PRESCRIBING EXERCISE 1 – OPIOID PRESCRIBING: *answers (dates for 2014)*

1*a.*

REGULAR MEDICATION

YEAR▶ 2014		DAY & MONTH▶		
Administration Times (24hrs)		REGULAR ▼	OTHER ▼	
Medicine: Paracetamol		02:00		
Indication: Pain		06:00		
Dose: 1g	Route: PO	10:00	12pm	
Start Date: 18.9.14	Review Date	14:00		
Signature		18:00		
PHARMACY	Stop Date & Initials	22:00		
	SPECIAL INSTRUCTIONS			

2*a.* A 'Sprain' is a forced stretching of a ligament and the pain would be expected to be Acute (*ie expected to resolve*), Somatic, Nociceptive (soft tissue) pain: Therapeutic options could include:

(123):
- He is already at Step 1, so go to Step 2 by adding a weak opioid for moderate pain (*eg. Codeine*)
- You could start Co-Codamol 30/500 with the option of 1-2 tabs QDS (*ie he can drop to 1 tab QDS if Codeine initially gives him side effects, but this would drop the dose of Paracetamol*)
- If you are concerned about the Codeine side effects in someone who is opioid naive, keep Paracetamol dose maximised and add Codeine separately (15 or 30mg) OR try max, dose of Co-Codamol 15/500 (*2 tabs QDS*) with Codeine 15mg OR 30mg PRN (*he can have another 30mg QDS PRN*)

A:
- Consider using an NSAID PRN if on Co-Codamol 30/500 max dose

B:
- If weak opioid being used, warn about need/prescribe laxatives, warn about nausea (prescribe anti-emetic if needed)
- If NSAID being used ask about previous intolerance & if none warn about GI & respiratory side effects

C:
- Non-drug options – advise about sprain management with PRICE therapy (**P**rotection, **R**est, **I**ce, **C**ompression, **E**levation)
- Tell patient when to expect improvement and when review is needed

2*b.* With a history of reflux, asthma and ischaemic heart disease an NSAID should be used with caution and Naproxen would be currently favoured over Ibuprofen. Diclofenac & COX2s are contraindicated with the cardiac disease. If the NSAID was used regularly, regular stomach protection would be recommended.

Proton Pump Inhibitors – PPI - (*eg Omeprazole*) are often first choice, except where PPI concurrently used with Clopidogrel as PPIs lower latter's reduction of CVD risk because both are metabolised by hepatic CYP219C, normally Clopidogrel is activated and PPIs reduce this. However, originally risk noted with Omperazole, then Esomeprazole and Pantoprazole may NOT do this. However, until resolved, some still avoid co-administration of ALL PPIs with Clopidogrel. This often not an issue with palliative patients. Risk of exacerbating asthma is highest with NSAIDs and lower with COX2s – although both are contraindicated if a previous reaction has occurred.

3*a.*

REGULAR MEDICATION

YEAR▶ 2014		DAY & MONTH▶		
Administration Times (24hrs)		REGULAR ▼	OTHER ▼	
Medicine: Co-Codamol 30/500		02:00		
Indication: Pain		06:00		
Dose: 2 tabs	Route: PO	10:00	12pm	
Start Date: 16.10.14	Review Date	14:00		
Signature		18:00		
PHARMACY	Stop Date & Initials	22:00		
	SPECIAL INSTRUCTIONS			

3*b* Warn about the need/prescribe laxative (*stimulant +/- softener*)

4a YES, I think so. The maximum dose of Co-Codamol 30/500 (*ie 2 QDS*) gives Codeine 240mg/24h which equates to Morphine PO 24mg/24h. The maximum dose of Tramadol is 50mg x 2 QDS or 400mg/24h which equates to Morphine PO 40mg/24h. If the Paracetamol is kept at max dose, this gives an equivalent of an extra Morphine PO 16mg /24h , which may help in someone not ready to use a strong opioid. GP would also be reviewing him again with x-ray result when GP could re-assess and try persuading patient to use strong opioid IF needed.

