REPORT TO THE FBIC
8 September 2020

Title	Update on EPMA benefits realisation
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Purpose of the report

Update the EPMA board on current benefits realisation

Summary of key issues

The business case for implementing EPMA identified a wide range of benefits that will support delivery of the trust strategy. To improve the health of the population we serve, to improve the patient experience, to improve staff experience and improve value. It also supports the digital strategy to create systems that work for staff to release time for patients facing activities and improving patient outcomes.

Cash releasing benefit
- Reduction in stationary costs including paper charts and costs associated with storage.   (B1)
- Reduction in taxi use due to prescribers traveling to prescribe medication in remote wards

Non cash releasing update
- Time saved scanning charts to Pharmacy
- Time saved for prescriber writing prescriptions (TTAs)
- Time saved by prescriber rewriting charts every 8 weeks
- Reduction in medication prescribing errors
- Reduction in medication administration errors
- More efficient medication rounds
- Reduced dispensing errors
- More efficient pharmacy practice transcribing between systems
- Remote prescribing (NCR) including taxis (CR)

To date, with 54 wards live it is estimated:
Cash releasing savings of £30,672
Non-cash releasing savings of £885,386.24

Quality improvement benefits underway includes EPMA reporting plans to improve data collection, which has supported some work to remove KPI requests from commissioners

Strategic priorities this paper supports (please check box including brief statement)

Improved population health outcomes	☒	Improved prescribing due to clinical decision support,
Improved experience of care	☒	Safer and better quality prescribing and administration, more time for patient facing activities
Improved staff experience	☒	Clear unambiguous prescribing and administration, more time for patient facing activities
Improved value	☒	Less paper, more efficient and improved system

Committees/meetings where this item has been considered

Date	Committee/Meeting
06/05/2020	EPMA programme board

Implications

Equality Analysis	The Trust has a duty to promote equality. Has this report been impact assessed? a) This report has no direct impact on equalities; or b) This report will affect racial groups, people of different ages, people with a disability or men and women differently/ reduce health inequalities/promote good race relations by [details to follow]
Risk and Assurance	A summary statement on the level of assurance that can be provided from the report, and the key actions taken to address any implications for risks/controls identified in the Trust's Board Assurance Framework; Trust's Compliance with its Terms of Authorisation; or legal or health and safety implications
Service User/Carer/Staff	Implications for service users, carers and staff. Consider implications of the paper across all directorates and service groups in the Trust, and explain if any directorates/services are excluded from the scope of the paper.
Financial	This statement must identify whether or not there are any financial implications relating to the report, and if so, how these are proposed to be funded.
Quality	State any quality implications, particularly links to the Quality Improvement Programme

Supporting documents and research material

a. NA
b. NA

Glossary

Abbreviation	In full
EPMA	Electronic prescribing and administration

1.0   Background/Introduction

1.1   EPMA Business case agreed by FBIC in Sept 2017.

1.2   EPMA implementation group formed from April / May 2018

1.3   EPMA NHSE funding obtained for £740K, Awarded November 2018

1.4   EPMA pilot ward started November 2018, with fast followers in January and February 2019

1.5   Currently 54 wards live on EPMA

2.0   Summary of benefits

2.1   Benefit 1 – Reduction in stationery costs (CR)

- It was estimated that the Trust spends approximately £19,000 pa on paper medication charts.
- The introduction of EPMA removed the need for paper charts and provided a cash releasing saving.
- Considering the Trust has approximately 60 wards, this is a cost of £316.67 per ward per year (£79 per ward per quarter). There are assumptions that a few specialist paper sheets would remain and so it was assumed that on full implementation a cost saving of 90% would be gained – a saving of £75 per ward per quarter.
- Plan to include reduction in storage costs
- As of July 2020, we had 54 wards live on EPMA equating to a cash release saving of £16,200 pa.

2.2   Benefit 2 – Time saved scanning charts to Pharmacy (NCR)

- Medication is supplied to all ELFT sites from a central dispensary at the Mile End Hospital.
- With EPMA, orders are automatically sent to the dispensary without the need for scanning charts.
- An internal audit indicated approximately 136 charts were scanned per week, each taking approximately 5 minutes of a band 5's time at £27.02 per hour which equates to £15,912 pa. EPMA would see a 100% non-cash release saving. This is an approximate cost saving of £66.30 per ward per quarter.
- As of July 2020, we had 54 wards live on EPMA equating to a non-cash release saving of £14,320.80 pa.

