

5G-Enabled Smart Pre-Hospital Emergency System Solution

Solution for pre hospital to in hospital
emergency application scenarios



SANLING GROUP
ZPYT TECHNOLOGY

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01

ABOUT
US

Introduction to SanLing and Its Subsidiaries

 Sanling Industrial Group Co., Ltd. focuses on integrated R&D, production, sales and service in emergency medical solutions across transportation, healthcare, telecommunications, AI and software development industries. The Group's main products include specialized vehicles, 5G hardware equipment, emergency medical devices, and related software applications. All products comply with domestic and international regulations and are sold globally.

 Sichuan ZPYT Technology Co., Ltd., a subsidiary of Sanling Group, specializes in 5G hardware equipment, software development, and AI technology applications for the communications industry. Our products are widely used in smart healthcare, smart legal affairs, smart transportation, and mobile carriers (vehicles, vessels, aviation). We provide integrated industrial solutions featuring multi-level digital and intelligent communication management hardware coupled with application software.

 Sichuan Apcon New Energy Technology Co., Ltd., a subsidiary of Sanling Group, is a special-purpose vehicle manufacturer approved by China's Ministry of Industry and Information Technology with the registered trademark "Apcon". The company is located in Shigao National Economic Development Zone, Tianfu New Area, Chengdu, Sichuan Province, covering an area of about 40,000 square meters. With 13 years of experience in special vehicle design, R&D, manufacturing, sales and after-sales service, it is a national high-tech enterprise.



Production Facilities



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02

**POLICY
SOPPORT**

2023

- In July 2023, the National Health Commission issued the "Notice on Key Tasks for Deepening Healthcare System Reform in the Second Half of 2023"
The document specifies the implementation of a three-year national campaign to achieve information interoperability and sharing among healthcare institutions, promoting the construction and tiered evaluation of smart hospitals, as well as pilot initiatives for "5G+medical health", medical artificial intelligence, and "blockchain+health".
- In May 2023, the National Health Commission and the National Administration of Traditional Chinese Medicine issued the "Notice on Carrying out the Action to Comprehensively Improve Medical Quality (2023-2025)"
Medical institutions shall strengthen the seamless connection mechanism between pre-hospital emergency care and in-hospital emergency services, ensuring smooth coordination between pre-hospital emergency medical services and hospital emergency departments.

2022

- In March 2023, the General Office of the State Council issued the "Opinions on Further Improving the Healthcare Service System"
Leverage information technology as a supportive tool. Develop "Internet Plus Healthcare", establish industrial internet platforms for the medical field, and accelerate the application of internet, blockchain, Internet of Things, artificial intelligence, cloud computing, and big data in healthcare.
- In January 2023, the National Health Commission announced plans to expand pre-hospital emergency capabilities in rural grassroots medical institutions, requiring each township to be equipped with one ambulance
To ensure timely patient transfers, rural areas must strengthen pre-hospital emergency capabilities at primary healthcare institutions. Each township health center and community health center shall be equipped with one ambulance, integrated into the county-wide 120 emergency response system for unified dispatch.

2021

- In November 2022, the National Health Commission, the National Administration of Traditional Chinese Medicine, and the National Disease Control and Prevention Bureau jointly formulated the "14th Five-Year Plan for National Health Informatization"
We will improve the "Internet Plus Healthcare" service system and further expand the service models of "Internet Plus Healthcare".
- In October 2022, the General Office of the National Health Commission issued the "Notice on the Establishment Standards for National Critical Care Medical Centers and Regional Critical Care Medical Centers"
Implementation of healthcare reform tasks and hospital management:

- (1) Advance the tiered diagnosis and treatment system and medical consortium development ;
- (2) Telemedicine services ;
- (3) Informatization infrastructure development ;
- (4) Healthcare quality and industry standards compliance

2020

- In September 2020, the National Health Commission, National Development and Reform Commission, Ministry of Education, Ministry of Industry and Information Technology, Ministry of Public Security, Ministry of Human Resources and Social Security, Ministry of Transport, Ministry of Emergency Management, and National Healthcare Security Administration jointly issued the "Guiding Opinions on Further Improving Pre-hospital Emergency Medical Services"
(1) Enhance pre-hospital emergency medical service capabilities ; (2) Improve the intelligence and informatization level of equipment ; (3) Strengthen the informatization development of pre-hospital emergency medical services ; (4) Improve scientific dispatch capabilities ; (5) Upgrade the quality of pre-hospital emergency medical services
(6) Optimize the coordination mechanism between pre-hospital and in-hospital emergency care.

Mandatory Regulations for Mobile Terminal Products

September 1, 2009, "Compulsory Product Certification Administration Provisions" by the General Administration of Quality Supervision, Inspection and Quarantine, Chapter 2 – Certification Implementation

■ Article 10:

- Manufacturers, sellers or importers of products listed in the catalogue (hereinafter collectively referred to as certification clients) shall entrust certification bodies designated by the CNCA (hereinafter referred to as certification bodies) to conduct certification for their manufactured, sold or imported products.
- For products listed in the catalogue that are manufactured by other enterprises under commission, either the commissioning enterprise or the commissioned enterprise may submit certification applications to the certification body.

