



STARS Education and Research Alliance

CREATING KNOWLEDGE | TRANSFORMING CARE



THE UNIVERSITY
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Metro North
Health



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STARS Critically Appraised Topic (CAT) Group:

Digital Communication Platforms Supporting Virtual Emergency Care Services

Specific Question:

What communication platforms and workflows support frequent, accurate, timely and targeted communication between geographically dispersed healthcare workers delivering a virtual emergency care service?

Clinical bottom line

The evidence suggests that while digital platforms enable communication across dispersed teams, clinical, economic and system effectiveness is still uncertain. Effective and sustainable communication depends on excellent usability, team, behavioural, organisational, and workflow factors rather than technology alone. The full capability of existing digital and physical communication platforms should be utilized before changing systems.

Why is this important?

Digital communication platforms are used to support geographically disperse virtual emergency care teams in Australia and other countries, but their effectiveness, feasibility and cost effectiveness are not known. As more health and care services are delivered virtually and health care workers need to communicate across their own and other organisations as well as with patients and carers it is important that services know which type of digital communication platform to commission. In STARS the Virtual Emergency Care Service (VECS) was designed to use integrated electronic Medical Record (ieMR) and Microsoft TEAMS, but as the service will grow in the next few years the team has recognised that this system could bring barriers to effective and safe communication practices.

Search dates

2016-2026

PICOT

	Description	Search terms
Population and Setting	Healthcare workers delivering a virtual emergency care service	Virtual teams, Telemedicine Emergency, Health,
Intervention or Exposure (ie what is being tested)	Communication platforms and workflows	"Enterprise social networks", Zoom, Google Workspace, Microsoft Teams, Slack, Trello
Comparison, if any		
Outcomes of interest	Frequent, accurate, timely, and targeted communication	Frequent, accurate, timely, and targeted communication
Types of studies		All types

Databases Searched

PubMed, CINAHL, Embase, IEEE Xplor, Google Scholar, ArXiv
(A number of iterative searches were conducted alongside the original search terms)

Date of search

08/05/2026

Search Strategies (including subject headings)

PubMed 136 results

((("virtual team*" OR Telemedicine[tiab]) OR ("Enterprise social networks"[tiab:~2] OR Zoom[tiab] OR "Google Workspace"[tiab] OR "Microsoft Teams"[tiab] OR Slack[tiab] OR Trello[tiab])) AND ("Emergency Medicine"[MeSH] OR "Emergency Medical Services"[MeSH] OR "Pediatric Emergency Medicine"[MeSH] OR "Emergency Service, Hospital"[MeSH] OR "Emergency Treatment"[MeSH] OR "Evidence-Based Emergency Medicine"[MeSH] OR Emergency health[ti] OR emergency medicine[ti] OR emergency care[ti] OR emergency provider*[ti] OR emergency service[ti] OR (emergenc*[ti] AND medic*[ti])) AND (2016:2026[pdat])) AND (accura*[tiab] OR speed[tiab] OR targeted[tiab] OR ferquen*[tiab] OR scalable[tiab] OR geographically[tiab] OR dispersed[tiab]))

CINAHL Complete (EBSCOhost) 40 results

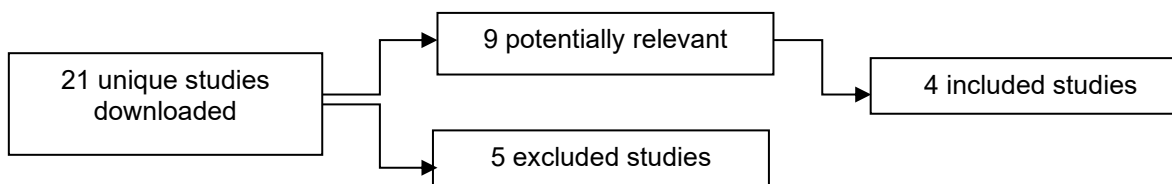
Limited to English language

((("virtual team*" OR AB "virtual team*")) OR ((TI "Enterprise social networks" OR AB "Enterprise social networks") OR (TI Zoom OR AB Zoom) OR (TI "Google Workspace" OR AB "Google Workspace") OR (TI "Microsoft Teams" OR AB "Microsoft Teams") OR (TI Slack OR AB Slack) OR (TI Trello OR AB Trello))) AND ((MH "Emergency Medicine") OR (MH "Emergency Medical Services") OR (MH "Emergency Service") OR (MH "Emergency Treatment+") OR (TI "Emergency health") OR (TI "emergency medicine") OR (TI "emergency care") OR (TI "emergency provider*") OR (TI "emergency service") OR ((TI emergenc* AND (TI medic*))))