2.3   **Benefit 3 – Time saved for prescriber writing prescriptions (TTAs) (NCR)**

- An internal audit indicated that it took 15 minutes for a F1/F2 Doctor to transcribe TTAs (STL and discharge medication) using paper charts.
- With EPMA, the Doctor electronically selects items for a TTA drastically reducing time. Knowing the hourly rate of a F1/F2 Doctor is £20.18 and pharmacy dispense 4956 TTAs per year, this cost the Trust £25,003 pa.
- It was estimated that EPMA would provide a 90% time reduction which produced a target saving of £22,503 pa. This equates to an annual cost saving of £375.05 per ward - £93.76 per quarter.
- As of July 2020, we had 54 wards live on EPMA equating to a non-cash release saving of £20,252.16 pa.

2.4   **Benefit 4 – Time saved by prescriber rewriting charts every 8 weeks (NCR)**

- Due to limitations of paper charts, it was required that a chart was rewritten every 8 weeks.
- A internal audit found that it took 15 minutes to rewrite a chart followed by 15 minutes of pharmacist review/screening time.
- A mid-point Consultant costs £75.82 per hour, a band 7 Pharmacist costs £37.29 per hour and there were approximately 167 rewritten charts per month, this cost the Trust £56,668 pa. Looking at a 90% reduction, this provided an annual saving of £51,001 pa. This equates to a total cost time saving per ward per quarter of £213.
- As of July 2020, we had 54 wards live on EPMA equating to a non-cash release saving of £46,008 pa.

2.5   **Benefit 5 – Reduction in medication prescribing errors (NCR)**

- EPMA provides a reduction in prescribing errors in a number of ways: immediate access to clinical decision support resources, prescribing medication with pre-determined doses and frequencies, real-time interaction checking and an electronic drug history.
- Internal data[1] suggested that approximately 5,976 charts were written by ELFT prescribers per year each with an average of 5 items per chart – this equated to 29,880 prescribed medicines per year. The EQUIP[2] study suggested a prescription error rate of 8.91%. Of these prescription errors, the Bates et al. study[3] estimated that 1% led to adverse drug events (ADE). The Senst et al. study[4] attached an average cost of £1,680 per ADE. Using these literature sources, it was estimated that of the 29,880 prescribed medicines per year, 2,663 would include errors, 25 of which would lead to ADEs. This led to an annual cost of ADEs of £42,000.

- EPMA eliminates a large portion of these prescribing errors and so it was estimated the Trust could make a saving of 90% - £37,800 pa. This is a cost saving of £157.50 per ward per quarter.

> - As of July 2020, we had 54 wards live on EPMA equating to a non-cash release saving of £34,020 pa.

2.6 Benefit 6 – Reduction in medication administration errors (NCR)

- An internal study[1] discovered that within ELFT there were 139 administration errors per day of which 76 would be avoidable with EPMA. Of these 139 errors, 10.8% were likely to be of serious clinical severity. Extrapolating 76 avoidable errors per day equated to 22,800 avoidable errors per year (300 days). If 10.8% of these errors led to ADEs, that equated to 2462 ADEs. Using the same literature sources from 'benefit 5[1,2,3,4]', we were able to attach a monetary cost to those ADEs - £4,136,832. A target saving of 1.4% equated to £57,915.65 pa; a saving of £241.32 per quarter per year.

> - As of July 2020, we had 54 wards live on EPMA equating to a non-cash release saving of £52,125.20 pa.

2.7 Benefit 7 – More efficient medication rounds (NCR)

- The previous paper chart system required the administering nurse to laboriously look through each medication chart for all patients on the ward. The EPMA system alerts the nurse to specific patients that are due medication saving time and making for more efficient medication rounds.
- An internal audit concluded that each medication round took approximately 75 minutes. There are 4 medication rounds per day on 60 wards throughout the Trust totalling 18,000 minutes per day. It is believed EPMA produced a time saving of 25%. Knowing a band 5 nurse costs £27.02 per hour, this is an annual saving of £607,950. The saving per ward per quarter equates to £2,533.13.

> - As of July 2020, we had 54 wards live on EPMA equating to a non-cash release saving of £547,156.08 pa.

