Guidelines for the Use of

Transdermal Fentanyl Patches

A clinical teaching aid for GP trainees and IMGs — UK primary care & palliative medicine

■ Key Points at a Glance

- ■ Second-line strong opioid when oral/SC routes are unsuitable or morphine is not tolerated
- ■ Only suitable for **stable** pain — not for rapid titration or acute pain
- ■ **Contraindicated in opioid-naïve patients** (MHRA, September 2020)
- ■ Allow 12–24 h to reach therapeutic levels; always provide breakthrough analgesia
- ■ Fentanyl ≈ 100–150× more potent than oral morphine — handle conversions with care
- ■ Remove patch before MRI scans — risk of serious overdose
- ■ Report adverse reactions via the MHRA Yellow Card scheme

1. What is Transdermal Fentanyl?

Transdermal fentanyl is a potent, synthetic strong opioid delivered via an adhesive patch applied to skin. It is a second-line alternative to oral or subcutaneous (SC) morphine/diamorphine in the management of moderate-to-severe cancer pain. It is not a first-line choice.

When to consider fentanyl patches

- ✔ Intractable morphine-induced constipation, refractory to laxatives
- ✔ Intolerable adverse effects with morphine (e.g. persistent nausea/vomiting despite antiemetics; hallucinations despite haloperidol)
- ✔ Difficulty swallowing oral preparations (dysphagia, tablet phobia)
- ✔ Poor compliance with oral medication where supervised patch application is feasible
- ✔ Oral and SC routes are both unsuitable

When NOT to use fentanyl patches

- ✘ **Opioid-naïve patients** — contraindicated (MHRA 2020)
- ✘ Uncontrolled or rapidly escalating pain requiring quick titration
- ✘ Pain that does not respond to morphine — fentanyl will not work either
- ✘ Acute or post-operative pain
- ✘ Patients with fever or who will apply external heat sources (increased absorption risk)

■ CONTRAINDICATION: Opioid-naïve patients (MHRA, September 2020)

Fentanyl patches are **contraindicated in opioid-naïve patients**. The MHRA issued this mandatory safety requirement in September 2020 following reports of fatal respiratory depression in opioid-naïve patients.

For non-cancer pain, patches must only be prescribed to patients who have previously tolerated an opioid.

You must ensure the patient is already established on an opioid equivalent to at least 30–60 mg oral morphine per 24 hours before initiating transdermal fentanyl.

■ CRITICAL SAFETY WARNING

Pain that is **not relieved by morphine will not be relieved by fentanyl**. If in doubt, seek specialist palliative care advice before initiating transdermal fentanyl.

Fentanyl is approximately **100–150 times more potent than oral morphine** by weight. Handle all dose conversions with extreme care.

2. Available Strengths & Starting Doses

Patches are available in five strengths and are designed to be worn for **72 hours (3 days)**. On specialist advice, some patients with rapid skin metabolism may require a change every 48 hours. Prescribe by **brand name** to avoid confusion between matrix and reservoir formulations.

Patch Strength (mcg/h)	Approx. Oral Morphine Equivalent (mg/24h)	Approx. SC Diamorphine Equivalent (mg/24h)
12 mcg/h	30–44 mg	15–22 mg
25 mcg/h	45–89 mg	22–44 mg
50 mcg/h	90–134 mg	45–67 mg
75 mcg/h	135–179 mg	67–89 mg
100 mcg/h	180–224 mg	90–112 mg

All conversions are approximate. Individual dose requirements vary. Fentanyl is approximately 100–150× more potent than oral morphine. Always provide breakthrough analgesia. Seek specialist palliative care advice if uncertain.

Dose Conversion Guidance

Converting from…	How to calculate starting patch strength
Oral morphine (4-hourly IR)	Total the 24-hour oral morphine dose (mg). Divide by 3 to obtain the approximate starting fentanyl dose (mcg/h). Round to the nearest available patch strength.
Oral morphine (12-hourly SR)	Total the 24-hour dose. Apply the same ÷3 calculation. Apply the patch at the same time as administering the final 12-hourly dose.
SC diamorphine via syringe pump	The 24-hour SC diamorphine dose (mg/24h) approximates numerically to the patch strength (mcg/h). Round to the nearest strength. Seek specialist advice if uncertain.
Codeine or dihydrocodeine ≥240 mg/day	Start with the 25 mcg/h patch as minimum starting strength after converting to morphine equivalent first.

