

Can existing NHS electronic systems be used to improve Parkinson's medication administration?

Introduction

Hospital admissions for People With Parkinson's (PWP) can fill them with fear and anxiety over not "getting my medication on time" and "they didn't have my medication". The driver behind this project was that we were not being informed our patients had been admitted to hospital, by either ward staff or families. We may learn of the admission within a few days, several weeks or not at all. We tried promoting our service by visiting wards, but unfortunately found staff were "busy" and some did not engage, but also, we could only speak to the staff who were on the ward that day. Knowledge of Parkinson's appeared to be excellent with some staff, but limited in others. This was not restricted to nursing staff, but to all disciplines within ward areas. Administering Parkinson's medication on time, according to patients, remains poor, but also very difficult to audit as there has been a slow roll out of electronic prescribing. Most trusts still rely on paper kardex to prescribe and administer all medication. It is difficult to audit timely administration with a kardex as the signed window can be over a period of 60 minutes or even 120 minutes. Poor concordance leads to deterioration in symptoms, poor outcomes for PWP, therefore, longer stays in hospital. Parkinson's UK have been running their "Get it on time" campaign since 2006, but non specialists, such as ward doctors and nurses, lack the understanding of the importance of prescribing and administering parkinson's medication at the time prescribed at home, to reduce to risks of fluctuations in their parkinson's symptoms. In Ayrshire and Arran, despite having electronic prescribing (HEPMA) since 2008, we tried to audit timely administration of medication. Due to our lack of understanding of the capabilities of HEPMA, this led to a lengthy manual process just to audit one medication for one patient. Our target for good administration of medication follows NICE guidelines that state administration should be within 30 minutes of prescribed time. In one day in November 2022 in NHS Ayrshire and Arran approximately 1300 separate reports were run using electronic prescribing.

Objective

Our objective was to improve in the following areas :

- To be automatically alerted when a patient is admitted to hospital
- To locate PWP within NHS Ayrshire and Arran
- To identify parkinson's medication when they are prescribed
- What times are the medication prescribed
- Are medications being administered on time or how late/early are they
- Are they being administered or withheld for any reason
- Audit monthly all parkinson's medication administration for all parkinson's patients

Ultimately our objective is to improve timely administration of Parkinson's medication using existing NHS systems to help staff improve patient care, but also their knowledge.

Service development

We firstly, looked for other electronic systems that automatically alert that a patient was admitted to hospital, but most of these systems required prior input to mark alerts on a patient's record using their CHI number. This is time consuming and required the patient to be known to the service.

Initially we invited patients to comment on their concerns when being admitted to hospital. They listed the following,

- Medications not on time
- Unavailable medications,
- A lack of involvement by Parkinson's nurses
- An overall lack of understanding of Parkinson's by staff.

The Parkinson's nurse service approached the senior pharmacist from our HEPMA team to enquire if HEPMA could be used to meet our objectives. Over several meetings, we discussed the needs of our service and patients. Ultimately this led to the daily report, as shown in figure 1, being created and automatically emailed to each member of the Parkinson's team every day. This shows previous days Parkinson's medications administered in every hospital and ward where they were administered.

Over the first few weeks we would meet regularly to discuss the effectiveness of the report and eventually to add the "Time of charting" to the report. This allowed us to monitor if medication was being charted after administration of the actual dose.

We, as a service, wished to audit the monthly administration of Parkinson's medication. A separate report was commissioned as seen in Figure 2. Domains were set for Morning, Lunchtime, Tea-time and Bedtime. Green was chosen to show medications administered "on time" and Red for those outwith 30 minutes. Again this report is automatically emailed on the 1st of every month.

We have also acknowledged that as a service, we need to be more flexible in our staff education. While there is a place for all-day events to engage with staff, we need to produce short sessions that can be delivered over video conferencing, or in person, at times to suit staff.

Two areas were chosen as pilot wards to see if improvement could be seen if more training, pill timers and visible presence by the Parkinson's nurses would assist staff. The wards chosen were rehabilitation wards where most geriatric Parkinson's patients would be transferred to. As seen in figure 6 there is a clear difference between the two pilot wards Drummond and Ward 1 compared to similar wards that were not targeted.

Conclusions

Far more education is required to enable all NHS staff to understand the need for Parkinson's medications to be given in a timely manner, education in the symptoms of Parkinson's and how patients can be affected by not administering medication on time. Electronic systems are a good tool but are only part of the solution and should not replace the need for collaboration. This daily report has enabled the PD nurse specialists to know when PWP are admitted to hospital. We can also check when they are prescribed the correct medication regime, timings are correct and they are getting their medication on time or early/late. Having this information enables us to contact wards to assist them in giving medication on time and to give advice on patient care.


