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# Role Development: Clinical Pharmacists

## Quality Impact *Evidence Summaries*

Measurable evidence of the impact of policy interventions on quality

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*A rapid evidence review for*  
The Health Foundation

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# Quality Impact *Evidence Summaries*

## Measurable evidence of the impact of policy interventions on quality

### About Quality Impact *Evidence Summaries* (QIES)

Quality Impact *Evidence Summaries* (QIES) present measurable evidence of the impact of policy interventions within the NHS. Distinctively, impact is viewed through the lens of quality, using the Institute of Medicine (IOM) domains of quality as a framework.<sup>1</sup>

QIES began as a series of structured reviews featured in [A Clear Road Ahead](#), a 2016 Health Foundation project delivered in collaboration with Professor Sheila Leatherman, to shape a quality strategy for the NHS.<sup>2</sup> The Health Foundation re-commissioned Research Matters in 2017-18 to develop the structured reviews further, with the aim of exploring the potential to develop a sustainable tool or service to support and promote evidence-based policy and decision making across the NHS in England.

#### *Scope*

QIES focus exclusively on national policy interventions in the English health care sector. Typically, these are centrally developed by the Department of Health, NHS England or other national bodies and rolled out nationally, albeit with local variations in implementation. Some interventions may have initiated at a local or institutional level and been adopted nationally. The time period for both policies reviewed and evidence used is from 1997 onwards.

#### *NHS Taxonomy*

As the scope and volume of relevant policy interventions is significant, a Taxonomy of Policy Interventions for the NHS in England was developed. Policies are grouped into four policy areas - governance, finance, delivery and improvement - split further into focus areas. Groups of policy interventions combine as policy levers, which forms a thematic basis for a series of QIES. Each individual QIES focuses on a single policy intervention as an example of the use of that policy lever. This enables groups of policy interventions which share conceptual or practical similarities to be described alongside each other, allowing for comparison about what works.

For further information, see the separate working paper: *Taxonomy of health care policy interventions for the NHS in England, Working paper for Quality Impact Evidence Summaries (QIES) project*, February 2018.<sup>3</sup>

#### *Impact on quality*

In assessing and presenting the impact on quality of policy interventions, we have used the Institute of Medicine (IOM) framework for the quality of health care.<sup>1</sup> This describes six domains (or aims), across which improvements in quality can occur. These are:

- **Safe:** avoiding harm to patients from the care that is intended to help them.
- **Effective:** decision-making and service provision based on clinical and scientific evidence and knowledge, as well as refraining from providing services to those not likely to benefit (avoiding underuse and misuse, respectively).
- **Patient-centred:** providing care that centres on the patient, respecting and responding to individual patient preferences, needs, and values and ensuring the patient is in control.
- **Timely:** reducing waits and delays for both those who receive and those who give care.
- **Efficient:** providing care that is cost-effective and avoids waste.
- **Equitable:** providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status.

Evidence about a policy intervention is reviewed and findings which show impact against one or more domain of quality form the basis of results gathered and presented in a QIES. Assessments of the level of impact within each domain are made: impact on quality can be positive, uneven and can also be unintended.

### *Methodology*

QIES identify the key and most relevant evidence, only where measurable impact on quality is demonstrated, resulting in a sufficiently secure evidence base for conclusions to be tested and drawn. The approach is time-limited and pragmatic and is not intended to be comprehensive or meet the academic standards of a systematic review.

For each policy intervention, a structured search of published literature is conducted using, key databases, such as NHS Evidence, PubMed and Cochrane Library, as well as relevant sources of grey literature and stakeholder reports. Searching combines database searching, reference scans, looking at recommended studies/authors and targeted desk research. Full texts of reports and studies are obtained and viewed for the majority of studies, but sometimes the abstract provides sufficient information.

A discussion of the evidence used describes the key sources used to produce the QIES, including the number of relevant studies and different evidence types. Results are presented thematically, based on the IOM domains and describe the measurable impact of the policy intervention on aspects of quality of care in the English NHS. This is supported by a summary table with judgements about the strength of the impact for each IOM domain.

### *About Research Matters*

[Research Matters](#) is a small, well-established research company delivering high quality, client-focused research to tight time-scales for clients across many sectors. Our work is bespoke, pragmatic and insight driven and our style is always friendly, flexible and professional.

We have completed a number of rapid evidence reviews for the Health Foundation, as well as developed a methodology for Quality Impact Evidence Summaries and an NHS taxonomy to facilitate a structured approach to producing of evidence reviews. Most recently, we have completed a review on retention in the health and social care workforce.

