The Queen Elizabeth Hospital King's Lynn
NHS Foundation Trust

# REPORT TO THE BOARD OF DIRECTORS (IN PUBLIC)

| RESPONSIBLE DIRECTOR: | REPORT FOR: | | IMPACT ON BUSINESS: | | |
|---|---|---|---|---|---|
| | Decision | | High | Med | Low |
| Frankie Swords, Medical Director | Consideration | ✓ | | ✓ | |
| | Information | ✓ | | | |
| **LEAD MANAGER:** | **REPORT TYPE:** | | **BAF REFERENCES & RAG:** | | |
| Antonia Hardcastle | Strategic | ✓ | 0 | | |
| | Operational | | | | |
| | Governance | ✓ | | | |
| | **IMPLICATIONS:** | | **RELATED WORK: (PREVIOUS PAPERS TO BOARD/COMMITTEE)** | | |
| | Patient Care/Safety/ Experience | ✓ | | | |
| | Finance | ✓ | Research Committee | | |
| | Workforce | | | | |
| | Policy | ✓ | | | |
| **PEER ASSIST (inc. clinical engagement):** | **PEER REVIEW:** | | | | |
| | Cristian Ilie – Research Director | | | | |
| **CQC Domain: (safe, caring, effective, responsive, well-led, use of resources)** | Well-Led | | | | |

**Meeting Date: 26th November 2019**

**Report Title: Research and Innovation Update November 2019**

**PURPOSE:**

To update the Board on Research and Innovation

**SUMMARY:**

- We have opened and recruited to our first commercially sponsored trial where the Chief Investigator is a staff member
- The Trust continues to be ranked number 1 in the region for quick set up times for trials
- Dept. of Health and Social care threshold reached to achieve £20,000 Research Capacity Funding.
- Safira annual report is presented
- UEA Health and Social Care Partners work is presented for Q2 19/20

**Implications : Financial / Quality / Workforce / Policy:**

| Strategic / External | Operational | Financial | Clinical | Legal/ Regulatory | Reputational / Patient Experience | Workforce |
|---|---|---|---|---|---|---|
| ✓ | | ✓ | ✓ | | ✓ | ✓ |

**RECOMMENDATION/S:**

**The Board is asked to note the contents of the report**

**REPORT**

## 1. Highlights

This month we have opened our first commercial sponsored study, where the Chief Investigator is a member of staff in the Trust. Dr Stefanescu and the Research Department were approached and asked to lead Abbvie's VALUE trial in the UK. Not only did we manage to open this within seven days, but we have also recruited our first two patients within four days of opening. Pharmaceutical companies are now recommending QEH as a site to deliver their trials. This is a significant achievement for the Trust and shows that we are capable and can deliver.

So far this financial year we are working on 37 different trials and have recruited 307 patients to studies. We are placing more emphasis on high quality intervention studies early in the year in order to improve our value for money. We have two large observational studies to run in gastroenterology, which will bring our numbers up significantly by the end of the year. Please see appendix for a detailed list of research active specialities and clinicians involved.

## 2. Recruitment to time and target

We are continually assessed on our ability to set up and recruit the first patient into clinical trials as this is a new national health strategy (Best Research for Best Health, DHSC 2019). The Trust is still ranked number 1 in the region for speedy set up times; with a median of 28 days from first approach from sponsor to first recruit. The Eastern Region median time is 149 days

## 3. Finance

We are actively recruiting patients into commercial clinical trials in order to increase our income, and we have recently been approached by the Boehringer Ingelheim/Oxford Clinical Trials Unit to collaborate on a large diabetes/CKD study worth in the region of £1,200 per patient.

We have achieved the required recruitment numbers to be able to access the DHSC's Research Capacity Funding of £20,000 for2 019-2020.

## 4. Innovation/Health Enterprise East

The Annual Safira Development report and associated patents are attached. This is still on course for launching the USA in Q1 2020. The Company has chosen to launch in the States first due to Brexit delays in the MHRA of > 9 months. Two companies have asked for rights to test the device for 3 months in QI 2020.

