East and North Hertfordshire Clinical Commissioning Group

East and North Herts CCG

Business Case

Clinical Pharmacist – led Care Home Medicines Optimisation Service

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Date April 2015

Introduction

The CCG, in partnership with the County Council and the Hertfordshire Care Providers Association were successful in their bid to become a Vanguard site for the development of new models of enhanced care for Care Homes' residents. The Vanguard will:

1. Enhance the skills and capacity of care home staff
2. Deliver Multi-Disciplinary teams to support the most complex care home residents
3. Deliver rapid response services for residents
4. Deliver enhanced information technology to enable delivery of effective care

A central element of the bid is enhanced pharmacist support to care homes and their residents. This will play a vital part in the Multi-Disciplinary Team approach to care home patients, and will help enhance the skills and capacity of care home staff. A clinical pharmacist led care homes project was successfully piloted in Hertfordshire in 2012-13. This business case for a pharmacist–led care home medicines review and optimisation service builds on experience from the pilot and aligns to the aspirations of the Vanguard bid.

This business case presents the case for investing in developing the service delivery to residents in care homes, with three costed options, reflecting different levels of ambition for care home coverage. It sets out the case for change, the rationale, and the expected outcomes, analyses the options available and develops a proposal for the future East & North Herts health economy.

The previous pilot improved the effectiveness, efficiency and safety of medicines use for care home residents and was highly regarded by GPs, care home managers and staff. The results of the pilot demonstrated that financial savings (avoidance of costs) were in excess of the total cost of the team.

The proposed service aims to:

- avoid unnecessary patient harm;
- reduce medication errors;
- optimise the choice and use of medicines in care home patients;
- reduce medication waste;
- reduce conveyances to A and E (Vanguard objective)
- reduce admissions to hospitals from care homes (Vanguard objective)

The last two objectives are the key 'system' objectives of the Vanguard bid, demonstrating a clear strategic fit between this proposal and the Vanguard aspiration.

Background and Rationale for Case

Background

Medicines are the most frequent health care intervention in the NHS which if applied wisely can make a major impact to improve the health of a population. Where medicines are not optimised they are unlikely to effective and may be harmful. Inappropriate use of medicines may also present significant financial and reputational risk to CCGs.

1. The current primary care prescribing spend is approximately £76.9m (12% of CCG budget)
2. GP prescribed items are growing at around 5.3% annually.
3. Around 7% of all hospital admissions have been attributed to or associated with adverse drug reactions with up to 2/3 of these being preventable.
4. Up to 50% of patients do not take their medicines as intended

Ensuring that medicines are used safely and effectively is therefore an important consideration for the NHS.

Rationale

In 2009 a Department of Health funded study -*The "Care homes' use of Medicines Study: prevalence, causes and potential harm of medication errors in care homes for older people* (CHUMS)", revealed that residents in care homes (mean age 85 years) were taking an average of 8 medicines each and that on any one day 7 out of 10 patients experienced at least one medication error. (Barber ND et al 2009). Another report concluded that antipsychotic prescribing for people with dementia can cause significant harm and recommended that use of antipsychotics to treat symptoms of dementia is reduced by two thirds by November 2011. (DH report Time for Action (Subee Banerjee 2009). The NHS operating framework has specifically reiterated the importance of reducing prescribing of antipsychotics to manage symptoms of dementia.

In East and North Herts CCG there are approx. 3854 care home beds in 92 Residential Care Homes and Nursing Homes. Previous work in Hertfordshire suggests an error rate of 0.8 per patient (not all maybe clinically significant). This poses a significant concern with respect to safe and efficient use of medicines in a vulnerable group of patients, and will also have implications for care home staff, prescribers, and community pharmacists as well as result in potential admissions into hospitals.

Previous Pilot

In a pilot undertaken in **16** care homes in ENHCCG, over one year (2012-13),

- 648 residents' medicines were reviewed.
- 1283 (66%) medicines optimisation opportunities were actioned by the GP.
- It is estimated that these interventions resulted in 7.5% of medicines stopped - £61k prescribing cost avoided;
- Approximately six falls prevented with consequent costs of £33k hospital admissions costs avoided for hip fractures.

The level of medication errors reported however reduced by 22% between the first and second pharmacy visits, demonstrating the benefit of a pharmacist review and intervention.

