

# Transforming outpatient services

Rapid review

# Overview

In England there are more than 110 million outpatient appointments every year and this number has been growing rapidly over time. Many Sustainability and Transformation Partnerships across England have ambitious targets to transform care and reduce costs by decreasing outpatient activity. Some authors have argued that reducing outpatient activity does not reduce costs,<sup>1</sup> but changing the way outpatient services are accessed and used may be a component of ensuring more integrated care aligned to people's needs.

Eastern Academic Health Science Network undertook a rapid review to explore themes in research about transforming outpatient services. The focus was on using digital technologies instead of in-person visits, patient-initiated appointments rather than routinely scheduled appointments and group appointments rather than individual appointments. However research about ways to transform outpatient pathways was also briefly summarised to put these initiatives in context.

The aim of the review was to identify the potential impacts of selected changes to outpatient services and to signpost readers to examples of relevant research. The review did not aim to be exhaustive or to quantify impacts.

To identify relevant research, two reviewers independently searched seven bibliographic databases for studies published up until November 2018: the Cochrane Library, Embase, Health Management Information Consortium, Medline/Pubmed, PsycINFO, ScienceDirect and Web of Science. Search terms included combinations of outpatient, ambulatory, shared medical appointment, group appointment, digital, telehealth, e-consult, patient-initiated, direct access and similar. Studies were eligible for inclusion if they were published in English, were conducted in developed countries and focused on the impact of transforming outpatient care, particularly one of the three priority topic areas.

Only a selection of available studies were included in the review. The searches identified more than 1,000 potentially relevant studies, based on title and abstract review. One hundred of these were selected for inclusion in the review, based on their ability to illustrate the range of small and large studies of different types available and the variety of outcomes included.

# Transformation approaches

Studies exploring ways to transform outpatient care broadly examined either alternatives to providing traditional outpatient services or strategies to improve the efficiency of existing services. Some brief information about various strategies is provided below as context to show where group appointments, patient-initiated appointments and digital appointments sit amongst other interventions to transform outpatient pathways.

## Alternatives to traditional outpatient services

Strategies focused on alternatives to traditional outpatient appointments include:<sup>2</sup>

- *changing professional behaviour*: interventions to change the referral behaviour of primary care clinicians
- *transferring services*: substituting services delivered by hospital clinicians for services delivered by primary care clinicians
- *relocating services*: shifting the venue of outpatient care to primary care without changing the people who deliver the service, including using telephone, video or email consultations<sup>3</sup>
- *liaison*: joint working between hospital and primary care teams

Research generally suggests that substituting hospital outpatient appointments for primary care services and strategies focused on professional behaviour change may both reduce demand for outpatient appointments, but relocation and liaison have mixed impacts.

Transferring services may include discharging patients from hospital care with i) no follow-up; ii) patient-initiated outpatient follow-up; or iii) general practice follow-up as an alternative to routine follow-up in hospital outpatient clinics. Other approaches include GPs with special interests acting as substitutes for outpatient hospital specialists and transferring care for common long-term conditions from hospital to primary care.

Relocating outpatient services to primary care has been found to improve access for patients, particularly those in communities with poor access to secondary care services such as remote rural areas. However relocating outpatient services to primary care in well-served communities was associated with reduced outpatient effectiveness and efficiency. A Cochrane systematic review examined the cost and benefits of offering 'outreach clinics' for outpatient services in locations outside hospital. The locations included i) outpatient clinics in urban primary care settings instead of hospital departments; ii) outpatient clinics in rural community primary health centres or hospitals where there was no resident specialist; and iii) sub-specialist clinics in major regional centres where there was only a resident 'general' specialist service. Outreach clinics were found to improve communication between GPs and hospital specialists and improve patient access. However they were associated with increased costs and were a less efficient use of specialists' time. Relocating outpatient clinics to urban non-disadvantaged settings did not provide any significant benefit in health improvement or the effectiveness of healthcare delivery.<sup>4</sup>

Accessing appointments using digital technologies is in effect another way of relocating outpatient services – services are offered to people in their own homes rather than needing to visit an outpatient clinic, but the services are provided by similar staff as would offer them in person. Telephone and video conference appointments have gained popularity in recent years and much research has tested their feasibility (as described in more detail later).<sup>5</sup>