Arterial Glucosave usability trials have concluded, with the somewhat predictable conclusion of "too much plastic". Medovate has commented that the pack uses 5 items within one single package, rather than five individually wrapped pieces, which results in a more efficient manufacturing and sterilisation process thereby reducing the overall environmental impact. The packaging material used is a special medical grade gas permeable polymer that allows the Ethylene Oxide gas to penetrate the packaging to sterilise the contents. There is currently no more sustainable alternative material available anywhere in the world.

Milestone 2 of the Med Tech Accelerator should be concluded by mid-December, with the colour change technology being incorporated into the arterial Glucosave syringe. I believe this technology is based on the Urine Dipstick, and the thinking behind this is that both the dipstick and syringe are already CE marked, therefore the whole device will not have to pass through ISO 13485 again.

There have been 5 submissions to Health Enterprise East in the past 4months, but no substantial awards made.

## 5. UEA Health and Social Care Partners

I have attached the quarterly report from UEA Health and Social Care Partnership. The Trust is actively working with the Medicines Optimisation Group, Concussion Action Programme, Hospital Associated Deconditioning Group and Nutrition Research Team.

## 6. Future Projects

Research Publications Repository with the Library
Update of Internet and Intranet
Increase communications through social media and Trust Comms
Innovations day with Health Enterprise East

## 7. Risks

We have been recruiting for a Clinical Trials Pharmacist, but have had no applicants.

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Developing Innovation

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**Confidential**
**Licence Agreement Annual Report**

**Project code: MP-0007- SAFIRA**
**Title: SAFIRA**

## Company updates / highlights since July 2018

Medovate successfully achieved ISO 13485:2016 quality management system certification in April 2019. The certification confirms that Medovate operates an internationally recognised quality management system for the control of design, development, manufacture, installation and servicing of medical devices. Certification was awarded following a series of rigorous independent audits in accordance with ISO 13485:2016 regulatory requirements. Medovate's certification enables it to develop and bring to market products relating to its priority medical specialisms of anaesthesia, intensive and critical care, and surgery, fitting within the scope of SAFIRA.

Medovate has secured rights to further technologies from the NHS. We are actively building a portfolio of ICU and anaesthesia offerings with plans to expand into an additional surgical field this year.

Medovate has made several new key appointments, including our Technology Development Manager, two Project Managers, and a QA/RA Associate. In addition to this we have also brought in an advisory position (sales director of multinational medtech company) to provide guidance on sales and distribution strategies as we move our first products to market.

## SAFIRA Intellectual Property

A summary table providing details on the current status of the patent portfolio is provided in Appendix 1. Medovate is pursuing both patent portfolios licensed from Queen Elizabeth Hospital Kings Lynn NHS Trust and has successfully realised allowance and grant of several key patents. As we progress the portfolio we are looking to broaden the scope of protection with further continuation filings (listed in Appendix 1). These continuation filings fall within the patent families licensed, with the Trust named as applicant and inventors named. This strategy allows us to pursue new aspects of the patent not originally claimed for or to attempt to re-visit claims the examiner previously had not allowed.

Medovate have applied for the SAFIRA trademark under OHIM (European) and expect to receive notification of grant in November 2019.

## SAFIRA Development activities July 2018 to date

### Bluefin Medical / Hands Free Syringe

Earlier this year Medovate secured rights to a 3rd party technology and patents referred to herein as "HFS" (Hands Free Syringe) from a US company, Bluefin Medical. The technology provides a multiple use disposable syringe driver, and foot control system to deliver regional anaesthesia (pictured below, Fig 1). Part of the technology is US FDA approved. Medovate are in the process of re-establishing manufacturing and addressing some design and regulatory matters with the aim of re-launching the HFS device in the US and EU in 2020. As part of our development pathway we are planning to develop and incorporate elements of the licensed SAFIRA technology relating to the hand control units and introduce this to the market aiming for launch later in 2020 (an example of how this control unit could look is shown in Fig. 2).

