SUPPLEMENTARY APPENDIX S1: CG INTERVENTION DESCRIPTION

Clinical Guardian[1] (CG) is a continuous, risk-based, consultation peer-review system. The following summary of the CG methodology addresses each aspect of the process in turn. The methodology presented below represents that used by the out-of-hours general practice service provider at the time of the study (September 2018 to January 2019).

Continuous
All clinicians working within the out-of-hours general practice service, regardless of professional background, have a random sample of their clinical consultation notes from patient contacts reviewed weekly by a member of the CG peer-review team.

Risk-based
The proportion of cases sampled varies between each service clinician and is based on their clinical 'risk-status'. 'Risk-status' is conceptualised as the degree of uncertainty regarding a clinician's standard of practice and is informed initially by duration of employment and subsequently by ongoing performance.

Clinicians that are newly employed have 100% of their consultations from their first shift reviewed before they are allowed to undertake further work with the service. Those clinicians whose initial reviews were deemed acceptable are stepped down to having 10% of their consultations sampled weekly for the following 2 months. Thereafter the rates of consultation sampling are reduced to a 5% weekly baseline sample for clinicians whose practice has not triggered additional concerns. Concerns over an individual clinician's practice, either via peer-review team findings, or patient complaints lead to a greater proportion of consultations to be sampled at each peer-review interval. For example, low-level concerns may trigger 15% of consultations to be reviewed for a trial period, and greater concerns may lead to a higher level of case monitoring (25%-100% at governance team discretion), or a pause in clinical contact whilst performance concerns were further investigated.

Peer-review
The peer-review team members are experienced out-of-hours general practice clinicians who work within the out-of-hours general practice service and are selected and trained for this purpose with regular, protected, paid time to perform this function.

Peer-reviewers are individually allocated a random sample of clinician cases to review via the online, secure, Clinical Guardian software platform.[1] This software acts as a tool with which to undertake the peer-review process and a means of communicating and storing feedback to clinicians.

The initial reviews of sampled consultations are used as a screening process to decide whether or not a case "passes" or requires further assessment at a consensus peer-review meeting. Peer-reviewers specifically assess clinician cases against criteria based on the Royal College of General Practitioners Urgent and Emergency Care Clinical Audit Toolkit,[2] reviewing domains of history taking, appropriateness of assessment, formulation, demonstration of empowering behaviour, prescribing, safety netting and the adequacy of record keeping. This allows a large number of cases to be reviewed for signs of unwarranted variation in practice, and to escalate only the cases most in need of additional attention to consensus peer-review team meetings. Where cases are assessed by individual peer-reviewers to have "passed," reviewers are encouraged to give positive feedback. Constructive feedback which clinicians may perceive as challenging is given following consensus peer-review.

Consensus peer-review meetings occur at regular intervals. It is intended that three auditors would be present for the meeting to be quorate. This allows both a consensus decision regarding the appropriateness of actions taken by a clinician, and to ensure corporate, rather than individual feedback to a clinician on their practice. If necessary, telephone consultation audio recordings may be reviewed to as part of this process to gain additional information to inform the assessment.

Feedback to clinicians is communicated via the Clinical Guardian secure online software platform, unless the peer-review team feel there is a reason why this should be done by telephone or face to face. Clinicians are encouraged to reply to feedback through the Clinical Guardian system to improve learning and promote a positive learning culture. The Clinical Guardian software stores records of peer-review interactions and scores for the future use of clinicians and the peer-review team.

Following a case review in the consensus peer-review team meeting, clinicians' risk status is reassessed by the peer-review team for future case sampling. Continuous modification of clinicians' risk-status on the basis of their performance creates a feedback mechanism to focus the finite peer-review resource where it is most needed.

References
1.   Applied Healthcare Solutions Limited. Clinical Guardian. 2021; [Website]. Available from: https://www.clinicalguardian.com/.
2.   Royal College of General Practitioners. Urgent and emergency care clinical audit toolkit. 2015; Available from: https://www.evidence.nhs.uk/document?id=1608111&returnUrl=Search%3Fq%3Dclinical%2Baudit&q=clinical+audit.

Interview topic guide:
Clinicians subject to peer review

1. Introduction
- Thank for time
- Introduction to interviewer
- Introduction to Clinical Guardian (CG)
- Explain
  - Purpose of CG evaluation
  - Why participant invited
  - Optional participation, may withdraw consent at any time. Rights to access, change or move my information are limited, as my information is managed in specific ways in order for the research to be reliable and accurate.
  - Interview length, recording, transcription, anonymised analysis
  - £40 voucher as gift for time
  - Confidentiality and anonymity
  - Benefits and risks to participant
  - Funding source
  - Ethical approval
- Invite questions

2. Consent
- Participant to confirm:
  - Understand study as summarised, and described fully in patient information sheet previously emailed to participant
  - Has had the opportunity to consider the information, ask questions and have these satisfactorily answered.
  - I understand participation is voluntary and participants are free to withdraw at any time. I understand that rights to access, change or move information are limited, as information is managed in specific ways in order for the research to be reliable and accurate.
  - Agrees to being audio recorded during the interview for this study and anonymised quotations from these recordings being used in publications and reports.
  - I understand that the information I give will be kept strictly confidential and used only for the purposes of this study. My consent depends on the University of Bristol complying with its duties and obligations under the Data Protection Act
  - I understand that my anonymised research data will be stored for 7 years, and consent to the sharing of this data for further health research purposes following assessment of the justification and quality of the proposed work by members of the study team.
  - Agrees to take part in study

3. Utility, acceptability and improvement
- How many times have you received feedback from CG?
- How does it feel to get feedback?
  - How could it be improved?
- How useful is CG feedback?
  - How could it be improved?
- What do you think of CG overall?
  - Why?

