

Infliximab (Remicade®)

Biosimilars:

- **Infliximab-dyyb (Inflectra)**
- **Infliximab-axxq (Avsola)**
- **Infliximab-abda (Renflexis)**

Formulation of infliximab is generally insurance driven based on patient's coverage and plan.

Infliximab [and biosimilars] is a chimeric [part mouse, part human] monoclonal antibody that blocks activity of a key biologic response mediator called “tumor necrosis factor alpha (TNF- α)”. The action of infliximab is to bind to and neutralize TNF- α on the cell membrane as well as soluble TNF- α and to destroy TNF- α producing cell, thus inhibiting inflammation.

Resources from Manufacturer

Remicade

- [Patient Medication Guide](#)
- [Full Prescribing Information](#)
- [Janssen CarePath](#)
- [Financial Assistance](#)

Inflectra

- [Patient Medication Guide](#)
- [Full Prescribing Information](#)
- [Pfizer enCompass Co-pay Enrollment](#)

Avsola

- [Patient Medication Guide](#)
- [Full Prescribing Information](#)
- [Avsola Co-pay Program](#)
- [Financial Assistance through Amgen](#)

Renflexis

- [Patient Medication Guide](#)
- [Full Prescribing Information](#)
- [The Organon Co-pay Assistance Program](#)
- [Financial Assistance](#)

FDA-Approved Indications and Dosing in Rheumatology

Infliximab is indicated for:

- Crohn's Disease in adult patients with moderately to severely active disease who have had an inadequate response to conventional therapy
- Pediatric Crohn's Disease in patients 6 years of age and older with moderately to severely active disease who have had an inadequate response to conventional therapy
- Ulcerative Colitis in adult patients with moderately to severely active disease who have had an inadequate response to conventional therapy
- Pediatric Ulcerative Colitis in 6 years of age and older with moderately to severely active disease who have had an inadequate response to conventional therapy
- Rheumatoid Arthritis in combination with methotrexate in adult patients with moderately to severely active disease
- Ankylosing Spondylitis in adult patients with active disease
- Psoriatic Arthritis in adult patients
- Plaque Psoriasis: treatment of adult patients with chronic severe (i.e., extensive and/or disabling) plaque psoriasis who are candidates for systemic therapy and when other systemic therapies are medically less appropriate

Intravenous Dosing

- Crohn's Disease: 5 mg/kg IV at 0, 2 and 6 weeks, then every 8 weeks. Some adult patients may benefit from doses up to 10 mg/kg
- Pediatric Crohn's Disease (≥ 6 years old): 5 mg/kg at 0, 2 and 6 weeks, then every 8 weeks
- Ulcerative Colitis: 5 mg/kg IV at 0, 2 and 6 weeks, then every 8 weeks.
- Pediatric Ulcerative Colitis (≥ 6 years old): 5 mg/kg at 0, 2 and 6 weeks, then every 8 weeks
- Rheumatoid Arthritis: 3 mg/kg IV at 0, 2 and 6 weeks, then every 8 weeks, in conjunction with methotrexate. Some patients may benefit from doses up to 10 mg/kg or treating as often as every 4 weeks.
- Ankylosing Spondylitis: 5 mg/kg IV at 0, 2 and 6 weeks, then every 6 weeks.
- Psoriatic Arthritis and Plaque Psoriasis: 5 mg/kg IV at 0, 2 and 6 weeks, then every 8 weeks

Contraindications

Doses greater than 5 mg/kg in patients with moderate to severe heart failure [New York Heart Association Functional Class III/IV]. Previous severe hypersensitivity reaction to infliximab or known hypersensitivity to any component of infliximab or to any murine proteins.

Warnings and Precautions

1. Serious infections—do not administer if active infection is present. Patient greater than 65 years of age, those with comorbid conditions or on concomitant immunosuppressant or corticosteroids may be at greater risk for infection.
2. Reactivation of hepatitis B virus—test HBV infection before starting infliximab and monitor for HBV carriers.
3. Rare hepatotoxicity leading to death or liver transplantation; monitor for marked liver enzyme elevations and for the presence of jaundice.
4. Lymphoma and other malignancies have been reported in patients receiving TNF blockers.
5. New or worsening of heart failure may occur, particularly with infliximab 5 mg/kg/dose or higher.
6. Hypersensitivity—infusion reactions, including anaphylaxis or serious allergic reactions may occur.
7. Cytopenias
8. Demyelinating disease—exacerbation or new onset
9. Lupus-like syndrome
10. Live vaccines or therapeutic infectious agents should not be given with concurrent infliximab use.
11. Drug interactions—avoid use with anakinra or abatacept, which may increase risk of serious infections.

Adverse Reactions (>10%)

- infections (e.g. upper respiratory, sinusitis, and pharyngitis)
- Infusion-related reactions
- Headache
- Abdominal pain

Medication Strength and Preparations

The infliximab formulations are all supplied as 100mg lyophilized powder for reconstitution. Reconstituted infliximab infusion solution should be prepared by a trained medical professional using aseptic technique

continued

Medication Administration and Storage

- Unopened vials must be refrigerated at 2°C to 8°C [36°F to 46°F]

Intravenous Administration

1. Vital Signs Monitoring: Obtain vital signs (patient temperature, blood pressure and pulse) upon arrival, after start of medication, upon discontinuing infusion and before the patient departs the facility. However, if prior history of an acute infusion reaction, monitor vitals every 10 minutes for 30 minutes then every 30 minutes and for 30 minutes after infusion.
2. Review Orders and Obtain IV Access:
 - Check for pre-medication orders. Give pre-medications if ordered. Pre-medications may include antihistamines, acetaminophen and/or corticosteroids.
 - Infliximab infusion should be administered over a period of not less than 2 hours. Below is an example of an infusion rate schedule for infliximab diluted in a 250mL volume:
 - 40mL/hr. for 15 minutes, then if tolerated, increase to:
 - 80mL/hr. x 30 minutes, then if tolerate, increase to:
 - 160mL/hr. for the duration of infusion
 - Flush to ensure all medication in the IV tubing is administered.
 - Total infusion time is 2 hours, plus 15 minutes for the flush.