2.8 Benefit 8 – Reduced dispensing errors (NCR)

- An internal audit discovered that unpicking and rectifying dispensing errors cost the Trust £11,424.
- Dispensing errors were produced by a number of factors including legibility of the prescription. Baseline data found 40 queries with dispensed items over a 5-day period. It took on average 12 minutes to resolve each query. Over a year, this would equate to 2000 dispensary queries and 24,000 minutes spent on resolving these queries.
- A band 5 pharmacy technician costs £28.56 per hour, this equates to a Trust cost of £11,424 pa. EPMA provides a 100% cost saving which equates to £48 per ward per quarter.

> - As of July 2020, we had 54 wards live on EPMA equating to a non-cash release saving of £10,368 pa.

2.9 Benefit 9 – More efficient pharmacy practice transcribing between systems (NCR)

- EPMA provides a more streamlined pharmacy and dispensary service, eliminating the manual transcription process, providing a more automated ordering system and reducing potential queries.
- It was estimated that it took a band 5 pharmacy technician 5 minutes to complete a transcription. Pharmacy received 26,156 transcriptions per year and a band 5 pharmacy technician costs £27.02 per hour. This produced an annual cost of £58,895 of which EPMA provides a 100% saving. This equated to a saving per ward per quarter of £245.
- As of July 2020, we had 54 wards live on EPMA equating to a non-cash release saving of £52,920 pa.

2.10 Benefit 10 – More efficient medication-related audit activities (across the MDT/Trust). Opportunity benefit to carry out more audits (NCR)

Not applicable yet.

2.11 Benefit 11 – Medicines reconciliation (NCR)

Awaiting data.

2.12 Benefit 12 - Clozapine outpatient repeat prescribing (NCR)

Not yet implemented.

2.13 Benefit 13 – Clozapine inpatient repeat prescribing (NCR)

Awaiting data from ZTAS and DMS.

2.14 Benefit 14 – Remote prescribing (NCR) including taxis (CR)

- One of the most easily demonstrable benefits of EPMA is the opportunity for remote prescribing.
- Due to the geographical challenges of ELFT, if a drug needed prescribing a Doctor may have had to travel some distance, often by taxi, to write it up on a paper chart. EPMA provides a solution. The electronic medication charts can be accessed anywhere as long as the user is connected to the Trust intranet.
- It was estimated that there were 800 incidents per quarter of taxi use with an average travel time of 30 minutes. This provided an annual staff (@£75/hour) cost of £120,320pa (non-cash release saving) and taxi cost (at £5 per journey) of £16,000pa (cash release saving). EPMA provides a 100% cost saving of £136,320. This equated to a cost saving per ward of £568.00 per quarter of which £501 is NCR and £67 is CR.
- As of July 2020, we had 54 wards live on EPMA which equates to a cost saving of £122,688 pa. Of which estimated £14,472 is cash releasing.

2.15 Quality Benefits

- ADT – RiO-JAC transfer of information pre-populating NODF with discharge medication

- Clinical decision support tool
- Built in alerts – high risk, protocols, drug notes, NPSA alerts, clinical monitoring
- Reporting – will improve audits with high value information (high dose antipsychotic)
- Improved IT connectivity – wifi infrastructure
- Opportunity to standardise practice across boroughs
- 100% allergy status completion
- Better management and control of drug expenditure

2.16   **User Experience Feedback**

LUTON and BEDFORDSHIRE

Staff nurse, Luton: " system is very user friendly, I really like it and its time saving."

Matron, Luton: "JAC system has been a real pleasure to work with. JAC team have been very helpful and supportive.

Ward manager, **Luton:** " convenient as you can check the charts from the office, helps to reduce the amount of mistakes that could be made.

Ward Manager, Luton: "JAC is very easy to use, quick and reliable. When I use the system it is user friendly and very accessible."

Clinical Practice Lead, Luton: "JAC is alright to use, simple, easy and reliable. It is also fun to use."

Staff Grade Doctor, **Luton:** "Quicker to use and easy access to medication charts and saves time as opposed to trying to access medications charts in the medication room.

Matron, Luton: "regarding JAC, I found the system easy to use and navigate, it definitely saves time once staff are familiar with it. It is extremely helpful when medical staff is not physically on the ward as any changes to medication can be done remotely and no one have to wait 3 hrs for a nicotine patch."
"I wanted to say a massive thank you for the whole JAC team. You are very approachable, issues are resolve promptly and it's easy for staff to approach familiar faces. I have found you very efficient and professional.
Keep up the good work!"