- o How could it be improved?
- To what extent do you think CG has a role in:
    - Patient safety?
    - Quality of care?
    - Clinician learning?
    - Identifying clinicians in need of support?

4. Future applications
- Do you think CG has a potential role in "in-hours" general practice?
- What aspects of 'in-hours' general practice do you think could benefit?
- How do you think clinicians would feel about their consultations being reviewed by a CG like system in "in-hours" general practice?
- What might make doctors more likely to engage in this?
    - Await responses, then:
        a. How do you think they would respond to badging/certification?
        b. How do you think they would respond to a potential reduction in indemnity?

5. Debrief
- Do you have any final comments or questions?
- Thank for taking the time to participate in study
- Would you like to be informed of the study outcome?
- Feel free to contact the study team at any time
- END RECORDING
- Arrange giving voucher to study participant (via email)

Interview topic guide:
Peer Review Team Members

1. Introduction
- Thank for time
- Introduction to interviewer
- Introduction to Clinical Guardian (CG)
- Explain
    - o Purpose of CG evaluation
    - o Why participant invited
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    - o Interview length, recording, transcription, anonymised analysis
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    - o Confidentiality and anonymity
    - o Benefits and risks to participant
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- o Agrees to take part in study

3. Utility, acceptability and improvement
- How acceptable do you think clinicians find getting feedback from CG?
  - How could it be improved?
  - Is the CG team able to give honest feedback to clinicians?
  - To what extent do you think independence is a challenge for the peer review team when:
    - Assessing clinicians that are known to CG panel members
    - Reporting incidents that might have a negative impact for the organisation?
- How useful do you think clinicians find CG feedback?
  - o How could it be improved?
- What do you think of CG overall?
  - o How could it be improved?
- To what extent do you think CG has a role in:
  - Patient safety? examples?
  - Quality of care? examples?
  - Clinician learning? examples?
  - Identifying clinicians in need of support? examples?
- What do you think of its cost effectiveness?

4. Future applications
- Do you think CG has a potential role in "in-hours" general practice?
- What aspects of 'in-hours" general practice do you think could benefit?
- How do you think doctors would feel about their consultations being reviewed by a CG like system in "in-hours" general practice?
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- Feel free to contact the study team at any time
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SUPPLEMENTARY BOX S1: CODING TREE

No	Name	Description
Coding Tree		
No	**Name**	**Description**
1.0 Background		
1.1	Frequency of feedback from CG	Comments relating to the frequency of feedback from clinical guardian.
2.0 Existing feedback in General Practice		
2.1	Adequacy of feedback in GP	Views on adequacy of existing feedback for clinicians in general practice outside of the CG intervention
2.2	Reasons for current levels of feedback	Explanations given for current levels of feedback outside of the CG intervention
3.0 Impact of Clinical Guardian (CG) on feedback		
3.1	Impact of CG on feedback levels	Comments relating to the effect of CG on feedback quality and frequency and reasons for this.
3.2	Impact of CG feedback on clinician learning and practice	Observations on the effect of CG feedback on clinician learning and practice
3.3	Impact of CG on clinician satisfaction	Views on the effect of CG on clinician satisfaction
4.0 Factors affecting usefulness of Clinical Guardian (CG) feedback		
4.1	Quality of feedback	Observations relating to how quality of feedback may affect the usefulness of CG
4.2	Clinician experience	Observations relating to how the previous experience of the clinician assessed by CG may affect the usefulness of CG
4.3	Clinician activation	Observations relating to how the level of activation (motivation to improve/engage) affects the usefulness of CG
4.4	Feedback ownership	Observations relating to how feedback ownership can affect the usefulness of CG
5.0 Existing methods of ensuring and evidencing clinician competence in general practice		
5.1	Adequacy of existing methods of ensuring and evidencing clinician competence	Observations on the adequacy of existing methods for ensuring clinician competence.
6.0 Impact of Clinical Guardian (CG) on ensuring and evidencing clinician competence		
6.1	Impact of CG on existing quality assurance mechanisms	Observations regarding how CG impacts on existing quality assurance mechanisms such as appraisal
6.2	Accountability	Observations regarding the impact of CG on accountability
6.3	Benchmarking	Views on how CG affects the ability of clinicians to benchmark their practice.
6.4	Standardisation of documentation	Observations regarding the impact of CG on clinical documentation standardisation.
6.5	Standardisation of clinical governance	Observations regarding the impact of CG on clinical governance standardisation.
6.6	Identification of clinicians in need of support	Views on the impact of CG on identification of clinicians in need of support.
7.0 Impact of Clinical Guardian (CG) on organisational quality and safety assurance		
7.1	Organisational learning culture	Views on the impact of CG on organisational learning culture
7.2	External value	Comments relating to the external value of CG
7.3	Patient safety	Observations on the impact of CG on patient safety
7.4	Quality of care	Views on the impact of CG on quality of care