Approval Date: September 10, 2020

Product: Boostrix

Proper Name: Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis Vaccine, Adsorbed

Manufacturer: GlaxoSmithKline Biologicals

Indication: For active booster immunization against tetanus, diphtheria and pertussis in individuals 10 years of age and older.

Description: BOOSTRIX (Tetanus Toxoid, Reduced Diphtheria Toxoid and Acellular Pertussis Vaccine, Adsorbed) is a noninfectious, sterile, vaccine for intramuscular administration. It contains tetanus toxoid, diphtheria toxoid, and pertussis antigens (inactivated pertussis toxin [PT] and formaldehyde-treated FHA and PRN).

BLA: BL 125106

Regulatory Milestone:

In May 2005, Boostrix was licensed in the U.S. for active immunization against diphtheria, tetanus, and pertussis. At that time Boostrix was approved as a single booster dose for use in children and adolescents 10-18 years of age.

PDUFA Goal Date: No data available

Package Insert: Package Insert - Boostrix

Summary Basis for Regulatory Approval: July 8, 2011 Summary Basis for Regulatory Action - BOOSTRIX

European Public Assessment Report: No data available

Advisory Committee:

It was determined that presentation of data in the sBLA for Boostrix to the Vaccines and Related Biological Products Advisory Committee (VRBPAC) was not required because of CBER's experience with Boostrix. Furthermore, because our review of information submitted in the supplement, including the clinical study design and trial results, did not raise concerns or controversial issues which would have benefited from an advisory committee discussion, it was agreed that review of this sBLA by the VRBPAC was not necessary.

Safety:

The pharmacovigilance plan was found to be adequate. GSK proposes to continue routine safety monitoring for Boostrix. This monitoring includes routine reporting and submission of annual Periodic Safety Update Reports to FDA. Serious unexpected or unlabeled events will be submitted to FDA as 15-day reports. Other unlabeled events, as well as events described in the medical literature, and available data from relevant studies (non-clinical, clinical, epidemiology) will be monitored by GSK and reported as required by applicable regulations. GSK reports that it maintains the capability to conduct evaluations in response to ad hoc queries from regulatory authorities to address safety concerns that might arise in the future. In addition, GSK will submit safety summaries in support of any future marketing applications.

NCT Numbers:

- NCT03463577
- NCT00297856
- NCT02096276
- NCT00804284
- NCT00258882
- NCT03942406
- NCT01711645
- NCT02543918
- NCT04142983
- NCT03165981
- NCT01629589
- NCT00835237
- NCT00319553
- NCT01738477
- NCT01311557
- NCT00385255
- NCT00346073
- NCT02052596
- NCT00489970
- NCT00258895
- NCT00802867
- NCT00662870
- NCT00457249
- NCT01439165
- NCT00347958
- NCT00282295
- NCT00467519
- NCT02096263
- NCT01346293
- NCT00355121
- NCT00369824
- NCT00614614
- NCT04138056
- NCT02518555
- NCT02213341
- NCT01424644
- NCT00707148
- NCT00197236
- NCT00255047
- NCT00263692
- NCT00148941
- NCT01129362
- NCT02360475
- NCT00505063
- NCT00345579
- NCT00289783
- NCT00482781
- NCT02210780
- NCT02199691
- NCT00777257
- NCT00345683
- NCT02587520
- NCT01000974
- NCT00474526
- NCT00013871

EudraCT Numbers:

- 2019-002706-46
- 2012-002737-11
- 2010-023976-16
- 2012-001876-13
- 2014-001120-30
- 2009-016012-21
- 2013-003768-30
- 2014-001117-41
- 2015-002879-14
- 2015-005629-38
- 2014-001119-38
- 2013-003859-37
- 2013-001864-50
- 2007-003248-31
- 2007-003477-94
- 2014-004492-23
- 2013-005355-32
- 2015-003405-42
- 2008-002378-37
- 2010-023313-57
- 2016-000644-34
- 2009-012202-39
- 2014-000260-17
- 2018-002976-41
- 2009-012219-16
- 2009-011742-26
- 2005-005519-12

- 2006-003807-38
- 2013-004495-34
- 2015-000728-27
- 2011-001936-45
- 2019-001986-34
- 2013-003090-98
- 2016-003678-42
- 2012-005273-31
- 2011-000476-34
- 2008-006124-64
- 2014-002688-14
- 2015-005742-58
- 2018-003838-32
- 2010-022205-17
- 2018-003804-37

Publications:

- Frampton, J. E., & Keating, G. M. (2006). Reduced-antigen, combined diphtheria, tetanus, and acellular pertussis vaccine (Boostrix): a review of its use as a single-dose booster immunization. *BioDrugs: clinical immunotherapeutics, biopharmaceuticals and gene therapy*, *20*(6), 371–389. https://doi.org/10.2165/00063030-200620060-00008
- Plosker G. L. (2009). Combined, reduced-antigen content tetanus, diphtheria, and acellular pertussis vaccine (Boostrix): a review of its use as a single-dose booster immunization in individuals aged 10-64 years in the US. *BioDrugs: clinical immunotherapeutics, biopharmaceuticals and gene therapy*, *23*(4), 253–267. https://doi.org/10.2165/11202770-000000000-00000
- Borja-Tabora, C., Peyrani, P., Webber, C., Van der Wielen, M., Cheuvart, B., De Schrevel, N., Bianco, V., Aris, E., Cutler, M., Li, P., & Perez, J. L. (2020). A phase 2b/3b MenACWY-TT study of long-term antibody persistence after primary vaccination and immunogenicity and safety of a booster dose in individuals aged 11 through 55 years. BMC infectious diseases, 20(1), 426. https://doi.org/10.1186/s12879-020-05104-5
- Bona, G., Castiglia, P., Zoppi, G., de Martino, M., Tasciotti, A., D'Agostino, D., Han, L., & Smolenov, I. (2016). Safety and immunogenicity of a CRM or TT conjugated meningococcal vaccine in healthy toddlers. Vaccine, 34(29), 3363–3370. https://doi.org/10.1016/j.vaccine.2016.05.009
- Kovac, M., Rathi, N., Kuriyakose, S., Hardt, K., & Schwarz, T. F. (2015). Immunogenicity and reactogenicity of a decennial booster dose of a combined reduced-antigen-content diphtheria-tetanus-acellular pertussis and inactivated poliovirus booster vaccine (dTpa-IPV) in healthy adults. Vaccine, 33(22), 2594–2601. https://doi.org/10.1016/j.vaccine.2015.03.104

- Pace, D., Khatami, A., McKenna, J., Campbell, D., Attard-Montalto, S., Birks, J., Voysey, M., White, C., Finn, A., Macloed, E., Faust, S. N., Kent, A. L., Heath, P. T., Borrow, R., Snape, M. D., & Pollard, A. J. (2015). Immunogenicity of reduced dose priming schedules of serogroup C meningococcal conjugate vaccine followed by booster at 12 months in infants: open label randomised controlled trial. BMJ (Clinical research ed.), 350, h1554. https://doi.org/10.1136/bmj.h1554
- Vandermeulen, C., Theeten, H., Rathi, N., Kuriyakose, S., Han, H. H., Sokal, E., Hoppenbrouwers, K., & Van Damme, P. (2015). Decennial administration in young adults of a reduced-antigen content diphtheria, tetanus, acellular pertussis vaccine containing two different concentrations of aluminium. Vaccine, 33(26), 3026–3034. https://doi.org/10.1016/j.vaccine.2014.10.049
- Dalvi, S., Kulkarni, P. S., Phadke, M. A., More, S. S., Lalwani, S. K., Jain, D., Manglani, M., Garg, B. S., Doibale, M. K., Deshmukh, C. T., & SIIL DTwP + HepB Hib Author Group (2015). A comparative clinical study to assess safety and reactogenicity of a DTwP-HepB+Hib vaccine. Human vaccines & immunotherapeutics, 11(4), 901–907. https://doi.org/10.1080/21645515.2015.1010953
- Leonardi, M., Latiolais, T., Sarpong, K., Simon, M., Twiggs, J., Lei, P., Rinderknecht, S., Blatter, M., Bianco, V., Baine, Y., Friedland, L. R., Baccarini, C., & Miller, J. M. (2015). Immunogenicity and reactogenicity of Infanrix™ when co-administered with meningococcal MenACWY-TT conjugate vaccine in toddlers primed with MenHibrix™ and Pediarix™. Vaccine, 33(7), 924–932. https://doi.org/10.1016/j.vaccine.2014.09.064
- Munoz, F. M., Bond, N. H., Maccato, M., Pinell, P., Hammill, H. A., Swamy, G. K., Walter, E. B., Jackson, L. A., Englund, J. A., Edwards, M. S., Healy, C. M., Petrie, C. R., Ferreira, J., Goll, J. B., & Baker, C. J. (2014). Safety and immunogenicity of tetanus diphtheria and acellular pertussis (Tdap) immunization during pregnancy in mothers and infants: a randomized clinical trial. JAMA, 311(17), 1760–1769. https://doi.org/10.1001/jama.2014.3633
- Dbaibo, G., El-Ayoubi, N., Ghanem, S., Hajar, F., Bianco, V., Miller, J. M., & Mesaros, N. (2013). Immunogenicity and safety of a quadrivalent meningococcal serogroups A, C, W-135 and Y tetanus toxoid conjugate vaccine (MenACWY-TT) administered to adults

aged 56 Years and older: results of an open-label, randomized, controlled trial. Drugs & aging, 30(5), 309–319. https://doi.org/10.1007/s40266-013-0065-0

- Espinoza, F., Tregnaghi, M., Gentile, A., Abarca, K., Casellas, J., Collard, A., Lefevre, I., & Jacquet, J. M. (2010). Primary and booster vaccination in Latin American children with a DTPw-HBV/Hib combination: a randomized controlled trial. BMC infectious diseases, 10, 297. https://doi.org/10.1186/1471-2334-10-297
- Denoël, P. A., Goldblatt, D., de Vleeschauwer, I., Jacquet, J. M., Pichichero, M. E., & Poolman, J. T. (2007). Quality of the Haemophilus influenzae type b (Hib) antibody response induced by diphtheria-tetanus-acellular pertussis/Hib combination vaccines. Clinical and vaccine immunology : CVI, 14(10), 1362–1369. https://doi.org/10.1128/CVI.00154-07