A review of 185 articles found that email outpatient consultations had the potential to save clinical time and increase access for people in remote areas. However much of the literature was descriptive or anecdotal. Electronic consultations tended to supplement rather than replace face-to-face consultations, but one study suggested that the number of people needing to be seen in outpatient clinics could be reduced by 25% to 75% by reviewing diagnostic tests and identifying which results were negative or could easily be managed in primary care.<sup>6</sup>

A review of studies about the impact of telehealth on waiting times or waiting lists for outpatient services found that most research focused on electronic consultations and image-based triage. Electronic consultations were defined as asynchronous, text-based clinician-to-clinician consultations. These have been found to reduce the need for face-to-face appointments between a patient and an outpatient specialist by 34% to 92%. However, such consultations may be appropriate in less than 10% of referrals for outpatient care. Image-based triage has been used to reduce unnecessary or inappropriate referrals. Most research about this is in dermatology, ophthalmology and otolaryngology (ear, nose and throat medicine). Reduction in the rates of face-to-face appointments ranged from 38% to 88% in dermatology, 16 to 48% in ophthalmology and 89% in ear, nose and throat medicine. The reviewers reported that image-based triage can be twice as effective as non-image based triage in reducing unnecessary outpatient appointments. They concluded that digital interventions can effectively reduce waiting lists and improve the coordination of outpatient services.<sup>7</sup>

Other strategies have mixed effects. For instance, attaching hospital specialists to primary care teams has been found to reduce outpatient attendance for physiotherapy, but not usually other specialities. Similarly, joint working between primary and secondary care clinicians may improve the quality of care, but research suggests this may have little impact on outpatient attendance.<sup>8</sup>

A review of over 200 studies concluded:

*“There are a number of promising interventions which may improve the effectiveness and efficiency of outpatient services, including making it easier for primary care clinicians and specialists to discuss patients by email or phone. There remain substantial gaps in the evidence, particularly on cost-effectiveness, and new interventions should continue to be evaluated as they are implemented more widely.”<sup>9</sup>*

## Improving the efficiency of existing outpatient services

Examples of improving the efficiency of existing outpatient services include ways to minimise missed appointments, changing how time is used within appointments and streamlining pathways for referral, tests and treatments. Approaches include:

- computer modelling and simulation to improve workflow or match supply and demand<sup>10,11,12,13</sup>
- Lean Six Sigma improvement methodologies to promote efficient working<sup>14,15</sup>
- telephone and text message reminders to reduce missed appointments<sup>16</sup>
- sending letters or information packs to encourage attendance at appointments<sup>17</sup>
- follow-up by text message to decide who needs an appointment
- changes to appointment booking systems<sup>18,19</sup>
- seeing people in groups rather than individually
- reviewing people's records rather than seeing them in person, or having electronic consultation between clinicians<sup>20</sup>
- triage services to decide who needs an appointment or to decide who is seen first<sup>21,22,23</sup>

Examples of some of these approaches are briefly described.

A systematic review of 29 studies found that telephone and text message reminders reduced 'did not attend' rates for hospital appointments. The median reduction in did not attend rates was 34%. Automated telephone reminders were less effective than telephone calls made manually by team members (relative change from baseline of 29% versus 39%).<sup>24</sup>

In Ireland, 55 people received text messages two-weeks after being discharged from hospital following surgery. Patients who replied that they were feeling well received no further follow-up. If there was no reply after two attempts, patients were scheduled for the next outpatient clinic. Team members carried the mobile phone so patients in the study could contact them if they had any queries. Over a four-month period, 75% of patients were discharged from follow-up using text message surveillance. This was associated with a 14% decrease in outpatient visits. Allowing patients to telephone the surgical team directly avoided six accident and emergency department visits.<sup>25</sup>

A diabetes outpatient clinic in England sent patients an information pack two weeks in advance of their appointment describing when and where to go, where to park, what to bring, who they would see and what to expect. One week before the appointment they received a telephone call. Analysis of before and after data found that the did not attend rate reduced from 15% to 5%. The non-attendance rate was 7% in people sent a pack but not telephoned and 1% in those sent a pack plus telephoned.<sup>26</sup>

An example of a change in outpatient booking systems comes from Wales. An orthopaedic department required patients to telephone to make an outpatient appointment rather than automatically receiving a date through the post. Patients received a letter asking them to make a booking. If there was no reply after 10 days, a second letter was sent and followed by a telephone call after another seven days. The patient was then either allocated an appointment or removed from the waiting list. Analysis of data before and after the system was introduced found the outpatient non-attendance rate reduced from 18% to 4%.<sup>27</sup>