Embase (Elsevier) 90 results

('virtual team*':ti,ab OR 'enterprise social networks':ti,ab OR zoom:ti,ab OR 'google workspace':ti,ab OR 'microsoft teams':ti,ab OR slack:ti,ab OR trello:ti,ab) AND ('emergency medicine'/exp OR 'pediatric emergency medicine'/exp OR 'emergency health service'/exp OR 'emergency treatment'/exp OR 'emergency health':ti OR 'emergency medicine':ti OR 'emergency care':ti OR 'emergency provider*':ti OR 'emergency service':ti OR (emergenc*:ti AND medic*:ti)) AND [embase]/lim AND ('article'/it OR 'article in press'/it OR 'review'/it)

Results



First Author, year and type of study	Population and setting	Intervention or exposure tested	Study results	Assessment of quality and comments
Tait 2026	Australian Emergency virtual care in South Australia with 10 local health networks and 67 regional areas.	Implementation of a new service virtual adult emergency care service over three phases: <u>Concept:</u> In setup they conducted a need analysis and concluded the need for referral pathways from	Review of the establishment and first 6 months of a new service. Lessons learnt relevant to CAT: - Tech light approach not requiring frontline	The TIDieR (Template for Intervention Description and Replication) Checklist was used. The rationale for the service and the process was broadly documented. Specific information that would allow replication of

		paramedics and regional hospital clinicians. <u>Development:</u> Leadership team with execs and clinicians set up workstreams for models of care, infrastructure, workforce and governance. <u>Infrastructure</u> involved selecting monitors, softphones, headsets and dynamic screens and selected Healthdirect Video Call platform. <u>Operation:</u> Implemented daily huddles.	clinicians to have extensive tech expertise. - Provide opportunities for feedback such as daily huddles to address real time issues.	use of technology was limited. The selected platform used was described, but no communication details such as protocols were provided to outline how they were used. The details provided understanding to how the platform supported effective information sharing and collaborative sense. Details were inadequate to allow evaluation of the impact of the communication strategies. The paper highlighted the need for appropriate tech to meet the service needs and accommodate differing levels of technical expertise. Further to this it demonstrated how the service developed also ensured opportunity for the team come together online to identify any challenges.
Jayaputera 2024	Telemedicine service to support communication between clinicians based in regional/rural health facilities and metropolitan hospitals.	Review of the capabilities, architecture and design of a Mobile Tele-medicine Platform (MTP). The platform is targeted at enhancing collaboration between healthcare team members with AV communication, but also as a digital health record. Description of capabilities included: viewing of medical imaging, assessment data, video teleconferencing, chat function, sharing of clinical information and notification of outcomes and real time training of patients. It was designed for both laptop and mobiles, with specific user profiles able to access different elements.	The focus of the paper was to detail the capability of the MTP. It provided details that the software had been implemented in over 80 facilities in Australia supporting care delivery to over 800 patients. In this sample treatment times were reported at 30 minutes faster than historical controls.	The TIDieR Checklist was used. The paper provided an array of capabilities as a digital health record and an interface supporting communication. While it did refer to integration with other systems such as medical imaging it did not clarify if it could integrate with existing systems of digital records. The paper outlined the use of the MTP. However, exact details of communication protocols were not provided.

		Supporting communications between team members included an interface which included team members and if they were 'available'. Notification panel allowed users to see know if patient progress i.e. if undergoing a procedure or if scan results available. A tracking panel allows for data such as time passed since start of interaction.		
Massey et al 2024	Simulated virtual team environment	Immersive virtual environment with 182 participants engaged as a team of 2 or 3 to complete puzzles (in Second Life virtual world platform). Some team teams used voice to communicate, and other teams used text-chat.	Measures included number of puzzles solved and perceived team performance. Communication modality (text vs voice) did not significantly impact performance. Performance was more influenced by "presence" factors (e.g., immersion control) than communication channel.	CASP RCT tool was used. While participants were randomised to communication modality, the method of randomisation was not clearly described and there was no reporting of attrition, limiting assessment of selection bias. Blinding of participants, investigators, and outcome assessors was not undertaken, introducing potential performance and detection bias. Although results were reported comprehensively with appropriate outcome measures, precision of estimates (e.g. confidence intervals) was not provided, reducing interpretability of effect size The study was conducted in a simulated, game-based virtual environment (Second Life) with short task duration (20 minutes) and financial incentives for participation, limiting validity and applicability to real-world clinical settings. The intervention was also not compared to commonly used clinical communication tools such as videoconferencing,