**Fig. 1 Re-branded HFS**

**Fig.2 SAFIRA example hand control unit**

Additional Development Activities

Medovate have been working with the SAFIRA inventors during this development period, developing the user requirement specifications, clinical trial protocols, bench testing of the HFS unit and prototype SAFIRA control systems. Further studies have also included anaesthetist KOL focus groups (sourced from QEHKL, Addenbrookes, Leeds Teaching Hospitals, N&N) looking at preferred methods of control units (hand, foot, ultrasound etc.), feeding into the development of our final SAFIRA control unit. Renumeration has been provided to the Trust for these KOL meetings.

**Planned deliverables over the next 12 months**

**Phase 1: Re-launch HFS in the US**

- Target launch: 2020.

**Phase 2: Obtain first-time CE mark of HFS under MDD and launch in the UK/EU**

- Target launch: 2020.

**Phase 3: (Launch of SAFIRA technology) Range expansion introduced into US & EU and transition to MDR in EU**

- Scope: Introduction of hand operator (SAFIRA technology) and NRFit syringe.
- Target launch: late 2020.

**Business Development**

Medovate has and plans to attend a range of conferences and trade fairs over the coming year to engage with end users, potential distribution partners and key players in the market. Events as follows:

- UK Regional Anaesthesia Meeting, Belfast, May 19
- ESRA, Bilboa, Sept 19
- WAAM, Netherlands Nov 19
- Medica Dusseldorf, Nov 19
- Arab Health, Dubai, Jan 2020
- ASRA, San Francisco Apr 2020

Medovate has commenced commercial discussions with potential commercial and distribution partners in view of market launch in 2020 and will provide updates once we have the final route to market in place.

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Developing Innovation

# Safira Portfolio

The table below sets out a brief summary of the Safira portfolio as of Summer 2019. It provides guidance as to the content of each patent or application but not an assessment of claim scope.

| Patent Family | Jurisdiction | Informal Guidance as to Content of Application | Status |
|---|---|---|---|
| WO 2013/160680<br><br>Safira 1 (Gen 1) | EP | • Forward and Backward flow<br>• Controller positioned on regional anesthetic needle, feed tube, or ultrasound probe<br>• Pressure sensor and/or flow rate monitor | • Allowed (proceeding to grant) |
| | EP-D1 | • Forward flow<br>• Controller is stand-alone unit | • Pendin g |
| | US | • Forward and Backward flow<br>• Controller positioned on regional anesthetic needle or ultrasound probe<br>• Pressure sensor and/or flow rate monitor<br>• Pushbutton or slide switches<br>• Button depression correlates with at least one of flow rate and pressure | • Granted on 18 September 2018 as US 10,076,630 |
| | US-C1 | • Forward flow<br>• Controller positioned on regional anesthetic needle, feed tube, or ultrasound probe<br>• Pushbutton or slide switches<br>• Button depression correlates with at least one of flow rate and pressure | • Allowed (proceeding to grant) |

This informal summary is not intended as legal advice. Medovate does not accept any liability whatsoever in respect of any third party, and in particular no liability in respect of anything done in reliance upon the content of this document. Any third party should seek its own independent legal advice as to the content of this document before doing anything in reliance upon it.

| Patent Family | Jurisdiction | Informal Guidance as to Content of Application | Status |
|---|---|---|---|
| WO2015/185895<br><br>Safira 2 (Gen 2) | EP | • Injection controlled based on pressure and volume | • Pending |
| | GB | • Sensing changes in tissue compliance during injection<br>• Claim talks about determining two changes of injection pressure with respect to injection volume, and controlling injection based on the difference between the two changes | • Grant date 2 September 2019 |
| | GB-D1 | • Injection controlled based on pressure and volume<br>• Also has aspiration mode | • Grant date 2 September 2019 |
| | US | • Sensing changes in tissue compliance during injection<br>• Independent claim determining two changes of injection pressure with respect to injection volume, and controlling injection based on the difference between the two changes and comparing difference with a stored signal characteristic of tissue type.<br>• Second independent claim is similar but talks about comparing difference between two changes with stored data defining pressure-volume characteristics of tissue type | • Allowed (proceeding to grant) |