In the US, a new scheduling system reduced waiting times for outpatient appointments from more than four months to less than three weeks. Instead of patients requesting appointments and being booked in, with overbooking to minimise the effects of cancellation, appointments became available each Monday at 8.30am and were filled on a first come, first served basis. Once these were filled, patients were asked to call back the following Monday. Those who did not receive an appointment after calling three times were scheduled in. Non-attendance reduced from 64% to 31% at 18 months ( $p < 0.0001$ ).<sup>28</sup>

Another approach to improve the efficiency of outpatient clinics involves appointments where people are seen in groups rather than individually (these and are described in more detail later).<sup>29</sup>

Another strategy is 'paper clinics' or 'virtual clinics', where clinicians review cases without patients being present. For instance a UK study found that the number of follow-up outpatient appointments for people with colorectal cancer could be reduced using this approach. People who underwent diagnostic tests were not automatically given outpatient appointments. Instead, at frequent 'paper clinic' sessions, the surgical team reviewed test results and patient records, decided on a treatment plan and informed patients and their GPs by letter. Some people were deemed to require in-person follow-up, but others did not.<sup>30</sup>

A similar study sought to reduce the number of people needing outpatient appointments by actively pre-assessing patient notes and ordering tests before scheduled outpatient visits. All patient notes were reviewed by a senior clinician two weeks before the outpatient clinic and a brief written management plan was made. This meant that investigations could be ordered in advance and clinic visits cancelled if unnecessary, or postponed if the required investigation would not be available in time. During a six month period, 768 patients were scheduled for review at the medical outpatient department. Following pre-screening, review was only needed in 458 cases. Weekly clinic attendance fell by 40% (from 33 to 19 patients,  $p < 0.05$ ). This meant that urgent referrals could be seen in the same week whilst maintaining low waiting times for routine referrals.<sup>31</sup>

A hospital in Scotland redesigned outpatient management of trauma to eliminate appointments if there would be no change in management or information provision. All cases referred by the accident and emergency department were reviewed in absentia at a 'virtual clinic' by an orthopaedic consultant and patients were telephoned afterwards by a senior nurse. Face-to-face review was arranged if required. Review of 138 patients over a one-year period found that 45% could be directly discharged without a physical outpatient appointment.<sup>32</sup>

In England, virtual fracture clinics were found to be a feasible alternative to conventional fracture outpatient appointments for managing certain musculoskeletal injuries. Over a 21-month period, a District General Hospital setting was able to allocate up to 56% of new patients to a virtual clinic.<sup>33</sup>

An outpatient dermatology service in England combined a number of approaches to reduce waiting times for outpatient appointments. These included checking whether people on the waiting list for more than six months still needed an appointment, rewording the appointment letter to emphasise the need to cancel unwanted appointments, not sending second appointments to patients who failed to attend, extending the role of support workers to undertake more clinical activities thus releasing other staff for more complex cases, agreeing referral exclusions with commissioners and GPs for things that were treatable in primary care, setting up a weekly screening clinic, setting up nurse-led services and providing education for primary care teams. Over a two year period the maximum waiting time for new outpatient dermatology appointments reduced from 57 weeks to 13 weeks.<sup>34</sup>

These examples show that a wide variety of initiatives have been tested to transform outpatient services, situating digital appointments, patient-initiated appointments and group appointments within this broader context. The review now turns to exploring research about each of these three focus areas briefly in turn.

# Digital appointments

## Feasibility

Research has explored the value of using telephone and video appointments as a substitute for in-person outpatient appointments. Studies have found that this approach is feasible for a variety of conditions, including mental health,<sup>35,36,37,38</sup> cancer, recovery after surgery,<sup>39</sup> orthopaedics,<sup>40</sup> physiotherapy, neurology<sup>41</sup> and palliative care. Digital appointments have been tested with children and adults.<sup>42</sup>

In Ireland, a randomised trial examined whether video conferencing outpatient appointments were an acceptable alternative to a standard outpatient appointment for general surgical patients following discharge from hospital. Two-hundred and nine people took part. Few people reported any ongoing issues requiring follow-up and the proportions were similar between groups. 95% of people with a video appointment were very happy with their experience compared with 56% in the traditional appointment group ( $p < 0.001$ ). The researchers concluded that most people discharged from a surgical service could be followed up in this manner.<sup>43</sup>