4b

REGULAR MEDICATION

YEAR ▶ 2014 | DAY & MONTH ▶

Administration Times (24hrs) { REGULAR ▼ OTHER ▼

Medicine: Tramadol IR		02:00	
Indication: Pain		06:00	
Dose: 100mg	Route: PO	10:00	12pm
Start Date: 30.10.14	Review Date	14:00	
Signature		18:00	
PHARMACY	Stop Date & Initials	22:00	
	SPECIAL INSTRUCTIONS		

Medicine: Senna		02:00	
Indication: Constipation		06:00	
Dose: 7.5-15mg	Route: PO	10:00	
Start Date: 30.10.14	Review Date	14:00	
Signature		18:00	
PHARMACY	Stop Date & Initials	22:00	
	SPECIAL INSTRUCTIONS		

Medicine		02:00	
Indication		06:00	
Dose	Route	10:00	
Start Date	Review Date	14:00	
Signature		18:00	
PHARMACY	Stop Date & Initials	22:00	
	SPECIAL INSTRUCTIONS		

AS REQUIRED MEDICATION

Medicine: Morphine IR		YEAR	
Indication: Pain		Day: ↗ Month: →	
Dose: 5.0-7.5mg	Route: PO	Time	
Start Date: 30.10.14	Frequency: 1H	Dose	
Signature		Initials	
PHARMACY	Stop Date & Initials		
	SPECIAL INSTRUCTIONS: 2nd line after Naproxen		

Medicine: Movicol		YEAR	
Indication: Constipation		Day: ↗ Month: →	
Dose: 1-2 sachet	Route: PO	Time	
Start Date: 30.10.14	Frequency: up to twice daily	Dose	
Signature		Initials	
PHARMACY	Stop Date & Initials		
	SPECIAL INSTRUCTIONS		

Medicine: Metoclopramide		YEAR	
Indication: nausea		Day: ↗ Month: →	
Dose: 10mg	Route: PO	Time	
Start Date: 30.10.14	Frequency: 8H	Dose	
Signature		Initials	
PHARMACY	Stop Date & Initials		
	SPECIAL INSTRUCTIONS		

Medicine: Naproxen		YEAR	
Indication: Pain		Day: ↗ Month: →	
Dose: 500mg	Route: PO	Time	
Start Date: 30.10.14	Frequency: 12H	Dose	
Signature		Initials	
PHARMACY	Stop Date & Initials		
	SPECIAL INSTRUCTIONS: 1st line		

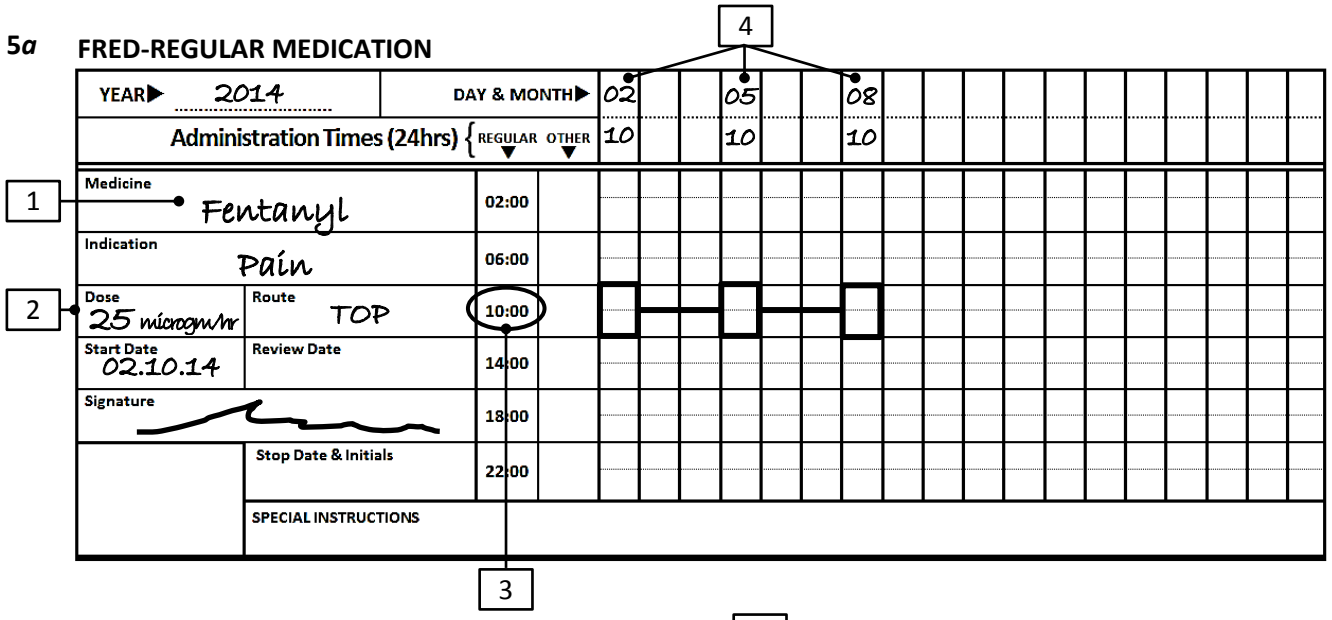
4b Some would only prescribe Tramadol, but any regular opioid requires provision of preventative, regular laxative of at least a stimulant. The dose of Tramadol is maximised so constipation is a particular risk. You could prescribe a softener either regularly or PRN.