Note: Dextropropoxyphene (co-proxamol) was fully withdrawn from the UK market in December 2007 and must not be prescribed. It no longer features in conversion calculations.

3. Applying the Patch

Where & how to apply

Apply to clean, dry, flat, non-inflamed, non-irradiated, intact skin — ideally hairless. Suitable sites include the upper arm, chest, back, or abdomen.

Body hair may be clipped (not shaved) if needed. Avoid recently oiled, moisturised, or irritated skin. Press firmly for 30 seconds and check edges adhere. Some patients require micropore tape around the edges.

For patients with cognitive impairment or children, use the **upper back** to reduce accidental removal.

Important application rules

- ! Do NOT cut patches — this destroys the delivery system and causes unpredictable dosing
- ! Do NOT apply to irradiated skin
- ! Remove the previous patch before applying a new one
- ! Rotate sites — allow the underlying skin to rest for **3–6 days** before re-using the same site
- ! Wash hands thoroughly after application
- ! Always check the old patch has been removed before applying a new one

! Heat Warning — Risk of Toxicity

Fever and external heat sources (electric blankets, hot-water bottles, heat pads, sunbathing, saunas, hot baths) all **increase fentanyl absorption** and can cause serious toxicity, principally respiratory depression.
Warn all patients: **no heat sources over the patch site**. Patients **may shower** but must **not soak in hot baths** or use hot tubs.
In febrile patients, monitor closely for signs of opioid toxicity.

■ MRI Safety — Remove Patch Before Scanning

You must remove all transdermal opioid patches before an MRI scan. Fentanyl and buprenorphine patches in particular can cause **serious overdose** if not removed prior to scanning. Document patch removal and re-application clearly.

4. Timing the Switch — Getting the Overlap Right

Fentanyl patches take **12–24 hours to reach clinically meaningful plasma levels** and **36–48 hours to reach steady state**. This is the most common source of inadequate pain control when initiating patches. Always bridge with existing analgesia.

Previous Analgesia	What to Do at Patch Application
4-hourly oral IR morphine	Continue regular doses for 12 hours after applying the patch, then stop.
12-hourly oral SR morphine	Apply the patch at the same time as administering the **final** 12-hourly dose, then stop SR morphine.
SC syringe pump (diamorphine)	Maintain the syringe pump for **12 hours** after applying the first patch, then stop.

5. Breakthrough (Rescue) Analgesia

Breakthrough analgesia **must** always be prescribed when initiating or titrating fentanyl patches. This is mandatory during the first 3 days, and especially during the first 24 hours before steady state is reached.

Calculating the rescue dose

The rescue dose of immediate-release (IR) oral morphine should be **approximately 1/6th** of the total 24-hour oral morphine equivalent dose.

Example: A patient on a 25 mcg/h patch (≈ 60 mg oral morphine/24h) should be prescribed approximately **10 mg oral morphine IR** as rescue.

Rescue doses may be given every 1–4 hours as needed.

When to increase the patch

If a patient requires **2 or more rescue doses per day** after the first 48 hours, increase the patch strength.

Increase by the **next available strength** (typically 12–25 mcg/h steps).

If breakthrough pain persists on day 3 after application, increase the patch and review.

Approximately **50% of patients** require a dose increase after the first 3 days.

6. Managing Side Effects

Side Effect	Practical Management
Constipation (less common than with morphine)	Halve the dose of laxatives when starting fentanyl. Titrate according to response. If diarrhoea develops, reduce or stop laxatives. If troublesome, give rescue dose of oral morphine.
Nausea and vomiting	Fentanyl causes less nausea than morphine. If antiemesis is required, prescribe **haloperidol 1.5 mg orally at night** (or 1 mg SC if parenteral route required). Metoclopramide 10 mg three times daily is an alternative.
Opioid withdrawal symptoms	Around 10% of patients experience withdrawal symptoms (flu-like symptoms) when switching from morphine. Warn patients in advance. Rescue doses of oral morphine treat these symptoms.
Drowsiness / toxicity	Assess for reversible causes (fever, drug interactions, dose error). Consider naloxone if respiratory rate <8/min or SpO2 falling.
Skin reactions	Local irritation is common. Rotate sites. If allergic to silicone adhesive, transdermal fentanyl may be unsuitable.

