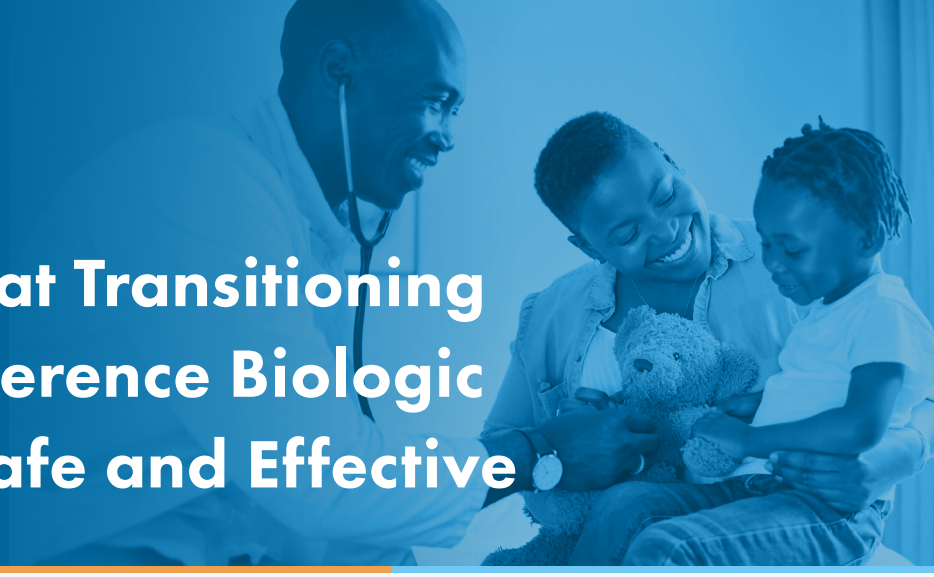
Biosimilars FORUM



Research Shows that Transitioning Patients from a Reference Biologic to a Biosimilar Is Safe and Effective

As more biosimilars launch in the United States and achieve greater availability on formularies, many patients find themselves with increased access to safe, effective, and lower-cost biosimilars. Patients should understand that biosimilars are fully vetted through a vigorous, lengthy FDA review process, and offer the same clinical benefits and effectiveness of the originator biologic.

The body of research finds no difference in outcome between biosimilars and their reference biologics and between biosimilars to the same reference product. Key studies from scientists and regulators prove that all FDA-approved biosimilars undergo a rigorous evaluation so that health care providers and patients can be confident of the safety, effectiveness, and quality of these products.

FDA PEER-REVIEWED PAPER

Safety outcomes when switching between biosimilars and reference biologics: A systematic review and meta-analysis

READ THE PAPER

KEY FINDING

"Randomized controlled studies and extension studies with a switch treatment period (STP) to or from a biosimilar and its reference biologic were identified from publicly available information maintained by the U.S. Food and Drug Administration (FDA). These findings were augmented with data from peer reviewed publications containing information not captured in FDA reviews. Forty-four STPs were identified from 31 unique studies for 21 different biosimilars. Data were extracted and synthesized following PRISMA guidelines. Meta-analysis was conducted to estimate the overall risk difference across studies. A total of 5,252 patients who were switched to or from a biosimilar and its reference biologic were identified. This first systematic review using statistical methods to address the risk of switching patients between reference biologics and biosimilars finds no difference in the safety profiles or immunogenicity rates in patients who were switched and those who remained on a reference biologic or a biosimilar."

Thomas M. Herndon,1, Cristina Ausin1, Nina N. Brahme1, Sarah J. Schrieber1, Michelle Luo1, Frances C. Andrada1, Carol Kim1, Wanjie Sun2, Lingjie Zhou2, Stella Grosser2, Sarah Yim1, M. Stacey Ricci1 Office of Therapeutic Biologics and Biosimilars, Office of New Drugs, Center for Drug Evaluation and Research, U.S. Food and Drug Administration, Silver Spring, Maryland, United States of America, 2 Division of Biometrics VIII, Office of Biostatistics, Office of New Drugs, Center for Drug Evaluation and Research, U.S. Food and Drug Administration, Silver Spring, Maryland, United States of America. Safety outcomes when switching between biosimilars and reference biologics: A systematic review and meta-analysis A systematic review and meta-analysis. PLOS ONE | https://doi.org/10.1371/journal.pone.0292231 October 3, 2023*

PEER-REVIEWED PAPER BY GLOBAL RESEARCHERS

The Efficacy, Safety, and Immunogenicity of Switching Between Reference Biopharmaceuticals and Biosimilars: A Systematic Review

READ THE PAPER

KEY FINDING

"178 studies (accumulating up to approximately 21,000 switched patients) were identified and included in the systematic literature review in which switch outcomes from a RP to a biosimilar were reported, was identified. Data were derived from both randomized controlled trials and real- world evidence. the available switching data do not indicate that switching from a RP to a biosimilar is associated with any major efficacy, safety, or immunogenicity issues, in both adults and pediatrics."