In addition, in hospital, Tom is going to need provision for something for break through pain. He has expressed a reservation with morphine so you could consider an NSAID 1st line if there were no contraindications and even though he is not happy to take morphine, you could explain that on the highest dose of Tramadol, then a drug like Morphine is the next option and he could think about trying just one dose because you have made provision for anti sickness if needed. Tramadol 400mg = Morphine PO 40mg so 1/6th = Morphine 6.7mg, which is covered by the range of 5-7.5mg.

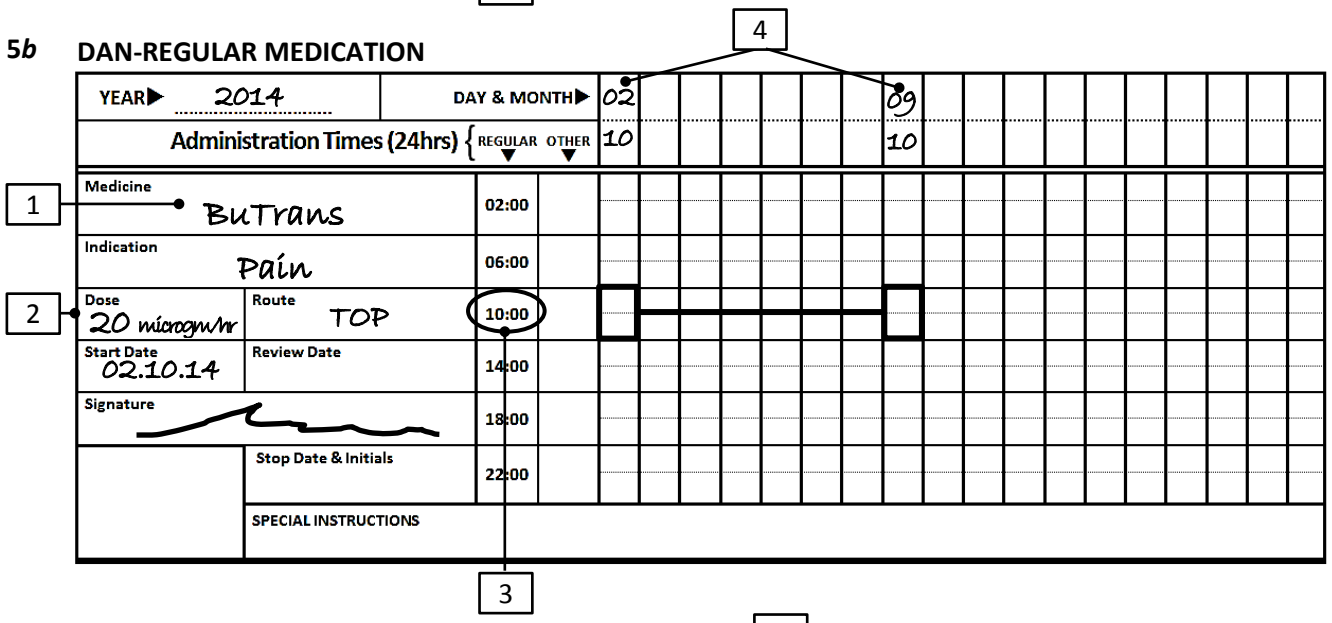
An antiemetic PRN is an option but is not *definitely* needed and might help you if morphine PRN is accepted

