

# Improving Pre-Existing Time Critical Medicines Omission in the Emergency Department

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## Background

Pressure on Emergency Departments across the UK has escalated considerably over the last decade. Excess demand on ED services caused by an increasingly complex and aging population combined with inpatient 'exit block' has meant emergency medicine now not only stabilises, resuscitates and triages but also is responsible for management of patient's pre-existing chronic conditions whilst awaiting transfer to inpatient beds.

A considerable proportion of patients<sup>1</sup> now face extended wait times for beds in ED, which has previously been associated with poorer outcomes<sup>2</sup>.

## Time Critical Medicines

The National Patient Safety Agency<sup>3</sup>, produced guidance to ensure patient's pre-existing time critical therapies are reconciled and administered in a timely manner to prevent deterioration.

Particularly prudent examples include, Anti-Parkinsons Medication, Anti-epileptics, Insulin, Transplant Immunomodulators, Steroids and Anticoagulants.

Extended Omission of these pre-existing therapies have the potential to cause serious or severe deterioration of patient's pre-existing conditions.

Figure 1 : Pts spending >12 hours in ED<sup>1</sup>

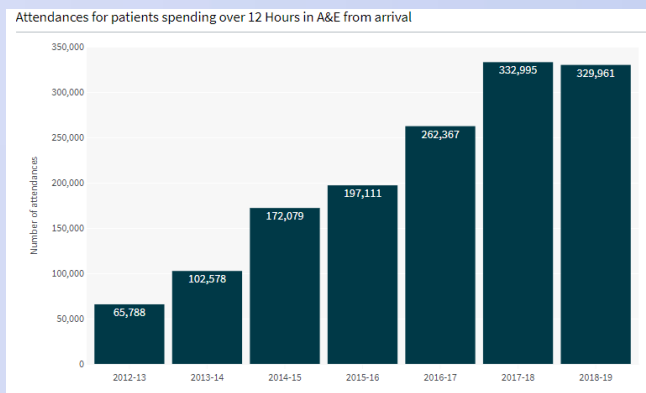
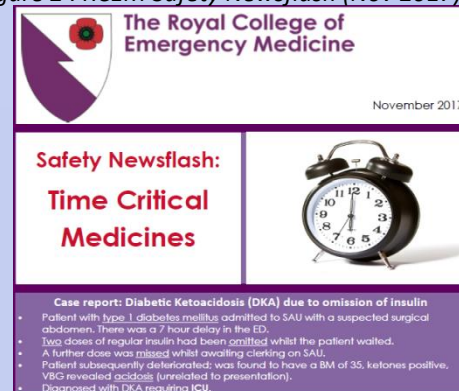
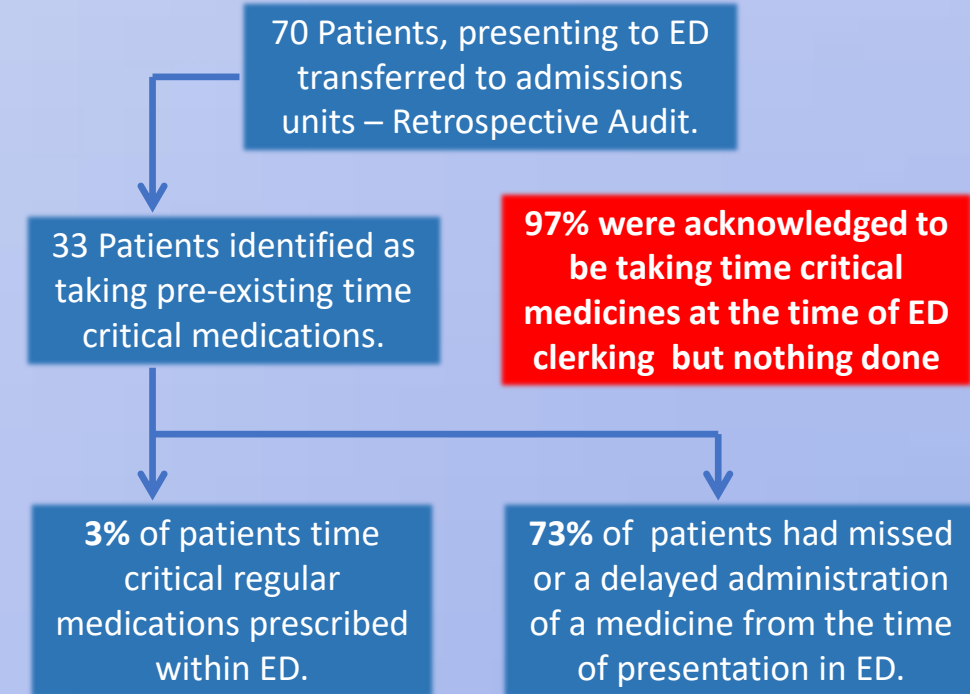


