crohn's colitis

Name of Clinical Care Pathway

Vaccination Guide for Patients with Inflammatory Bowel Disease

Objective

Reduce risk of developing vaccine-preventable illnesses

Patient Population

Adult patients (18+ years) with a known diagnosis of IBD

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These clinical decision support tools were developed by Canadian experts in IBD, based on their interpretation of current evidence and considerations specific to Canadian healthcare. International guidelines from Europe and the United States are available. However, these may reflect regional factors not directly applicable in Canada.

PACE Inflammatory Bowel Disease Clinical Care Pathways

Abbreviations

BCG	Bacillus Calmette-Guérin
CD	Crohn's Disease
COVID-19	Coronavirus Disease 2019
DTaP-IPV-Hib	Diphtheria, Tetanus, Acellular Pertussis, Inactivated Polio Vaccine, Haemophilus influenzae type b
FCP	Fecal Calprotectin
HAV	Hepatitis A Virus
HBV	Hepatitis B Virus
HPV	Human Papillomavirus
HZ	Herpes Zoster
IBD	Inflammatory Bowel Disease
IL	Interleukin
JAKi	Janus Kinase Inhibitor
MMR	Measles, Mumps, Rubella
Td	Tetanus Diphtheria
Tdap	Tetanus Diphtheria Acellular Pertussis

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Highlights from this CCP

- Inactivated vaccines can be given to patients with IBD, but those on immunosuppressive therapy may have a reduced immune response to the vaccine.
- Live vaccines should NOT be given to patients on immunosuppressive therapy.
- Note: Coverage for vaccines varies by region

Introduction

The use of long-term immunosuppressive therapies in patients with inflammatory bowel disease increases susceptibility to infections, some of which can be preventable with vaccinations. Patients can request vaccination records from local public health authorities, pharmacists, private travel clinics, doctor's office, or family members. Access to records may vary based on the province. For patients who do not have records, in some cases, serum titers can be used to determine immunity.

Individuals are considered immunosuppressed if treated with the following immunosuppressive therapies:

- Corticosteroids: prednisone, budesonide (if treatment for >/= 14 days with prednisone equivalent of >/= 2 mg/kg/d)
- Biologics (infliximab, adalimumab, golimumab, vedolizumab, ustekinumab, risankizumab, mirikizumab, guselkumab)
- Oral small molecules (tofacitinib, upadacitinib, ozanimod, etrasimod)
- Immunomodulators (azathioprine, methotrexate)

IBD provider/nurse

- Ensure all IBD patients undergo annual vaccination against influenza.
- It is important to review patient's vaccination and travel history at **every appointment** and especially when a patient is planning to start or already on immunosuppressive therapy.

Live vaccines

- Live vaccines (Table 1) are contraindicated in patients on immunosuppressive therapies or significant protein-calorie malnutrition because of the risk of disease caused by the vaccine.
- Suggested time intervals to allow for optimal immune system function and reduce risk of disease caused by the vaccine strain:
    - Live vaccines should be given at least 4 weeks before starting immunosuppressive therapy.
    - Live vaccines should be given at least 3 months after stopping immunosuppressive therapy.
    - **The interval should be tailored according to the medication's half-life** (Table 2), the patient's underlying condition, and the urgency of immunization, particularly in post-exposure or outbreak scenarios. E.g., This can be as short as 1 month after stopping high-dose corticosteroids.
- Patients requiring live vaccines for work or travel purposes (Table 3a and 3b) should be advised to review and update their immunizations prior to initiating immunosuppressive therapy.
- Blood products of human origin can interfere with the immune response to live vaccines

Inactivated vaccines

- Inactivated vaccines (Table 4) are safe in patients on immunosuppressive therapy, however, response to vaccination may be suboptimal.
- Suggested time intervals to allow for optimal response to vaccine:
    - Inactivated vaccine should be given at least 2 weeks, preferably 3-4 weeks, before initiation of immunosuppressive therapy.
    - Inactivated vaccine should be given at least 3 months after discontinuing immunosuppressive therapy (this interval **varies with the medication and its half-life**, underlying disease, or urgency of immunization if vaccines are needed for post-exposure or outbreak management).
- If immunosuppressive therapy cannot be stopped, inactivated vaccines may be administered during immunosuppression. Attempt to immunize at 2 weeks following the dose of immunosuppressive therapy (to represent the least immunosuppressed time period).