7. Pharmacokinetics — What You Must Know

- **Onset of action:** Plasma levels rise over the first 12–24 hours after application. Steady-state concentrations are not reached until **36–48 hours** after first application.
- **After patch removal:** A significant fentanyl depot remains in the skin. Serum concentrations fall slowly — the half-life after removal is approximately **17 hours**. Blood levels persist for up to 24 hours (sometimes longer) after patch removal. **This is clinically important when converting to another opioid.**
- **Switching from fentanyl to another opioid:** This is a high-risk procedure. Always seek specialist palliative care advice before converting away from a fentanyl patch.
- **Renal impairment:** Seek specialist advice before converting to any other opioid in patients with renal failure.

8. Management in the Moribund Patient

When a patient deteriorates and can no longer swallow, clinical decisions must be made about whether to continue the patch or switch to a continuous SC infusion.

Option A: Continue Patch + SC Rescue Doses

This is often the simplest approach. Continue the fentanyl patch and prescribe SC diamorphine rescue doses using the **"rule of 5"**:

SC diamorphine rescue dose (mg) = Patch strength (mcg/h) ÷ 5

Example: 100 mcg/h patch → give 20 mg SC diamorphine as needed.

Option B: Convert to Continuous SC Diamorphine

If a syringe pump is preferred:

- For the **first 24 h** after patch removal: give **half** the patch strength as mg/24h SC diamorphine (round up to a convenient ampoule size)
- From **24 h onwards**: give the **full** patch strength as mg/24h SC diamorphine (round up to a convenient ampoule size)

This accounts for the residual fentanyl depot in the skin during the first 24 hours.

9. Patch Removal, Rotation & Safe Disposal

Patch rotation

- Remove the patch after exactly **72 hours** (3 days)
- Move to a different skin site with each application
- Allow the previous site to rest for at least **3–6 days** before reuse
- Document the patch site on each application

Safe disposal (MHRA guidance)

- Fold the used patch in half with the **adhesive side inwards** so it sticks to itself
- Place in the original sachet or wrap in tissue
- Dispose of via pharmaceutical waste (clinical settings) or return to a community pharmacy (home patients)
- **Do not place in household general waste** — significant residual fentanyl remains in used patches
- **Keep all patches (used and unused) away from children** — accidental exposure has caused fatal overdose in children
- Unused patches must be returned to a community pharmacy
- Wash hands after handling any patch

■ Accidental Exposure — Urgent Response Required
If a patch is accidentally applied to another person, or a child ingests or comes into contact with a patch: **remove the patch immediately and call 999**. Fentanyl exposure in opioid-naïve individuals — especially children — can cause rapid and fatal respiratory depression.

10. Drug Interactions, Special Circumstances & Safety Netting

Key Drug Interactions

Interacting drug/class	Risk	Action
CYP3A4 inhibitors (e.g. azole antifungals, macrolides, ritonavir, grapefruit juice)	Increased fentanyl plasma levels → toxicity, respiratory depression	Use with caution. Monitor closely. Seek specialist advice.
CYP3A4 inducers (e.g. rifampicin, carbamazepine, phenytoin)	Reduced fentanyl plasma levels → inadequate analgesia	Monitor efficacy. May need dose increase. Seek specialist advice.
CNS depressants (benzodiazepines, alcohol, other opioids, antipsychotics)	Additive CNS/respiratory depression — potentially fatal	Avoid concurrent use where possible. MHRA reminder re: benzodiazepines and opioids.
MAOIs	Risk of serotonin syndrome and severe CNS/respiratory depression	Contraindicated within 14 days of MAOI use.
Serotonergic drugs (SSRIs, SNRIs, tramadol, lithium)	Risk of serotonin syndrome	Prescribe with caution. Monitor for features of serotonin syndrome.

