



Pharmacist-Administered Injections: Considerations during COVID-19 Pandemic

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Should your pharmacy still offer injection services?

With pharmacists being one of the most accessible health care professionals, it is likely that pharmacists will continue to receive requests for injection services. But are pharmacists in a position to continue to offer these services? While some pharmacies have temporarily suspended these services, others have established their own policies. At this time, each pharmacy will have to establish what their particular pharmacy and pharmacists are able to safely provide.

- The general [Canadian Pharmacists Association \(CPhA\) guideline](#) is:
 - Temporarily suspend (where possible) any professional services or activities that require pharmacy staff to be within 2 meters of patients, including physical assessments, blood pressure monitoring, point-of care testing, immunizations or other injections.
- Pharmacists may not have timely access to appropriate personal protective equipment (PPE).
 - On behalf of pharmacists across Canada, CPhA has issued an [Open Letter to the Government of Canada](#) to allocate PPE for pharmacists.
 - Although pharmacists are often the first point of contact when someone is sick, [pharmacists are not being included as “frontline workers”](#).
 - The Saskatchewan Health Authority (SHA) has a policy that states, “all healthcare workers who come into contact with clients during the course of their shift must wear a face mask at all times.” See SHA PPE/Infection Control and Prevention [site](#). (1. PPE →Recommendations → Continuous and Extended PPE Use Guidelines Primary Care)

- In a lot of cases, pharmacists don't have essential supplies such as hand sanitizer or alcohol wipes, making it impossible to administer injections.
- **Pharmacies may not have adequate staff to provide clinical services during the COVID-19 pandemic as additional work is required and many pharmacies are following CPhA guidance, which suggests splitting the pharmacy staff into non-overlapping teams.**
 - Increased cleaning protocols will need to be put into place for the injection area. Any surfaces that may have been touched by the patient will need to be disinfected.
 - Patients will still be required to remain in the pharmacy for the appropriate time following the injection for monitoring.
- **Pharmacy Managers should perform a risk assessment.**
 - The [Public Health Agency of Canada recommends](#) that employers and business owners conduct a risk assessment to determine the specific public health actions related to a workplace/business.
 - The risk assessment should include both the population that is at risk, as well as the environmental risk. The characteristics of the workplace/business, and the employees/clients should be assessed, as well as the weight of importance of those specific risks. A table outlining the characteristics, associated risks, and mitigation strategies can be found in the link.
 - The SHA also has a document for employers to assess how they can assist their employees. This can be found on the SHA PPE/Infection Control and Prevention [site](#).
(1. PPE → Appropriate Use → COVID-19 Appropriate Use of PPE for Employers)
 - In any case, it is paramount that pharmacists and the pharmacy workforce further protect themselves from infection by keeping a safe distance of 2 meters from patients and customers, using the proper PPE and disinfecting any surfaces that may be touched by patients and customers. Wearing a medical mask is one of the prevention measures to limit spread of certain respiratory diseases, including COVID-19. However, the use of a mask alone is insufficient to provide an adequate level of protection and pharmacists must remain vigilant with hand hygiene in order to protect themselves as well as their patients and customers.¹

If your pharmacy decides to **continue offering** injection services, some general principles should be considered:

- Follow basic cleaning principles for the pharmacy. [See [medSask FAQ](#): Apr 3 - What are the guidelines and recommendations for appropriate cleaning and disinfection of surfaces in community pharmacies during the COVID-19 pandemic?]
- While the risk to pharmacists administering an injection to a healthy patient is low, pharmacists should still approach the interaction with caution, **practice good hand hygiene**, and pay particular attention to the proper use of PPE if indicated.²
- Consider establishing designated pharmacy hours to exclusively serve or book appointments for vulnerable patients such as the elderly or immunocompromised (e.g., reserve 8-10am for vulnerable patients only).³
- Proactively identify your patients receiving injectable medications and establish a management protocol ahead of time. This will help to reduce the stress for both the patient and pharmacist.
- When deciding whether or not to administer an injection, pharmacists should screen the patient for symptoms and/or exposure criteria consistent with COVID-19. Care should be taken to practice physical distancing principles while **screening**.^{2,3} Consider using the [SHA screening tool](#). This screening may be done over the phone prior to booking an appointment to limit the number of patients coming into the pharmacy.
 - For patients **who do not** exhibit symptoms and/or have exposure criteria consistent with COVID-19, pharmacists should use a risk assessment approach and their professional judgement to determine whether or not it is appropriate to administer the injection^{2,3}:
 - Consider postponing the administration of injections that are part of a series which have a possible range of time ("2-6 months", "6-12 months") to later in the schedule.