Another study in Ireland assigned 79 people to be followed up by telephone after low-risk endoscopy as an alternative to attendance at an outpatient department. A total of 85% were successfully followed up by telephone consultation and 11% were contacted by mail. The remaining 4% were seen at an in person appointment. Overall patients were satisfied with telephone outpatient follow-up.<sup>44</sup>

A pharmacist-run teleoncology service was used to monitor chemotherapy-induced nausea and vomiting as an alternative to outpatient appointments. Symptoms were monitored via text message for five days after chemotherapy. 73% of patients continued for the duration of follow-up and 62% said the text message advice was useful. The researchers concluded that a pharmacist-run teleoncology service for real-time monitoring of symptoms is a feasible alternative to outpatient appointments.<sup>45</sup>

## Outpatient service use

Most studies show positive trends when examining the efficiency or cost of digital appointments compared to standard face-to-face appointments, suggesting that one third to half of outpatient appointments for many specialities could be replaced by digital consultations.

An audit of outpatient clinic attendances at a dental hospital in Wales found that 30% of patients failed to attend in-person appointments after minor operations. The hospital therefore tested giving patients a telephone appointment with a nurse two weeks after their minor operation, instead of an appointment at the outpatient clinic. During the first year, 1020 patients were booked for telephone review. 66% of these were discharged after telephone review with no further action needed, 24% were not contactable and 10% were asked to attend an outpatient appointment due to reported complications. Staff costs per patient were £3 for telephone review and £24 for in-person review. Telephone review resulted in a significant reduction in the number of people who failed to attend the clinic (odds ratio 0.88, 95% CI 0.81 to 0.96). The researchers concluded that telephone appointments provide cost-effective care with reduced rates of outpatient non-attendance.<sup>46</sup>

A hospital in England used optional telephone review for certain ear, nose and throat outpatients to reduce the need for in-person attendance. Half of the telephone follow-up patients (48%) were discharged over the phone, without needing an in-person appointment. There was a direct saving of about £30 per patient having a telephone follow-up.<sup>47</sup>

A hospital in Ireland implemented virtual urology appointments for routine follow-up of 385 people. Digital clinics prevented 217 in-person outpatient visits and saved 17,360 euro. The researchers suggested that this model is a safe and cost-effective alternative to general outpatient reviews in appropriately selected patients.<sup>48</sup>

In the Netherlands, 210 children with asthma took part in a 16-month trial comparing routine outpatient visits every four months versus online care (outpatient visits every eight months with monthly web-based monitoring). Online care was associated with improved symptom control. There were no differences in asthma exacerbations, unscheduled outpatient visits or hospital admissions. The researchers concluded that routine outpatient visits can be partially replaced by monitoring children with asthma online.<sup>49</sup>

A hospital in Australia compared the annual cost of providing ear, nose and throat outpatient follow-up appointments to children via video conferencing versus face-to-face clinic visits. The average cost of video conferencing was A\$108 Australian dollars per consultation compared with A\$155 per in-person consultation. Telemedicine was cheaper when the workload exceeded 100 consultations per year. If all ear, nose and throat outpatient follow-ups in this hospital were conducted using video conferencing, the cost-savings would be A\$7,621 per annum.<sup>50</sup>

## Other impacts

A number of studies have explored whether digital appointments are associated with cost savings. Whilst a number of trends are positive, this is not always the case.<sup>51</sup> A study in England and Wales compared the cost of joint teleconsultations for patients and their GPs with a hospital specialist versus traditional outpatient appointments. Based on data from 2,094 participants in a randomised trial, overall six-month costs were greater for the teleconsultations (£724 per patient) than for conventional outpatient appointments (£625).<sup>52</sup> Teleconsultation was associated with reduced costs for patients, improved patient satisfaction and reduced ordering of tests and investigations.<sup>53</sup>

In the US, video conferencing was offered for 15 people recovering from surgery for cancer. In addition to routine follow-up, patients participated in two scheduled and an unlimited number of unscheduled video conferences using mobile hardware and secure software. 80% of patients thought their postoperative care was enhanced by video conferences. On a per patient basis, the video conference pathway was estimated to take 36 minutes longer and to have a direct labour cost US\$39 greater than the standard pathway. The researchers concluded that it is feasible to use video conferences for outpatient follow-up, but that this may not always be the most cost-effective approach.<sup>54</sup>

