A Primary Care Based Strategy for Reducing Clinical Testing Error Across Healthcare Settings

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Aim: by April 2024, increase the percentage of test requests in general practice either specifically instructed in the slot notes of the healthcare professional taking the sample, or already ordered in advance of the appointment, to 80%, in accordance with BMA guidance[1].

Background

Clinical testing is required for safe, patient-centred care, informing diagnosis, management, and prognosis[2]. A significant proportion of general practices use the "ordercomms" system[3], allowing a clinician to essentially leave instruction for a future healthcare professional to carry out a particular test when the patient re-presents.

When tests are not specified and the patient re-presents, there is the potential for the addition of unnecessary testing or for tests to be missed altogether. This issue could potentially affect up to 25 million appointments per year[4] across 6312 practices in the UK.

Methods

Quality improvement tools, including process mapping (Figure 1), the pareto principle and driver diagrams were used to contribute towards the employment of the plan-do-study-act (PDSA) cycling methodology that has become widespread amongst quality improvement literature, with change ideas being influenced by all members of the multidisciplinary team.

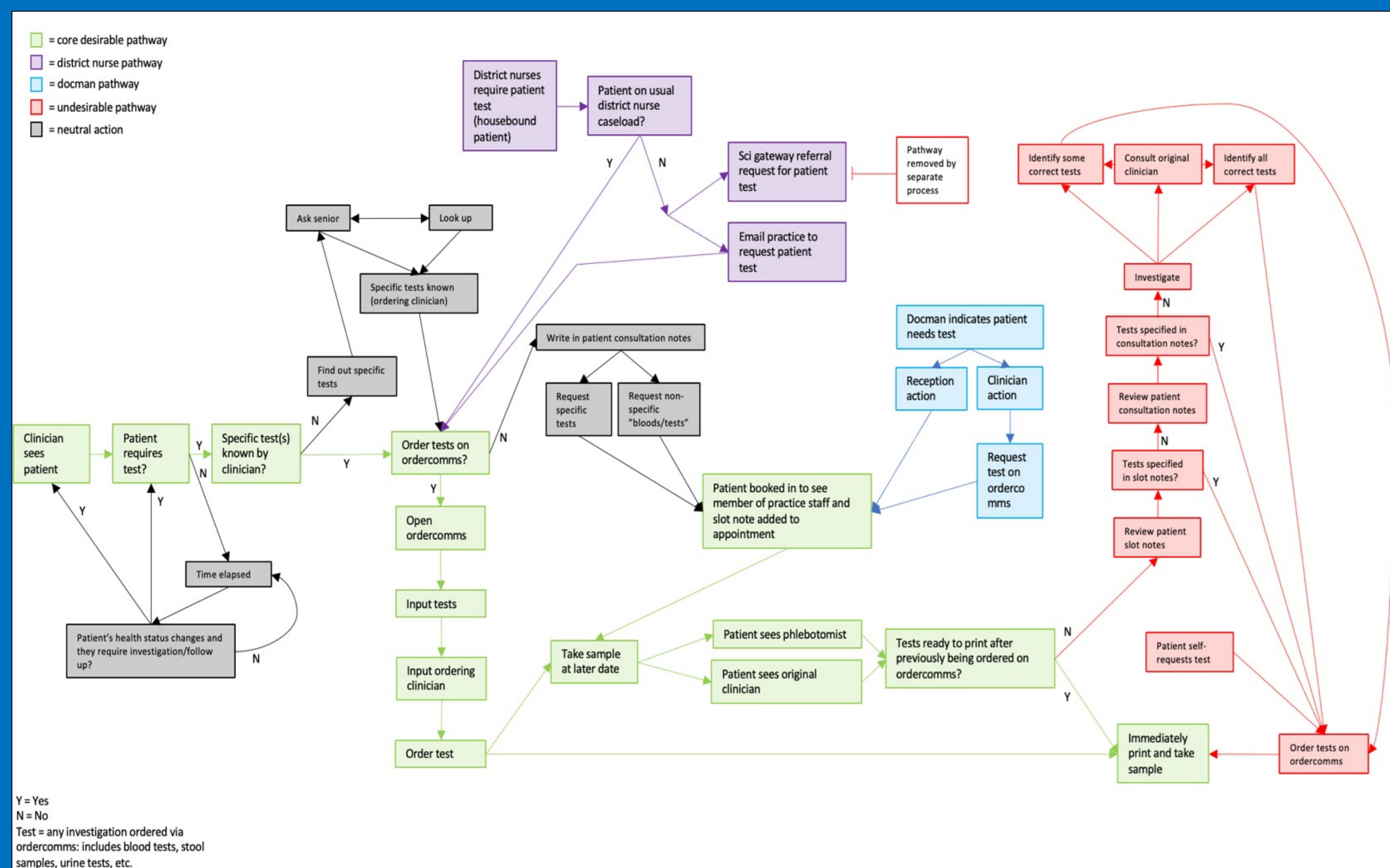Four PDSA cycles became the backbone of the project, with the most impactful cycle displayed in Figure 2.

