

## Supplemental Online Content

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**eAppendix.** List of Specific Insulin Products Included in IQVIA National Disease and Therapeutic Index, 2016-2020

**eTable.** Insulin Products and Devices Approved by the US Food and Drug Administration and Available in the United States, 2016-2020

This supplemental material has been provided by the authors to give readers additional information about their work.

**eAppendix.** List of Specific Insulin Products Included in IQVIA National Disease and Therapeutic Index, 2016-2020

Insulin molecules

These included the following:

- insulin aspart (Fiasp, Fiasp Flextouch, Novolog, Novolog Flexpen)
- insulin degludec (Tresiba, Xultophy)
- insulin detemir (Levemir, Levemir Flextouch)
- insulin glargine (Basaglar Kwikpen, Lantus, Lantus Solostar, Semglee, Soliqua, Toujeo MaxSolostar, Toujeo Solostar)
- insulin glulisine (Apidra, Apidra Solostar)
- insulin lispro (Admelog, Admelog Solostar, Humalog, Humalog Jr Kwikpen, Humalog Kwikpen, Insulin Lispro, Insulin Lispro Kwikpen)\*
- NPH insulin (Humulin N, Humulin N Kwikpen, Novolin N)
- regular insulin (Afrezza, Humulin R, Humulin R Kwikpen, Novolin R)
- pre-mixed analog insulins (Humalog Mix 75/25, Humalog Mix 50/50, Humalog Kwikpen 50/50, Humalog Kwikpen 75/25, Novolog Flexpen Mix 70/30, Novolog Mix 70/30)
- pre-mixed human insulins (Humulin 70/30, Humulin 70/30 Kwikpen, Novolin 70/30, Novolin 70/30 Flexpen).

*\*Lyumjev was approved in mid-2020 but there were no treatment visits reported for that year.*

Insulin treatment classes

These included the following:

- Long-acting insulins included Basaglar Kwikpen, Lantus, Lantus Solostar, Levemir, Levemir Flextouch, Semglee, Soliqua, Toujeo MaxSolostar, Toujeo Solostar, Tresiba, and Xultophy.
- Intermediate-acting insulins included Humulin N, Humulin N Kwikpen, and Novolin N.

- Rapid-acting insulins included the following: Admelog, Admelog Solostar, Afrezza, Apidra, Apidra Solostar, Fiasp, Fiasp Flextouch, Humalog, Humalog Jr Kwikpen, Humalog Kwikpen, Insulin Lispro, Insulin Lispro Kwikpen, Novolog, and Novolog Flexpen.
- Short-acting insulins included Humulin R, Humulin R Kwikpen, and Novolin R.
- Pre-mixed insulins included Humalog Kwikpen 50/50, Humalog Kwikpen 75/25, Humalog Mix 50/50, Humalog Mix 75/25, Humulin 70/30, Humulin 70/30 Kwikpen, Novolin 70/30, Novolin 70/30 Flexpen, Novolog Flexpen Mix 70/30, and Novolog Mix 70/30.

### Insulin type

These included the following:

- Analog insulins included the following: Apidra, Apidra Solostar, Fiasp, Fiasp Flextouch, Humalog, Humalog Jr Kwikpen, Humalog Kwikpen, Humalog Kwikpen 50/50, Humalog Kwikpen 75/25, Humalog Mix 50/50, Humalog Mix 75/25, Insulin Lispro, Insulin Lispro Kwikpen, Lantus, Lantus Solostar, Levemir, Levemir Flextouch, Novolog, Novolog Flexpen, Novolog Flexpen Mix 70/30, Novolog Mix 70/30, Semglee, Soliqua, Toujeo MaxSolostar, Toujeo Solostar, Tresiba, Xultophy.
- Human insulins included the following: Afrezza, Humulin 70/30, Humulin 70/30 Kwikpen, Humulin N, Humulin N Kwikpen, Humulin R, Humulin R Kwikpen, Novolin 70/30, Novolin 70/30 FlexPen, Novolin N, and Novolin R.
- Biosimilar insulins included the following: Basaglar Kwikpen, Admelog, and Admelog Solostar.

### Insulin delivery devices

These included the following:

- Vials of insulin included the following: Admelog, Apidra, Fiasp, Humalog, Humalog Mix 50/50, Humalog Mix 75/25, Humulin 70/30, Humulin N, Humulin R, Insulin Lispro, Lantus, Levemir, Novolin 70/30, Novolin N, Novolin R, Novolog, Novolog Mix 70/30, Semglee, and Tresiba.
- Insulin pens included the following: Admelog Solostar, Apidra Solostar, Basaglar Kwikpen, Fiasp Flextouch, Humalog Jr Kwikpen, Humalog Kwikpen, Humalog Kwikpen 50/50, Humalog Kwikpen 75/25, Humulin 70/30 Kwikpen, Humulin N Kwikpen, Humulin R Kwikpen, Lantus Solostar, Levemir Flextouch, Novolog Flexpen, Novolin 70/30 Flexpen, Novolog Flexpen Mix 70/30, Semglee, Soliqua, Toujeo MaxSolostar, Toujeo Solostar, and Xultophy.
- Inhaled insulin included Afrezza.