				further limiting relevance to practice.
Natu et al 202	Employees within a technology organisation	Cross-sectional survey of 170 knowledge workers in software development using a questionnaire and structural equation modelling to examine drivers of knowledge sharing in geographically dispersed teams.	Measures included knowledge-sharing intentions, behaviour, and influencing factors (e.g. motivation, trust, organisational practices, ICT infrastructure). Intrinsic motivation and organisational knowledge-sharing practices were the strongest predictors of knowledge-sharing behaviour. Trust and social capital were positively associated with knowledge sharing, while subjective distance negatively impacted trust. Extrinsic motivation and ICT infrastructure did not significantly influence knowledge-sharing intentions.	CASP RCT tool was used. The study addressed a clearly focused issue in a single organisation and there was a 21% response rate increasing risk of selection bias and limiting generalisability. The cross-sectional design with no follow-up limits the ability to infer causal relationships between variables. Although confounding factors were identified, adjustment was limited, and outcomes were based on self-reported (subjective) measures, introducing potential response bias.

Summary

This rapid review examined how communication platforms and workflows support geographically dispersed healthcare teams delivering virtual emergency care. Tait et al. (2026) described a “technology light” virtual emergency care service in South Australia, prioritising usability and structured workflows such as daily virtual huddles to support real-time communication. In contrast, Jayaputera et al. (2024) focused on a cloud-based Mobile Tele-medicine Platform integrating video, chat, notifications, and real-time data sharing to facilitate collaboration between rural and metropolitan clinicians. Both studies lacked sufficient detail to support replication, particularly regarding communication workflows, but demonstrate the potential of digital platforms to enable timely, coordinated communication.

Evidence from non-healthcare settings provides further context. Natu et al. (2022) found that communication effectiveness in virtual teams was driven by intrinsic motivation, organisational practices, and trust, rather than technology alone, with perceived distance negatively impacting trust. However, its single-organisation, cross-sectional design limits generalisability, and it provides little detail on how communication platforms are operationalised in practice. Similarly, Massey et al. (2023) found no significant difference between voice and text communication on team performance, with outcomes instead influenced by engagement (“presence”) factors. While methodologically rigorous, its simulated, short-duration design limits applicability to complex clinical settings, and it offers limited insight into real-world workflows.

Overall, the evidence suggests that while digital platforms enable communication across dispersed teams, clinical, economic and system effectiveness is still uncertain. The review highlighted that to increase effective and sustainable communication depends on excellent usability, team, behavioural, organisational, and workflow factors rather than technology alone.

Across the literature, limited reporting of communication workflows restricts replication and translation to virtual emergency care contexts.

Implications for Practice/research

When implementing processes and digital tools to support communication there needs to be clear consideration of behavioural, organisation and contextual factors. This includes clear structured standardised workflows, platforms that are easy to use and be embedded into clinical workflows. Platform functionality alone will not result in effective communication and consideration during implementation is needed for the trust and cohesion within teams, which links to how team members connect and engage. Whilst completing this review the panel considered the existing tools being used in STARS (TEAMS and ieMR) and explored their functionality in relation to the published literature. They realised that they had not fully optimized ieMR's function and would explore ieMRs full capability.

What would you tweet? (140 characters)

Digital tools enable virtual care, but effective communication depends on workflows, trust, and team dynamics—not technology alone.

Critical Appraisal Topic Group Team Members

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CAT group meeting dates

5th May and 25th May 2026

References

- Jayaputera, G. T., Bivard, A., Widjaya, I., Jayaputera, J. W., Susanto, R., Jia, Y., Pan, Y., & Sinnott, R. O. (2024). *MTP: A Cloud-based Real-time Mobile Tele-medicine Platform - Systems Paper* 2024 IEEE 20th International Conference on e-Science (e-Science).
- Massey, A., Montoya, M., Samuel, B. M., & Windeler, J. (2023). Presence and Team Performance in Synchronous Collaborative Virtual Environments. *Small Group Research*, 55(2), 290-329. <https://doi.org/10.1177/10464964231185748>
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