The previous pilot's effectiveness was hampered by lack of access to GPs in the Homes. The new arrangements for Homes delivered through the Enhanced Primary Care Support to Care Homes project will help overcome this problem. Feedback from GPs, who are delivering the new enhanced support, is that, dedicated pharmacy resource for care homes would increase their effectiveness significantly. A dedicated Care Homes Medication Optimisation team integrated

into the wider CCG medicines optimisation team would consequently be a central part of the Vanguard approach to Care Homes.

Other examples

Brighton and Hove CCG commissioned a team of pharmacists with various skills and range of expertise to undertake clinical medication reviews in care homes. Of the 2000 patients reviewed in 110 care homes, 6000 interventions made resulted in over £330k annualised savings and potential hospital costs avoided amounting to over £380k.

A similar service in Hillingdon showed annualised savings of £162k; 70% of interventions resulted in the annualised savings with 30% related to quality and safety issues. The estimated cost of hospital avoidance was estimated to be between £51k to £234k (based on average cost of 2-7days stay). A further £16k savings was achieved by rationalising inappropriate use of dressings in two nursing homes.

The Proposal

It is proposed that ENHCCG invest in a Care Homes Medicines Optimisation Team, as part of the Vanguard approach to Care Homes; to improve the use of medicines; reduce poly-pharmacy and avoid harm through reduction in medication errors. The service will also provide dietetic advice to care homes to improve the effectiveness of nutritional intervention and reduce the need for expensive sip feeds (oral nutritional supplements (ONS)). To also provide a nutritional training package for senior home care staff, delivered by the team dietician(s).

The service is interdependent on prescribers taking action on interventions and recommendations. We would anticipate outcomes to be improved with the formal enhanced service now in place with primary care, as there will be improved access to GPs in the care home setting. This was a barrier to the effectiveness of the initial pilot. Developments in IT connectivity will also improve the efficiency and effectiveness of the service.

Proposed Flexible Delivery Approach

The proposal is to recruit dedicated pharmacists for care home work, with the number recruited depending on the decisions around scale. They will work as part of the wider virtual team for care homes that will be developed as part of the Vanguard work. This approach is being proposed as it is the most likely to establish momentum to care home work and the wider Vanguard programme in the first instance. However, it is vital that the pharmacists are members of the wider CCG Medicines Optimisation Team. Crucially, they will have generic job descriptions allowing roles to be flexed depending on identified need for pharmaceutical support. So, whilst initially, the additional resource will be deployed on care home work, as learning from Vanguard is developed and embedded they will be able to be used in different ways to support other work in localities. They will participate in supporting team objectives and sharing both national and CCG prescribing guidance. A key expectation of staff recruited would be to create expertise within the team around effective care home working, thereby increasing resilience and allowing for the model to develop as the Vanguard progresses. Staff will have access to national pharmacy networks and resources e.g. Prescqipp, and access to the NHS East & South East England Specialist Pharmacy Services' *Older Peoples Pharmacy Network* – national experts providing resources of best practice, established evidence and innovation (see for example the variety of case studies relating to pharmacy best practice in care homes

http://www.medicinesresources.nhs.uk/en/Communities/NHS/SPS-E-and-SE-England/Search/?parent=514083&query=care+homes)

Options for Scale of Service

There are 92 care homes in ENHCCG. The care homes will be targeted according to criteria that include:

1. CQC reports suggesting support is needed
2. Hospital Admission rates
3. Feedback from G.Ps
4. Locality to address equity of service.

The number of homes that can be covered clearly depends on the resource deployed to the service, and the options have been developed based on evidence from the previous pilot to support the staffing profile and level of intervention and outcomes. The pilot provided a service to approximately 30 care homes across Hertfordshire using:

1.93wte Bd 8A pharmacists
0.4 wte Bd 7 dietician
1.0 wte Bd 5 pharmacy technician
0.5wte Bd 4 admin support

Three options are presented below, along with their associated costs and savings (ambition could be scaled up as and when pump-priming funding from the Vanguard pilot areas is made available). A pharmacy technician is not incorporated as the management of medicines processes in homes is overseen by HCC compliance officers with the CCG quality team.

Bronze Option
To provide a service to approximately 30 homes (ie coverage of approximately third of homes in East & North Herts CCG). The staffing profile to be made up of
2 x band 8a clinical pharmacists
0.6 band 7 dietician
0.5 band 4 administrative support

Silver Option
To provide a service to approximately 60 homes (ie coverage of approximately two thirds of homes in East & North Herts CCG). The staffing profile to be made up of
4 x band 8a clinical pharmacists
1.2 band 7 dietician
1.0 band 4 administrative support

Gold Option
To provide a service to approximately 90 homes (ie total coverage of homes in East & North Herts CCG). The staffing profile to be made up of
6 x band 8a clinical pharmacists
1.6 band 7 dietician
1.4 band 4 administrative support
(This option may benefit from economies of scale hence reduced pro rata levels of dietetic and administrative support).

