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Quality and Patient Safety in Telehealth: A Review of Key Dimensions and Safeguards

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ABSTRACT

Telehealth — the delivery of health services at a distance through information and communication technologies — has expanded rapidly and is now a routine part of care in many systems. Its benefits for access and convenience are widely recognised, but quality and safety require deliberate attention. This review applies two established quality frameworks, Donabedian's structure–process–outcome model and the six aims for health care quality described by the Institute of Medicine, to remote care. It identifies the main safety risks in telehealth: incomplete clinical assessment, technology failure, continuity and handover gaps, identity and privacy problems, and inequitable access. It then outlines safeguards at the level of the organisation, the clinician and the patient, including clear criteria for when remote care is appropriate, escalation pathways to in-person care, structured documentation and attention to digital inclusion. The article concludes that telehealth is safest when it is designed as an integrated part of a care pathway rather than as a separate channel.

Keywords: telehealth; telemedicine; quality of care; patient safety; digital health; Donabedian

1. Introduction

Telehealth includes video and telephone consultations, remote monitoring of vital signs, asynchronous exchange of images and messages, and digital follow-up after hospital discharge. The World Health Organization described its potential to overcome distance and improve access well before its recent growth (WHO, 2010), and its Global Strategy on Digital Health encourages countries to integrate digital tools into health systems in a safe, equitable and sustainable way (WHO, 2021).

As remote care has become routine, the question has shifted from whether telehealth can be used to how it can be used well. This review examines telehealth through established quality frameworks, identifies its principal safety risks and summarises practical safeguards.

2. Frameworks for quality

2.1 Structure, process and outcome

Donabedian (1988) proposed that the quality of care can be assessed through three linked elements. **Structure** refers to the setting: facilities, equipment, staff and organisation. **Process** refers to what is actually done in giving and receiving care. **Outcome** refers to the effects of care on the health of patients and populations. In telehealth, structure includes the technology platform, connectivity, devices and the competence of staff in remote consultation; process includes how his-

tory is taken, how examination is adapted and how decisions are documented; outcomes include clinical results as well as patient experience.

2.2 The six aims for quality

The Institute of Medicine (2001) described six aims for health care: care should be **safe**, **effective**, **patient-centred**, **timely**, **efficient** and **equitable**. Telehealth can advance several of these simultaneously — for example timeliness and patient-centredness through reduced travel — while creating new risks for others, notably safety and equity.

3. Principal safety risks

3.1 Incomplete assessment

Remote consultations limit physical examination. Some signs can be observed on video or reported by patients using home devices, but others cannot. The main risk is not that remote assessment is always inferior, but that its limits are not recognised in a particular case.

3.2 Technology failure

Poor connectivity, unfamiliar software or faulty devices can interrupt consultations, distort images or sound, and lead to incomplete information. Remote monitoring systems can fail silently if data stop arriving.

3.3 Continuity and handover

When telehealth is provided by a separate service, information may not reach the patient's usual clinicians. Gaps in records, prescriptions and follow-up arrangements are a recognised source of harm in all care transitions.

3.4 Identity, privacy and confidentiality

Clinicians need to confirm the patient's identity and location and ensure that the consultation is private on both sides. Patients may be in shared spaces, and information may be stored on personal devices.

3.5 Inequitable access

Telehealth assumes access to a suitable device, a reliable connection, adequate digital skills and, often, a private space. Older people, people with disabilities, people with limited language proficiency and those on low incomes may be disadvantaged, which conflicts with the aim of equity.

4. Safeguards

4.1 Organisational safeguards

- **Clear criteria for remote care.** Services should define which conditions, presentations and patients are suitable for remote consultation and which require in-person assessment.
- **Escalation pathways.** Every remote service needs a quick route to in-person or emergency care when warning signs appear.
- **Integrated records.** Remote consultations should be documented in the same record used by other clinicians, with clear arrangements for prescriptions and follow-up.
- **Technology governance.** Platforms should be secure, tested and supported, with contingency plans such as switching to telephone when video fails.

- **Monitoring and learning.** Incidents, near misses and patient feedback related to telehealth should be reviewed in the same way as other safety events.

4.2 Clinician safeguards

- Confirming identity, location and consent at the start of each consultation.
- Adapting history-taking and using structured questions to compensate for limited examination.
- Maintaining a low threshold for in-person review when uncertainty remains.
- Using "safety-netting": explaining clearly which symptoms should prompt urgent contact.
- Receiving training in remote communication and assessment.

4.3 Patient-level safeguards

- Information before the consultation on how to connect and what to prepare.
- Options for telephone, video or in-person care according to the patient's needs.
- Support for people with limited digital skills or disabilities, including the involvement of carers where appropriate.
- Interpreting services when needed.

5. Integrating telehealth into care pathways

A recurring theme is integration. Telehealth is safest when it is one step in a defined pathway — for example a remote follow-up after an in-person diagnosis, or remote monitoring with agreed thresholds that trigger a clinical response — rather than an isolated service. Integration ensures that information flows, responsibilities are clear and patients can move easily between remote and in-person care.

6. Limitations and future directions

This review is conceptual and does not assess the evidence for specific clinical conditions, where the appropriateness of telehealth varies considerably. Future work should develop condition-specific criteria, evaluate escalation pathways, and examine equity outcomes for groups at risk of digital exclusion.

7. Conclusion

Telehealth can improve access, timeliness and patient-centredness, but its quality depends on deliberate design. Applying established quality frameworks, recognising the specific risks of remote care, and building safeguards into organisations, clinical practice and patient support allow telehealth to become a safe and equitable part of modern health care.

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