

ITU KALEIDOSCOPE

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**5G healthcare applications in
COVID-19 prevention and control**

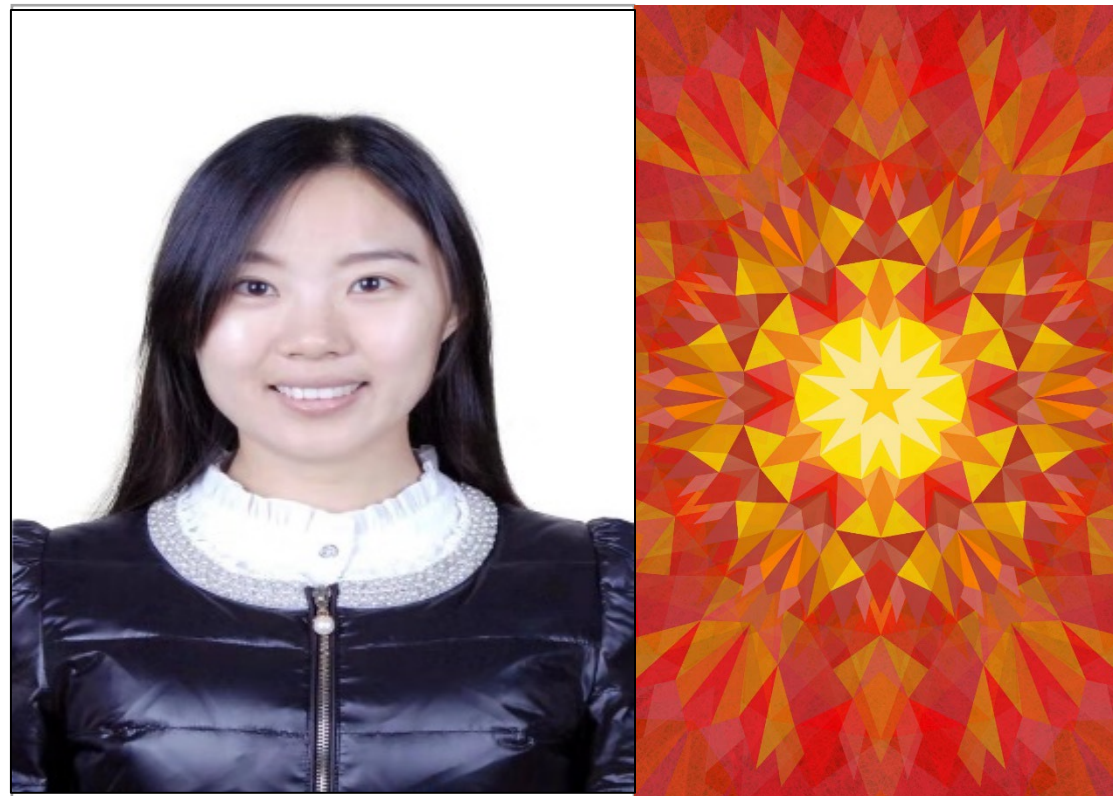
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Session 1:

The path towards digital transformation

Paper S1.3



Needs and challenges in the COVID-19 outbreak area

In the COVID-19 outbreak area, especially Wuhan, China, there are **4 core needs** for doctors and patients

- **Quickly realize regional network coverage**

- The new hospital urgently needs medical information and other systems to go online immediately

- **Doctors lack resources and need support**

- In addition to on-site support, remote support from remote experts is also required

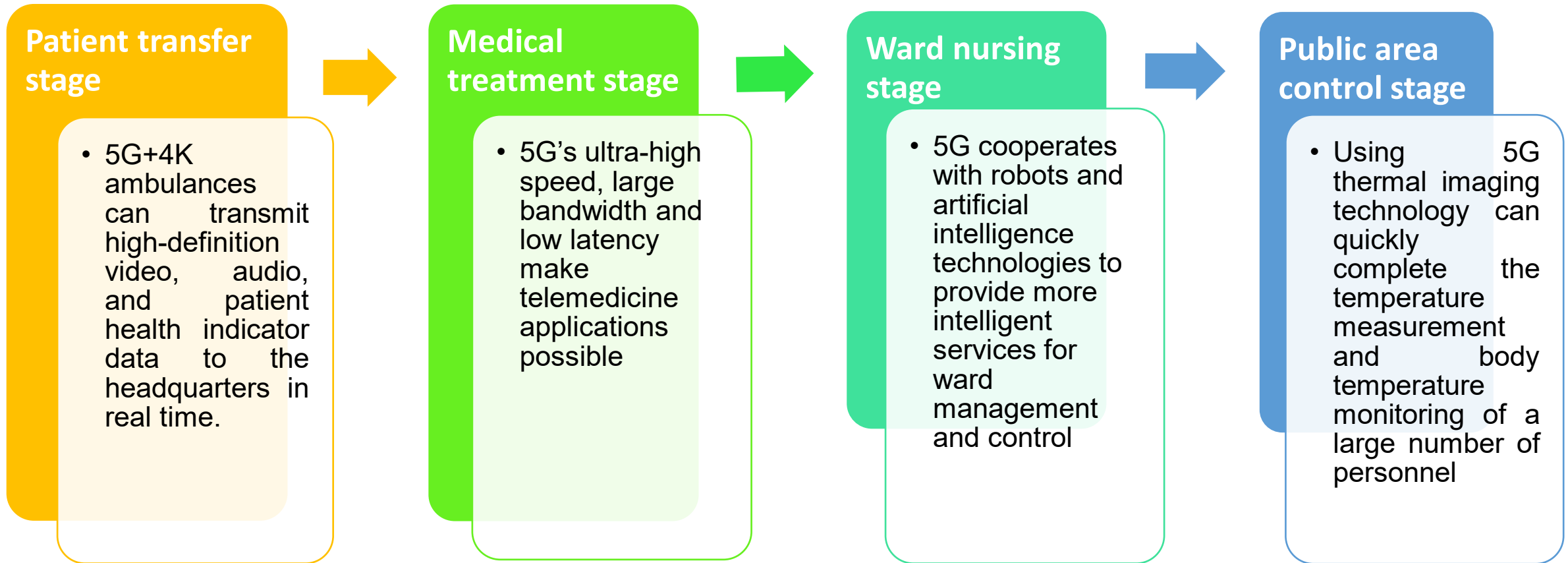
- **Minimize the risk of infection and work intensity of hospital workers**

