The Royal College of Emergency Medicine

Best Practice Guideline

Emergency Department Out of Hours Discharge Medications

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Summary of recommendations

1. The Emergency Department (ED) should have easy access to an appropriately stocked 'To Take Out' (TTO) Cupboard to allow the giving out of medications during the Out of Hours period.

2. The ED needs to balance patient convenience, patient concordance and cost when deciding on the duration of the prescribed drug course to give out as a TTO.

3. The stocking of the 'To Take Out' (TTO) cupboards should reflect the Patient Group Direction (PGD) list for non-prescribers, local microbiology guidelines and the needs of the local population. Consideration should also be placed on the changing costs of medications and the need for review of the TTO cupboard contents on a regular basis.

4. ED nursing staff and doctors should follow local guidance on how to safely give out TTOs from the ED.

5. If medication is required urgently and is not available in the TTO cupboard it should be prescribed in the method most convenient for the patient – FP10 or Hospital TTO script. Non-urgent medication can be arranged via an advice slip to the GP.

6. Key to a successful medicines discharge service is close liaison between the pharmacy department and the emergency department, with regular meetings focussing on safe prescribing, TTO volumes and costs.

Scope

This guideline is designed primarily for use in Type 1 EDs, but the suggestions and drugs listed will be of relevance to Type 2 and 3 Departments for both adults and children. The subject of collection of prescription costs by the ED is outside the remit of this guideline.

Reason for development

Hospital Episode Statistics (HES) data shows that up to 40% of attendances to EDs occur outside of normal working hours 9am-5pm. Despite this few trusts provide a comprehensive out of hours pharmacy service. As a result, patients depend on the supply of medication out of hours from the ED 'TTO' cupboard.

A pilot study (2018) involving a survey of 15 trusts throughout England and Wales found that on average an on-site pharmacy was only available 31% of the time that the ED was open (slightly lower in Wales) (appendix 1). Only 33% of trusts had FP10s easily available to staff (kept within the ED itself).

Managing discharge medication effectively will likely lead to greater patient (and carer) satisfaction, increased concordance, increased likelihood of right drug at the right time and potentially cost benefits to the Hospital.

Introduction

Most EDs are open 168 hours per week. Hospital pharmacies however are typically open only 30-60 hours per week. Outside of these hours prescribers in the ED have three choices:

1) Dispense medications from a TTO (To Take Out) or TTA (To Take Away) cupboard,
2) Give a hospital prescription and advise the patient or their carer to return the next working day or
3) Give a FP10 prescription and rely on the patient/their carer finding an open pharmacy.

The latter two options may incur additional costs (travel, time) as well as potentially being inconvenient and impacting different social groups in an inequitable manner.

Discharge medication prescribed and provided by the ED in the out of hours period (the preferred option in patient surveys) is heavily dependent on the stock in the 'TTO cupboard'.

The Carson Review (2000) of out of hours services (commissioned by the Department of Health) identified that "*Where patients' clinical needs are such that treatment should start without delay, they will need to be able to access the medicines they need at the same time and the same place as their out-of-hours consultation.*"

Considerations

TTO Cupboard space

Space in EDs is at a premium, therefore careful selection of which drugs and what quantities are stocked, should be taken when considering the population served. The resting stock levels should be based on the volume of the drug prescribed; this may have seasonal elements to it.

Local antibiotic guidance

TTO cupboards should reflect local antibiotic guidance (and antibiotic resistance patterns) Patients should be reminded of the potential pitfalls in saving antibiotics from courses which have not been fully completed.

Course Length

Ideally, the whole course should be prescribed (and TTO packs dispensed to reflect this) however, there will be occasions when this is inappropriate due to the excessive length of the course (e.g. DOACs in AF or prolonged steroid courses) or because local hospital guidelines only allow a set number of days to be prescribed for any outpatient prescription e.g. seven days.

Returning to the hospital to 'pick up' remaining medications during pharmacy open hours is in general not a satisfactory outcome unless the medication in question is non-urgent.

EDs need to be particularly cautious when prescribing any medication which may be abused or lead to dependence such as Opiates, Benzodiazepines and Gabapentin. If a prescription is issued, then a very short duration (i.e. three days) with a discharge summary advising review in primary care would be a safer option than prolonged courses.

Antibiotics are best prescribed as a 'complete' course; however, this may not always be possible for the reasons listed above.

It should be remembered that ED budgets are based around their need to provide emergency and urgent care only, and that they cannot reasonably be expected to take on additional financial burden which is already catered for elsewhere in the health system e.g. Primary care.

As described above, patient convenience and satisfaction will need to be balanced against cost and appropriateness of prescribing directly from the emergency department.

Costs

A pack of medication for TTO may be in the original box or a made-up pack of modified volume (which are typically white boxes). The latter has some added costs involved.