On the other hand, 55 US men who underwent surgery for prostate cancer were randomised to receive video conference outpatient appointments or in-person appointments. Video and in-person appointments took the same amount of clinician time. There were no significant differences in patient perceptions of confidentiality, education quality or overall satisfaction. Video appointments were associated with lower costs for patients, including money spent on travel and missed work.<sup>55</sup>

Another US study estimated travel-related and environmental savings resulting from the use of telemedicine for outpatient specialty consultations. Routinely collected data were analysed for 19,246 consultations over a 17 year period. The average savings per telemedicine outpatient appointment was 278 miles round-trip distance, 245 minutes in travel time and US\$156 in cost savings. Telemedicine consultations also resulted in total emissions savings.<sup>56</sup>

In Australia, a hospital provided palliative care appointments for children via video conference. An analysis of the costs of 95 video appointments found these averaged A\$294 Australian dollars compared with A\$748 for face-to face outpatient appointments in hospital or A\$1,214 for face-to-face appointments in people's homes.<sup>57</sup>

Prisoners are a specific population that require complex travel arrangements for outpatient medical appointments. A study in Australia estimated the cost of transporting prisoners from 11 correctional facilities to a secure treatment centre versus substituting face-to-face visits with telehealth consultations. The services included both outpatient appointments and primary care. Over a one year period, it was estimated that telehealth could save up to \$969,731 Australian dollars as well as providing more timely services to a traditionally underserved group. The calculations took into account fuel and vehicle costs, staff wages, per diem rates and accommodation.<sup>58</sup>

A Cochrane systematic review assessed the safety and efficacy of conducting asthma check-ups remotely versus usual face-to-face consultations (whether outpatients or primary care). Six randomised trials were included and data from four studies with 792 participants were pooled. Remote and face-to-face appointments were associated with similar levels of asthma control and quality of life.<sup>59</sup>

Another Cochrane systematic review examined people with asthma using telephone and internet technologies to measure lung function and asthma symptoms at home, sharing this information electronically with health professionals to gain feedback between clinic visits. The review included 18 studies, 12 in adults, five in children and one including both children and adults. The interventions included a variety of technologies to record and share symptoms such as text messaging, online systems and telephone calls. Telemonitoring with feedback from a professional did not seem to improve asthma symptom control or reduce the likelihood of an A&E visit or hospital admission.<sup>60</sup>

In Spain, researchers compared a two-week interactive telerehabilitation system to conventional outpatient physiotherapy for 142 people who had knee surgery. The randomised trial found that the telerehabilitation group achieved similar functional improvements to those in the conventional outpatient therapy group.<sup>61</sup>

Researchers in Denmark randomised 401 people with diabetic foot ulcers to receive cycles of either two telemedicine monitoring consultations in their own home plus one consultation at the outpatient clinic versus usual care comprising three outpatient clinic visits. Telemedicine monitoring was associated with similar wound healing and amputation to usual outpatient care, but higher mortality. The researchers concluded that further studies are needed to investigate patient subgroups that may have poorer outcomes through telemedical monitoring.<sup>62</sup>

# Patient-initiated appointments

Another strategy is encouraging patients to seek outpatient appointments when they feel they need them, rather than routinely scheduled outpatient follow-ups at a pre-set interval. With patient-initiated appointments, patients sometimes receive education or leaflets about warning signs or triggers for scheduling an appointment when they feel they need one.

## Outpatient service use

A systematic review identified six studies of patient-initiated outpatient follow-up. The studies found no negative clinical impact. There was increased satisfaction and quality of life and lower health service costs. The reviewers concluded that patient-initiated care may lead to fewer overall outpatient appointments whilst maintaining equivalent if not better patient satisfaction, quality of life and clinical outcomes across a range of long-term conditions.<sup>63</sup>

Another systematic review included eight UK studies comparing patient-initiated clinics with traditional consultant-led clinics in secondary care for people with long-term or recurrent diseases. There were few significant differences in clinical outcomes between groups. In some studies, patient-initiated appointments were associated with savings in time and resource use. There was little risk of harm from the patient-initiated model but the reviewers suggested that studies with longer follow-up periods were needed to assess ongoing risks and long-term costs.<sup>64</sup>

In England, two cohorts of people curatively treated for colorectal cancer were compared: those offered patient-initiated follow-up and those offered traditional outpatient follow-up. Over a one-year period, patient-initiated care was associated with higher health service costs due to the provision of a self-management programme and remote surveillance.<sup>65</sup>