Figure 2 : RCEM Safety Newsflash (Nov 2017)



## Snapshot Baseline Audit of Practice in ED<sup>4</sup> - 2015



*"We're ED doctors, we don't deal with patients regular medicines" Consultant in Emergency Medicine (2015)*

**Fundamental Culture Change needed around reconciliation of pre-existing Time Critical Medications within ED to prevent unnecessary deterioration**

# Strategic systematic Interventions over a 3-5 year period to address concerns raised in 2015 audit

Embedding responsibility of reconciliation into ED clerking notes once pre-existing medications identified.

Does the Patient Take any of the Following Time Critical Medications?

Anti-epileptics

Time Critical Medication Prescribed \*

☒ Yes ☒ No ☐ N/A

Commissioned Dedicated Shop Floor Clinical Pharmacy Service with focus on medicines reconciliation within ED

Automated referrals from clerking for patients identified as taking time critical medications.

K number	DTA present	Arrival	Meds	Location	Seen by pharmacist	Latest note
No		10/09/2019 13:41	Anticoagulant-Warfarin	ED Majors Unit - MU02	No	Nurse
No		10/09/2019 11:07	Anticoagulant-Warfarin	ED Urgent Treatment Unit Adult UTAD	No	Nurse
No		10/09/2019 12:20	Steroids	ED Majors Unit - MU33	No	Clerking
Yes		10/09/2019 08:27	Anticoagulant-DOAC (for example Rivaroxaban or Apixaban)	ED Majors Unit - MU36	No	Clerking
Yes		10/09/2019 10:58	Anticoagulant-DOAC (for example Rivaroxaban or Apixaban)	ED Majors Unit - MU08	No	Clerking
Yes		10/09/2019 12:01	Anti-parkinsons	ED Majors Unit - MU21	No	Clerking
No		10/09/2019 11:26	Anticoagulant-DOAC (for example Rivaroxaban or Apixaban)	ED Urgent Treatment Unit Adult UTAD	No	Nurse
No		10/09/2019 12:04	Anticoagulant-DOAC (for example Rivaroxaban or Apixaban)	ED Majors Unit - MU06	No	Clerking
No		10/09/2019 12:04	Strong Opioids (prescribed regularly for chronic pain)	ED Majors Unit - MU06	No	Clerking
No		10/09/2019 06:11	Anticoagulant-DOAC (for example Rivaroxaban or Apixaban)	ED Urgent Treatment Unit Adult UTAD	No	Clerking

Clear risk stratification of which time critical medication subtypes were to be prioritised for reconciliation within ED.

## Interventions to Improve Time Critical Medicines Omission in ED 2015-2021

Inbuilt access through electronic clerking system into patient's PMHx and Repeat Medications (Carecentric Portal)

Entire ED Stock Medication review to allow easy access to routine pre-existing time critical medications

Routine Nursing and Medical Education regarding Pre-existing Time Critical Medications and consequences of omission