- Prioritize injections that are part of a regular schedule and require continuity of care or where the patient may be significantly impacted if they do not receive the injection (such as antipsychotics and medroxyprogesterone).²
- For the protection of both the patient and the pharmacist, when administering injectables or providing any other services that require direct contact with a patient, it is reasonable to suggest that additional protective measures should also be performed, such as the use of a mask and gloves.¹
- It would also seem reasonable to have the patient wear a mask in order to reduce the risk to the pharmacist should the patient be an asymptomatic carrier.
- For patients **who do** have suspected (based on risk assessment) or confirmed COVID-19:
 - Use information in this document to determine if injection can be safely postponed or if an alternative option (e.g., oral dosage form) exists.
 - Ensure the patient is wearing a mask & practices proper hand hygiene.
 - If injection is required, all personnel who will be within 2 meters of the patient [need to garb with PPE](#), including gloves, mask, gown and face protection. Proper donning and doffing of PPE is key; be sure to follow proper [protocols](#).
 - If injection is required and adequate **PPE is not available** (including a mask for the patient), the **patient should not enter the pharmacy** and should be referred to another pharmacist or health professional who can safely assist.

What do I tell a patient who wants to receive a vaccine?^{4,5}

- In most cases, delaying one of the doses that are required to complete a vaccination series is not cause for concern. Interruption of the recommended schedule occurs quite frequently, and does not require that the series be restarted, regardless of the time between the doses. The main thing to remember is that the patient may not attain maximum protection until the series is completed. Keep records of delayed vaccine doses to contact the patients when injections resume to ensure completion of the series.
- Exceptions include cholera and travellers' diarrhea vaccine and rabies vaccine for post-exposure prophylaxis.
- CPhA has published a useful [document](#) on this topic.
- **Routine childhood vaccinations are still recommended during the COVID-19 pandemic. Contact public health for more information.**

What if a patient requires their B₁₂ injection – what should I tell them?

Parenteral vitamin B₁₂ is approved by Health Canada for the treatment of pernicious anemia and other vitamin B₁₂ deficiencies. Vitamin B₁₂ deficiencies may be caused by strict vegetarian/vegan diets, inflammatory bowel disease, gastric bypass surgery, gastric carcinoma, gastrectomy, sprue, ileal resection, strictures, anastomoses involving the ileum, bacteria (blind loop syndrome), the fish tapeworm, or by certain drug therapies that may impair vitamin B₁₂ absorption.⁶

- Consider whether the patient requires injectable B₁₂ or if they can be switched to oral B₁₂ which is readily available OTC and may be the best course of action with the current COVID-19 situation. In the majority of situations, most patients can be switched to oral therapy.
- There may be some situations where patients cannot be switched to oral therapy, such as those with advanced (severe) neurologic symptoms which may not respond to replacement,^{7,8} or in cases where patients are unable to take medications by mouth, or compliance is a concern.⁸

- According to a 2018 Cochrane review, recent trials provide limited evidence showing that high-dose oral therapy (1000-2000 mcg daily) produces hematologic and neurologic response comparable to parenteral therapy in more severe deficiencies. High-dose oral therapy may be beneficial in patients resistant to injection; however, parenteral is still the preferred route when there is severe neurologic involvement. In some cases, patients are switched to oral maintenance after vitamin B₁₂ stores are replenished with appropriate doses of parenteral therapy.⁹
- The bioavailability of sublingual vitamin B₁₂ appears to be equivalent to oral vitamin B₁₂ and may be a good option for those who cannot swallow tablets, but there is no evidence that sublingual delivery offers any advantage over oral preparations.⁷
- Consider checking the patient's latest lab results. Normal serum vitamin B₁₂ concentrations range from 200–900 pg/mL.⁶