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## Role Development: Clinical Pharmacists

In this Quality Impact Evidence Summary (QIES), we examine the impact on quality of the Emergency Care Practitioner (ECP) role. This policy intervention sits within the policy lever of Role Development within the NHS Taxonomy.

### NHS Taxonomy: Positioning of Policy Intervention

| Policy area              | Policy focus        | National policy levers  |
|--------------------------|---------------------|---|
| Governance               |                     |   |
| Finance                  |                     |   |
| Delivery                 | Service provision   |   |
|                          | Workforce strategy  | Workforce planning  |
|                          |                     | <b>Role development</b><br><i>Adjustments to NHS roles, including developing existing roles, task shifting and creating new roles</i> |
|                          |                     | Team-based-working and collaboration  |
|                          | Patient involvement |   |
| Public health programmes |                     |   |
| Improvement              |                     |   |

Related evidence summaries within the policy lever of role development are: Emergency Care Practitioners, Modern Matrons, Community Matrons, Physician Associates and Clinical Nurse Specialists.

### Description of intervention

#### Role description

Pharmacists are working more directly with patients to improve prescribing and medication adherence across the range of healthcare settings in the NHS in England, including hospitals, mental health, outreach teams, care homes and hospices, as well as in community pharmacies. In this review, the specific focus is on the expansion of the role of clinical pharmacist in general practice settings.

Employment models, roles and responsibilities of clinical pharmacists in general practice vary. Typically, they work as part of the general practice team to address day-to-day medicine issues, consult with and treat patients directly. The range of tasks undertaken includes: monitoring repeat prescriptions, conducting medication reviews, helping patients on new medicines, providing support for patients in care homes and developing practice prescribing policies. They may also support GPs by highlighting where, for example, NICE guidelines have changed or supporting the practice to deliver on the QIPP and QOF agenda or other enhanced services.

Under the NHS England pilot programme (described below), national job descriptions and person specifications have been agreed by all relevant professional bodies (NHS England, RCGP, BMA GPC, HEE and RPS).

#### Policy context and implementation

Initially, clinical pharmacists were recruited by individual GP practices or contracted by clinical commissioning groups to improve medicines optimisation and then to provide patient facing, clinical pharmacy services. Recognising the

improvements achieved, the Royal Pharmaceutical Society and NHS Alliance successfully made the case for pharmacists working more closely with GPs in late 2014.<sup>4</sup>

In January 2015, NHS England released *Building a Workforce – A New Deal for General Practice*, which included an agreement to invest in pilots to trial the potential of clinical pharmacists to address workforce issues in general practice.<sup>5</sup> As a result, a large scale, three-year national pilot to fund, recruit and employ clinical pharmacists in GP practices began in July 2015, led by NHS England. Initially, £31m of funding was made available to support more than 450 clinical pharmacists in 650 practices across 90 pilot sites. Subsequently, the *General Practice Forward View*, (NHS England, April 2016), consolidated this with a commitment to deliver an additional 1,500 clinical pharmacists in general practice by 2020/21 (based on 1 WTE pharmacist for every 30,000 people in England).<sup>6</sup> This also committed a further £112 million to extend the pilot. By January 2018, there were 580 clinical pharmacists recruited.<sup>7</sup>

Implementation of the pilots is fully supported by NHS England, Health Education England, the Royal Pharmaceutical Society, the Royal College of General Practitioners and the British Medical Association. As well as funding, implementation is supported by training, education and development of clinical pharmacists, and also the development of practices employing clinical pharmacists. There is clear guidance and resources for recruitment, employment and supervision, and also materials to help promote the role with patients.

### *Funding*

NHS England co-funding is available to participating GP practices to cover the costs of recruitment, employment, training and development of clinical pharmacists and the development of participating practices. Funding is set at £60,000 for a Clinical Pharmacists, £73,000 for a Senior Clinical Pharmacists and is spread over three years, covering 60% of costs for the first year of employment, decreasing to 40% and 20% in years two and three. A condition is that GP practices must be able to demonstrate the ability and commitment to sustain posts and funding throughout the programme and beyond.

### **Discussion of evidence**

15 relevant studies were identified and reviewed as reporting directly on impact on quality, including four case studies. Aside from two older studies (1999 and 2001), evaluations were published from 2011, with a flurry at the end of 2017.