Renal & hepatic impairment

Fentanyl is metabolised hepatically and does not accumulate active metabolites in renal impairment (unlike morphine). It may be preferable in significant renal failure, **but always seek specialist palliative care advice** before initiation or dose conversion.

Non-adherence & skin failure

Some patients cannot maintain adequate patch adhesion (sweating, fragile skin). If patches repeatedly fail to adhere, consider an alternative route.

Prescribing safeguards

- Prescribe by **brand name** — do not switch between matrix and reservoir formulations
- Prescribe **one pack (5 patches = 15 days supply)** at a time — patient condition may change rapidly
- Fentanyl patches are Schedule 2 Controlled Drugs — all CD prescribing regulations apply
- Report suspected adverse reactions (including dependence, accidental exposure, overdose) via the **MHRA Yellow Card scheme**
- Discuss risks of tolerance, dependence, and addiction — document this discussion

! Opioid Dependence & Addiction — MHRA Guidance (September 2020)
Before prescribing fentanyl patches, discuss the risks of **tolerance, dependence, and addiction** with the patient and document this discussion.
For non-cancer pain: prescribing opioids for longer than 3 months carries a significant risk of dependence and addiction, even at therapeutic doses.
Agree a treatment strategy and a plan for ending treatment before initiating.
Report dependence, accidental exposure, or overdose via the Yellow Card scheme.

Quick Reference Summary

Key clinical rules at a glance

■ Indications

- ■ Morphine-induced constipation, intractable
- ■ Intolerable morphine side-effects
- ■ Dysphagia / unable to swallow
- ■ Poor oral compliance with supervised patch application

■ Absolute Contraindications

- ■ Opioid-naïve patients (MHRA 2020)
- ■ Rapidly escalating or acute pain
- ■ Pain unresponsive to morphine
- ■ Acute post-operative pain

■ Dose Conversion (summary)

- ■ Oral morphine/24h ÷ 3 ≈ patch strength in mcg/h
- ■ SC diamorphine mg/24h ≈ patch strength in mcg/h
- ■ 25 mcg/h ≈ 45–89 mg oral morphine/24h
- ■ Always provide rescue analgesia

■ Onset & Steady State

- ■ Meaningful levels: 12–24 h post-application
- ■ Steady state: 36–48 h
- ■ Bridge with existing analgesia during initiation
- ■ Half-life after removal ≈ 17 h

■ Breakthrough Analgesia

- ■ Always prescribe rescue IR oral morphine
- ■ Rescue dose ≈ 1/6 of total daily oral morphine equivalent
- ■ If ≥2 rescues/day after 48 h → increase patch strength
- ■ ≈50% need dose increase after first 3 days

■ Safe Disposal

- ■ Fold adhesive-side inwards, replace in sachet
- ■ Pharmaceutical waste (clinical) or pharmacy return (home)
- ■ Keep away from children — fatal if accidentally applied
- ■ Remove before MRI scans

Sources & Acknowledgements

■ NICE Clinical Guideline CG140: Opioids in palliative care — safe and effective prescribing of strong opioids for pain in palliative care of adults.

■ MHRA Drug Safety Update, Volume 14 Issue 2, September 2020: Transdermal fentanyl patches for non-cancer pain — do not use in opioid-naïve patients; and opioids: risk of dependence and addiction.

■ British National Formulary (BNF) — Fentanyl. Current edition.

■ West Midlands Palliative Care Physicians (2025). Palliative care — guidelines for the use of drugs in symptom control.

■ Scottish Palliative Care Guidelines / NHS Right Decisions — Fentanyl patches (2025 revision).

■ SPS NHS Specialist Pharmacy Service: Using transdermal patches safely in healthcare settings (2025).

■ Original clinical content derived from Dr Robert Twycross, Sir Michael Sobell House, Churchill Hospital, Oxford; endorsed by the Bradford Community Palliative Care Team, 1998 — updated and revised 2025.

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