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| | | | |
|---|---|---|---|
| | JP | • Injection controlled based on pressure and volume<br>• Claim talks about determining two changes of injection pressure with respect to injection volume, and controlling injection based on the difference<br>between the two changes | • Pending |
| | IN | • Injection controlled based on pressure and volume | • Pending |

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# UEA Health and Social care Partnership Q2 2019-2020 Highlights Summary

## IMPACT

1. MOG_EA **Medicines Safety Initiative Scoping Project** completed. Identified main causes of medication errors (general and critical medicines) in secondary care. Recommendations on successful interventions provided. Research question to be developed further for major grant funding application.

2. "**GP GoalPlan Goal Setting Training**" free online course receives RCGP accreditation and launches on global FutureLearn platform on 4 November 2019, following a successful pilot run with 50 GPs completing training in July 2019 – interest exceeding the places available.

3. UEAHSCP is organising **Young People's Mental Health Conference** attracted over 190 attendees. Sir Norman Lamb to speak. Video address from Stephen Fry. 15 November 2019 at UEA.

## INFRASTRUCTURE AND OPERATIONS

1. Raising Awareness: production of four promotional films about Research Groups completed, to be published in Nov 19.
2. Economic Baselining data collected from partners, analysis begins.
3. Business planning consultations with partners completed.
4. Planning for Young People's Mental Health and Wellbeing conference