Most studies evaluated specific tasks or interventions delivered by a clinical pharmacist in a GP setting. Four studies focused on medication reviews, including three randomised controlled trials (RCT)<sup>8-10</sup> and one patient survey.<sup>11</sup> Two related studies evaluated a specific pharmacist-led IT-based intervention for reducing clinically important errors in medication management in general practice (PINCER) which aimed to identify and correct prescribing errors in general practices. These included a cluster RCT published in *The Lancet* and an economic analysis of cost-effectiveness.<sup>12,13</sup> A further controlled trial measured impact on prescribing costs, although this was quite old (1999).<sup>14</sup>

Evaluations of services as a whole were less evident and small-scale. These included a 2017 evaluation of practices across one CCG (Dudley CCG);<sup>15</sup> a small, 2013 patient survey<sup>16</sup> and a 2017 GP survey commissioned by Pharmacy UK (unpublished, awaiting peer review).<sup>17</sup> In addition, the Nuffield Trust and NHS England have published a small number of case studies which report some quantifiable measures. A further 2010 study for the Department of Health (DoH) Policy Research Programme had some relevant conclusions about independent prescribers.<sup>18</sup>

Importantly, two key evaluations are underway. NHS England is expected to conduct an external evaluation of the national pilot to report evidence of the benefits of clinical pharmacists in general practice. Each practice can choose at least six measurable indicators, either self-selected or from a range of indicators that span the domains of quality. Participating GP practices are required to monitor and report findings to NHS England quarterly.

There is also ongoing interest in the PINCER intervention. The Health Foundation has supported expansion of the through the Scaling Up Improvement programme,<sup>19</sup> resulting in roll out of PINCER to at least 362 GP practices across

12 CCGs in the East Midlands. The PINCER team has subsequently received an NIHR grant for a more detailed evaluation to see whether PINCER leads to reduced hospital admission and death.<sup>20</sup>

Excluded from the evidence reviewed here was a 2014 systematic review on the effectiveness of clinical pharmacists in general practice. Only a small number of relevant UK studies were identified and are included separately in this review. The review found that pharmacists deliver a range of interventions in general practice, and these services often have beneficial impacts on outcomes in chronic diseases, principally in diabetes and cardiovascular disease, and in improving the quality of medication management services.<sup>21</sup>

### *Gaps in the evidence*

Robust assessments have been relatively small scale and focused on specific interventions rather than broader or longer-term impact on patient outcomes, such as hospital admissions. One study suggested evaluating the impact of medication reviews on patient outcomes, given the volumes in which they are conducted.<sup>15</sup> However, discussions of the PINCER trial make the case for focusing on measurement of errors rather than adverse events for assessment of quality, as the former are more directly influenced by actions of health-care professionals.<sup>12</sup>

Studies evaluating cost-effectiveness were disparate in their focus and although powerful, were relatively small scale. A more rigorous economic analysis would address this, but since all implementations were delivered in variable settings, this may be less valuable than other evaluations.

The evidence reviewed included a small amount of qualitative evidence from patient surveys and one unpublished (currently being peer-reviewed) survey of GPs. Further qualitative evaluations to capture views of patients, GPs and clinical pharmacists would support the evidence identified here and in the NHS England pilots and provide a more complete view of impact across all six domains of quality, as well as identifying potential areas of improvement in terms of effectiveness.

### *Strength of evidence*

Although the use of clinical pharmacists in GP settings is a current policy thrust and an area of significant investment and support, it is relatively new and evolving role. As a result, the evidence base for the impact of clinical pharmacists is still emerging, with little published, robust evidence so far and only a few evaluations of pre-pilot sites and settings. The NHS England pilot will address this in part, but more evaluations of impact on outcomes and a broader qualitative view would contribute to a more solid evidence base. Across the available evidence, there was positive feedback and evidence of impact, but few generalizable results and an overall lack of secure evidence feeding into policy decisions.

### **Impact on quality**

Across the emerging evidence regarding clinical pharmacists in general practice, the main impact was seen within the domains of effectiveness and efficiency, with improvements in medication managements, notable gains from transferring GP workload to pharmacists and some initial striking evidence on cost-effectiveness. Some impact was noted in safety and patient-centredness, but no impact was seen in timeliness and equity. Clinical pharmacists were found to be as safe and as effective as the GP care they are substituting.