CPL, Luton "JAC is very easy to engage, quick and very accessible. It reduces errors and I found it very useful."

Nurse, Bedfordshire: I think that JAC has certainly improved the safety of our administration rounds. There are no issues with legibility, charting is clear and precise. The system tells you when a patient requires medication to be administered so the risk of missed doses is vastly reduced. It would be really handy, if in the future and if it is at all possible, for any PRN medications administered to be automatically entered into patients notes? That would be a fantastic feature but is probably not achievable just thought I would ask.
In terms of the roll out itself, you couldn't have asked for better support from you and your team. They are very responsive to needs of the staff, and the regular presence gave the confidence boost needed by our staff to ensure a smooth roll out process.

Specialty Doctor, Bedfordshire:

Just to inform you that, JAC training was wonderful. Currently we are working well with the new E prescribing. It is easy to use and less time consuming than old method. The chances of making errors are less. Thanks for your training and continuous support.

LONDON

Acting Clinical Nurse Manager, Tower Hamlets: JAC has done away with bad handwriting, confusing prescriptions, missing meds charts, cut down on small meds errors, made prescribing quicker (especially at night with far flung on call doctors).
It's easy to use and navigate. Once you're used to it (which doesn't take long), I think it makes meds round quicker and safer than the old paper charts.

Clinical Nurse Manager, Tower Hamlets "I think the EPMA system is good in terms of paper charts missing and it is easy to flag out when medication has not been administered both oral and depot medications. It is useful for a new admissions when the doctors are not available onsite"

Senior Clinical Pharmacist, Tower Hamlets
"EPMA allows the pharmacy team to access patient charts at any time during the working day. This helps us to counsel patients more effectively as we are able to identify and discuss changes to patient medication with ease."
"EPMA allows pharmacy staff to identify and make interventions for prescribing a lot more rapidly which improves patient safety"

Pharmacist, City and Hackney: Before electronic prescribing, paper medication charts could only be accessed by pharmacists when in the treatment rooms and could not be seen if with another healthcare professional. JAC allows access to the medication charts 24/7 (including out of hours). This ease of access to medicines information allows pharmacists to provide the best clinical advice and to ensure safe practice. There are also less medication errors picked up such as those as a result of non-legible prescriptions and overdoses where 'mg' strengths had been given instead of 'mcg'. JAC also provides information on drug interactions and advises the medical team on formulary statuses of each medication, which is a very useful function.

2.17 **Benefits Safety Data Report**

Background/Introduction
DATIX medication errors were considered only for the directorates where EPMA has been implemented (Tower Hamlet, Newham, City & Hackney, Forensics, Luton, Bedford). Medication errors across all directorates (e.g. primary care) would disproportionately skew results and not provide an accurate picture.

Two time periods of the same months considered in order to make a relative comparison:
Jan to July 19 – pre EPMA
Jan to July 20 – post EPMA (most wards had been rolled out by Jan and completed by March 20)

Categories relevant to EPMA have been stipulated in the graph below. 'All other' categories have been grouped together, as they may not necessarily be of interest in relation to EPMA e.g. 'advice', 'CD procedural error' such as CD register discrepancies.

Findings
- Reduction in the number of errors linked to administration, dispensing, prescribing and transcribing post EPMA by 47%, 45%, 43% and 70% respectively across relevant directorates.
- The total number of medication errors overall have reduced by 42%

