (Lantus <sup>®</sup> ) [Aventis]	
zinc extended : (Humulin <sup>®</sup> U) [Eli Lilly]	
<i>Pre-Mixed Insulin</i>	
lispro 75/25: (Humalog <sup>®</sup> Mix) [Eli Lilly]	
aspart 70/30: (NovoLog <sup>®</sup> Mix) [Novo Nordisk ]	

##### Oral Antihyperglycemic Agents

glipizide (generic); glyburide (generic)	glipizide/metformin HCl (Metaglip <sup>®</sup> ) [Bristol Meyers Squibb]
metformin (generic)	rosiglitazone maleate/metformin HCl (Avandamet <sup>®</sup> ) [GlaxoSmithKline]
glyburide/metformin HCl (generic)	
pioglitazone (Actos <sup>®</sup> ) [Takeda]	
rosiglitazone maleate (Avandia <sup>®</sup> ) [GlaxoSmithKline]	

## **Executive Summary**

- Pramlintide (Symlin) is used as adjunctive treatment in patients with Type 1 or Type 2 diabetes currently on insulin and who are unable to achieve adequate glycemic control with insulin therapy.
- There is no evidence to support the use of pramlintide (Symlin) as monotherapy in patients with Type 1 or Type 2 diabetes.
- Risk of hypoglycemia limits the overall usefulness of pramlintide (Symlin) and carries a Black Box warning in product labeling.
- Benefits from weight loss with pramlintide (Symlin) are unsubstantiated by current evidence.
- There is no useful evidence showing pramlintide (Symlin) with insulin results in clinically relevant weight loss or maintenance of weight that results in improved health.

## **Conclusion**

Pramlintide (Symlin) is non-preferred/non-formulary because:

- There is no useful evidence of additional clinical value for pramlintide (Symlin) when added to insulin in patients with Type 1 diabetes or Type 2 diabetes.
- Risk of hypoglycemia with pramlintide (Symlin) has the potential to outweigh any modest benefit in improving glycemic control.

## Products

<b>Drug Product</b> <sup>1,2</sup>	<b>Date of FDA Approval</b> <sup>2</sup>	<b>FDA Approved Indication(s)</b>	<b>Dose/Route</b>	<b>AWP Cost or MAC*</b>	<b>Potential Off-Label Use(s)</b>
pramlintide acetate <sup>3</sup> (Symlin <sup>®</sup> )	03/2005	Diabetes mellitus, Type 1 and Type 2 as adjunct to insulin therapy.	<u>Type I Diabetes:</u> 15 - 60 mcg SQ before major meals. <u>Type II Diabetes:</u> 60 - 120mcg SQ before major meals.	\$198 (2 x5ml vials)	Weight loss
<b>INSULIN</b>					
regular human insulin: (Humulin <sup>®</sup> R)	10/1982	Diabetes mellitus – Type 1, Type 2, gestational, pregnancy, diabetic ketoacidosis, hyperglycemic-hyperosmolar nonketotic coma	SQ. Individualized per patient’s needs.	\$35	Diabetic ketoacidosis; hyperglycemic-hyperosmolar nonketotic coma
regular human insulin: (Novolin <sup>®</sup> R)	06/1991	Diabetes mellitus – Type 1, Type 2, gestational, pregnancy, diabetic ketoacidosis, hyperglycemic-hyperosmolar nonketotic coma	SQ. Individualized per patient’s needs.	\$35	Diabetic ketoacidosis; hyperglycemic-hyperosmolar nonketotic coma
insulin aspart: (Novolog <sup>®</sup> )	06/2000	Diabetes mellitus, Type 1 and Type 2	SQ. Individualized per patient’s needs.	\$81	
insulin lispro: (Humalog <sup>®</sup> )	06/1996	Diabetes mellitus, Type 1 and Type 2	SQ. Individualized per patient’s needs.	\$81	
isophane (NPH): (Humulin <sup>®</sup> N)	10/1982	Diabetes mellitus – Type 1, Type 2, gestational, pregnancy, diabetic ketoacidosis, hyperglycemic-hyperosmolar nonketotic coma	Individualized per patient’s needs.	\$35	Hyperkalemia, diabetic neuropathy, diabetic macrovascular disease, latent autoimmune diabetes in adults, myocardial infarction
isophane (NPH): (Novolin <sup>®</sup> N)	07/1991	Diabetes mellitus – Type 1, Type 2, gestational, pregnancy, diabetic ketoacidosis, hyperglycemic-hyperosmolar nonketotic coma	SQ. Individualized per patient’s needs.	\$35	Hyperkalemia, diabetic neuropathy, diabetic macrovascular disease, latent autoimmune diabetes in adults, myocardial infarction
zinc suspension (Lente <sup>®</sup> ): (Humulin <sup>®</sup> L)	09/1985	Diabetes mellitus – Type 1, Type 2, gestational, pregnancy, diabetic ketoacidosis, hyperglycemic-hyperosmolar nonketotic coma	SQ. Individualized per patient’s needs.	\$35	Hyperkalemia, diabetic neuropathy, diabetic macrovascular disease, latent autoimmune diabetes in adults, myocardial infarction
glargine: (Lantus <sup>®</sup> )	04/2000	Diabetes mellitus Type 1 in adults and pediatric 6 yrs and older, Type 2 in adults	SQ. Individualized per patient’s needs.	\$91	
zinc extended (Ultralente <sup>®</sup> ): Humulin <sup>®</sup> U Ultralente	06/1987	Diabetes mellitus – Type 1, Type 2, gestational, pregnancy, diabetic ketoacidosis, hyperglycemic-hyperosmolar nonketotic coma	SQ. Individualized per patient’s needs.	\$35	Hyperkalemia, diabetic neuropathy, diabetic macrovascular disease, latent autoimmune diabetes in adults, myocardial infarction
lispro 75/25: (Humalog <sup>®</sup> Mix)	12/1999	Diabetes mellitus, Type 1 and Type 2	SQ. Individualized per patient’s needs.	\$81	
aspart 70/30: (NovoLog <sup>®</sup> Mix)	11/2001	Diabetes mellitus, Type 1 and Type 2	SQ. Individualized per patient’s needs.	\$81	