The Silver option is the recommended option for the following reasons:

The previous pilot reflected the coverage of the Bronze model and so has already been demonstrated and the Gold model may include patients where the service is not appropriate or necessary. The further learning gained by embarking on the silver model will provide insight into whether the Gold model should be adopted at a later date.

Skill mix & banding

The general skill mix proposed, reflects that of the pilot. Band 8a pharmacists are employed usually with an additional university accredited diploma in clinical pharmacy or equivalent experience or expertise. This grade was used in the pilot to achieve the demonstrated outcomes. Pharmacists at this grade will be sufficiently and significantly experienced and suitably trained with acquired competencies in clinical pharmacy and prescription intervention and medicines optimisation to make safe and appropriate clinical interventions in this complex group of elderly patients. These skills are not evident in Band 7 pharmacists recruited. Band 7s are less likely to have a higher level of post graduate education and clinical practice. Recommendations from the East and South East England Specialist Pharmacy Services' *Older People Pharmacy Network* support the use of band 8a pharmacists particularly as band 7 pharmacists require significant supervision for this type of work.

Impact Assessment

Financial

Cost* of implementation including employers' costs per annum

**Costs calculated using Agenda for Change April 2015 pay scales.*

Gold Option	**total cost**	**Silver Option**	**total cost**	**Bronze Option**	**total cost**
6 .0wte Bd 8a Pharmacist	£319,290	4wte Bd 8 Pharmacist	£212,860	2wte Bd 8a Pharmacist	£106,430
1.6wte Bd 7 Dietician	£73,427	1.2wte Bd 7 Dietician	£55,070	0.6wte Bd 7 Dietician	£27,535
1.4wte Bd 4 Admin	£36,921	1.0wte Bd 4 Admin	£26,372	0.5wte Bd 4 Admin	£13,186
	£429,638		**£294,302**		**£147,151**

N.B – The estimated annualised prescribing cost savings of the pilot were approximately £200k where the pharmacy led care home team consisted of

1.93 wte Bd 8A pharmacist
0.4 wte Bd 7 dietician
1.0 wte Bd 5 pharmacy technician
0.5 wte Bd 4 admin support

The staffing costs of the previous project were approx. £170K. Hence it is anticipated that the savings made will be more than or equal to the costs of staff (further details are given below). As a minimum the team delivering the service will be expected to deliver sufficient demonstrable savings to cover the costs of the service.ie be cost neutral.

Training, support and senior pharmacist oversight will be provided within the current CCG PMOT resource.

Potential Savings (extrapolated from previous pilot).

The savings described below are conservative but **confident** estimates of savings that are extrapolations of savings made in the pilot. The following have not been taken into account and will increase savings and increase the effectiveness of the service compared with the pilot:

- Savings from sip feeds (these are difficult to extrapolate)
- Savings from avoided hospital admissions (These are difficult to measure, See below for potential tool to measure)
- Increased rate of uptake of recommendations by prescribers (as a result of the GP locally commissioned service)
- Increased complexity of patients and more expensive drug therapies.

Savings were achieved in the previous pilot from the following:

1. Direct drug costs savings
2. Savings from falls and hip fracture prevention (by initiation of Calcium & Vitamin D)
3. Savings from dietician nutritional support and advice (reduction in inappropriate prescribing of sip feeds)
4. Reduction in hospital admissions due to inappropriate prescribing (increased vigilance and monitoring of patients).

Savings from 1 and 2 have been estimated as confident extrapolations from the data recorded in the pilot in the table below. Extrapolations have taken into account the bed occupancy rate, the number of patients reviewed and the average prescribing costs avoided per patient. Savings from 3 and 4 are highly likely but cannot be accurately estimated as data was not recorded or easily measured during the pilot. These savings were not included in the estimated £200K savings from the pilot. However it is clear from the pilot and other initiatives across the country that more savings will be achieved with avoided hospital admissions and improved nutritional support (ie reduction in sip feeds).