## PERFORMANCE TO DATE

**160** PARTNER STAFF ENGAGED IN RESEARCH GROUPS

**£93,164** INVESTMENT COMMITTED

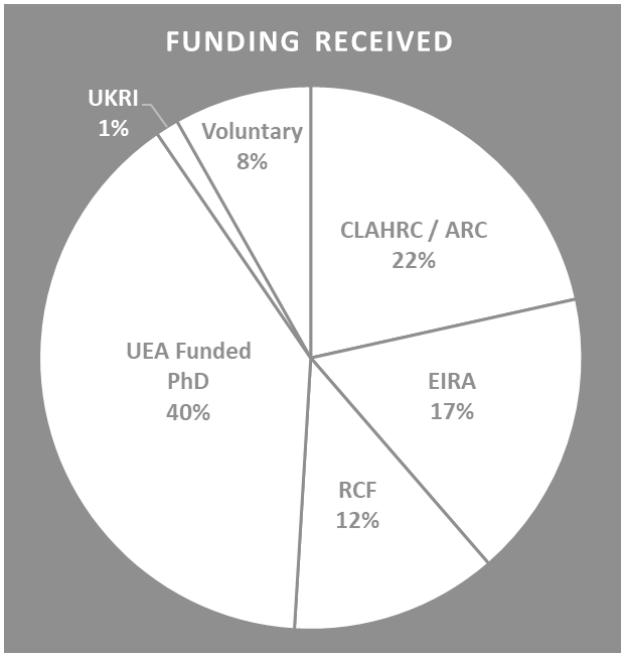
**£362,345** FUNDING RECEIVED

**313** EVENT DELEGATES

**129** LINKS ESTABLISHED WITH ASSOCIATE ORGANISATIONS

**16** ASSOCIATE ORGANISATIONS WITHIN OUR RESEARCH GROUPS

**11** RESEARCH GROUPS
8 ACTIVE, 3 SCOPING



## Update on Activity against Objectives

| | Stated Objective | Key activity in this area |
|---|---|---|
| 1 | The doubling of partners' health and social care research incomes and activities | 1. Three new groups progressed through development : Nutrition(approved), Hospital-Associated Deconditioning (approved), Centre for Behavioural and Implementation Science (Scoping)<br><br>2. Q2 showing £84k income and total of £362k attracted to the groups in the last 12 months. Much of this is still 'soft' funding and relates to UEA's internal funding rounds so it should be treated cautiously but does demonstrate the value of the new groups in the system<br><br>3. "Deprescribing in secondary care" £2.4m NIHR PGfAR bid submitted passed round 1. Amended application for round 2 submitted Sept-19, final outcome Dec-2020<br><br>4. £1.2m NIHR HS&DR bid submitted (OPED) to explore whether bespoke older people's emergency departments lead to better patient and carer experience and outcomes |
| 2 | Shared and improved research infrastructure and inter-organisation clinical data access and analysis | 5. Frailty Research Group's AMBROSE project is sharing data within the partnership and behind the NHS firewall using existing resources<br><br>6. Concussion Action Programme is the first group to employ partner staff on a research project rather than external or UEA staff (CAP mapping exercise) |
| 3 | Mass engagement with both service users and health and social care professionals to improve their experience and identify areas for innovation | 7. Promotional videos about research groups produced: Concussion Action Programme, MOG_EA, Workforce Sustainability, Parental and Childhood Obesity; launch in November.<br><br>8. Communications Leads now meeting regularly to share information and advise on how to reach key stakeholder groups within partner organisations<br><br>9. Management Board has approved a project to help unify PPI agencies in region; this resource will be used to access PPI input in a number of ways |
| 4 | Development of a truly mature innovation culture across partners that creates projects which achieve direct impact on service user care | 10. Scoping of jointly launched and funded Innovation Champions with EAHSN<br><br>11. Palliative Care group supported a nurse at St Nicholas Hospice Care with ARC fellowship application for "Life Questions" project. Now planning intervention in primary schools through group exercises to talk about loss, to build resilience.<br><br>12. Clinical pathways development trial of MyDNA to start in NSFT, Norfolk CCGs, NNUH & WSH. Small patient pilot – first in the UK aimed at personalised medicines strategies for more effective treatment |
| 5 | Lead thinking on workforce development and innovation of health and social care professions | 13. Workforce Sustainability lead presented at an NIHR Applied Research Collaboration East of England regional workshop on behalf of and UEAHSCP.<br><br>14. UEAHSCP ran a workshop at the Centre for Interprofessional Practice September event; lead to 40 project ideas that will be discussed and prioritized with Anna Morgan of Norfolk STP in October. |

| | | |
|---|---|---|
| 6 | Growth of a common voice for the region with emphasis on the pride in our regional success stories | 15. Planning extensive media coverage of Young People's Mental Health and Wellbeing Conference. Sir Norman Lamb confirmed as a speaker; video address from Stephen Fry<br><br>16. Executive Board Chair presented on UEAHSCP at the Dean's Breakfast at Norwich Cathedral, 26 September<br><br>17. Palliative Group lead is meeting Alan Waters, Head of Norwich City Council to discuss potential for Norwich to adopt a compassionate city charter, following Plymouth becoming the first compassionate city in England in October 2019<br><br>18. Also, Palliative Care lead has been appointed as co-lead of "Each Community is Prepared to Help" work package in Norfolk STP |
| 7 | A sharing of resource for training purposes to reduce cost and increase value to all staff | 19. Rolling out of trial of shared access to journals via established research groups<br><br>20. Hospital-associated Deconditioning lead has introduced Prof Cynthia Brown (University of Alabama) to the group and she has shared materials on the small pilot study; NNUH are supportive of adapting and trialling the feasibility of this material |
| 8 | Generation of clear opportunities to work with industry and access commercial, research and other funding streams | 21. £62k EIRA funding success to develop an app-based anticholinergic burden (ACB) tool in collaboration with EAHSN |