Table 1. Live vaccines

Live vaccines	Who is considered immune?	When can the vaccine be given before start of immunosuppressive therapy?	Can the vaccine be given if already on immunosuppressive therapy?
Measles, mumps, rubella (MMR)	Considered immune if 2 documented doses of vaccine or positive serology	• At least 4 weeks before the start of immunosuppressive therapy. • Contraindicated if plan to start therapy in < 4 weeks. • Contraindicated in pregnancy.	Contraindicated
Varicella	Considered immune if self-reported history or health care provider diagnosis of natural infection, or 2 doses of vaccine, or 50 years of age and older. Check serology prior to vaccination if >25 years of age, or only one dose of vaccine, or a child with a history of chickenpox in the immediate family, but not the individual.	• At least 4 weeks before the start of immunosuppressive therapy. • Contraindicated if plan to start therapy in < 4 weeks. • Contraindicated in pregnancy.	Contraindicated
Live attenuated influenza (FluMist® intranasal form)	Not applicable	• Contraindicated if plan to start therapy in < 4 weeks. • Use inactivated vaccine.	Contraindicated use inactivated vaccine
Mpox	Considered immune if 2 documented doses, given >28 days apart.	• Safe to give.	Safe to give to immunosuppressed patients
Rotavirus	Not applicable	• Contraindicated if plan to start therapy in < 4 weeks.	Contraindicated

Table 2: Half-lives of advanced therapies in inflammatory bowel disease

Medication	Median/mean half-life (d)
Infliximab	8-10
Adalimumab	14
Golimumab	12
Vedolizumab	25
Ustekinumab	19
Risankizumab	21
Mirikizumab	9
Guselkumab	17

Table 3a. Inactivated travel vaccines

Vaccine	Use
Typhoid (injectable)	Considered safe for patients on immunosuppressive therapies. Indicated for persons >/=2 years travelling to high-risk areas.
Japanese Encephalitis	Considered safe for patients on immunosuppressive therapies. May be considered for persons >/= 2 months travelling to high-risk areas in Asia.
Rabies	Considered safe for patients on immunosuppressive therapies. Pre-exposure prophylaxis can be considered if travelling to a high-risk area or if at high risk of close contact with rabid animals or the rabies virus. Given the possible suboptimal response to the vaccine if immunosuppressed, post-exposure prophylaxis with both vaccine and immunoglobulin should be considered in the event of exposure.
Hepatitis A and B	Considered safe for patients on immunosuppressive therapies. Indicated for travel to high-risk areas.

Vaccine	Use
Meningococcal vaccine	Considered safe for patients on immunosuppressive therapies. Indicated for travel to high-risk areas.
Cholera and travellers' diarrhea vaccine (inactivated, oral)	Of limited benefit and not routinely recommended for most travellers. However, short-term travellers at high risk for health complications or serious inconvenience from travellers' diarrhea may find that the potential benefits of the vaccine, based on their personal values and preferences, coupled with a low likelihood of adverse events, may outweigh the burden of their risk. Antibody response may be suboptimal in patients on immunosuppressive therapies.

Table 3b. Live travel vaccines

Vaccine	Use
Yellow Fever	Contraindicated if immunosuppressed. If travelling to a high-risk area, consult an infectious disease specialist.
Typhoid (oral)	Contraindicated if immunosuppressed. Consider the injectable inactivated form if indicated.
Bacillus Calmette-Guerin (BCG)	Contraindicated if immunosuppressed.

Table 4. Inactivated vaccines

Vaccine	Check titer before vaccination	Recommendations
Tetanus diphtheria (Td) Tetanus diphtheria acellular pertussis (Tdap) Tetanus diphtheria acellular pertussis, and inactivated polio (DTap/DTaP-IPV-Hib)	No	Give according to the routine schedule. Td booster every 10 years; with Tdap used at 14-16 years of age. All pregnant women should be offered the Tdap vaccine (to be given at 27-32 weeks of gestation) during every pregnancy, irrespective of previous immunization history.
Hemophilus influenza type B (Hib)	No	Give according to the routine schedule.
Human papillomavirus (HPV)	No	Give according to the routine schedule for school-age children. Recommended for males and females, ages 9-26 years old. Individuals >/= 27 years of age or older may receive the vaccine with shared decision-making and discussion with a healthcare provider. Generally, two doses (0 and 6 months) or 3 doses (0, 2 and 6 months) (consider if immunosuppressed). Highly recommended for men who have sex with men.
Influenza (inactivated/ injectable form)	No	Annual vaccine Timing of administration should balance the nadir of immunosuppression for those on biologics and the need to deliver vaccine prior to the onset of influenza season (starts over the fall and peaks in the winter).