Liese Barbier, Hans C. Ebbers2, Paul Declerck , Steven Simoens , Arnold G. Vulto, and Isabelle Huys. The Efficacy, Safety, and Immunogenicity of Switching Between Reference Biopharmaceuticals and Biosimilars: A Systematic Review. CLINICAL PHARMACOLOGY & THERAPEUTICS | VOLUME 108 NUMBER 4 | October 2020

Additional Pediatric Specific Studies

Choe YH, Yang HR, Moon JS, Ryoo E, Kim S, Lee JH et al. Effectiveness and safety of CT-P13 under routine care in pediatric patients with inflammatory bowel disease. *Gastroenterology* 2017; 152: S396.

Ferone D, Profka E, Gasco V, Ambrosio MR, Colao A, Di Somma C et al. Long-term safety and efficacy of Omnitrope®in adults with growth hormone deficiency: Italian interim analysis of the PATRO Adults study. *J Endocrinol Invest* 2017; 40: 669–678.

Flodmark C-E, Lilja K, Woehling H, Järvholm K. Switching From Originator to Biosimilar Human Growth Hormone Using Dialogue Teamwork: Single-Center Experience From Sweden. *Biol Ther* 2013; 3: 35–43.

Gila AG, Garcia MP. Switching from the original to the biosimilar recombinant human GH-Omnitrope®: An experience of a single paediatric centre in Spain. *Horm Res Paediatr* 2014; 82: 414.

Iughetti L, Tornese G, Street ME, Napoli F, Giavoli C, Antoniazzi F et al. Long-term safety and efficacy of Omnitrope®, a somatropin biosimilar, in children requiring growth hormone treatment: Italian interim analysis of the PATRO Children study. *Ital J Pediatr* 2016; 42: 1–7.

Kang B, Lee K, Choe YH. Long-term outcomes after switching from originator infliximab to biosimilar in paediatric-onset inflammatory bowel disease patients: a single centre prospective observational study. *J Crohns Colitis* 2017; 11: S355–S356.

Kierkus J, Jarzebicka D, Banaszkiewicz A, Plocek A, Sieczkowska J, Gawronska A et al. Preliminary assessment of efficacy and safety of switching between originator and biosimilar infliximab in paediatric crohn disease patients. *Gastroenterology* 2015; 148: S782–S783.

Dipasquale V, Cucinotta U, Romano C. Biosimilars in Pediatric IBD: Updated Considerations for Disease Management. Biologics. 2022 Jun 13;16:57-66. doi: 10.2147/BTT.S367032. PMID: 35721798; PMCID: PMC9205321.

McLean L., Gervais L, Curtis L, Garrick V, Rogers P, Wilson M et al. Switching from originator (Remicade) to biosimilar (Remsima) infliximab for maintenance of remission in paediatric inflammatory bowel disease is effective. *J Pediatr Gastroenterol Nutr* 2018; 66: 551.

Rashid N, Saenger P, Wu Y-L, Woehling H, Frankel M, Lifshitz F et al. Switching to Omnitrope® from Other Recombinant Human Growth Hormone Therapies: A Retrospective Study in an Integrated Healthcare System. *Biol Ther* 2014; 4: 27–39.

Romer, T. et al. Seven years of safety and efficacy of the recombinant human growth hormone OmnitropeR in the treatment of growth hormone deficient children: results of a phase III study. *Horm. Res.* 72, 359–369 (2009).

Seeboruth N, Thompson A, Burgess N, Naik S. Remsima® is cost effective and safe in managing paediatric inflammatory bowel disease: A prospective study. *J Pediatr Gastroenterol Nutr* 2018; 66: 593.

Sieczkowska J, Jarzebicka D, Banaszkiewicz A, Plocek A, Gawronska A, Toporowska-Kowalska E et al. Switching Between Infliximab Originator and Biosimilar in Paediatric Patients with Inflammatory Bowel Disease. Preliminary Observations. *J Crohns Colitis* 2016; 10: 127–132.

Sladek M, Vultaggio A, Ghione S, Nencini F, Matucci A, Pratesi S et al. Efficacy, safety and immunogenicity of CT-P13 following transition from reference infliximab (Remicade) in children with established inflammatory bowel disease: A multi-centre prospective, observational study. *J Pediatr Gastroenterol Nutr* 2017; 64: 52.

McNicol M, Abdel-Rasoul M, McClinchie MG, Morris GA, Boyle B, Dotson JL, Michel HK, Maltz RM. Clinical outcomes and cost savings of a nonmedical switch to a biosimilar in children/young adults with inflammatory bowel disease. J Pediatr Gastroenterol Nutr. 2024 Feb 9. doi: 10.1002/jpn3.12153. Epub ahead of print. PMID: 38334232.

All Biosimilars Are Safe and Effective

Biosimilars have already been used extensively in the U.S. and Europe with over 5 billion patient days of experience to date. No biosimilar approved in the U.S. or Europe has been withdrawn or suspended for reasons of safety or efficacy. Health authorities have concluded that the monitoring systems for safety concerns **"have not identified any relevant difference in the nature, severity or frequency of adverse events between biosimilar medicines and their reference medicines."**

The Biosimilars Forum

The Biosimilars Forum is a nonprofit organization working to advance biosimilars in the United States with the goals of expanding access and availability and improving healthcare outcomes. Since its inception, the Forum has worked to expand the uptake of biosimilars throughout the healthcare system through policies that will increase access for patients and lower costs through increased competition. Forum members represent companies with the most significant U.S. biosimilars development portfolios.