<b>ORAL ANTI-DIABETIC AGENTS</b>					
Glipizide (generic)	05/1984	Diabetes mellitus, Type 2 (Used alone or in combination)	5 - 40mg PO daily	\$2 MAC	Diabetic microangiopathy; Gestational diabetes
Glipizide and Metformin HCl (Metaglip®)	10/2002	Diabetes mellitus, Type 2	<u>Monotherapy:</u> 2.5 mg/250 mg PO daily up to 10 mg/2000 mg per day in divided doses <u>Combination therapy:</u> 2.5 mg/500 mg or 5mg/500mg BID; max. 20 mg/2000 mg daily	\$28 - \$66 AWP	
Glyburide (generic)	05/1984	Diabetes mellitus, Type 2 (Used alone or in combination)	2.5 - 5 mg PO daily	\$2 - \$5 MAC	Gestational diabetes
Glyburide and Metformin HCl (Glucovance®)	07/2000	Diabetes mellitus, Type 2	1.25 mg/250 mg PO once or twice daily <u>Previously treated:</u> 2.5 mg/500 mg to 5 mg/500 mg PO twice daily; max. 20 mg/2000 mg once daily	\$19 - \$53 MAC	
Metformin (generic)	03/1995	Diabetes mellitus, Type 2 (Used alone or in combination)	500 mg PO twice daily or 850 mg once daily	\$4 - \$7 MAC	
Pioglitazone (Actos®)	07/1999	Diabetes mellitus, Type 2 (Used alone or in combination)	<u>Monotherapy:</u> 15-30 mg PO once daily; max. 45 mg daily <u>Combination therapy:</u> max. 30 mg PO daily	\$147 - \$181 AWP	
Rosiglitazone maleate (Avandia®)	05/1999	Diabetes mellitus, Type 2  Diabetes mellitus, Type 2 in combination with insulin, metformin, or sulfonylurea.  (Used alone or in combination)	<u>Monotherapy:</u> 4 mg PO once daily or 2mg twice daily; max. 8 mg daily <u>Concomitant with insulin:</u> 4 mg PO daily; max. 4 mg/day <u>Concomitant with metformin or sulfonylureas:</u> 4 mg orally once daily or 2 mg twice daily	\$94 AWP	
Rosiglitazone maleate and Metformin HCl (Avandamet®)	10/2002	Diabetes mellitus, type 2 (NIDDM) (not to be given as initial therapy.	2mg/500mg – 4mg/1000mg PO twice daily	\$109 - \$178 AWP	

\*AWP (average wholesale price) based on First Data Bank as of August 2005 for 1 month of therapy .

MAC (Maximum Allowable Cost) based on The Regence Group maximum allowable cost as of August 2005 for 1 month of therapy

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