Repeat Medication	
20-Aug-2021	Clobazam 10mg tablets, One tablet in the morning and one + a half tablets at night, 90 tablet
20-Aug-2021	Tegretol Prolonged Release 400mg tablets (Novartis Pharmaceuticals UK Ltd), 2 bd, 112 tablet
20-Aug-2021	Zonisamide 25mg capsules, to take at night and increase as per neurologist guidance to 200mg at night, 56 capsule
22-Jul-2021	Sumatriptan 50mg tablets, Take one tablet at onset of migraine, can be repeated after 2 hours if migraine recurs; max 300mg in 24 hours, 6 tablet
14-Apr-2021	Buccolam 10mg/2ml oromucosal solution pre-filled oral syringes (Neuraxpharm UK Ltd), Use half a syringe following a generalised convulsive seizure. If further seizures can use second half syringe and call ambulance for support, 4 unit dose

Risk Group	Rationale	Situations*
<b>Urgent Priority</b>	Patients established on medicines with a high likelihood and high severity of deterioration if not reconciled urgently.	<ul style="list-style-type: none"> <li>AKI (2 or 3)</li> <li>Addison's Disease/Hypopituitarism</li> <li>Parkinson's Disease</li> <li>Myasthenia Gravis (or other neurodegenerative disorders)</li> <li>Insulin in T1DM</li> <li>High Risk Anticoagulation (i.e. mech heart valves/antiphospholipid syndrome)</li> <li>Antiepileptic</li> <li>Transplant Immunomodulators</li> <li>Antiretroviral</li> </ul>
<b>High Priority</b>	Patients established on medicines with a high potential for deterioration.	<ul style="list-style-type: none"> <li>AKI 1</li> <li>Glucocorticosteroids</li> <li>Strong Opiates/Methadone</li> <li>Insulin in T2DM</li> <li>Maintenance Anticoagulants for lower risk indications.</li> <li>Prophylactic Antibiotics</li> <li>Non-Transplant Immunomodulators</li> </ul>
<b>Moderate Priority</b>	Patients established on situational relevant medicines regimes that are not regarded as time critical	<ul style="list-style-type: none"> <li>Cardiovascular disease therapies</li> <li>Non-Opiate Analgesia</li> <li>Mental Health Therapies</li> <li>Respiratory Therapies</li> </ul>
<b>Low Priority</b>	Patients with no relevant past medical history or regular medications	<ul style="list-style-type: none"> <li>Patients who are usually fit and well with no medical history</li> </ul>

\*Note the above are to be used as a guide only and is not exhaustive, pharmacy staff should use their own clinical judgement to determine if urgent input into a case is required.

Routine Nursing/Medical Induction Podcasts  
'Light Bite' Teaching  
Opportunistic Shop Floor teaching

Time Critical Medication Reminder Cards

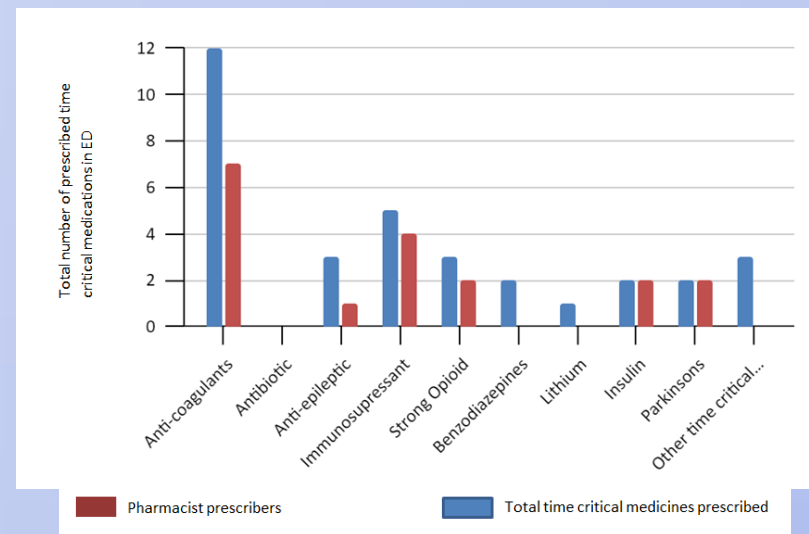
**Time-Critical Medications**

All time-critical medicines should be given at the prescribed time, or within two hours if this is not possible. The drugs listed within each category are examples, it is not an exhaustive list - if unsure, please check the BNF. Delays and omissions of these medicines can be a risk to patient safety, and should be escalated to the medical team.