The non-drug measures of PRICE can still apply in hospital

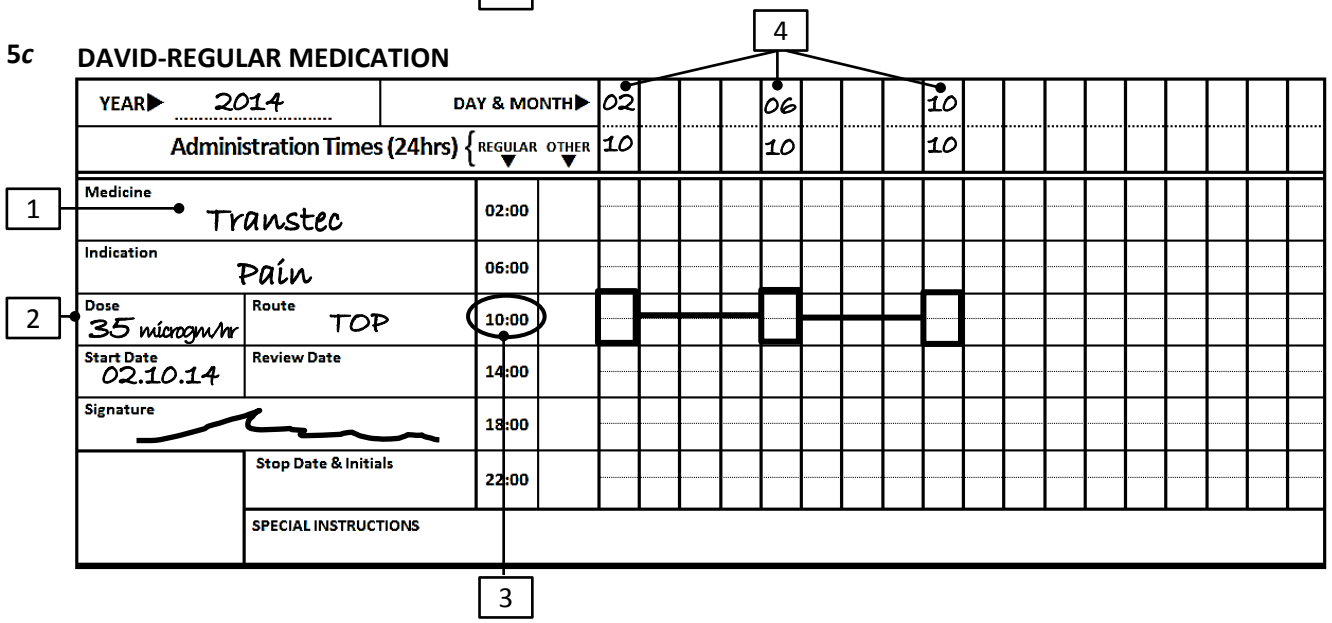
5*a* **FRED-REGULAR MEDICATION**



5*b* **DAN-REGULAR MEDICATION**



5*c* **DAVID-REGULAR MEDICATION**



Notes

1. Patches usually are prescribed by BRAND (*ie NON generically*). Fentanyl *MAY* be an exception (*as shown here*) as your institution may only use one brand (*cf modified release oral opioids*). CHECK before you prescribe. Otherwise use the brand (*eg Durogesic*)
2. Don't forget to use an acceptable abbreviation for *microgram* and the patches are *micrograms/hr* NOT just *micrograms*
3. There *may* be a particular time when patches are changed, CHECK before you prescribe
4. Writing in the dates the patch should be changed AS WELL AS indicating when on the administration box is good practice
5. Remember: patches change times: Fentanyl 72hrs (3 days); Transtec 96hrs (4days); BuTrans weekly (7days)

Qu. 5 cont.

