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## The Micro-Hospital: 5G Telemedicine-Based Care

Authors' Contribution:  
Study Design A  
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Statistical Analysis C  
Data Interpretation D  
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Today's medical service delivery platforms provide everything from small urgent care 'offices' to large medical centers. Since 2007, an intermediate entity for care has been established, namely, the micro-hospital. Micro-hospitals are 24-hour, small inpatient facilities with an average of 2 to 10 beds, designed to provide a diversity of healthcare services consistent with community demands. In addition, they seek to combine a cost-effective healthcare vehicle with potential time-dependent triage/transfer capabilities to a nearby large medical center. This smaller cost-effective entity represents an ideal vehicle for telemedicine, whereby specialists are always on hand for interpretation and consultation, with minimal patient waiting. In all likelihood, telemedicine, including cloud data storage and retrieval, will develop at a faster pace due to emerging 5G technology. Appropriate modification of the micro-hospital may also lead to creation of specialized centers devoted to endocrine and metabolic disorders, pulmonary diseases, and addiction medicine, which are certainly within the realm of medical necessity.

**MeSH Keywords:** **Ambulatory Care Facilities • Medical Informatics Applications • Robotics • Telemedicine**

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The current spectrum of medical services delivery platforms provides a balance between immediate needs and overall depth of services and ranges from small urgent care “offices” to large medical centers. Since 2007, it appears that an intermediate focal point has been established via creation of micro-hospitals. Micro-hospitals are constantly-open, small inpatient facilities with an average of 2 to 10 beds, designed to provide a diversity of healthcare services consistent with community demands. In addition, they seek to combine a cost-effective healthcare vehicle with potential time-dependent triage/transfer capabilities to a nearby large medical center. A typical micro-hospital is organized according to a common service model that includes emergency services, availability and efficient processing of essential laboratory tests, requisite imaging technologies, minor outpatient surgical procedures, and pharmacy services. Within the near future, the growth of diagnostic and medical services may include enhancement of robotic procedures linked to telemedicine and related tele-technology [1]. It is also envisioned that exponential increases in the depth and reliability of evidence-based diagnosis and decision-making will be facilitated by high-speed data acquisition and retrieval linked to globally available diagnostic algorithms.

With regard to advanced telemedicine at a micro-hospital, we quote: “Telemedicine makes specialists available practically 24/7. A group of specialists who contract with the telemedicine

provider handles calls and can respond either by phone or text message. Or, if the situation warrants, the physicians can diagnose and prescribe treatment for the patient via two-way videoconferencing technology, a cart or robot equipped with diagnostic equipment, and a monitor that provides for face-to-face communication with patients and staff. The tele-specialists might be in the same state and time zone, across the country, or, in some instances, halfway around the world, but they must be licensed in the state and credentialed by the hospital at which they are practicing. Wherever they are, response time is usually fast” [2]. In all likelihood, telemedicine, including cloud data storage and retrieval, will occur at a faster pace due to 5G technology and, for certain procedures, in real-time. For example, 5G will provide for very high bandwidths and ultra-low-power radios at lower costs. Time lag/latency periods that can occur with today’s devices, e.g., robotic services, will be almost non-existent. Finally, for a biomedical model system apparently fashioned according to a “bed and bath” paradigm, micro-hospitals appear to offer a multiplicity of high-quality diagnostic and treatment services that could potentially lower overall medical spending without sacrificing critical staffing requirements. Appropriate modification of the micro-hospital model to accommodate small centers of excellence devoted to endocrine and metabolic disorders, pulmonary diseases, and addiction medicine is certainly within the realm of medical necessity.

## References:

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