- Reduce the residence time in the risk zone

- **Emotional counseling by patients and relatives due to isolation**

- Internet and video connection required

Applications of 5G in the COVID-19 prevention and control



Analysis and summary of 5G healthcare applications in COVID-19 pandemic

From diagnosis and treatment to prevention and control, **4 types** and **18** applications can help to suppress the development of the epidemic.

Remote diagnosis and treatment

- Teleconsultation
- Remote CT
- Remote ultrasound
- Remote ECG monitoring
- Cloud detection and analysis

Medical assistance

- Patient Transfer vehicle
- Mobile cart rounds
- Disinfection /distribution car
- Operation assistance
- Wear protective clothing

Medical care

- Remote visit
- Psychological counseling
- Work deployment and training
- Progress Live

Supervision, prevention and control

- Infrared body temperature monitoring
- Patrol robot monitoring
- Drone monitoring
- Wearing equipment monitoring

5G remote diagnosis and treatment

Share doctor resources, reduce doctor exposure risks, and provide patients with efficient and timely diagnosis and treatment.

◆ Remote consultation	100+ hospitals help each other; 3000+ patients receive timely treatment.
◆ Remote CT	20 hospitals help each other; 2000+ patients received timely consultation.
◆ Remote ultrasound	Zhejiang People's Hospital performs B-ultrasound examination for patients in Wuhan Fangcang Hospital, 700km apart.
◆ Remote ECG monitoring	Reduction of 30,000 examination beds/day per system in medium-sized hospitals.
◆ Cloud detection and analysis	Real-time 5G transmission back to the cloud for detection; Mobile laboratory completes 1800+ nucleic acid tests.

5G medical assistance

Reduce the labor intensity of hospital workers, reduce the risk of contact infection, and fulfill the needs of hospital patients in a timely manner

◆ Patient transfer vehicle	5G+4K patient transfer vehicle, 15 hospitals, 400+ suspected or confirmed case transfer
◆ Disinfection car	5G+disinfection truck/medicine delivery/transportation truck: reduce personnel infection risk and labor intensity, 180+ hospitals, 7% reduction in caregiver workload.
◆ Delivery car	
◆ Mobile car rounds	5G high bandwidth & mobility supports intelligent rounds, 1100+ ward rounds, 9% reduction in risk exposures.
◆ Wear protective clothing	5G protective clothing wear self-test/equipment operation guidance, 1000+ medical workers; 20,000+ secondary protection checks

5G medical care

Relieve patients' panic about the epidemic, relieve the psychological pressure of hospital workers and pass the latest plan.

◆ Remote visit	5G remote video Visiting/Psychological nursing. For patients and relatives: used for remote visits to patients in isolation wards. For the hospital: used for medical care to check the patient's situation; Doctors can also conduct remote video psychological consultation. Has landed in many hospitals.
◆ Psychological counseling	
◆ Work deployment and training	5G response to epidemic situation deployment and new skills transfer. 700+ National Work Deployment Conference; 600+ hospital training; 100 + national training.
◆ Progress Live	5G high-bandwidth supports multiple forms of live footage. In just 16 days, the construction progress of "Cloud Supervisor" was broadcast live, with a total of 115 million views.

5G supervision, prevention and control

Real-time monitoring of the temperature of urban mobile personnel and management of the concentration of personnel

◆ Infrared body temperature monitoring	Fixed entrance prevention and control in public places. 4000+ hospitals, enterprises, and public transportation hubs has deployed.
◆ Patrol robot monitoring	5G mobile temperature measurement equipment, mainly used for mobile epidemic prevention and control in public places. 5000+ areas have been deployed, including many hospitals and public places.
◆ Headset monitoring	
◆ Wearing equipment monitoring	

Current problems and challenges

There is currently no unified standard and evaluation system. There are still many standardization issues in 5G medical health in terms of terminal device access methods, data format unification, and application data transmission.

Implementation of large-scale industrialization remains to be studied. 5G medical applications are mainly based on pilot exploration, and are mostly pilot attempts in application scenarios.

Recommendations for future work

Firstly, establish a comprehensive set of 5G medical standards. Promote standards for the system of medical ICT applications, including terminal standards, network standards, and security standards.

Secondly, construction of 5G medical application project demonstration. Promote the construction of 5G medical application demonstration projects in qualifying hospitals, and carry out the selection of 5G medical demonstration projects.

Lastly, promote the integration of new technologies and medical and health innovation. Adhere to the medical needs as the guide, and play the role of 5G, blockchain, artificial intelligence, robots, etc. for medical health.

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Thank you!