Depending on the cost of the medication it may be more cost effective to have an original box and advise the patient to safely dispose of excess supply (trimethoprim is a good example) or to have a smaller pack made up (nitrofurantoin is an example).

Clever choices in medications can give big cost savings. For example, some medications in a strong dose capsule may be far more expensive. This can lead to a slightly perverse situation where it is far cheaper to prescribe two tablets of a weaker dose than a single tablet of the intended dose. The pharmacy procurement team will typically identify those cases.

Drug costs have to be considered in terms of stocking. Due to fluctuating prices it may be the case that a drug thought as being common and cheap (such as Erythromycin liquid) may actually be several times more expensive than a newer substitute (Azithromycin liquid).

Note this guideline does not discuss collection of prescription charges; however, where the ED does collect prescription charges this should be as simple and 'user friendly' as possible, and system should permit medication to be given out when charging is not possible. Any charging system implemented should be equitable; consistently applied to all patients regardless of time or reason of attendance, gender, race, age. The inability of a patient to provide evidence of exemption to pay for medicine should never prevent a patient receiving urgent medication.

Local pathways and meeting the needs of local population

In order to be responsive to the local needs it is helpful to monitor what drugs patients are given FP10s for or returning to the pharmacy for. Examples may be aspirin and clopidogrel for TIA clinics. Any new guideline advising a medication to be given out should lead to a review of the TTO cupboard contents.

In rural areas patients may have to travel considerable distances to return to a hospital for medication. A large TTO cupboard with greater selection may be more suitable in these departments.

A smaller department with a weekly TTO cupboard restock may need higher resting stock levels than a larger department with daily restocks. Consideration should also be given to TTO use over bank holiday weekends.

FP10s

FP10s are generally less cost effective than giving out medication from the ED or hospital pharmacy.

However, the additional costs are far less than many ED clinicians and nurses are taught. In fact, the cost difference is negligible with more expensive drugs. Prescribers should prescribe medicines generically (to minimise cost) unless there is a clinical / efficacy / safety reason not to e.g. patients taking anti-epileptics such as carbamazepine should be maintained on the same brand.

ED staff should have access to FP10s without overly burdensome bureaucratic steps. Treating them as per a controlled drug is a reasonable measure.

FP10s should be stored in a secure lockable cupboard or restricted access area. A log of prescription numbers should be kept.

Each FP10 issued should be recorded along with documentation of which drug was prescribed. This should be monitored on a regular basis (up to every four weeks) to look for unusual changes in prescribing patterns. This may indicate seasonal illnesses (influenza), changes in pathways, or unusual prescribing patterns by individual clinicians.

Safely Giving TTO Medication to Patients

Emergency medicine staff should follow local guidance on how to safely give out TTO medication to patients, see appendix 3 for an example.

Appendix 1 – Pilot study - hospital pharmacy opening hours in England and Wales (2018)

Hospital	Opening times	Total hours open per week	As percentage of time ED open
Urban DGH	Monday to Friday 0900-1700 (shut for one hour at lunch)	35	21%
University Teaching Hospital	Monday to Friday 0900-1800 Saturday 0900-1300	49	29%
Large Urban DGH	Monday to Friday 0830-1715 Sat/Sun 0900-1600	58	35%
'Rural' DGH	Monday to Friday 0900-1730 Saturday 0930-1400 Sunday 1000-1400	49	29%
Small Urban DGH	Monday to Friday 0900-1800 Saturday 0900-1300	49	29%
Small Urban DGH	Monday to Friday 0900-1800 Saturday 0900-1200	48	28%
Large Urban DGH	Monday to Friday 0900-1800 Sat/Sun 1000-1600	57	34%
Large University Teaching Hospital	Monday to Friday 0900-1800 Sat/Sun 0900-1330	54	32%
Large University Teaching Hospital	Monday to Friday 0845-1700 Sat/Sun 0900-1230	48.25	32%
Large Urban DGH	Monday to Friday 0900-1700 Saturday 0900-1200	43	26%
Small rural DGH	Monday to Friday 0930-1300 then 13:45 till 1700 Saturday 0900-1200	33	20%
Large Urban DGH	Monday to Friday 0900-1700 Saturday 0900-1230	43.5	26%
Large University Teaching Hospital	Monday to Friday 0900-1800 Sat/Sun 0900-1330	54	32%
Small rural DGH	Monday to Friday 0900-1800 Sat 0900-1200 / Sun 1000-1200	46	27%
Large Urban DGH	Monday to Friday 0900-1800 Saturday 0900-1200	54	32%
Large Urban DGH	Monday to Friday 0900-1800 Sat/Sun 1000-1600	57	34%
Average		**51.85**	**31%**

Appendix 2

Example list of medication that could be kept in a type 1 ED with rationales and areas to consider.
See text with regarding discussion course length / pack size.