Table 1: Dosing Recommendations for Vitamin B₁₂⁶

| Route | Initial Dose | Dose Titration | Usual Dose | Comments |
|--|--------------------------------|---|------------------------------|---|
| Treatment of Pernicious Anemia | | | | |
| <i>Oral</i> | | | 1000-2000 mcg daily for life | Folic acid supplementation may also be required. |
| <i>IM or Deep Subcut</i> | 100 mcg daily for 6-7 days | 100 mcg every other day for 6-7 days, then 100 mcg every 3-4 days for 2-3 weeks | 100 mcg monthly for life | Duration of initial therapy depends on clinical response. Folic acid supplementation may also be required. |
| <i>IM or Deep Subcut*</i> | 1000 mcg daily for 3-7 days | 1000 mcg weekly for 3-4 weeks | 1000 mcg monthly for life | |
| Treatment of Vitamin B₁₂ Deficiency | | | | |
| <i>Oral</i> | | | 500-2000 mcg daily | Dose and duration of initial therapy depend on severity of vitamin B ₁₂ deficiency. Treat until B ₁₂ levels are replenished, unless the patient has ongoing dietary/absorption issues. Folic acid supplementation may also be required. |
| <i>IM or Deep Subcut</i> | 30–100 mcg daily for 5-10 days | | 100-200 mcg monthly | |
| <i>IM or Deep Subcut*</i> | 1000 mcg daily for 7 days | 1000 mcg weekly for 4-8 weeks | 1000 mcg monthly | |
| IM=intramuscular; Subcut=subcutaneous *Alternate dosing | | | | |

What should I do if a patient can't get a depo-medroxyprogesterone (DMPA, Depo-Provera[®]) injection?

- Consider switching the patient to a different form of contraception if appropriate.
- Patients can be assessed using medSask [Hormonal Contraceptives](#) prescribing guidelines.
- Use [Medical Eligibility for Initiating Contraception](#) criteria to choose the best product based on patient characteristics.
- Ensure access to Emergency Contraception (consider prescribing to have on hand in case of contraceptive failure with a new method). See medSask [Emergency Contraception](#) prescribing guidelines.

Guidelines for switching from DMPA to other agents:

- DMPA is considered effective for up to 14 weeks after the last dose.^{10,11}
- Depending on time since last DMPA injection, it may be necessary to overlap the new method; use a barrier method or abstain from intercourse for up to 7 days.
 - If <14 weeks since last DMPA injection- start new method immediately; no backup method or abstinence required.

- If >14 weeks since last DMPA and no unprotected intercourse- start new method immediately and recommend backup method or abstinence.
- If >14 weeks since last DMPA and unprotected intercourse- consider the need for emergency contraception and/or pregnancy test prior to starting new method.
- See information in the [table](#) on page 4 from the Faculty of Sexual and Reproductive Healthcare document for guidance.

What should I do if a patient needs an antipsychotic injection?

- Caring for a patient's mental well-being is important, and may even be more so with the current COVID situation. This can be a particularly stressful time for your mental health patients. You can better help your patients by staying informed, providing education and correcting misinformation.¹²
- Continuity of care is important to consider for patients on injectable antipsychotics. Consideration must be given to whether the patient will receive their next dose in a timely manner.
- Identify your patients receiving injectable antipsychotics and proactively manage these patients by contacting the prescriber to help decrease the uncertainty at a later date by having an action plan in place.
 - Identify whether the prescriber will still be able to administer the medication or if they already have a plan in place.
 - Particular attention should be paid to:
 - Patients at high risk of COVID-19 complications, such as the elderly or those who have pre-existing conditions, who should minimize their exposure to the community; this includes going into a medical clinic or pharmacy.¹³
 - Patients who are in self-quarantine at their own home, in a group home, or in another type of assisted living facility.¹³
- Delaying an injection for a patient in quarantine may be prudent, and using the missed dose guidelines in the individual drug monographs will indicate when one must consider supplementing with oral medications.¹³
- If the patient has confirmed or suspected COVID-19, and is due to have their depot/long-acting injection (LAI) administered, consult the prescriber and consider an alternative short term treatment plan, such as deferring treatment for 2 weeks (if currently psychologically well and risk of rapid relapse is considered low) or switching to oral formulations.¹⁴
- In appropriate patients, reducing the amount of depot administrations that are required may be done by increasing the interval between depots.¹⁵ **See Table 2 below.**
- Keep in mind that there may be situations where this may not be appropriate¹⁵:
 - Patient starts to deteriorate around the time that depots are due, increasing the dose interval may exacerbate this effect as a bigger single dose will be given at one time.
 - Patient has tried higher doses before and experienced side effects.