# Economic Baselining Project Progress

## Revised project timeline

| | May | 03/06/19 | 10/06/19 | 17/06/19 | 24/06/19 | 10/10/19 | 20/10/19 | 27/10/19 | 03/11/19 | 10/11/19 | 17/11/19 | 24/11/19 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Phase 1** | | | | | | | | | | | | |
| Task 1: Inception | | | | | | | | | | | | |
| Task 2: Economic impact framework* | | | | | | | | | | | | |
| Task 3: Data request* | | | | Proforma completed by partners | | | | | | | | |
| Task 4: Data analysis and modelling* | | | | | | | | | | | | |
| Task 5: Reporting | | | | | | | | | | | | |
| **Phase 2** | | | | | | | | | | | | |
| Task 1: Literature review and impact approach | | | | | | | | | | | | |
| Task 2: Modelling | | | | | | | | | | | | |

## Key headlines (all partner data excl. CCGs)

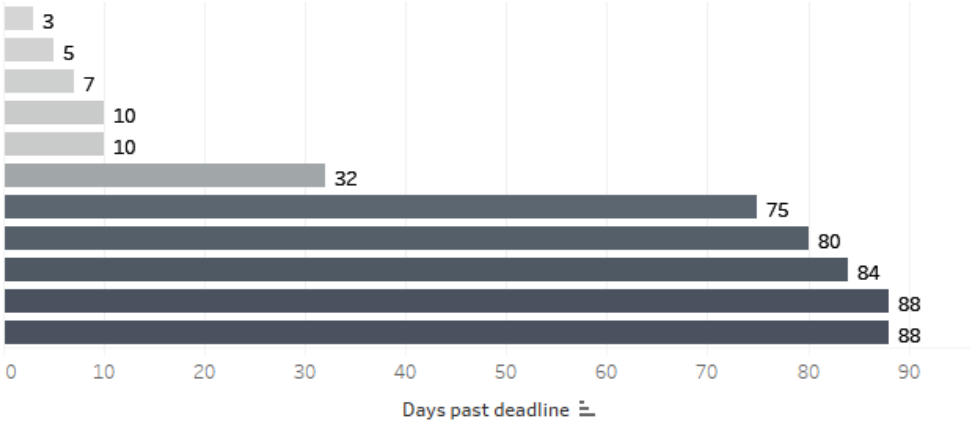
**1.85m**
REGION POPULATION

**4.2b**
TURNOVER

**<50k**
STAFF

**42m**
R&I INCOME

## Reporting by partners (days past the deadline)



## Upcoming Activity Q3-4 2019-20

*October*

- Frailty Group begins analysis of the Norwich Escalation Avoidance Team
- Start of RCF funding within MOG_EA & Frailty to support applications for large bids:
    - Medicines optimization through big data analysis (£1m)
    - Deprescribing hypnotics and z-drugs (£1.8m)
    - Deprescribing urinary anticholinergics (£1.4m)
    - Skills for Active and Independent Living (£1.8m)

*November*

- First of three PPI engagement events within the Palliative Care Research Group
- Young People's Mental Health and Wellbeing Conference (15 November at UEA)
- Childhood Nutrition and Wellbeing Study final report publication
- GP GoalPlan Training online course (MOOC) global launch on FutureLearn Platform (4 November)
- First stage of Economic Baselining Analysis completed (Overall Economic Weight)

*December*

- MOG_EA's MyDNA clinical pathways development trial to start in primary, secondary care. NSFT, Norfolk CCGs, NNUH, WSH involved. 20-30 patient pilot – small but first in the UK aimed at personalised medicines strategies for more effective treatment.
- Initial findings from the Concussion Action Programme's review of concussion diagnoses in two acute settings
- Parental and Childhood Obesity Research Group's project on whole system review commences
- Nutrition Group's Vitamin D Deficiency and Malnutrition Screening projects commence

*January*

- Second Stage of Economic Baselining Analysis Completed (Potential Impact)
- Deconditioning bid submission to NIHR (£150k) for a pilot study

# CASE STUDY:

# CONCUSSION ACTION PROGRAMME

**GROUP FORMED**
**15 MARCH 2019**

## PURPOSE

Facilitating research and working with local schools and sport clubs to improve concussion awareness. Creating CPD opportunities for health professionals.