Drug	Pack size	Stock level (for average dept)	Notes
Pain relief			
Codeine OR Co-codamol 30/500	28s x 30mg	Medium (10-20 packs)	Co-codamol 8/500 and co-dydramol 10/500 available via OTC as a pharmacy only medicine. Advise all patients to take regular paracetamol alongside codeine Codeine is a prodrug reliant on the liver to metabolise it to morphine to have clinical effect. The capacity for this to occur is variable amongst the general population. Poor metabolisers of codeine therefore gain limited benefit from codeine as an analgesic. Conversely ultra-rapid metabolisers can experience toxicity/increased side effects. Constipation: All patients should be advised to take laxative to treat opioid induced constipation: ideally osmotic and stimulant combination (docusate a suitable product as it has dual action). Codeine is a prodrug reliant on the liver to metabolise it to morphine to have clinical effect. The capacity for this to occur is variable amongst the general population.
Naproxen	28 x 500mg (or 250mg but not both)	Medium (10-20 packs)	Ibuprofen is OTC alternative. Some recent issues sourcing naproxen may affect cost with little evidence of additional benefit compared to ibuprofen other than length of action. Diclofenac is now contraindicated in patients with established:

			-ischaemic heart disease -peripheral arterial disease -cerebrovascular disease -congestive heart failure (New York Heart Association [NYHA] classification II–IV)
Paracetamol	120mg and 250mg syrups	3 bottles of each	Avoid prescribing unless necessary – case by case basis as these are often easily available.
Ibuprofen	100mg syrup	3 bottles	Avoid prescribing unless necessary – case by case basis as these are often easily available.
Not included – Paracetamol and ibuprofen non-liquid preparations. Both are freely and cheaply available over the counter and so should not be routinely prescribed, consider also the cost to the patient may be higher if prescribed. However, in the case of children who do not pay prescription charges and who make frequently present with symptomatic fever or pain out of hours then TTO paracetamol / Ibuprofen in suitable preparation is reasonable.			
Respiratory			
Prednisolone	Needs special pack made up of 42 tablets of 5mg size	High (20 packs)	COPD guideline = 30mg for 7d (42 tablets) Asthma = 40mg for 5d (40 tablets)
Salbutamol	100mcg inhaler	High (20 packs)	
Spacer Device	Paediatric and adult version	1 or 2 adult, 6 Paediatric	You could have paeds spacer as part of TTO or in 'STAT' cupboard, but definitely need a good supply especially in winter.
Allergy			
Auto-Adrenaline	0.3mg Epipen (or any other brand)	4-6 packs	Should have a trainer device in cupboard to teach patient how to use. V rare a Paediatric anaphylaxis discharged from the ED so likely no need to stock smaller size.
Chlorphenamine	4mg x 28 And 2mg/5ml 100ml bottle	Medium (10-20 packs) for tablets, 2-3 bottles for children	Can also be purchased OTC
Gastrointestinal			
Omeprazole	20mg x 28 tablets	Medium (10 packs)	Can also be purchased OTC
Cardiovascular			
Aspirin	75mg x 28 and 300mg x 28	Low (<5 packs each)	75mg tablets for cardiac patients. 300mg for TIA patients.
GTN spray	400mcg per dose bottles	Low (3-5 bottles)	Frequently taken from TTO cupboard for 'stat' use in the ED

Atenolol	25mg x 28 tablets	Low (3 packets)	For use in pts who presented in AF and now rate controlled. Reduce dose in renal impairment.
Anticoagulant	LMWH or DOAC	Low (5 packs)	New AF, DVT and VTE prophylaxis (lower limb PoP) require anticoagulation. Pack size should reflect local need - access to USS Doppler/Fracture clinic appointment time/Primary care turn-around time for prescription issue for items that need to be continued long term. Cost and sourcing of product will dictate preferred items. Patient choice should be a factor: S/C injection versus oral tablet Who will inject/can patient inject/will DN input be required?
Clopidogrel	75mg	Low (pack size 28)	Treatment of TIA in some locations
ENT/ Ophthalmology			
Sofradex ear drops (or equivalent)	1 bottle	Low (3-5 packs)	Often supply issues with this medicine.
Naseptin	1 pack	Low (3-5 packs)	Avoid if allergy to neomycin, peanut or soya – consider Bactroban as an alternative.
Chloramphenicol ointment/drops	1 pack	Medium (10-20 packs)	Drops vs ointment depending on fridge availability. OTC via community pharmacist
Cyclizine	50mg tds	low (pack size 20-21)	Sedating anti-histamine for nausea, vomiting or vertiginous symptoms. Consider others e.g. Prochlorperazine or Betahistine
Others			
PEP	5 day pack	Low (3 packs)	
Levonelle	levonorgestrel 1500microgram	Low	Consider need to co-prescribe an anti-emetic
Tamsulosin	400mcg x 28 tablets	Low (5 packs)	Evidence to support its use in renal colic is in doubt
Aciclovir	400mg ideally, lots of diff generic pack sizes available. Avoid 200mg dose size as HUGE numbers needed.	Medium (5-10 packs)	Prescribing is normally for genital herpes 400mg tds for 7 days. so, needs 21 tablets OR Shingles 800mg 5x per day so needs 70 tablets!