Figure 1. A process map depicting the true process of how test requests arise in primary care. Four distinct pathways were identified and colour coded, with one core "desirable" pathway.

Improve Test Requesting System

P: Identify how to implement verified list of range of clinical scenarios and their testing requirements across regional GP practices.
D: Contact IT with verified list of range of clinical scenarios and their testing requirements, requesting they be uploaded to the regional version of ordercomms.
S: IT confirmed receipt of resource and agreed to upload this to the regional version of ordercomms so 30+ GP practices in South-West Scotland have access to presets.
A: Provide the practice with instructions on how to request presets are uploaded to ordercomms so they can be updated as guidelines evolve.

P: As requested, produce resource with wider range of clinical scenarios with test requirements produced and verified.
D: Trial and receive feedback on wider based resource.
S: Very well received test of change – much improved system. Staff able to identify "condition/medication presets" without clinical knowledge. Maintained proportion of test requests pre-uploaded or specified.
A: Very well received change – disseminate across regional GP practices.

P: Improve the system for requesting tests within primary care at a single practice level.
D: In accordance with current guidelines, verify and produce resource containing test requirements for a broad range of clinical scenarios.
S: Very well received test of change – much improved system. Staff able to identify "condition/medication presets" without clinical knowledge. Increased proportion of test requests pre-uploaded or specified +++.
A: Feedback: would like to see wider range of conditions with test requirements.
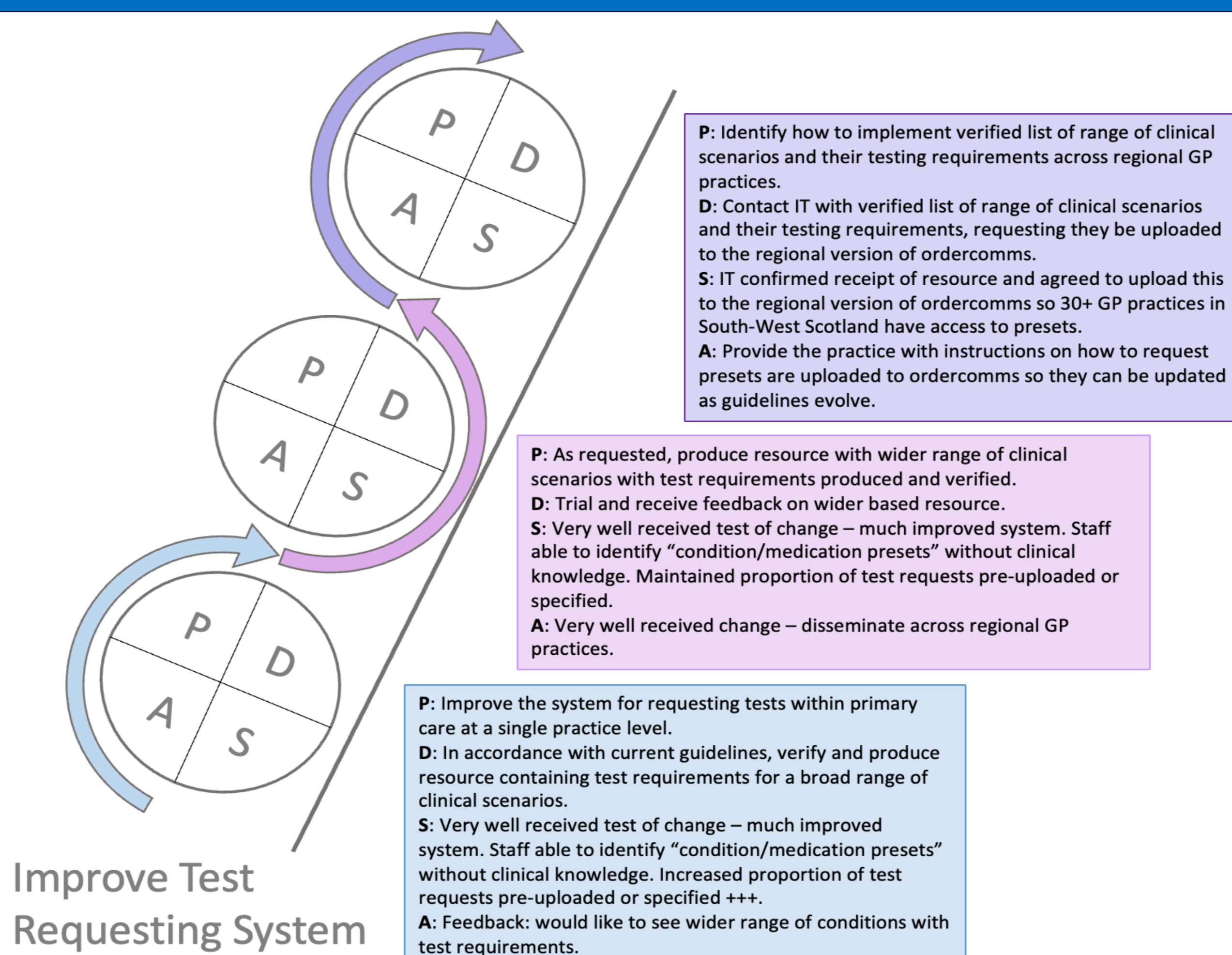
Figure 2. Improving the Test Requesting System. This PDSA cycle targeted improving the test requesting system within practice. Three change ideas were tested, detailed above, and data presented in Figure 3.
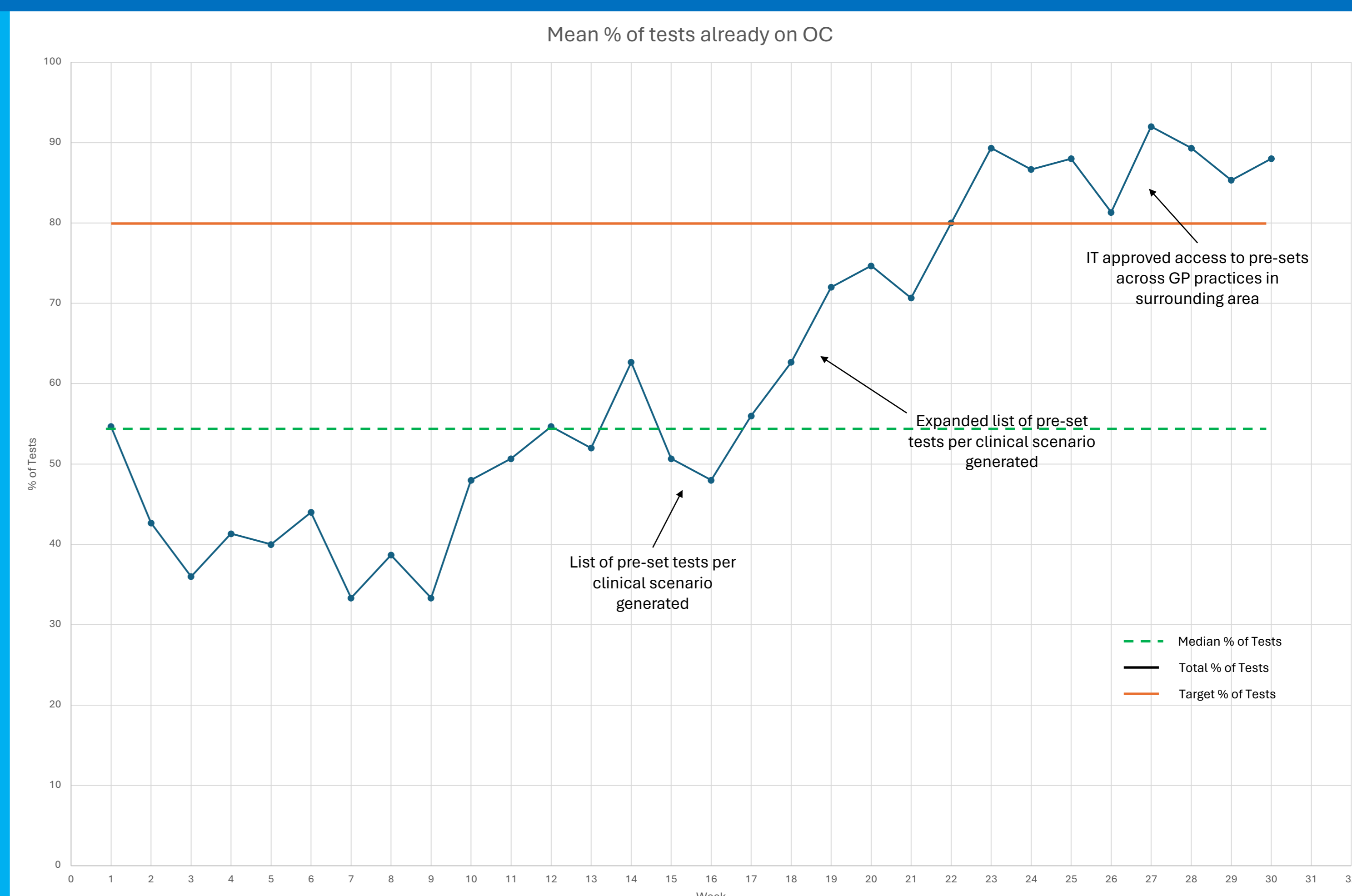