Limitations

- Only seven months of data used to make relative comparisons. Going forward as EPMA is embedded, it will be possible to compare longer time frames.
- EPMA was not fully completed by Jan 20; forensics wards were still outstanding, so findings in terms of error reduction are conservative. However, data was taken from Jan 2020, as EPMA had been implemented in most areas and this allowed a longer time frame for data comparison; allowing for a more meaningful analysis.
- The data set includes external organisation errors, as there is no way of filtering these out, but this confounding variable is consistent factor across both time periods analyses, so we are still able to gauge an overall trend.
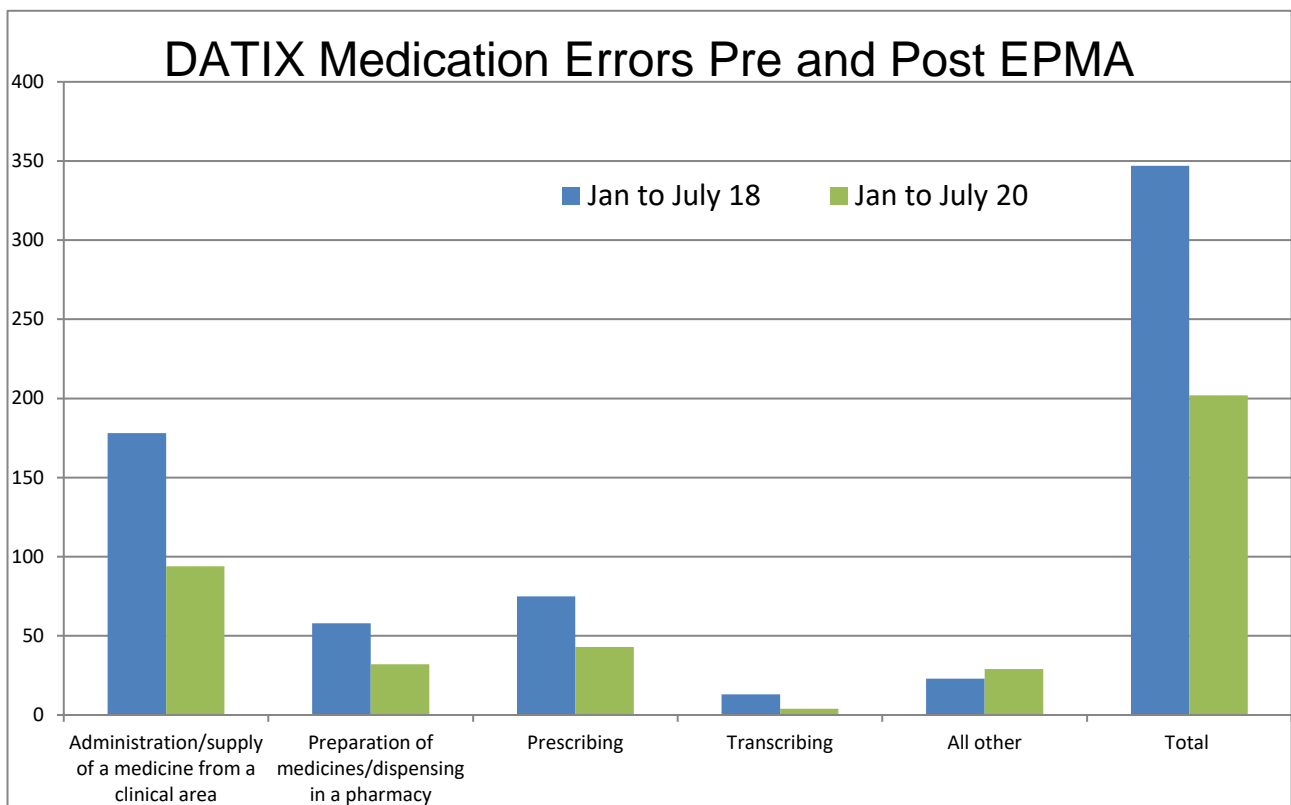
3.0   Recommendations

NA

4.0   Action being requested

4.1   The author should use one of the following statements or variations thereof:

"The Board is asked to….

a)   RECEIVE and NOTE the report for information

NB Definitions are as follows:

To "approve" - accepting recommendations etc as satisfactory

To "ratify" - to approve an action/policy formally so that it can come into force

5.0   References

1. Cottney, A. and Innes, J. (2014). Medication-administration errors in an urban mental health hospital: A direct observation study. *International Journal of Mental Health Nursing*, [online] Volume 24(1). Available at: https://onlinelibrary.wiley.com/doi/abs/10.1111/inm.12096

2. Dornan, T. et al. (2009). An in-depth investigation into causes of prescribing errors by foundation trainees in relation to their medical education: EQUIP study. *General Medical Council*, [online]. Available at: https://www.gmc-uk.org/-/media/documents/FINAL_Report_prevalence_and_causes_of_prescribing_errors.pdf_28935150.pdf

3. Bates, DW. et al. (1995). Relationship between medication errors and adverse drug events. *Journal of General Internal Medicine*, [online] Volume 10(4) pp 199-205. Available at: https://pubmed.ncbi.nlm.nih.gov/7790981/

4. Senst, BL. et al. (2001). Practical approach to determining costs and frequency of adverse drug events in a health care network. *Am J Health Syst Pharm.*, [online] Volume 58(12) pp 1126-32. Available at: https://pubmed.ncbi.nlm.nih.gov/11449856/