In England a randomised trial examined patient-initiated outpatient follow-up of people with rheumatoid arthritis compared to patients receiving regular review initiated by a rheumatologist. Data were available for 120 people, followed up over a six year period. Satisfaction and confidence in the system were higher in those with patient-initiated appointments. These patients had 38% fewer outpatient appointments compared to usual care (median 8 vs 13,  $p < 0.0001$ ). The researchers concluded that people with rheumatoid arthritis who initiated their own outpatient reviews were clinically and psychologically at least as well as patients having traditional reviews initiated by a doctor and had more than a third fewer medical appointments.<sup>66</sup> Patient-initiated care used 33% less resources (£208 per patient per year vs £313 for controls;  $p < 0.001$ ).<sup>67</sup>

In another trial in England with people with rheumatoid arthritis, the patient-initiated group took part in an education session and were given access to a nurse-led telephone advice line where appointments could be accessed within two weeks. Usual care comprised routine follow-ups with a specialist. Patient-initiated appointments resulted in fewer appointments than traditional scheduling. Self-reported visits to GPs were also significantly lower. The hospital costs of the two different service models were similar.<sup>68</sup>

However in a similar trial in Sweden with 131 patients, the intervention group were guaranteed appointments with a rheumatologist within 10 working days if they felt they had a flare in disease activity requiring review. The control group were booked in advance according to guidelines. Over an 18-month period, there was no difference between groups in the median number of outpatient appointments (3), satisfaction with care or functioning. The researchers concluded that patient-initiated care was neither better nor inferior to traditional outpatient appointments.<sup>69</sup>

In Australia, group education sessions were run prior to individual appointments. People with persistent pain took part in a two-day eight hour education programme, followed by optional patient-initiated individual outpatient appointments. Following group education, 48% of attendees requested individual outpatient appointments. Wait times reduced from 106 to 16 weeks at one pain unit and 37 to 15 weeks at the second. The unit cost per new patient receiving an appointment reduced from \$1,805 to A\$541 Australian dollars. The researchers concluded that education followed by patient-initiated outpatient appointments reduced waiting times and costs at pain medicine units and increased the use of active pain management strategies and patient satisfaction.<sup>70</sup>

In Denmark patient-initiated follow-up reduced healthcare use compared with traditional hospital-based follow-up. Participants were 156 women diagnosed with low-intermediate risk endometrial cancer. The control group attended outpatient appointments for three years after their initial treatment. The intervention group were educated about patient-initiated follow-up and trigger symptoms. Patient-initiated follow-up was associated with fewer outpatient examinations (median 0 vs 2 visits,  $p < 0.01$ ), however the control group had more reductions in fear of cancer recurrence, especially in the first three months.<sup>71</sup>

Also in Denmark, 150 people with well controlled moderate-to-severe psoriasis were randomised to take part in i) an annual consultation with a dermatologist at an outpatient clinic, with the ability to initiate consultations when they needed or ii) routine care, where they participated in an outpatient visit every 12-16 weeks. After one year, there was no difference between groups in quality of life, symptom severity or patient adherence. People in the patient-initiated care group requested 63% fewer appointments with a dermatologist ( $p = 0.001$ ).<sup>72</sup>

A randomised trial with 100 people with chronic obstructive pulmonary disease in the Netherlands found that over a two year period patient-initiated follow-ups were associated with reduced GP visits but greater primary care nurse visits. There were no differences in outpatient visits to pulmonologists and exacerbations were equally frequent in both groups. Average total costs per patient were lower in the patient-initiated group compared with usual care (518 euro difference).<sup>73</sup>

These examples show that whilst there are positive trends in reduced use of outpatient services with patient-initiated appointments, this is not universally the case and some research has found higher costs associated with patient-initiated care (particularly associated with initial education).

## Other impacts

In the UK, 28 people with inflammatory bowel disease were interviewed for feedback about patient-initiated outpatient appointments. Some said patient-initiated appointments helped them feel more in control and fitted in best with daily routine management. Others felt more secure about gaining access to appointments when they did not have to initiate requests for medical help. The researchers concluded that if patient-initiated approaches are implemented, outpatient arrangements and personnel need to be responsive to requests for appointments.<sup>74</sup>

Another UK study comparing patient-initiated and routinely scheduled outpatient appointments for women in remission after breast cancer treatment found no major differences in quality of life and psychological morbidity between the groups. More women in the traditional appointments group reported feeling reassured about regular checks. More women in the patient-initiated follow-up group reported convenience as an advantage.<sup>75</sup>