### *Safety*

Reducing medical errors and improving safety was not a strong focus within the evidence seen, although it was confirmed in a broader study for the DoH that nurse and pharmacist prescribing is safe,<sup>18</sup> a view reflected in individual case studies.<sup>16,22,23</sup> A qualitative survey of 14 GPs showed that GPs thought pharmacists could improve patient safety and particularly, the safety of prescribing.<sup>17</sup>

A series of evaluations assessed the impact of a specific pharmacist-led information technology intervention (PINCER) in general practice which identifies and corrects important and common prescribing errors. A cluster RCT showed that PINCER reduced rates of specific prescribing errors by up to 50%, with additional qualitative work

confirming that these findings were generalizable.<sup>12</sup> Although IT based, the intervention needs to be pharmacist-led to realise the benefits. This is the only safety-focused implication seen.

### *Effectiveness*

Clinical pharmacists operating in general practices were seen to be effective and to deliver interventions that were clinically appropriate.<sup>8,15,18,23</sup> Two evaluations suggested that patients agree with this, with one showing that patients valued a 'pharmacist' service as an alternative to a GP, and a second finding that 94% of patients felt their medication needs were addressed by consultations with clinical pharmacists.<sup>11,16</sup>

A few studies were able to demonstrate improvements in prescribing and medicines optimisation. A GP survey identified areas where pharmacists were thought to be more effective than GPs, including managing complex medication regimes, keeping up to date with treatment protocols and clinical guidelines and providing in-depth knowledge of medications.<sup>17</sup> In a case study of a large GP practice group described by the Nuffield Trust, quicker, more reliable prescribing and reduced polypharmacy were identified as improvements, whilst another study showed "*modest improvements in prescribing of disease-modifying medications.*"<sup>9,22</sup> It was reported that the NHS England pilots had seen improved screenings and diagnosis of chronic and common ailments, but this was not in the public domain.<sup>24</sup>

A few studies touched on the impact on outcomes. One exploratory RCT examined patient reported clinical outcomes and could attribute improved Chronic Pain Grade scoring to a pharmacist prescriber.<sup>10</sup> An analysis of the cost-effectiveness of the PINCER intervention was able to identify a marginal health gain, of 0.81 quality-adjusted life years (QALY) per practice (this was a deterministic analysis: a probabilistic analysis showed less, 0.001 QALY per practice).<sup>13</sup> But another study, identified improvements in prescribing but was unable to link these with clinical outcomes.<sup>9</sup> Lack of evidence about the overall impact on outcomes is identified as an area for further work.<sup>15</sup>

### *Efficiency*

Reductions in GP workloads was a common area of impact seen across specific settings and referred to in case studies, but this had not been measured at a system level. In different case studies, we saw specific examples: a pharmacist spent 35 hours a week to cover work that took 60 hours a week of GP time;<sup>22</sup> a practise could point to a 30% reduction in the need for GP appointments;<sup>23</sup> and a significant reduction in GP appointments was seen in the six months following a pilot.<sup>25</sup> These examples were associated with net savings.<sup>22,25</sup> NHS England has reported on a broader 2016/17 audit of workload impact which showed a pharmacist working four sessions a week resulted in over 400 hours of GP time saved over one year, but this is not published.<sup>26</sup>

Surveys carried out so far imply that patients and GPs see the value of transferring activities. One survey of patient preferences across five GP practices suggested that 16% of GP consultations could be switched to a prescribing pharmacist<sup>16</sup> and a survey of GPs supports the view that pharmacists will "*relieve workload pressure and importantly free up time to enable GPs to do more appropriate work.*"<sup>17</sup>

Some studies highlighted efficiency gains and savings from the interventions made by a clinical pharmacist. Two RCTs suggested that pharmacists' review of medication was effective at controlling prescribing expenditure in a practice setting.<sup>8,14</sup> The PINCER study also proved the cost effectiveness and value of pharmacists, as long as the right prescribing errors are targeted.<sup>12</sup> Other case studies highlighted more cost-effective prescribing,<sup>23</sup> including the Haxby Group practises which saw savings in discrete areas which were judged to be scalable.<sup>25</sup> Early NHS England pilot feedback also suggested a reduction on medicines overuse and wastage.<sup>24</sup>