Table 2: Select Properties of Long-Acting Injectable Antipsychotic Drugs

| Depot | Approximate Depot Half-Life* | Usual Dose and Interval (All Administered IM) | Considerations |
|--|---|---|--|
| First Generation | | | |
| <i>Flupentixol decanoate (Fluanxol®)</i> | 8 days (after single injection) ¹⁶ 17-21 days (after multiple injections) ¹⁷ | Usual dose: 20 mg-40 mg q2-4 weeks ¹⁶ Doses > 80 mg are not usually necessary, but have been used ^{16,18} Dose is individualized to patient. The dose may last longer with higher doses. ¹⁷ | For patients on more frequent dosing consider increasing the interval between doses and adjusting the dose. ¹⁵ Some references caution against increasing the dose merely to increase the interval. ¹⁷ |
| <i>Haloperidol decanoate</i> | 18-21 days ^{16,19} | Usual dose: 50 mg-300 mg q4 weeks ^{16,20} Maximum dose: 450 mg q4 weeks ²¹ | For patients on more frequent dosing consider increasing the interval between doses and adjusting the dose. Caution is advised. ¹⁵ |
| <i>Zuclopenthixol (Clopixol® Depot)</i> | 19 days ^{16,22} | Usual dose: 150 mg-300 mg q2-4 weeks ^{16,21,22} Dose is individualized to patient. Some patients may require higher or lower doses, or even shorter intervals between doses. ²² Max dose: 400 mg q2 weeks ¹⁶ | For patients on more frequent dosing consider increasing the interval between doses and adjusting the dose. Caution is advised. ¹⁵ |
| Second Generation | | | |
| <i>Aripiprazole (Abilify Maintena®)</i> | 30-47 days ¹⁶ | Usual dose: 400 mg monthly ^{16,21,23} If patient experiences adverse effects at 400 mg, reduce dose to 300 mg. Max dose: 400 mg monthly ^{16,20} | For patients on a stable dose, if the injection is given >4weeks but <6weeks, according to missed dose guidelines, the patient is to be administered their usual dose. Aripiprazole has a long half-life, which may allow it to be given at an extended interval, most likely resulting in minimal impact. ²³ Dose should not be given sooner than 26 days from previous injection. ²³ |
| <i>Paliperidone (Invega Sustenna®)</i> | 25-49 days ¹⁶ | Usual dose: 100 mg monthly (Ranges from 25 mg-150 mg monthly) ^{21,24} Max dose ²⁴ : CrCl ≥80 ml/minute: 150 mg monthly CrCl ≥50 to <80 mL/minute: 100 mg monthly CrCl <50 mL/minute: use not recommended | For patients on a stable dose, if the injection is given <6weeks, according to missed guidelines, the patient is to be administered their usual dose. Paliperidone has a long half-life, which may allow it to be given at an extended interval, most likely resulting in minimal impact. ²⁴ To avoid a missed monthly dose, patients may be given the injection up to 7 days before the monthly time point. ²⁴ Consider paliperidone 3-monthly (Invega Trinza®) for patients who are stable (i.e. last 2 months at same |

| | | | |
|--|---|---|---|
| | | | dose) and have been treated with 4 months of monthly paliperidone. ²⁴ Three-month IM paliperidone may be administered up to 7 days before or after the next scheduled monthly dose date. ²⁵ See dosing conversion Table 4 below. |
| Paliperidone (Invega Trinza®) | 84-95 days for deltoid injection 118-139 days for gluteal ^{16,18} | Usual dose: 175 mg-525 mg q3 months ^{16,25} Max dose ²⁵ : CrCl ≥80 ml/minute: 525 mg q3 months CrCl ≥50 to <80 mL/minute: 350 mg q3 months CrCl <50 mL/minute: use not recommended | For patients on a stable dose, if the injection is given between 3.5-4 months, according to missed dose guidelines, the patient is to be administered their usual dose. ^{18,25} If the missed dose is >4 months from last injection, do NOT administer the next 3-month dose. See the Invega Trinza® monograph for re-initiation guidelines. ^{18,25} On exceptional occasions, patients may be given the injection up to 2 weeks before the 3-month time point. ^{18,25} Due to the long-acting nature, the patient's response to an adjusted dose may not be apparent for several months. ¹⁸ |
| Risperidone (Risperdal Consta®) | 3-6 days ^{16,26} The elimination phase is complete approximately 7-8 weeks after last injection ²⁶ | Usual dose: 25 mg-50 mg q2 weeks ¹⁶ Some patients can be maintained on a dose of 12.5 mg q2 weeks. ²¹ Max dose: 50 mg q2 weeks ^{21,26} | Paliperidone is the major active metabolite of risperidone. ²⁶ Consider monthly paliperidone as an alternative. See dosing conversion Table 3 below. |
| <p>*Depot half-life gives an estimate of how long a depot will remain in the body should it be delayed. [^]This half-life is related to the erosion of the microsphere & subsequent absorption of risperidone²⁶ CrCl=creatinine clearance; IM=intramuscular; q=every</p> | | | |

Switching Formulation/Dosage Form:

Switching a patient on a stable LAI antipsychotic is generally discouraged unless there is a compelling reason (such as a pandemic). Careful consideration, in conjunction with the prescriber, must be given to whether the patient still requires the injectable dosage form or whether they can be switched to an alternative injectable dosage form or an oral dosage form.