# Group outpatient appointments

Studies have explored the feasibility and impacts of group outpatient appointments, also known as shared medical appointments, particularly for people with long-term conditions. These appointments are run in various ways. Sometimes they include a group education session and collection of information about symptoms, perhaps followed by a brief one-to-one consultation with a clinician whilst the rest of the group is engaged in education or health coaching. In other models, patients do not have any private time with clinicians, instead having all of their discussions and reviews in a group setting. With this approach, about six to 20 patients with similar diagnoses attend a group appointment with professional(s), perhaps lasting one to two hours. All components of an individual appointment are completed and additional time may be spent providing education and facilitating peer support.

Group appointments have been tested for both children and adults and for conditions such as asthma, diabetes and heart conditions, amongst many others.<sup>76,77,78,79</sup> Research ranges from small studies exploring the feasibility of the approach or the way that people interact within group appointments to larger randomised controlled trials or records audits exploring the impact on health outcomes.<sup>80,81</sup> Research has described group visits facilitated by nurses, pharmacists, doctors and multidisciplinary teams.<sup>82</sup> A range of examples are described here to provide a flavour of the research available.

## Feasibility

A US hospital-based outpatient psychiatric clinic implemented group appointments for people receiving opioid treatment. Ninety-three people enrolled in the programme and 53% of these remained in treatment after six months. Patients reported that group appointments gave them more time with clinicians, support from peers, better coordination of care and more predictable times for visits. The researchers concluded that group-based appointments were feasible and had treatment outcomes comparable to individual outpatient appointments.<sup>83</sup>

In the US an audit of the medical records of six people with chronic obstructive pulmonary disease who attended outpatient group appointments facilitated by a nurse practitioner found a reduction in the use of some healthcare services and improved functioning. The researchers concluded that group appointments were feasible, time efficient and well suited to nurse practitioner practice.<sup>84</sup>

A realist review analysed 20 studies about group appointments in-depth to understand the mechanisms that influence their effectiveness. Nine components were theorised to explain how group appointments work, namely: 1) group exposure combats isolation, which in turn helps to remove doubts about a person's ability to manage their illness; 2) patients learn about disease self-management by witnessing the experiences of others; 3) patients are inspired by seeing others who are coping well; 4) group dynamics help patients and professionals to develop more equitable relationships; 5) professionals feel more appreciation for and rapport with colleagues, leading to increased efficiency; 6) professionals learn how better to meet their patients' needs; 7) adequate time in appointments helps patients to feel supported; 8) patients receive professional expertise combined with first-hand information from peers, resulting in better health knowledge; and 9) patients have the opportunity to see how professionals interact with others, allowing them to get to know the clinician and build trust.<sup>85</sup>

## Outpatient service use

There are relatively few studies which explicitly examine the impact of group appointments on traditional outpatient service use. Often studies state that this approach is more efficient or saves clinician time, but without quantifying the impact or providing evidence.

In the US, group appointments were tested for children who had undergone a heart transplant. Seven young people aged 1 to 18 years and their families participated in a total of 11 group visits in lieu of individualised appointments. Patients were divided into two groups based on whether they had had their transplant more or less than one year ago. Patient and family satisfaction was high. Outpatient clinic utilisation nearly halved, but patients still had 70 minutes of face-to-face time with a professional. Medication adherence neared 100% for all patients. Although this was a small study, the researchers concluded that group outpatient appointments were feasible for children who had received a heart transplant, improved outpatient efficiency and were associated with high satisfaction.<sup>86</sup>

A hospital in the US introduced group appointments for people with new kidney stones. The group appointments included education as well as multidisciplinary team feedback. Analysis of data before and after the introduction of group appointments showed that the waiting time reduced from 180 to 84 days. The number of patients seen per month increased by 43%. The number of new patients (including those seen in group appointments and in individual appointments) who received nutrition education and intervention increased from about 50% to nearly 75%. 87% of people who attended a group appointment rated their satisfaction as excellent or very good and post-tests showed those attending group appointments had better knowledge about their condition than those attending individual appointments ( $p < 0.02$ ). The researchers concluded that group appointments can be an efficient way to use outpatient clinic time.<sup>87</sup>

Another US study found that introducing group appointments for people with pre-diabetes was efficient. Group appointments increased a professional's productivity by supporting six to eight people with pre-diabetes in 90 minutes compared to one person in 60 minutes. Health outcomes for those taking part in group appointments were equivalent to individual appointments.<sup>88</sup>