Answers to 5d, 5e & 5f can be found from looking doses up in the opioid conversion table

- remember when converting from PO to SC for the SAME opioid divide by 2 (*and vice versa*)

5*d*

FRED-AS REQUIRED MEDICATION

Medicine: Oxycodone IR		YEAR	
Indication: Pain		Day:↗ Month:→	
Dose: 5mg	Route: PO	Time	
Start Date: 30.10.14	Frequency: 1H	Dose	
Signature		Initials	
PHARMACY	Stop Date & Initials		
	SPECIAL INSTRUCTIONS		

FRED-AS REQUIRED MEDICATION

Medicine: Oxycodone		YEAR	
Indication: Pain		Day:↗ Month:→	
Dose: 2.5mg	Route: SC	Time	
Start Date: 30.10.14	Frequency: 1H	Dose	
Signature		Initials	
PHARMACY	Stop Date & Initials		
	SPECIAL INSTRUCTIONS		

5*e*

DAN-AS REQUIRED MEDICATION

Medicine: Morphine IR		YEAR	
Indication: Pain		Day:↗ Month:→	
Dose: 5mg	Route: PO	Time	
Start Date: 30.10.14	Frequency: 1H	Dose	
Signature		Initials	
PHARMACY	Stop Date & Initials		
	SPECIAL INSTRUCTIONS		

DAN-AS REQUIRED MEDICATION

Medicine: Morphine		YEAR	
Indication: Pain		Day:↗ Month:→	
Dose: 2.5mg	Route: SC	Time	
Start Date: 30.10.14	Frequency: 1H	Dose	
Signature		Initials	
PHARMACY	Stop Date & Initials		
	SPECIAL INSTRUCTIONS		

5*f*

DAVID-AS REQUIRED MEDICATION

Medicine: Morphine IR		YEAR	
Indication: Pain		Day:↗ Month:→	
Dose: 10mg	Route: PO	Time	
Start Date: 30.10.14	Frequency: 1H	Dose	
Signature		Initials	
PHARMACY	Stop Date & Initials		
	SPECIAL INSTRUCTIONS		

DAVID-AS REQUIRED MEDICATION

Medicine: Morphine		YEAR	
Indication: Pain		Day:↗ Month:→	
Dose: 5mg	Route: SC	Time	
Start Date: 30.10.14	Frequency: 1H	Dose	
Signature		Initials	
PHARMACY	Stop Date & Initials		
	SPECIAL INSTRUCTIONS		

5*g*

FRED-REGULAR MEDICATION

YEAR▶ 2014		DAY & MONTH▶	
Administration Times (24hrs) { REGULAR ▼ OTHER ▼			
Medicine: Oxycodone		02:00	
Indication: Pain		06:00	
Dose: 10mg	Route: CSCI	10:00	
Start Date: 12.12.14	Review Date	14:00	
Signature		18:00	
PHARMACY	Stop Date & Initials	22:00	
	SPECIAL INSTRUCTIONS: Fentanyl 75 taken as equal to Oxycodone 30mg SC / 24hr		

FRED-AS REQUIRED MEDICATION

Medicine: Oxycodone		YEAR	
Indication: Pain		Day:↗ Month:→	
Dose: 5 – 7.5mg	Route: SC	Time	
Start Date: 12.12.14	Frequency: 1H	Dose	
Signature		Initials	
PHARMACY	Stop Date & Initials		
	SPECIAL INSTRUCTIONS		

POSSIBLE SOLUTION

1. Look up Fentanyl 75microgm/hr patch in Opioid Conversion Table, converting it to Oxycodone SC/24hr:
   - Fentanyl 75microgm/hr = **Oxycodone 60mg SC/24hr**
2. Because Fred is very frail reduce this by 50%. So for your calculations:
   - Fentanyl 75microgm/hr = **Oxycodone 30mg SC/24hr**
3. Since you are taking the patch to be like having a regular dose of Oxycodone 30mg as a CSCI/24hr an increase of 1/3rd is:
   - **Oxycodone 10mg SC/24hr**
4. Thus Oxycodone 10mg goes in the syringe driver – and in *Special Instructions* you write your Fentanyl to Oxycodone conversion
5. To calculate the breakthrough dose first get the total 24hr regular opioid dose by adding what is in the syringe driver (*Oxycodone 10mg*) to your Fentanyl patch conversion to SC Oxycodone (*Oxycodone 30mg*) and divide this by 6
   - Breakthrough Oxycodone dose = (Total regular Oxycodone SC dose/24hr = 10 + 30 = 40mg) x 1/6th = 40/6 = 6.7mg
   - **Thus the breakthrough dose is covered by the range of Oxycodone SC 5 – 7.5mg SC 1H**

Qu. 5 cont.