A study of the impact of 5.4 FTE clinical pharmacists in a GP practices across a single Clinical Commissioning Group (Dudley CCG) during a nine-month period showed that significant financial savings could be achieved, through a combination of specific interventions and transference of activity from high cost GPs to lower cost pharmacists. During the period, the pharmacists identified 23,172 efficiency interventions, 95% of which were implemented and saved over £1 million. Savings attributed to the transfer of activities from GPs were measured for a four month period, during which 628 GP appointments and an additional 647 GP hours currently spent on medication reviews

and repeat prescribing were saved. The study extrapolated that for every £1 invested in clinical pharmacist provision, savings of £4.73 could be realised and that across their CCG, this amounted to £1.5 million in one year.<sup>15</sup>

Impact on use of other NHS resources is not addressed so far, and while an early RCT (2001) saw no impact on outpatient consultations or hospital admissions,<sup>8</sup> reports from the current NHS England pilot do imply a possible reduction in A&E attendances and admissions.<sup>24</sup> More detail on this is expected in the analysis of the pilot.

#### *Patient-centred*

Although not addressed directly, a patient-centred approach was described in recent case studies, including roles for clinical pharmacists in supporting patient education, self-management, self-care and giving patients confidence and information.<sup>22,23</sup> A recent patient survey highlighted overall patient satisfaction, appreciation of the personal approach and noted *“increased confidence and knowledge of medication”* for some patients.<sup>11</sup>

#### *Other impacts*

No impact on timeliness or equity were seen in the evaluations identified, although the NHS England pilots have reportedly seen reductions in waiting times and improved access to healthcare.<sup>24</sup>

Studies acknowledged acceptance and support from patients and GPs of the clinical pharmacist role,<sup>11,16,17</sup> and furthermore, showed that patients made a positive link with the potential policy implications: one study concluded that a *“pharmacist service is valued by patients as an alternative to doctor prescribing in primary care and therefore represents an acceptable form of service delivery when informing policy”*, whilst another asserted that patient feedback *“supports a shift towards employing clinical pharmacists within GP practices.”*<sup>11</sup>

#### *In summary....*

- Clinical pharmacists were as safe and effective as GPs carrying out the same tasks, and were accepted and valued by patients and GPs in doing so.
- The introduction of the new clinical pharmacist role in GP settings was well supported by NHS England and other professional bodies, and as a result, few issues with implementation were evident so far.
- The policy focus on clinical pharmacists aimed to address workforce issues for GPs. Although there is not yet a strong evidence base to quantify and support impact here, indications were that this was being achieved and that other benefits were being realised, with an overall positive impact in GP settings. Some of the efficiencies identified were significant and impressive, including reductions in GP workload and overall cost-savings.
- The NHS England pilot evaluation will contribute to the evidence base, but there is also a need for more robust evaluations of impact on patient outcomes, analysis of cost-effectiveness, and views of relevant stakeholders.

## Summary of evidence of impact on quality: Clinical pharmacists in general practice

| Domains of quality   | Impact  |
|----------------------|---|
| Safe                 | <ul style="list-style-type: none"> <li>• Judged as safe, but no significant focus on improving safety</li> <li>• One pharmacist-led intervention reduced rates of specific prescribing errors by 50%</li> </ul>   |
| Effective            | <ul style="list-style-type: none"> <li>• Judged to be effective and clinically appropriate</li> <li>• Some evidence of improved medications management</li> <li>• Two studies able to link with marginal improvements on patient outcomes, but lack of clear evidence in this area</li> </ul> |
| Efficient            | <ul style="list-style-type: none"> <li>• Compelling evidence of reduced GP workload and positive impact on overall cost-effectiveness, but in specific settings</li> </ul>  |
| Patient-centred      | <ul style="list-style-type: none"> <li>• Patient satisfaction was noted</li> <li>• Suggestions of patient-centred improvements, but not measured</li> </ul>   |
| Timely               | <ul style="list-style-type: none"> <li>• No evidence seen</li> </ul>  |
| Equity               | <ul style="list-style-type: none"> <li>• No evidence seen</li> </ul>  |
| Strength of evidence | <ul style="list-style-type: none"> <li>• Little published, robust evidence but positive findings in early evaluations</li> <li>• Full pilot underway and awaiting evaluations</li> <li>• Evidence reviewed drawn from 15 studies</li> </ul>   |
| Funding              | <ul style="list-style-type: none"> <li>• Co-funded at GP practice level for three years by NHS England as part of pilot evaluation</li> <li>• £143 million funding for pilot</li> </ul>   |

|   |               |   |                          |  |              |
|---|---------------|---|--------------------------|--|--------------|
|  | Strong impact |  | Some impact              |  | Mixed impact |
|  | No impact     |  | Possible negative impact |  | No evidence  |

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