Figure 3. The mean percentage of tests already on ordercomms at time of patient presentation in general practice. The percentage increased from a median of 55% to an average of 89% by the end of the project. There was under a 2% probability of this shift in data being down to chance. Other tests of change occurred throughout this time but were not included above. OC = ordercomms. The median value was calculated from all data points.

Conclusions and Recommendations for Healthcare Settings

- All pathways in Figure 1 were addressed and the core pathway was achieved by the end of the improvement project, increasing the number of tests already on ordercomms at the time of patient presentation from a median of 55% to a mean of 89% across 30 weeks, with a less than 2% probability of this being down to chance alone.

- The most impactful change idea was displayed in this poster – the generation of presets of tests per clinical scenario generated. This enabled anyone trained to take blood to do so if they had the correct trigger word, for example "diabetes bloods", or "chemo bloods", working hand in hand with secondary care, where tests are often requested in primary care by using broad terms instead of specific test requests.

- Ensuring a greater proportion of test requests were ready to action at the time of patient presentation had the potential to save approximately 90 minutes of clinician time weekly, with £340.80 being saved across 12 weeks in test costs alone and did not significantly impact clinician workload (absolute increase of 7 extra minutes work per week across 30 weeks).

- **Our recommendation to any healthcare department is to contact the local IT team and request frequently required tests per clinical scenario, e.g. diabetes and disease-modifying antirheumatic drug monitoring, are uploaded to your health board's test ordering/actioning system, ensuring uniformity in tests taken, greater accuracy and greater access by more members of the healthcare team.**

1. BMA, 2020. Acting upon electronic test results. 2. Balogh et al., 2015. Improving Diagnosis in Health Care. 3. MAXIMS, 2023. Order Comms. 4. NHS England, 2024. Two Million More GP Appointments for Patients than Before the Pandemic.