5*h*

*What would that **dose have been?***

- *Fentanyl 75microgm/hr = Oxycodone 60mg SC/24hr = Oxycodone 30mg SC/24hr (50% reduction)* ***= Oxycodone 40mg SC/24hr*** *(plus 1/3rd increase)*

When** would **you** have started the syringe driver **in relation to removing the patch

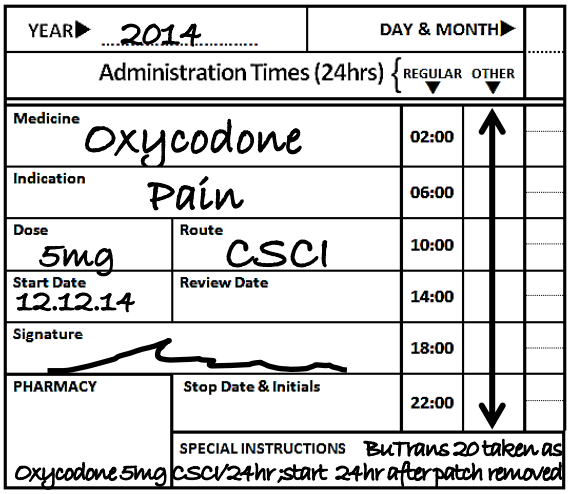
- *At least 12 hours*
  Remember: the fentanyl from patches can still be released from subcutaneous fat for AT LEAST 12 hours AFTER patch removal

***How would you have managed the pain** until the driver was started?*

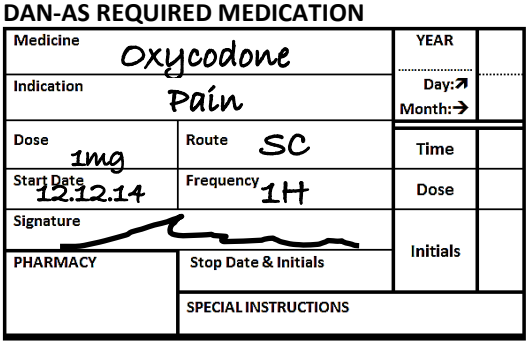
- *With breakthrough medication PRN up to 1 hourly*