NHS trusts should invest in electronic systems to reduce the risk of poor prescribing and poor administration of all medications. Evidence of suboptimal Parkinson's medication administration could be used to reinforce the case for adoption of these systems.

In adopting electronic systems PWP should receive medications on time, leading to a reduction in poor outcomes and shorter hospital stays.

Unfortunately emergency departments are mostly still using paper kardex's and therefore monitoring the timely prescribing and administration of Parkinson's medication remains a challenge. Further use of electronic systems could help nurses to identify when Parkinson's medications are due to be administered and more work on this is required. However, we in NHS Ayrshire and Arran, have already created a system whereby an icon is displayed beside a person's name on the white board to identify they are on Parkinson's medication, this icon will change colour to alert the nurse that a medication is due administration.

Figure 1

Summary of prescribed Parkinsons Medications and administratons in last 24 hrs within ePrescribing wards



Ward	Admin date	Scheduled time	Actual time given	Scheduled and actual time difference	Time of charting	Non-admin reason
WARD 2D - XH Mr A Smith CHI 0000000001 CO-BENELDOPA 12.5/50 Capsules	27/10/2022	08:00				
	27/10/2022	12:00				
	27/10/2022	18:00				
	27/10/2022	20:00				
	27/10/2022	08:00	09:03	1hr 3mins	09:10	
	27/10/2022	12:00	17:59	1hr 59mins	17:59	Patient Sleeping
	27/10/2022	18:00	21:40	1hr 40mins	21:40	
	27/10/2022	20:00	21:40	1hr 40mins	21:40	
	27/10/2022	07:00	09:02	2hrs 2mins	09:10	
	27/10/2022	07:00	09:02	2hrs 2mins	09:10	
WARD 2F - XH MRS A Jones CHI 0000000002 CO-BENELDOPA 12.5/50 Capsules	27/10/2022	22:00	22:20	20mins	22:22	
	27/10/2022	22:00	22:20	20mins	22:22	
WARD 3B - XH Mr G Brown CHI 0000000003 CO-CARELDOPA 25/100 Tablets	27/10/2022	08:00	08:46	46mins	08:50	
	27/10/2022	14:00	14:02	2mins	14:02	
	27/10/2022	22:00	22:18	18mins	22:20	
	27/10/2022	22:00	22:18	18mins	22:20	
WARD 3B - XH Mrs H Smith CHI 0000000004 CO-CARELDOPA 12.5/50 Tablets	27/10/2022	12:00	12:58	58mins	12:58	
	27/10/2022	22:00	22:35	35mins	22:36	
	27/10/2022	07:00	08:59	1hr 59mins	08:59	
	27/10/2022	18:00	18:03	3mins	18:04	
WARD 3F - XH Mr K Jones CHI 0000000005 PRAMIPEXOLE 180 micrograms Tablets	27/10/2022	14:00	13:19	-41mins	13:19	
	27/10/2022	14:00	13:19	-41mins	13:19	