Switching to an alternative injectable dosage form:

- If the patient still requires an injection, consider whether they can be switched from an injection that they require more frequently to one that they can receive less frequently. Some switches may be considered lower risk than others. Some examples include:
 - Increase the interval to 6 weeks with Abilify Maintena® (due to long half-life¹³).
 - Switch from risperidone LAI (Risperdal Consta®) to paliperidone monthly (Invega Sustenna®) injection.
 - See Invega Sustenna® [monograph](#) and Table 3 below for conversion doses.
 - Patients with moderate to severe renal impairment who have a CrCl < 50mL/min should not be switched to paliperidone depot.²⁴

- When switching patients from risperidone LAI, initiate paliperidone therapy in place of the next scheduled injection. Paliperidone should then be continued at monthly intervals. The one-week initiation dosing is not required.²⁴
- Patients previously stabilised on different doses of risperidone LAI can attain similar paliperidone steady-state exposure during maintenance treatment with paliperidone monthly doses according to the following:

Table 3: Doses of Risperdal Consta® and Invega Sustenna® that Attain Similar Paliperidone Exposure at Steady State²⁴

| If the last dose of Risperidone long acting (Risperdal Consta®) injection is: | Initiate Paliperidone monthly (Invega Sustenna®) injection at: |
|---|--|
| 25 mg every 2 weeks | 50 mg monthly |
| 37.5 mg every 2 weeks | 75 mg monthly |
| 50 mg every 2 weeks | 100 mg monthly |

- Switch from paliperidone monthly (Invega Sustenna®) injection to paliperidone 3-monthly injection (Invega Trinza®)²⁵
 - See Invega Trinza® [monograph](#) and **Table 4** below for conversion doses.
 - Patients who are adequately treated with monthly paliperidone injection for at least 4 months and do not require dose adjustment may be switched to 3-monthly paliperidone injection.
 - Invega Trinza® should be initiated in place of the next scheduled dose of monthly paliperidone (Invega Sustenna®) injectable (\pm 7 days).
 - The Invega Trinza® dose should be based on the previous monthly paliperidone dose multiplied by 3.5 as shown in the following table:

Table 4: Conversion from the Last Invega Sustenna® Dose to the Invega Trinza® Dose Using 3.5 as a Multiplier²⁵

| If the last dose of monthly Invega Sustenna® is: | Initiate 3-monthly Invega Trinza® at: |
|--|---------------------------------------|
| 50 mg | 175mg |
| 75 mg | 263mg |
| 100 mg | 350mg |
| 150 mg | 525mg |

Notes:
 - Saskatchewan Drug Plan: Exceptional Drug Status criteria are the same for both Invega products.
 - Non-Insured Health Benefits: Both Invega products are full formulary.

Switching to an oral dosage form

- If giving an LAI is not possible, temporarily switching to an oral dosage form is an option.¹³
- There are several risks that need to be considered for each patient before deciding whether it is appropriate to switch¹⁵:
 - relapse or destabilisation, should the dose of oral medication be too low or if the patient has reduced adherence to the oral medication
 - exacerbation of condition due to stress and anxiety from the switch
 - potential medication errors during the cross over
 - difficulties in working out equivalent doses requiring periods of dose adjustments and more frequent contact

- additive adverse drug reactions (ADRs) during the period of crossover or ADRs due to the oral dose equivalent being too high
- Switching to an oral dosage form may be more appropriate, and considered a lower risk, in situations where patient adherence will be ensured such as group home living situations where medications are administered, or when the responsibility can be designated to a family member, etc.
- In most cases when it is necessary to switch from an LAI to an oral antipsychotic, the new oral antipsychotic can usually be started immediately, without need for additional doses of the long-acting pre-switch antipsychotic. An additional scheduled injection may be needed, however, if the initiation of the new oral antipsychotic and the next scheduled LAI closely correspond in time, particularly for patients who are highly prone to relapse during gaps in treatment or if the new oral antipsychotic must be initiated at subtherapeutic doses and requires slower titration to its target dose.²⁷
- For switching strategies from a depot antipsychotic to an oral antipsychotic see [Psychiatrynet](#).

