exenatide (ex-en-a-tide)
Bydureon, Byetta

**Classification**
Therapeutic: antidiabetics
Pharmacologic: incretin mimetic agents

**Pregnancy Category C**

**Indications**
Management of type 2 diabetes as an adjunct to diet and exercise.

**Action**
Mimics the action of incretin which promotes endogenous insulin secretion and promotes other mechanisms of glucose-lowering.

**Pharmacokinetics**

- **Absorption:** Well absorbed following subcutaneous administration.
- **Distribution:** Unknown.
- **Metabolism and Excretion:** Excreted mostly by glomerular filtration followed by degradation.
- **Half-life:** Immediate-release—2.4 hr.

**T/M/A/P (effects on post-prandial blood glucose)**

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>subcut (immediate-release)</td>
<td>within 30 min</td>
<td>2.1 hr</td>
<td>8 hr</td>
</tr>
<tr>
<td>subcut (extended-release)</td>
<td>unknown</td>
<td>9 wk</td>
<td>unknown</td>
</tr>
</tbody>
</table>

**Contraindications/Precautions**

- **Contraindicated in:** Hypersensitivity; Type 1 diabetes or diabetic ketoacidosis; Severe renal impairment or end-stage renal disease (CCr <30 mL/min); Severe gastrointestinal disease; Personal or family history of medullary thyroid carcinoma (extended-release only); Multiple Endocrine Neoplasia syndrome (extended-release only); Impaired renal function; Hypothyroidism (extended-release only).

- **Dox:** Cardiac drug name
- **Rx:** Generic Implication
- **OPTK8:** indicates most frequent

**Adverse Reactions/Side Effects**

- **CV:** dizziness, headache, jitteriness, weakness.
- **GI:** pancreatitis, diarrhea, nausea, vomiting, dyspepsia, gastrointestinal reflux.
- **Endo:** thyroid T-cell tumors (extended-release), hypoglycemia.
- **GU:** acute renal failure.
- **Derm:** hyperhydrosis.
- **Metab:** appetite, weight loss.

**Interactions**

- **Drug-Drug:** Concurrent use with sulfonylureas or insulin may ↑ risk of hypoglycemia; concurrent use of insulin with extended-release exenatide not recommended. Concurrent use with nateglinide or repaglinide may ↑ risk of hypoglycemia. Due to slowed gastric emptying, may ↓ absorption of orally administered medications, especially those requiring rapid GI absorption or require a specific level for efficacy; take oral antifungals and oral contraceptives at least 1 hr before ingesting exenatide.

**Route/Dosage**

**Immediate Release (Byetta)**

- Subcut (Adults): 5 mcg within 60 min before morning and evening meal; after 1 mo, dose may be ↑ to 10 mcg depending on response.

**Renal Impairment**

- Subcut (Adults): CCr 30–50 mL/min—Use caution when ↑ dose from 5 mcg to 10 mcg.

**Extended Release (Bydureon)**

- Subcut (Adults): 2 mg every 7 days.

**NURSING IMPLICATIONS**

**Assessment**

- Observe for signs and symptoms of hypoglycemic reactions (abdominal pain, sweating, hunger, weakness, dizziness, headache, drowsiness, insomnia, tachycardia, etc.).
Instruct patient to take exenatide

- **Patient/Family Teaching**

  **Subcut:**

  - Patient stabilized on a diabetic regimen who are exposed to stress, fever, trauma, infection, or surgery may require administration of insulin.
  - **Subcut:** Immediate release: Follow directions for NovoPen 3. Informed consent (Patient) prior to use of each new pen. Inject exenatide in thigh, abdomen, or upper arm at any time within the 60–min period prior to the morning and evening meals. Do not administer after a meal. Do not mix with insulin. Solution should be clear and colorless; do not administer solutions that are discolored or contain particulate matter. Refrigerate and do not freeze. Do not store pen with needle attached; medication may leak from pen or air bubbles may form in the cartridge.