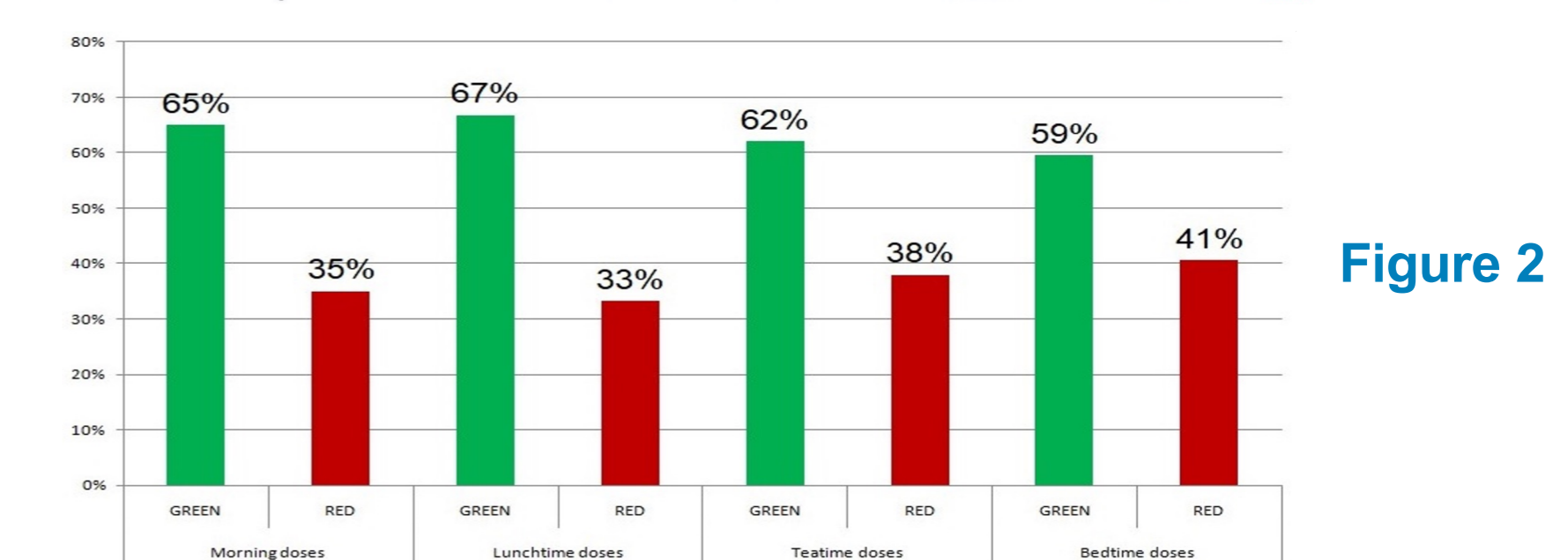


Figure 2

Ward	Morning Green	Morning Red	Lunchtime Green	Lunchtime Red	Teatime Green	Teatime Red	Bedtime Green	Bedtime Red	Total
Ward A	4/89 (4%)	85 (96%)	29/64 (45%)	35 (55%)	0/0 (0%)	0 (0%)	64/27 (70%)	11 (40%)	277 (100%)
Ward B	17/37 (46%)	20 (54%)	4/34 (12%)	30 (88%)	4/19 (21%)	15 (79%)	5/31 (16%)	26 (84%)	151 (100%)
Ward C	15/34 (44%)	19 (56%)	16/15 (87%)	2 (13%)	0/1 (0%)	1 (100%)	26/5 (84%)	5 (16%)	132 (100%)
Ward D	17/106 (16%)	89 (84%)	22/35 (63%)	13 (37%)	20/7 (74%)	7 (26%)	29/17 (63%)	16 (37%)	253 (100%)
Ward E	18/28 (64%)	10 (36%)	12/9 (100%)	0 (0%)	10/9 (56%)	8 (44%)	18/11 (62%)	11 (38%)	115 (100%)
Ward F	21/18 (54%)	17 (46%)	9/7 (83%)	1 (14%)	0/0 (0%)	0 (0%)	18/17 (51%)	17 (50%)	114 (100%)
Ward G	13/21 (62%)	8 (38%)	16/4 (80%)	8 (20%)	6/11 (55%)	5 (45%)	25/24 (51%)	24 (50%)	108 (100%)
WV WARD 1	64/24 (73%)	23 (27%)	70/18 (80%)	18 (20%)	74/11 (87%)	11 (13%)	37/19 (66%)	19 (34%)	317 (100%)
DRUMMOND	201/28 (85%)	27 (10%)	145/23 (86%)	14 (6%)	104/24 (81%)	24 (19%)	134/19 (88%)	17 (12%)	678 (100%)

Figure 3

Figure 4

Figure 5

Results

As seen in figure 1 we now have a comprehensive report showing the patients location within the trust, name, CHI, medication name, prescribed times, administered time, difference between prescribed and administered time, reasons if not administered and if the person administering documents the administration at a different time.

Figure 2 gives the monthly report on how timely medications have been administered with approximately 60% of all medication given within 30 minutes of prescribed time. After initial small cost to setup both systems there is no ongoing cost to the NHS in producing this report, going forward.

Since the development of the daily report we aim to review this document on the day received and if necessary contact wards where administration of medication is suboptimal. We can also identify poor prescribing practices such as wrong medication, wrong formulation, incorrect dose or timings. Parkinson's patients are well known to our service and we can now identify them being admitted to hospital and help staff with background information on the patients baseline symptoms before current crisis, but also social dynamics.

We have expanded the team who receive the monthly administration audit to include all Clinical Nurse Managers in NHS Ayrshire and Arran, leading to more requests for training in their areas.

On the report it can clearly be seen in figure 3, 4 and 5 that, despite how critical it is to administer Parkinson's medication, they continue to be withheld for various reasons including, unavailable medicine, patient sleeping, withheld, refused by patient or unable to swallow. Unfortunately, it does not appear that any other route of administration or way of obtaining medication is routinely considered. Patients may be identified on the reports that are being prescribed Parkinson's type medication for other conditions, such as restless legs, however, all medication should ideally be given on time. A small amount of patients could not be identified until a few days after admission as they were not prescribed their Parkinson's medication until this stage. This led to more education being required for specific ward areas, but also a delay in the Parkinson's service being involved.