Oseltamivir	75mg 10 tablet pack	Low (5 packs) and seasonal only	To be kept in the cupboard only during influenza outbreaks.

Antibiotics

Antibiotic choices should reflect local antimicrobial guidelines and resistance patterns, however a choice for those penicillin allergic should always be available, and at least two choices for UTIs.
Financial sense is required here. It is more cost effective to prescribe 7d worth of trimethoprim for men and women and advise the patient to return excess supply to local community pharmacy for safe destruction (explain to patient not to keep the excess 'just in case'). Nitrofurantoin is currently VERY expensive so more cost effective to have 2 separate drug lines – a 7d box and a 3-day box.
Avoid Flucloxacillin and erythromycin syrups in children. They are (at the time of publication) surprisingly expensive and most ends up in the sink. Co-amoxiclav and azithromycin are good substitutes, with much better patient compliance and cost effective. An example antibiotic list is kept below.
Ideally patients should not have to attend their GP/return for further antibiotics in order to complete the treatment plan, however, see text above. Although this needs to be balanced with expiry date of reconstituted antibiotics. Patient/parent counselling essential if they will be expected to reconstitute second bottle in such circumstances. The equipment necessary to measure appropriate volume for reconstitution should be provided to the patient/parent (appropriately sized oral syringe).

Amoxicillin Tablets	500mg	High (10-20 packs)	
Amoxicillin syrups	125mg and 250mg bottles	Medium 5-10 bottles	
Co-amoxiclav tablets	500/125	High (10-20 packs)	
Co-amoxiclav syrups	125/31.5 and 250/62.5	Medium 5-10	
Clarithromycin	500mg	Medium 10 packs	Essential to check for drug interactions.
Clindamycin	150mg	Medium 10 packs	Great drug for skin infections but use depends on local guidelines.
Doxycycline	100mg	High 10-20 packs	
Flucloxacillin	500mg	High 20 packs	The 250mg dose is sub therapeutic so avoid for most ED patients, the syrups are expensive and very poorly tolerated.
Metronidazole	400mg	Low (5 packs)	
Nitrofurantoin	Ensure separate 3- and 7-day packs as surprisingly very expensive	Medium 5-10 packs	
Trimethoprim	200mg – 14 tablets	Medium 5-10 packs	
Penicillin V tablets	250mg x 28 (only dose available)	10 packs	

Appendix 3

Example of handing a TTO medicine to a patient guideline

A medicine given to a patient by a qualified nurse or doctor MUST always have been checked for accurate dispensing by a second qualified nurse or doctor before it is handed to the patient.

When handing a medicine to a patient to take home the following checks must be made by the qualified nurse, pharmacy technician, pharmacist, or doctor who hands it to the patient:

1. Check the **identity of the patient** is correct against the patient's name on the medicine label.
2. Check the **medicine** being supplied is the correct medicine according to the TTO prescription.
3. Check the patient is not **allergic** to the medicine.
4. Check the patient will not take any other medicines that will **adversely interact** with the medicine you are handing to the patient.
5. Check the **strength** of the medicine being supplied is correct according to the TTO prescription.
6. Check the label on the medicine agrees with the **contents** of the medicine.
7. Check that the **instructions on the label** agree with the TTO prescription.
8. Check that the **patient understands** fully how, when and why to take/use the medicine.
9. Check the patient is aware the **cautionary warnings** on the label or on the Patient Information Leaflet.
10. Check the patient knows whether they need to obtain a **further supply** of medicine from their GP or hospital follow-up appointment.
11. A copy of the TTO which clearly shows the identity of the prescriber, the person selecting/labelling the medicine, and the independent checker must be filed in the patient's notes.

Records required

1. All TTO prescriptions must be signed by the prescriber and any changes must be initialled by the prescriber.

2. A copy of the TTO which clearly shows the identity of the prescriber, the person selecting/labelling the medicine, and the independent checker must be filed in the patient's notes.

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Review
Usually within three years or sooner if important information becomes available.

Conflicts of Interest
None declared

Disclaimers
The College recognises that patients, their situations, Emergency Departments and staff all vary. This guideline cannot cover all possible scenarios. The ultimate responsibility for the interpretation and application of this guideline, the use of current information and a patient's overall care and wellbeing resides with the treating clinician.

Research Recommendations
None

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None specified

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