Category	Medications
<b>Anticonvulsants</b>	<ul style="list-style-type: none"> <li>Carbamazepine (e.g. Tegretol)</li> <li>Ethosuximide</li> <li>Lamotrigine (e.g. Lamictal)</li> <li>Levetiracetam (e.g. Keppra)</li> <li>Phenytoin</li> <li>Zonisamide</li> </ul>
<b>Antimicrobials</b>	<ul style="list-style-type: none"> <li>Antibiotics</li> <li>Antifungals</li> <li>Antivirals</li> <li>Antiparasitics</li> <li>Anticancer drugs</li> <li>Anticoagulants</li> <li>Antidepressants</li> <li>Antidiabetics</li> <li>Antihypertensives</li> <li>Antipsychotics</li> <li>Antithrombotics</li> <li>Antituberculars</li> <li>Antivirals</li> <li>Antivometics</li> <li>Antispasmodics</li> <li>Antitussives</li> <li>Anticholinergics</li> <li>Antiemetics</li> <li>Anticholinergics</li> <li>Antispasmodics</li> <li>Antitussives</li> <li>Anticholinergics</li> <li>Antiemetics</li> </ul>

Clinical  
Pharmacists  
responsible for  
~70% of  
prescriptions

Figure 3 : Time critical medicines types prescribed in ED



## Discussion/Conclusion

Methodologies of both snapshot audits were similar, with similar patient numbers identified as requiring pre-existing medications and are highly comparable. In MDT discussion of results, interventions rolled out over a 3-5 year period – particularly in relation to a dedicated pharmacy service and accountability of reconciliation through electronic systems were felt to have driven the improvement in care. Downstream benefits were also found in relation to reduction in time critical medication omission on admission units and reductions in clerking time on inpatient units, improving patient safety and flow in the trust as a whole.

## References

- 1 – The Kings Fund (2020). What's Going on with A&E waiting times. Accessed 5/9/21 from [What's going on with A&E waiting times? | The King's Fund \(kingsfund.org.uk\)](https://www.kingsfund.org.uk/what-is-going-on-with-a-and-e-waiting-times/)
- 2 - Royal College of Emergency Medicine (RCEM). (2015) Tackling overcrowding in the Emergency Department. RCEM : London.
- 3 – National Patient Safety Organisation. Reducing harm from omitted and delayed medicines in hospital. Accessed 5/9/21 from [www.nrls.npsa.nhs.uk/alerts/?entryid45=66720](https://www.npsa.nhs.uk/alerts/?entryid45=66720).
- 4 – Offer, J. & Oliver, G. (2015) Audit : Time Critical Medicines Prescribing in the Emergency Dept. Internal Audit. Nottingham University Hospitals NHS Trust.
- 5 – Reynolds, M. (2021). Audit : Time Critical Medicines Prescribing in the Emergency Dept. Internal Audit. Nottingham University Hospitals NHS Trust.

## Re-Audit of Practice<sup>5</sup> – Jan 2021

33 Patients identified as taking pre-existing time critical medications transferred to admissions areas

45 Individual Time Critical Medications identified

40 (88%) Individual Time Critical Prescribed within ED or clear documentation why held.

36 (94%) individual time critical drugs due within ED were administered in ED.

7 Individual Time critical drugs identified as being 'urgent priority'

7 (100%) Individual 'Urgent Priority' Time Critical Prescribed within ED or clear documentation why held

7 (100%) individual time critical drugs due within ED were administered.

## Snapshot Audit 2015

3% of pre-existing time critical medications prescribed in ED with 73% experiencing a delay/omission

## Culture Change

## Focused Interventions

## Snapshot Audit 2021

88% of pre-existing time critical medications prescribed in ED with 18% experiencing a delay/omission