However, not all studies are equally positive. A randomised trial in the US tested group appointments for 198 people with heart failure. People attended monthly group appointments plus a booster session at month six. A multidisciplinary team supported people to learn self-management skills. These group sessions were offered in addition to usual care. Compared to a control group, group appointments were associated with greater adherence to recommended treatment and lower rates of rehospitalisation during the months when the intervention was running. Reduced rates of rehospitalisation were not sustained after the intervention ended. Adding group sessions to standard care did not reduce the burden on traditional outpatient appointments.<sup>89</sup>

In the Netherlands, a randomised trial with 272 people with neuromuscular conditions tested whether group outpatient appointments were an efficient way of using clinicians' time. There were no significant differences between groups in costs per quality adjusted life year gained or cost-effectiveness. Group appointments were more likely to be cost-effective if there were a minimum of six people per group and 75% of patients attending were seen by their treating neurologist.<sup>90</sup>

## Other impacts

A systematic review of group appointments for people with a long-term physical condition, excluding diabetes, identified nine randomised trials. Studies were available about people with breast cancer, chronic kidney disease, Parkinson's disease, stress urinary incontinence, and carpal tunnel syndrome. Compared to usual care, group appointments were not associated with any negative effects on quality of life, knowledge or satisfaction. One study reported no difference in healthcare provider satisfaction. Another study found fewer hospital admissions for people who attended group medical appointments. The reviewers concluded that few rigorous studies have evaluated the use of shared group appointments for long-term conditions. Whilst there do not appear to be patient harms, the reviewers recommended further studies with larger sample sizes to assess objective outcomes.<sup>91</sup> Other reviews have made similar recommendations, suggesting that there is a trend towards positive outcomes but the benefits for health service use, costs and patient outcomes have not been fully quantified.<sup>92,93,94</sup>

Studies from the Netherlands suggest that group appointments may have additional benefits for patients, including helping them gain peer support and discuss a wider range of issues than might be the case in traditional one-to-one appointments.<sup>95</sup>

A randomised trial in the Netherlands examined group appointments for people with a chronic neuromuscular disorder and their partners. Two hundred and seventy-two patients and 149 partners were included. People attending group appointments had greater improvements in health-related quality of life. Neurologists spent less time per patient during the group appointments (average 16 minutes for groups versus 25 minutes for individual appointments).<sup>96</sup>

US researchers studied group appointments by video conference for people in rural areas with diabetes. Six groups of four to six people attended sessions weekly for four weeks, followed by two sessions per month for five months. The sessions were run by a hospital pharmacist and nurse practitioner. They focused on group education and medication titration. Compared to a non-randomised comparison group, after five months video group appointments were associated with a greater improvement in blood sugar control and lower rates of A&E visits. There was no difference between groups in blood pressure, cholesterol levels or hospital admissions.<sup>97</sup>

In the US, 31 women who survived breast cancer took part in seven two-hour group medical appointments held fortnightly at an outpatient centre. The focus was on healthy lifestyle advice and self-management skills, including physical activity, nutrition and stress relief. Analysis of before and after data showed improved weight management and positive but non-significant changes in patient activation and quality of life.<sup>98</sup>

A US study explored group appointments for people with diabetes at high risk of cardiovascular disease. The appointments took place at a primary care clinic inside a tertiary care medical centre. Compared to a non-randomised comparison group, those who took part in group appointments had greater improvements in blood sugar control and blood pressure.<sup>99</sup>

Another US study tested group appointments in a dermatology clinic. Patients first met as a group where they were shown a film or presentation about their conditions and a nurse provided information about common management strategies. Patients were then seen individually by a doctor, with more time-consuming procedures scheduled for a later date. This approach was more efficient, leading to group appointments being 'more profitable' per hour (US system), with shorter waiting times and greater cost-effectiveness.<sup>100</sup>

## Summary

The examples described in this rapid review have aimed to provide a flavour of the research available about group appointments, digital appointments and patient-initiated outpatient appointments. Trends from each approach are positive, but there are some dissenting studies. The evidence about potential reductions in overall use of outpatient services often comes from small or single-centre studies. Research about group and patient-initiated appointments tends to be most positive in this regard, with less evidence about digital appointments. A lack of evidence does not necessarily indicate that there are no benefits, just that published research may not yet have fully quantified these.

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