Savings from avoided hospital admissions

NHS Croydon devised a Hospital Avoidance Scale within the RiO healthcare management system to provide a simplified health intervention scoring tool. The tool gives interventions a score of the likelihood of a hospital admission in terms of the clinical importance of the intervention and the likely outcome if an intervention had not been made. The tool can be used to estimate the savings made by avoided hospital admissions and can be used by the team to provide estimates of likely savings. This was not part of the pilot and therefore estimated savings cannot be extrapolated although they will occur.

http://www.medicinesresources.nhs.uk/upload/documents/Communities/SPS_E_SE_England/Croydon_summary.pdf

Savings from direct drugs savings (extrapolated from pilot).

Gold Option for 90 homes (100% patients)				Silver Option for 60 Homes (66% patients)			Bronze Option for 30 Homes (33% patients)		
	Total no of Beds = 3854	**Drugs' costs savings**			**Total no of Beds = 2570**	**Drugs' costs savings**		**Total no of Beds = 1285**	**Drugs' costs savings**
85% occupancy	3276		**£311,220**	85% occupancy	2185	**£207,575**	85% occupancy	1092	**£103,740**

Savings from falls and hip fracture prevention

In the pilot 12% of patients were initiated on Calcium and Vit D to prevent falls/hip fractures

The numbers needed to treat (NNT)to prevent a hip fracture = 20 (Clinical trial data)

Cost of hip fracture approx £6500 (based on HRG code HA13B 2015-16 tariff)

Gold Option for 90 homes (100% patients)				Silver Option for 60 Homes (66% patients)				Bronze Option for 30 Homes (33% patients)			
No of beds based on 85% occupancy	**No of patients started on Calcium & Vit D**	**Estimated no. of hip fractures prevented**	**Estimated savings**	**No of beds based on 85% occupancy**	**No of patients started on Calcium & Vit D**	**Estimated no. of hip fractures prevented**	**Estimated savings**	**No of beds based on 85% occupancy**	**No of patients started on Calcium & Vit D**	**Estimated no. of hip fractures prevented**	**Estimated savings**
3276	393	20	**£127,764**	2185	262	13	**£85,215**	1092	131	7	**£42,588**

Gold Option for 90 homes (100% patients)		Silver Option for 60 Homes (66% patients)		Bronze Option for 30 Homes (33% patients)	
Total conservative estimate of savings	**£438,984**	Total conservative estimate of savings	**£292,790**	Total conservative estimate of savings	**£146,328**
Estimated costs	**£ 429,638**	Estimated costs	**£ 294,302**	Estimated costs	**£ 147,151**

Notes and Assumptions

1. 85% occupancy of care home beds

2.Patients are more complex and may be prescribed more medicines which are more complex which may result in greater savings when optimised.

3.Indirect cost savings difficult to measure or estimate and are not included eg avoidance of hospital admissions

4. Sip feeds savings are more difficult to estimate and are not included. (£26k per annum was estimated to be saved from the review of 64 patients on oral nutritional supplements within the pilot).

5. Changes in GP services to care homes will promote closer multidisciplinary working, likely to result in increased acceptance of prescribing recommendations and increased savings.

6. Increased IT in care homes will also improve efficiency and take up of interventions.

Quality
Refer to expected outcomes section.
Targets (Also see outcomes measures and evaluations).

1. Average of 7 patients reviewed per day per pharmacist (assuming pharmacists may access GP systems remotely). (*Pharmacists will not be able to attend every "ward" round but attend where ever possible.)*
2. 100% of patients receiving antipsychotics for treatment of BPSD are identified to GP for review and record of review.(*to comply with Banerjee Report & Dementia Strategy)*
3. 100% of clinically relevant monitoring omissions are identified to GP at review and recorded
4. 100% of patients reviewed against local osteoporosis guidelines to assess need and initiate bone protection to prevent falls
5. Opportunistic review of antibiotic use and compliance
6. Food First (Nutritional guidance) shared with 100%care homes visited

Stakeholder Engagement
Feedback from GPs and care home providers and staff was very positive during the pilot project. The integrated pharmacist led team is a key part of the Care Home Support programme supported by HCPA, HCC, and ENHCCG quality team. Participating GP practices have indicated their support for this approach, and care homes themselves have flagged this as a priority for development.