5*i*

DAN-REGULAR MEDICATION



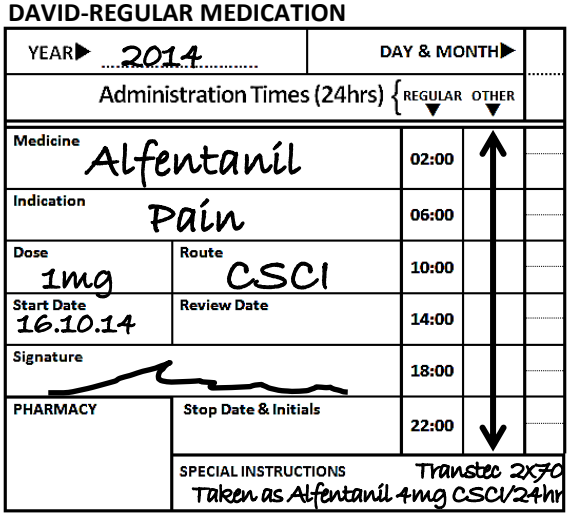
DAN-AS REQUIRED MEDICATION



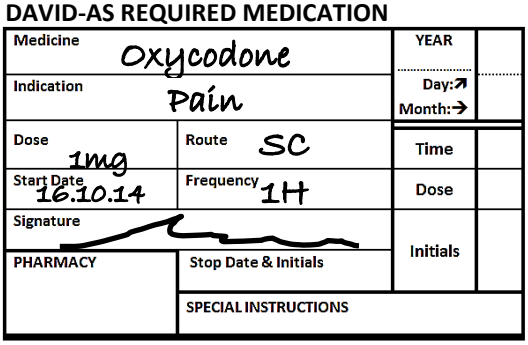
POSSIBLE SOLUTION

1. KEY POINTS OF NOTE: Until the patch adherence problem, Dan's pain was quite well controlled and was opioid responsive. The BuTrans patch is not adhering properly so this delivery system is unreliable, the worsening of Dan's pain seems to coincide with this, but his pain may be changing also. Dan's renal function has started to change.
2. In removing the patch and converting to a syringe driver (SD) alone, it must be remembered that the Buprenorphine remains in the body for up to 24 hours after patch removal; thus the start of the SD should be delayed by this amount and pain is managed with PRN SC opioid.
3. Buprenorphine is safe to use in impaired renal function but morphine may accumulate so rotating buprenorphine to oxycodone or alfentanil are options. I have opted for oxycodone, but if Dan was at the end of life and no further blood tests were to be done, it could be argued that alfentanil would be the 'cleanest' option since oxycodone has 10% renal elimination and can accumulate in severe renal impairment. **BECAUSE OF ITS POTENCY, JUNIOR DOCTORS SHOULD NOT BE PRESCRIBING ALFENTANIL**
4. In conversion table BuTrans 20microgm/hr = 10mg oxycodone CSCI/24hr; this is Dan what may have been getting before the patch adherence problems – BUT we do not know this for sure and it could have been less. When the patch stopped adhering, he would have been getting an unreliably smaller amount. We do not know for sure if his pain HAS worsened (*therefore we do not know for sure if an opioid increase is really needed*) so the *safest* option is to base the SD oxycodone on the BuTrans patch strength and since he may have been getting *less* than the maximum (*ie equivalent to oxycodone 10mg CSCI/24hr*) before patch adherence problems began, it is safer to *dose reduce* the SD opioid:
   - so instead of 10mg of oxycodone CSCI/24hr, **you could start with 5mg of oxycodone CSCI/24hr** (*24hr SD start delay from patch removal*) and this conversion plus delay should be written in *Special Instruction* box
5. Thus the SC breakthrough is:
   - (oxycodone 5mg CSCI/24hr)/6 = 0.8mg = **oxycodone 1mg SC PRN 1hr** (*to be used for pain control in the 24hr after the patch is removed*)
6. The same argument can be used for alfentanil where BuTrans 20microgm/hr = alfentanil 1mg CSCI/24hr BUT dose reducing this *to 0.5mg or 0.75mg* makes the breakthrough doses 0.1mg and 0.125mg respectively, which a very small in volume to give when the most concentrated alfentanil amp is 5mg/1ml (*ie both are <0.1ml*)

DAVID-REGULAR MEDICATION



DAVID-AS REQUIRED MEDICATION



POSSIBLE SOLUTION

1. KEY POINTS OF NOTE: Prior to deterioration, had well controlled opioid responsive pain. Seemed to show signs of opioid toxicity with morphine breakthroughs (*drowsiness, possible myoclonic jerks*).Deterioration associated with renal impairment (*buprenorphine safe but morphine accumulates*). With deterioration, increase in breakthrough opioids, suggesting a worsening of David's pain – if patches are adhering ok.

Qu. 5 cont

5*j*

2. The safest opioid to rotate to is alfentanil. **BECAUSE OF ITS POTENCY, JUNIOR DOCTORS SHOULD NOT BE PRESCRIBING ALFENTANIL so this is how a senior doctor may prescribe it.**
   In conversion table, Transtec 2x70microgm/hr patches = alfentanil 8mg. The *most cautious conversion* would be to dose reduce this by 50%, thus:
   - Transtec 70 x 2 = alfentanil 8mg = **alfentanil 4mg with 50% reduction** (*write this conversion in the Special Instruction box*)
3. Since the Transtec patches are staying on as background (*regular*) opioid, the syringe driver (SD) will only include any increase in the background dose. A *very cautious* increase could be 25%:
   - **25% increase in alfentanil 4mg = alfentanil 1mg (*for SD as CSCI/24hr*)**
4. Thus the breakthrough alfentanil will be 1/6th of the total alfentanil dose in 24hr (*4mg equivalent from patches + 1mg from SD*)
   - **Breakthrough alfentanil = (4+1)/6 = 0.83mg = 1mg SC PRN 1hr**