The future role of cytologists regarding Telecytology and Rapid On-Site Evaluation (ROSE), a meta-narrative review

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Background
• Telecytology enables off-site cytology slide evaluation and diagnosis through digital image transfer.
• Rapid on-site evaluation (ROSE) allows for preliminary cytology assessment during image-guided biopsy procedures to determine specimen adequacy (Sarode, 2022).
• From a pathologist’s point of view, ROSE is used to help ensure optimal biopsy has been taken from a patient and is able to be used for diagnostic evaluation (Witt, 2021).
• Telecytology has been shown to increase the productivity of cytopathologists by cutting down on travel time between hospitals and the long wait time between the procedure and needle passes.
• Additionally, Telecytology allows for more flexibility of the cytopathologist by enabling the review of ROSE procedures from various locations simultaneously (Sarode, 2022).

Significance of the study
To educate the clinical laboratory community on the advancements of Telecytology and rapid on-site evaluation (ROSE), facilitating easier and quicker examination of biopsy samples by the pathologist. This is particularly crucial as pathologists are in high demand and can’t always be on-site where a patient needs examination. Through research and the steps outlined in this project, we aim to expand our knowledge of Telecytology and ROSE advancements and their role in cytological assessment and cytologist practice.

Research Questions
• How will the coordinated efforts of Telecytology and Rapid On-Site Evaluation (ROSE) affect clinical diagnoses?
• How will these technologies affect the future of cytologists regarding their role in cancer diagnoses?

Methodology
• The primary database utilized is PubMed, the primary terms that have been used are “Telecytology,” and “ROSE,” and “Cytoarchitecture.” The primary article years used are between the years of 2018 and 2024.
• Utilization of articles past the 5-year parameter was utilized; articles dating to 2018 were used for the background and history of Telecytology/ROSE for the timeline it has followed.
• Inclusion is less than 6 years old, and articles dating more than 6 years were excluded from research data to be current and up to date. Inclusion of documents that focus on cytopathology with telehealth and ROSE will aid in research and presentation.

Key Findings
• Telecytology with ROSE allows for better communication between the operator and cytopathologist, Cytotechnologist.
• Good communication between operator and pathologist can optimize the utility of ROSE and gives the best chance for diagnostic adequacy to be achieved.

Key Findings
• Telecytology in conjunction with ROSE is suitable for clinical use in large volumes. It increases time efficiency without loss of quality for patient care.
• ROSE has advanced with the integration of Telecytology. Recent advances in technology allow ROSE to be offered to remote locations that do not have cytopathology expertise or have limited resources for cytopathology.

Strengths, Limitations, and Future Directions
• The review process for this research enabled the search of articles with the corresponding results and implications pertaining to Telecytology and ROSE. This led to an overall increase in the strength of the studies performed.
• Weaknesses or limitations of these studies include the inability to incorporate mainstream research, which furthers the need for more testing and research to garner a more accurate result for the overall impact of ROSE and Telecytology.
• As technology keeps advancing and evolving in the field of cytopathology, more research may need to be done to investigate and optimize performance.

Conclusions
• The main implications of the findings show that ROSE in conjunction with Telecytology has an increased effect on patient diagnosis without sacrificing quality of care. Plus, increased efficacy and adequacy of diagnosis have been shown with ROSE and Telecytology.
• The results are due to the increased and more impactful communication between the operators, cytotechnologists, and cytopathologists.
• It is recommended that more testing be done in different anatomical areas to increase understanding of how ROSE, in conjunction with Telecytology, can be beneficial to the clinician and patient.

References