#### *Older versus newer insulins*

These included the following:

- Newer insulins included those approved by the FDA in 2010 to the present (Admelog, Admelog Solostar, Afrezza, Basaglar Kwikpen, Fiasp, Fiasp Flextouch, Humalog Jr Kwikpen, Humulin 70/30 Kwikpen, Humulin N Kwikpen, Humulin R Kwikpen, Insulin Lispro, Insulin Lispro Kwikpen, Levemir Flextouch, Novolin 70/30 Flexpen, Semglee, Soliqua, Toujeo MaxSolostar, Toujeo Solostar, Tresiba, and Xultophy).
- Older insulins included those approved by the FDA prior to 2010 (Apidra, Apidra Solostar, Humalog, Humalog Kwikpen, Humalog Kwikpen 50/50, Humalog Kwikpen 75/25, Humalog Mix 50/50, Humalog Mix 75/25, Humulin 70/30, Humulin N, Humulin R, Lantus Solostar, Lantus, Levemir, Novolin 70/30, Novolin N, Novolin R, Novolog, Novolog Flexpen, Novolog Flexpen Mix 70/30, and Novolog Mix 70/30).

*Fixed-dose combination insulins*

Combination basal and insulin-glucagon-like related peptide agents included the following:

- Soliqua (insulin glargine and lixisenatide)
- Xultophy (insulin degludec and liraglutide).

**eTable.** Insulin Products and Devices Approved by the US Food and Drug Administration and Available in the United States, 2016-2020

<b>Insulin Molecule (Year of Approval)</b>	<b>Drug Brand Names</b>	<b>Insulin Delivery Devices (Pens)</b>
<b><i>Isophane (NPH) insulin (1982)</i></b>	Humulin N <sup>®</sup> Novolin N ReliOn <sup>®</sup> Novolin N <sup>®</sup>	Humulin N Kwikpen U-100 Novolin N FlexPen U-100 Novolin N FlexPen ReliOn U-100
<b><i>Regular insulin (1982)</i></b>	Humulin R <sup>®</sup> Novolin N ReliOn <sup>®</sup> Novolin R <sup>®</sup> Humulin R U-500 <sup>®</sup>	Novolin R FlexPen U-100 Novolin R FlexPen ReliOn U-100 Humulin R Kwikpen U-100 Humulin R KwikPen U-500
<b><i>70% (isophane)/30% (regular) (1989)</i></b>	Humulin 70/30 <sup>®</sup> Novolin 70/30 <sup>®</sup>	Humulin 70/30 Kwikpen U-100 Novolin 70/30 FlexPen U-100 Novolin 70/30 FlexPen ReliOn U-100
<b><i>Lispro (1996)</i></b>	Humalog <sup>®</sup>	Humalog Kwikpen U-100 Humalog Kwikpen U-200 Humalog Jr Kwikpen U-100
<b><i>50% (lispro protamine)/ 50% (lispro) (1999)</i></b>	Humalog Mix 50/50 <sup>®</sup>	Humalog Kwikpen 50/50 U-100
<b><i>75% (lispro protamine)/25% (lispro) (1999)</i></b>	Humalog Mix 75/25 <sup>®</sup>	Humalog Kwikpen 75/25 U-100
<b><i>Aspart (2000)</i></b>	Novolog <sup>®</sup>	Novolog Flexpen U-100
<b><i>Glargine (2000)</i></b>	Lantus <sup>®</sup> Toujeo <sup>®</sup>	Lantus Solostar U-100 Toujeo Solostar U-300 Toujeo Max Solostar U-300
<b><i>70% (aspart protamine)/ 30% (aspart) (2001)</i></b>	Novolog 70/30 <sup>®</sup>	Novolog Flexpen Mix 70/30 U-100
<b><i>Glulisine (2004)</i></b>	Apidra <sup>®</sup>	Apidra Solostar U-100

<b><i>Detemir (2005)</i></b>	Levemir <sup>®</sup>	Levemir Flextouch U-100
<b><i>Inhaled regular insulin (2014)</i></b>	Afrezza <sup>®</sup>	Afrezza (inhaler)
<b><i>Degludec (2015)</i></b>	Tresiba <sup>®</sup>	Tresiba Flextouch U-100 Tresiba Flextouch U-200
<b><i>Biosimilar glargine (2015)</i></b>	Basaglar <sup>®</sup>	Basaglar Kwikpen U-100
<b><i>Insulin glargine and lixisenatide (2016)</i></b>	Soliqua <sup>®</sup>	Soliqua <sup>®</sup>
<b><i>Insulin degludec and liraglutide (2016)</i></b>	Xultophy <sup>®</sup>	Xultophy <sup>®</sup>
<b><i>Faster aspart (2017)</i></b>	Fiasp <sup>®</sup>	Fiasp Flextouch U-100
<b><i>Biosimilar lispro (2017)</i></b>	Admelog <sup>®</sup>	Admelog Solostar U-100
<b><i>Biosimilar and interchangeable glargine (2020)</i></b>	Semglee <sup>®</sup>	Semglee U-100 pen