Vaccine	Check titer before vaccination	Recommendations
COVID19 (inactivated)	No	Give according to recommended local public health authorities.
Pneumococcal (conjugate) [Pneu-C-15, Pneu-C-20, Pneu-C-21]	No	Give according to recommended public health authority schedule. Timing depends on prior vaccination. Regardless of prior pneumococcal vaccination status (including Pneu-C-13 and/or Pneu-P-23), a single dose of higher-valency pneumococcal conjugate vaccine (Pneu-C-20 or Pneu-C-21) is recommended for: • All adults 65 years of age and older, • Adults 18 to 64 years of age at risk of invasive pneumococcal disease. In previously immunized adults, Pneu-C-20 or Pneu-C-21 should generally be administered at least 1 year after the most recent pneumococcal vaccine dose (either Pneu-C-13 dose or Pneu-P-23 dose). A minimum interval of 8 weeks may be considered in individuals at higher risk when earlier protection is desired. For pneumococcal vaccine-naïve adults in whom pneumococcal conjugate vaccine is indicated, Pneu-C-15 followed by Pneu-P-23 may be offered as an alternative to Pneu-C-20 or Pneu-C-21. For adults 65 years of age and older who have received Pneu-P-23 alone, administration of a pneumococcal conjugate vaccine (Pneu-C-20, Pneu-C-21, Pneu-C-15) is recommended, depending on availability. When Pneu-C-15 is used, it should be followed by Pneu-P-23. The recommended interval between Pneu-C-15 and Pneu-P-23 is 1 year; however, a minimum interval of 8 weeks may be used in individuals at increased risk of invasive pneumococcal disease. No additional doses of Pneu-P-23 are required following administration of Pneu-C-20 or Pneu-C-21.

Vaccine	Check titer before vaccination	Recommendations
Meningococcal (link) (conjugate) (Strain C) [Men-C-C] Meningococcal (conjugate) [Men-C-ACYW]	No	Give according to the routine schedule. A dose of monovalent meningococcal C conjugate vaccine (Men-C-C) is routinely given at 12 months of age. A booster dose of either Men-C-C or quadrivalent meningococcal conjugate vaccine (Men-C-ACYW) is recommended in adolescence (around 12 years of age), regardless of prior infant vaccination. For individuals 12 to 24 years of age, one dose of either Men-C-C or Men-C-ACYW is recommended (vaccine choice depends on local epidemiology and programmatic considerations). Adults at increased risk of invasive meningococcal disease should receive a quadrivalent meningococcal conjugate vaccine (Men-C-ACYW). Booster doses of Men-C-ACYW are recommended every 5 years (or every 3 to 5 years depending on age at initial vaccination) for individuals who remain at ongoing increased risk.
Serogroup B meningococcal vaccines	No	May be considered on an individual basis, depending on the individual preferences, regional serogroup B epidemiology and strain susceptibility Offer to individuals with an increased risk of invasive meningococcal disease.
Hepatitis A Virus (HAV)	Yes	Two doses required: Give at 0, 6-36 months (depending on the product). If immunosuppressed, consider HAV immunoglobulin in addition to HAV vaccine for post-exposure management. Recommended for at-risk groups (e.g. chronic liver disease, such as primary sclerosing cholangitis, men who have sex with men)

Vaccine	Check titer before vaccination	Recommendations
Hepatitis B Virus (HBV)	Yes	Give according to the routine schedule. Dose and schedule depend on the particular product, age of the individual, and associated medical conditions. Check post-vaccine anti-HBs titer at 1 month after last dose. Refer to the Canadian Immunization Guide (link) for dose / schedule and management of non-responders.
Hepatitis A and B (combined vaccine)	Yes	May be given instead of HAV and HBV individually. Give according to recommended schedule.
Recombinant zoster vaccine, inactivated	No, but wait 1 year after an episode of shingles or immunization with live zoster vaccine	Recommended for adults >/= 50 years of age. Recommended prior to JAKi therapy at any age. Two doses, given 2-6 months apart. For individuals who will be at increased risk of HZ due to immunosuppression (from plan to start immunosuppressive therapy), the second dose can be administered at a minimum interval of at least 4 weeks after the first dose, as these individuals will benefit from completing the series before being immunosuppressed. For optimal immune response, the 2-dose series of RZV should be completed at least 14 days before initiating immunosuppressive treatment.

Other Resources

CANIBD Vaccination guide: https://canibdvaccination.ca/

RED BOOK: 2024-2027 Report of the Committee on Infectious Diseases (33rd Edition) https://publications.aap.org/redbook/book/755/Red-Book-2024-2027-Report-of-the-Committee-on

Canadian immunization schedule https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian- immunization-guide-part-1-key-immunization-information/page-13-recommended-immunization-schedules.html

Immunization Record for Children https://immunize.ca/immunization-record-children

Immunization Record for Adults https://immunize.ca/immunization-record-adults

Travel vaccinations https://travel.gc.ca/travelling/health-safety/vaccines

References

Canadian Immunization Guide: https://www.canada.ca/en/public-health/services/canadian-immunization-guide.html

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