Expected outcomes - quality/service improvements

Quality/Safety

- Regular GP & pharmacist clinical medication review of care home patients with high risk of hospital admission.
- Reduce number of prescribing errors or near misses within care homes identified reactively and proactively.
- Improved medicines optimisation and prescribing safety to improve patient outcomes and reduce hospital admissions and medicines waste.(e.g. appropriate bone strengthening
  medicines in patients with osteoporosis)
- Reduced levels of inappropriate prescribing of antipsychotics in people with dementia
- Optimise the use of specials (unlicensed medicines)
- Optimise the prescribing of sip feeds and further implement Hertfordshire recommendations for prescribing sip feeds
- Improved transfer of medicines management arrangements for residents moving between care settings.
- Improved knowledge and understanding by all care home staff on the use and handling of medicines.

Innovation

- This tested model will provide a sustainable, expert resource available to all stakeholders. The model is distinct from the functions already provided by the PMOT. The team will be able to help inform future service developments and redesign.
- There is evidence locally and nationally that pharmacists employed to work within care homes improve the cost-effective use of medicines and improve patient safety.

Productivity

- Improved efficiency in care home medicine management systems, reduced care home staff workload/increase capacity.
- Improve practice within care homes.
- Improved staff efficiency, knowledge and confidence in understanding and taking appropriate actions with regard to medicines and their use.

Prevention

- Improved processes and support with respect to prescribing should reduce the number of prescribing errors or near misses by prescribers.
- Improved medicines optimisation will contribute to improved patient outcomes and a reduction in hospital admissions.
- Targeting patients with high risk of medicines related incidents and addressing the risk will help to reduce the number of medicines related incidents eg reviewing patients prescribed
  drugs strongly linked to increased risk of falls may result in reduction in falls, fractures and hospital admissions.
- Use of antipsychotics in treating dementia has been shown to increase the number of cerebrovascular events; interventions that reduce the use of this drug group will prevent additional cerebrovascular events.
- Improved staff training to reduce the risk of errors in medicines administration to patients in care homes.

Expected outcomes – financial improvements

Evaluation of the care home pilot reported combined realised annualised cost savings of £200,000. As a minimum the team will be expected to deliver sufficient demonstrable savings to cover the costs of the service (see savings for each model set out above). They will include:

- Reduction in inappropriate prescribing spend
- Reduction in spend on specials (unlicensed medicines)
- Reduction in medicines waste (this is more difficult to evaluate)
- Reduction in care home resident hospital admissions
- Reductions in specific prescribing costs from changes to processes
- Reduction in patient falls
- Reduction in number of fractures following falls where bone strengthening medicines are used appropriately and effectively

Outcome Measures and Evaluation

Evaluation of prescribing interventions (using pilot audit tool)
i.e.

- No of Care homes visited
- No of Residents reviewed
- Medicines reviewed
- Interventions
- Interventions actioned
- Medicines stopped
- Antipsychotics prescribed for Behavioural and Psychological Symptoms of Dementia (BPSD)
- Medication errors resolved
- % reduction in medication errors after pharmacist intervention
- Falls: High risk medicines stopped/dose reduced
- Falls: medicines to reduce fracture risk started
- Estimated number of falls prevented
- Medicines initiated to improve safety
- Prescribing costs avoided to date
- Savings a result of falls prevention
- Care home staff and GP feedback and evaluation of the role

RISKS AND MITIGATION	
Risk/Issue	**Mitigation**
Insufficient suitably qualified/trained pharmacists/staff available to undertake role	- If unable to appoint full complement of staff will have phased implementation and targeting of priority care homes.
Lack of engagement from all localities/ practices. - If support is not made available at localities/practices then the benefits will not be realised. - Prescribers and staff need engagement - and commitment to ensure recommendations are actioned.	- Previous GP stakeholders engaged with the pilot project. - Encourage engagement through GP champions and *Care Home Support Programme* GP sponsor.
Savings/benefits not demonstrated. - Contribution of medicines optimisation cost savings/benefits in certain areas cannot be demonstrated easily, i.e. waste reduction, reduced hospital admissions - Reduction in prescribing errors/near misses and improved medicines optimisation / processes - Saving not sustained/opportunities may decrease once work on 'quick win' saving areas completed.	- Prioritise care homes with complex patients to achieve highest impact. - Ensure comprehensive record keeping of interventions and savings made - Explore novel ways of how to record and demonstrate savings - Ensure baseline benchmarking and on-going data collection and audit - Ensure on-going evaluation and development in line with service needs. Planning undertaken to identify future areas for savings opportunities and prioritisation of these - Use of Prescqipp resources and sharing of best practice with other CCG pharmacy - teams e.g. Bedford