  - **Subcut:** Extended release: Dilute with diluent and needles included in tray. Suspension should be white or off-white and cloudy. Administer without regard to meals. Do not administer after a meal. Do not mix with insulin. Solution should be clear and colorless; do not administer solutions that are discolored or contain particulate matter. Refrigerate; discard pen 30 days after 1st use, even if some drug remains in pen. Do not freeze. Do not mix with needle attached; medication may leak from pen or air bubbles may form in the cartridge.

- **Implementation**

  - Some medications may need to be taken 1 hr before exenatide.
  - Patients stabilized on oral antidiabetic agents who are exposed to stress, fever, trauma, infection, or surgery may require administration of insulin.
  - **Subcut:** Immediate release: Follow directions for NovoPen 3. Informed consent (Patient) prior to use of each new pen. Inject exenatide in thigh, abdomen, or upper arm at any time within the 60–min period prior to the morning and evening meals. Do not administer after a meal. Do not mix with insulin. Solution should be clear and colorless; do not administer solutions that are discolored or contain particulate matter. Refrigerate and do not freeze. Do not store pen with needle attached; medication may leak from pen or air bubbles may form in the cartridge.

- **Noncompliance (Patient/Family Teaching)**

  - Instruct patient to take exenatide as directed within 60 min before a meal. Do not take after a meal. If a dose is missed, skip the dose and take the next dose at the prescribed time. Do not take an extra dose or increase the amount of the next dose to make up for missed dose. If a dose of exenatide extended release insulin monohydrate is due at least 5 days later, if 1 or 2 days later skip dose and administer next dose as scheduled. The day of weekly administration can be changed as long as the last dose was administered 3 or more days before.
  - Instruct patient in proper technique for administration, timing of dose and concurrent oral medications, storage of medication and disposal of needles. Patients should read the Information for Patient insert prior to initiation of therapy and with each Rx refill. Advise patient that Novo Pen Setup should be done only with each new pen, not with each dose.
  - Inform patient that pen needles are not included with pen and must be purchased separately. Advise patient which needle length and gauge should be used. Caution patient not to share pen and needles.
  - Explain to patient that consistent blood glucose control by exenatide does not cure diabetes. Therapy is usually long-term.
  - Encourage patient to prescribed diet, medication, and exercise regimen to prevent hyperglycemic or hypoglycemic episodes.
  - Review signs of hyperglycemia and hypoglycemia with patient. If hypoglycemia occurs, advise patient to take a glass of orange juice or 2–3 tsp of sugar, honey, or corn syrup dissolved in water, and notify health care professional. Risk of hypoglycemia is increased if sulfonylureas are taken concurrently with exenatide.
  - Advise patient to notify health care professional immediately if symptoms of pancreatitis (unexplained, persistent, severe abdominal pain which may or may not be accompanied by vomiting) occur.
  - Instruct patient that therapy may result in reduction of appetite, food intake, and/or weight. Dose modification is not necessary. Nausea is more common at initiation of therapy and usually decreases over time.
  - Inform patient that therapy may result in reduction of appetite, food intake, and/or weight. Dose modification is not necessary. Nausea is more common at initiation of therapy and usually decreases over time.
  - Instruct patient to notify health care professional if abdominal pain is severe or if there is vomiting. Advise patient to notify health care professional if severe or persistent diarrhea occurs.
  - Instruct patient to notify health care professional of medication regimen before treatment or surgery.

**CONTINUED**
exenatide

- Advise patient to notify health care professional if pregnancy is suspected or
desired.
- Advise patient to carry a form of sugar (sugar packets, candy) and identification
describing disease process and medication regimen at all times.
- Emphasize the importance of routine follow-up exams and regular testing of blood
glucose and glycosylated hemoglobin.

Evaluation/Desired Outcomes
- Control of blood glucose levels without the appearance of hypoglycemic or hyper-
glycemic episodes.

Why was this drug prescribed for your patient?