## MAPPING PROJECT

- Mapping current concussion provision in the region
- Identify local champions in the healthcare system to participate with CAP as partners in future concussion education and research programmes

## PhD STUDENTSHIP

- Investigating if former footballers show signs of early neurodegeneration compared with the normal population
- Testing the hypothesis that spatial navigation is degraded in former footballers as compared with otherwise healthy age-matched controls

**8**
ORGANISATIONS INVOLVED
ESNEFT, JPUH, NCHC, QEH, UEA, The Jeff Astle Foundation, NWABI, UKABIF

**4**
MEETINGS

**2**
ACTIVE PROJECTS

**£5k** UEAHSCP FUNDS INVESTED

**£63k** FUNDED PHD STUDENTSHIP SECURED

"Right from the first time I attended the Concussion Action Programme research group, I immediately felt part of the group, included, and listened to, it is a great group to be part of.

We have strong leadership from Dr Grey and we all feel as a group really motivated to make a difference in this area. Being part of this group also allowed me to extend and apply my own research skills.

I am confident that we will forge strong, long-lasting partnerships within the group, which we can use to further achieve our goals and our ambitions."

Helen Hall,
Research Grants Advisor, Home Grown Research champion, James Paget University Hospitals NHS Foundation Trust

# MEDICINES OPTIMISATION GROUP EAST ANGLIA (MOG_EA)

## CASE STUDY: MEDICINES SAFETY INITIATIVE SCOPING PROJECT

JULY – SEPTEMBER 2019

### PROJECT AIMS

- Review current resources and practices aimed at reduction of medicines administration errors, with the particular focus on:
  - Reducing critical medicine error on transition into secondary care
  - Development of medicines related guidance for nurses
  - Identify strategies and successful interventions aimed at reducing medication administration error rates

### METHOD

- Literature search on medication errors and related interventions
- Stakeholder meetings with pharmacy departments, nursing and education staff in five local NHS trusts

### RESULTS – LITERATURE SEARCH

**78.6 %** medication errors in secondary care are administration related

**6.6-62.7%** critical medicine error rate range

**6.6-60.3%** critical error omission range

**9.1-58%** critical error delay ranged

### MEDICATION ERRORS

**Most common error areas**:
- Omission
- Wrong dose
- Wrong time
- Preparation & IV administration (paeds, elderly)

**Causes:**
- High workload / staffing
- Interruptions
- Lack of training

### INTERVENTIONS

- League tables
- Audits
- Education
- Flowcharts on obtaining medicines from pharmacy
- Pharmacy assistant / technician supported medicines administration
- Electronic prescribing
- Clinical dashboards
- Visual indicators for overdue doses
- Multi-disciplinary ADE committee
- Decentralized pharmacy operations
- SAM administration

UEA University of East Anglia
HEALTH & SOCIAL CARE PARTNERS

# RESULTS AND RECOMMENDATIONS

## RESULTS – STAKEHOLDER MEETINGS

**Current resources available to assist staff in the administration of critical medicines**

| Site | Critical medicines list | Critical medicine posters | Policies available via the intranet | Training sessions/meetings | Feedback regarding via email | Alert warning system | Incident meetings |
|---|---|---|---|---|---|---|---|
| 1 | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ |
| 2 | ✓ | | ✓ | | | ✓ | ✓ |
| 3 | ✓ | ✓ | ✓ | | ✓ | | |
| 4 | ✓ | ✓ | ✓ | ✓ | ✓ | | ✓ |
| 5 | ✓ | | ✓ | ✓ | | | |

**Current medication management resources for nursing staff**

| Site | Handbook | Pharmacy feedback via e-mail | Pharmacy feedback verbally | Policies on intranet | Alerts on electronic system | Resource to build clinical skills | Posters on wards |
|---|---|---|---|---|---|---|---|
| 1 | ✓ | ✓ | | ✓ | | | ✓ |
| 2 | | ✓ | ✓ | ✓ | ✓ | ✓ | |
| 3 | (in development) | ✓ | ✓ | ✓ | | | ✓ |
| 4 | | ✓ | ✓ | ✓ | | ✓ | ✓ |
| 5 | | | | ✓ | | | |