Monitoring switches

- It is necessary to monitor any type of switch:
 - Review the patient after the change to ensure they have tolerated the switch, aren't experiencing adverse effects or relapses/destabilization and for any compliance issues.
 - Monitoring can be done over the phone.

Switching Antipsychotics

Table 5: Approximate Antipsychotic Dosing Equivalencies

Disclaimer: This table can be used as a guide when suggesting equivalent doses. Keep in mind that there are variances in literature for the dosing ranges, particularly with first generation antipsychotics. However, second generation antipsychotics have tighter evidence-based dosing ranges, therefore, dosing equivalencies may be less relevant for those agents.²⁰ Nevertheless, patients need to be closely monitored and dosages adjusted according to individual responses. When making a decision to switch a medication, be sure to assess individual patients for other factors such as comorbid conditions, other medications, previous experiences and adverse effects. Some patients will be outside of these “normal” ranges.

| Antipsychotic | Approximate Equivalent Dose | | Dosage Range Values in the Literature | |
|------------------------------|--------------------------------|---------------------------------|---------------------------------------|--------------------------------------|
| | Oral | Depot | Oral | Depot |
| First Generation | | | | |
| Flupentixol ²⁰ | 3 mg/day | 10 mg/week | 2-3 mg/day | 10-20 mg/week |
| Haloperidol ²⁰ | 2 mg/day | 15 mg/week | 1.5-5 mg/day | 5-25 mg/week |
| Zuclopenthixol ²⁰ | 25 mg/day | 100 mg/week | 25-60 mg/day | 40-100 mg/week |
| Second Generation | | | | |
| Aripiprazole | 7.5 mg/day ^{20,28,29} | Not established | | |
| Paliperidone | 1.5 mg/day ²⁸ | 37.5 mg/month ²⁰ | | |
| Risperidone | 1.5 mg/day ²⁰ | 18.75 mg /2 weeks ²⁰ | 1.5-2 mg/day ^{20,28} | 18.75-25 mg/2 weeks ^{20,28} |

What should I do if my patient is due for a Prolia® (denosumab) injection?

Stopping denosumab results in rapid bone loss & increases the risk of fracture. Data from the FREEDOM study showed that an increase in bone loss occurred as soon as 3 months after a missed dose.³⁰ After missing a scheduled dose 12 months after the next injection was due, bone mineral density decreased back to baseline (pretreatment) levels. If denosumab must be stopped and the patient is at continued risk of fracture, it is recommended that the rise in bone turnover and increased fracture risk could be mitigated with a 1–2 year course of a bisphosphonate.³¹

- Be sure to consider individual patient characteristics including why the patient has been prescribed the denosumab injection. In many, but not all cases, a patient is switched to the injection due to factors that make taking other osteoporosis medications such as bisphosphonates inappropriate.
- In switching to an oral bisphosphonate, consider the following:
 - Delayed-release risedronate (i.e. Actonel DR®) tablets may be taken with breakfast, which may make it easier for patients to adhere to treatment.³²
 - Once monthly formulations (i.e. Actonel® 150 mg) may also further improve adherence by reducing the frequency of medication administration.
 - All bisphosphonates are relatively contraindicated in patients with severe renal impairment.³²
 - Avoid bisphosphonates in patients with osteonecrosis of the jaw.³²
 - Avoid bisphosphonates in patients with atypical femoral fractures.³²
- If **starting/restarting a patient on a bisphosphonate**, provide appropriate counselling:
 - Tablets and capsules should be swallowed whole, not sucked or chewed.³²
 - Adequate intake of calcium and vitamin D should be maintained during bisphosphonate therapy.^{32,33}
 - To minimize the risk of upper gastrointestinal irritation or injury, oral bisphosphonates should be taken on an empty stomach with a full glass of plain water. They should not be taken with food, calcium, other medications, or any beverage other than water.³²
 - Patients should remain in an upright position (sitting or standing) for 30 minutes after a dose. Manufacturers' recommendations vary for the different agents with respect to the time of day and how long before a meal they should be taken- check individual monographs.³²
- Once it is appropriate to provide injections again, consider switching the patient back to denosumab.

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