Intravenous Administration Pre-infusion Checklist

1. Tuberculosis Screening
 - Verify that latent tuberculosis infection screening has been performed
 - Detailed history of patient tuberculosis exposure risk factors
 - Confirm the following:
 - Negative tuberculin skin test/PPD and/or Negative Interferon Gamma Release Assay (Quantiferon or TSpot TB test). Consider chest x-ray in patients with TB risk factors but negative screening tests.
 - Positive tuberculin skin test/PPD or positive Quantiferon/TSpot TB test with negative chest x-ray.
 - Patient is at least 4 weeks post initiation of INH or other TB therapy.
 - Consider repeating screening tests if a patient has subsequently traveled to TB endemic countries or there has been a change in risk factors for TB exposure.

Confirm that the patient is hepatitis B negative (particularly HepB Surface Antigen).

If patient has a history of moderate to severe heart failure, infliximab has been associated with an exacerbation of heart failure; doses > 5 mg/kg are contraindicated. Close monitoring is recommended.
 - If patient has demyelinating diseases, such as multiple sclerosis, infliximab is contraindicated.

Evaluate patient for: (review affirmative answers with ordering provider)
 - Any current or recent bouts of fever, illness or infection
 - Taking any antibiotics
 - Recent or upcoming surgeries
 - Recent or planned live virus vaccinations (live virus vaccinations are not recommended during therapy with infliximab).

Intravenous Medication Preparation

1. Calculate the dose per providers order, total volume of reconstituted infliximab solution required and the number of infliximab vials needed. Each vial contains 100 mg of infliximab.
2. Reconstitute each infliximab vial with 10 mL of Sterile Water using a syringe equipped with a 21-gauge or smaller needle as follows:
 - Insert the syringe needle into the vial through the center of the rubber stopper and direct the stream of Sterile Water gently to the glass wall of the vial.
 - GENTLY swirl the solution by rotating the vial to dissolve the lyophilized powder. Avoid shaking, which may inactivate infliximab. Foaming of the solution is not unusual.
 - Allow the reconstituted solution to stand for 5 minutes. The solution should be colorless to light yellow and opalescent. The solution may develop a few translucent particles.
 - Do not use if the lyophilized cake has not fully dissolved or if opaque particles, discoloration, or other foreign particles are present.
3. Dilute the total volume of the reconstituted infliximab solution dose to a total volume of 250 mL with sterile 0.9% Sodium Chloride Injection, USP, by withdrawing a volume equal to the volume of reconstituted infliximab from the 0.9% Sodium Chloride Injection, USP, 250 mL bottle or bag.
4. Slowly add the total volume of reconstituted infliximab solution to the 250 mL infusion bottle or bag. Gently mix.
5. The infusion solution must be administered over a period of no less than 2 hours utilizing an infusion set with an in-line, sterile, non-pyrogenic, low-protein-binding filter (pore size of 1.2 μm or less).

No physical biochemical compatibility studies have been conducted to evaluate the co-administration of infliximab with other agents. Infliximab should not be infused concomitantly in the same intravenous line with other agents.

Managing Infusion Reactions

- Patients who became positive for antibodies to infliximab were more likely (approximately two-to three-fold) to have an infusion reaction than were those who were negative. Use of concomitant immunosuppressant agents appeared to reduce the frequency of both antibodies to infliximab and infusion reactions
- Acute infusion reaction or anaphylaxis can occur at any time during the administration of this agent and include flu-like symptoms, headache, dyspnea, hypotension, transient fever, chills, gastrointestinal symptoms, and skin rashes.
- If patient reports mild reactions (such as flushing, chills, etc.)
 - Stop the infusion and assess patient.
- For more severe reactions (such as hives, difficulty breathing, chest pain, high or low blood pressure, swelling of face and hands, fever, chills or anaphylaxis) or where mild reactions persist
 - Stop the infusion and treat the acute reaction. Then notify the supervising provider immediately to coordinate next plan of action. For mild reactions, consider adding additional pre-medications for subsequent doses.

ACR/ARP Medication Guide

AMERICAN COLLEGE
of RHEUMATOLOGY
Empowering Rheumatology Professionals

ASSOCIATION of
RHEUMATOLOGY
PROFESSIONALS
*The Interprofessional Division of the
American College of Rheumatology*

Updated June 2023—ARP Practice Committee

DISCLAIMER: The information contained in this biologic reference guide is published by the American College of Rheumatology (“ACR”) for informational purposes only, in furtherance of its educational mission. It is not a substitute for user’s independent medical discretion or decision making, nor a replacement for the manufacturer’s complete prescribing and labeling information, as in effect at the time of use. The information contained herein reflects the conclusions of the individual companies who manufacture the products and not those of the ACR. ACR does not endorse or make any statement regarding the efficacy or safety of any of the listed companies or any of their drugs or other products. ACR specifically disclaims any and all responsibility or liability for the accuracy or completeness of the contents of this reference guide, the use of such information by anyone and/or for the performance of any of the drugs listed in this biologic reference guide (including without limitation, any adverse effects).