## LEARNING POINTS

- Training quality needs improvement regarding pharmacology (university and work-based), including more knowledge around critical medicines
- Handbook and intranet are not widely used or referred to (current handbook is not inclusive of all disciplines)
- Most trusts would welcome a standardised resource/ electronic handbook with multiple sections for specialities
- Training/resources needed for prescribers
- Workload and interruptions are big causes of error – Do Not Disturb Tabards are not effective
- Better communication is needed inter-professionally
- Electronic system debated (shown to reduce errors but introduce new errors too)
- More staff required on the ward

## REPORTED INTERVENTIONS

- Timers and Parkinson's UK 'Get It On Time' reminder clocks
- Newly qualified staff assisted with critical medicines administration
- Training videos showing effects of omitted dose
- Empowering patients to remind staff when their medication is needed
- Where appropriate SAM
- Ensuring a good stock of critical medicines is available
- Guidance on how to obtain critical medicines if they are out of stock

## RECOMMENDATIONS

- More **inter-professional meetings** (Staff nurses and pharmacy)
- Develop **standardised induction training** (to improve efficiency when transferring trusts)
- Consider **handbook as part of larger strategy** and its most effective use in practice:
- Incorporate relevant information into training
- Consider where best to locate information
- Need for **easy access resources**, e.g. summarised core-standards list
- **Clocks** for patients with critical medicines
- **Timers** for critical medicines
- **Pharmacy staff (students)** employed to minimise errors
- Encourage **SAM**
-

## FURTHER RESEARCH QUESTION

Which of the recommendations and what else is/are required to effectively change nurse, prescriber and pharmacist behaviours such that medication administration errors are significantly diminished?

**Appendix. List of open studies, their PIs and any associated income**

| Speciality | Number of studies | Principal Investigators | Attributed Income per patient |
|---|---|---|---|
| Cancer | 21 | Nicola Ainsworth<br>Margaret Daly<br>Gail Horan<br>Cristian Ilie<br>Lisa Farquhar<br>Amy Burger<br>Rachel Johnson<br>Sophy Shedwell<br>Hayley Webb<br>Kamal Thippu | |
| Haematology | 3 | Martin Lewis<br>Lisa Cooke | |
| Renal | 5 | Smita Gunda<br>Shiva Ugni | up to £5.5k<br>£1,200/patient |
| Stroke | 5 | Raj Shekar<br>Umesh Rai | |
| Cardiovascular disease | 2 | Mia Elston | Up to £10k total |
| Metabolic/endocrine | 3 | Barbara Piel<br>Manoj Thomas | |
| Children | 6 | Barbara Piel | |
| Neurology | 4 | Tracy Fuller | |
| Dermatology | 2 | Simina Stefanescu | |
| Musculoskeletal | 8 | Studies in hibernation until consultants appointed | |
| Anaesthesia/peri-op medicine and pain | 3 | Mark Blunt<br>Emma Gent | |
| Critical care | 2 | Darcy Pearson<br>Robin Heij | £600/patient |
| Injuries/emergencies | 2 | Nam Tong<br>Lucy Dennell | |
| Surgery | 2 | Melanie Harding<br>Chandana Wijewandena | Up to £1.6k |
| Gastroenterology | 7 | Alan Wiles<br>Fran Bredin<br>Abhay Bagewadi<br>Jose Dias | Up to £3.1k |
| ENT | 1 | Simon Hill | |
| Health Services Research | 5 | Nam Tong<br>Emma Gent<br>Antonia Hardcastle | |
| Hepatology | 4 | Andrew Douds | |
| Infection | 2 | Emma Carlton<br>Harith Altemimi | |

There are small amounts of money (c.£15 per patient) associated with most studies to retrieve tissue samples for tissue banks, send samples etc.