September 25, 2000, "Regulations on Telecommunications of the People's Republic of China" by the State Council of the People's Republic of China, Chapter 2 – Telecommunications Market

■ Section 1 – Telecommunications Business Licensing, Article 7:

- The state implements a licensing system for telecommunications business operations based on service classification.
- To operate telecommunications services, enterprises must obtain telecommunications business operation licenses issued by the competent information industry department under the State Council or telecommunications regulatory authorities of provinces, autonomous regions, or municipalities directly under the central government, in accordance with the provisions of these Regulations.

■ Section 2 – Network Access of Telecommunications Equipment, Article 54:

- Telecommunications terminal equipment, radio communication equipment, and devices related to network interconnection that connect to public telecommunications networks must comply with national standards and obtain network access licenses.

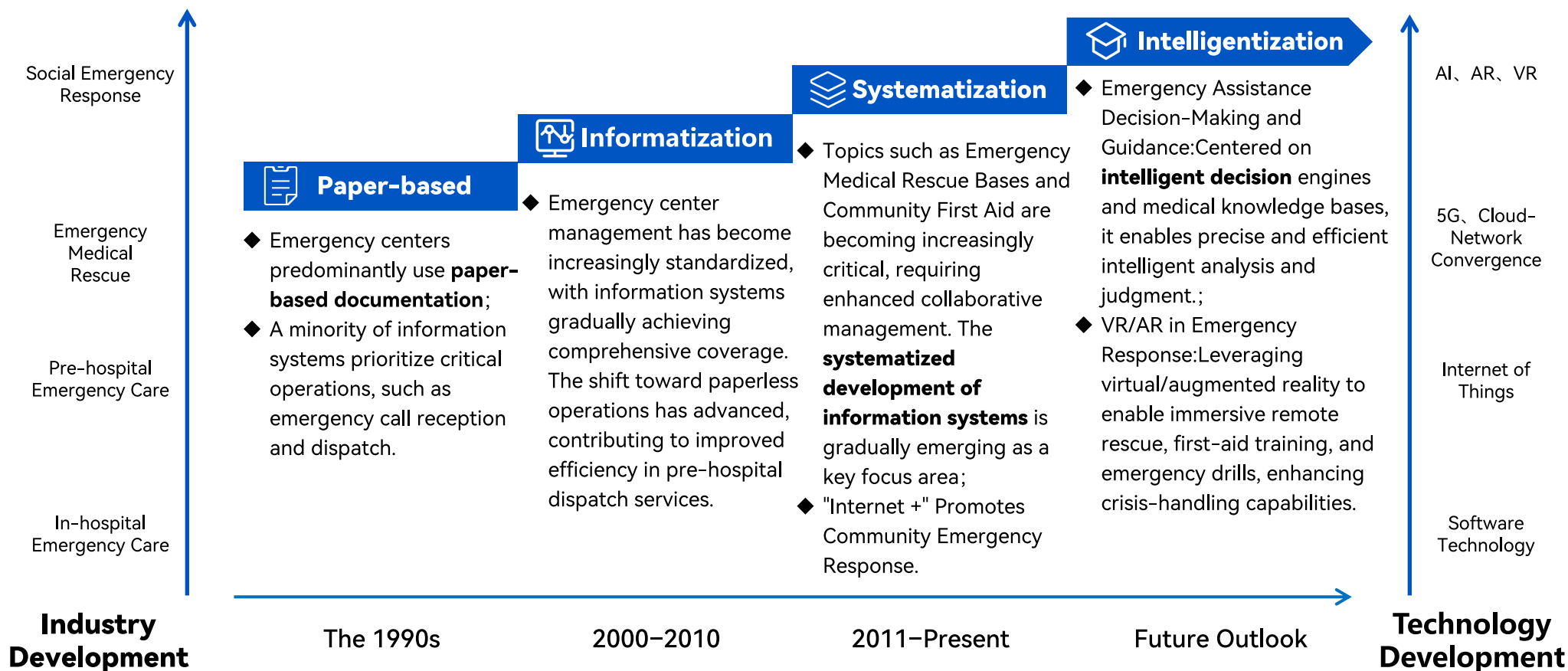
November 11, 2016, "Regulations on Radio Administration of the People's Republic of China" by the State Council of the People's Republic of China, Chapter 5 – Management of Radio Transmission Equipment

■ Article 48:

- Entities selling radio transmission equipment that requires type approval under Article 44 of these Regulations shall complete sales filing procedures with the radio regulatory authorities of provinces, autonomous regions, or municipalities directly under the central government. The sale of radio transmission equipment not marked with type approval codes as stipulated by these Regulations is prohibited.

■ Article 50:

- For the research, production, sale, and maintenance of high-power radio transmission equipment, measures must be taken to effectively suppress radio wave emissions to prevent harmful interference with legally established and operated radio stations (equipment). If actual transmission tests are required, temporary setup and operation procedures for radio stations (equipment) shall be applied for with the provincial-level radio regulatory authorities in accordance with Article 30 of these Regulations.



The rapid development of 5G technology

Smart City Planning & Development

Rapid Transformation of Social Development Models

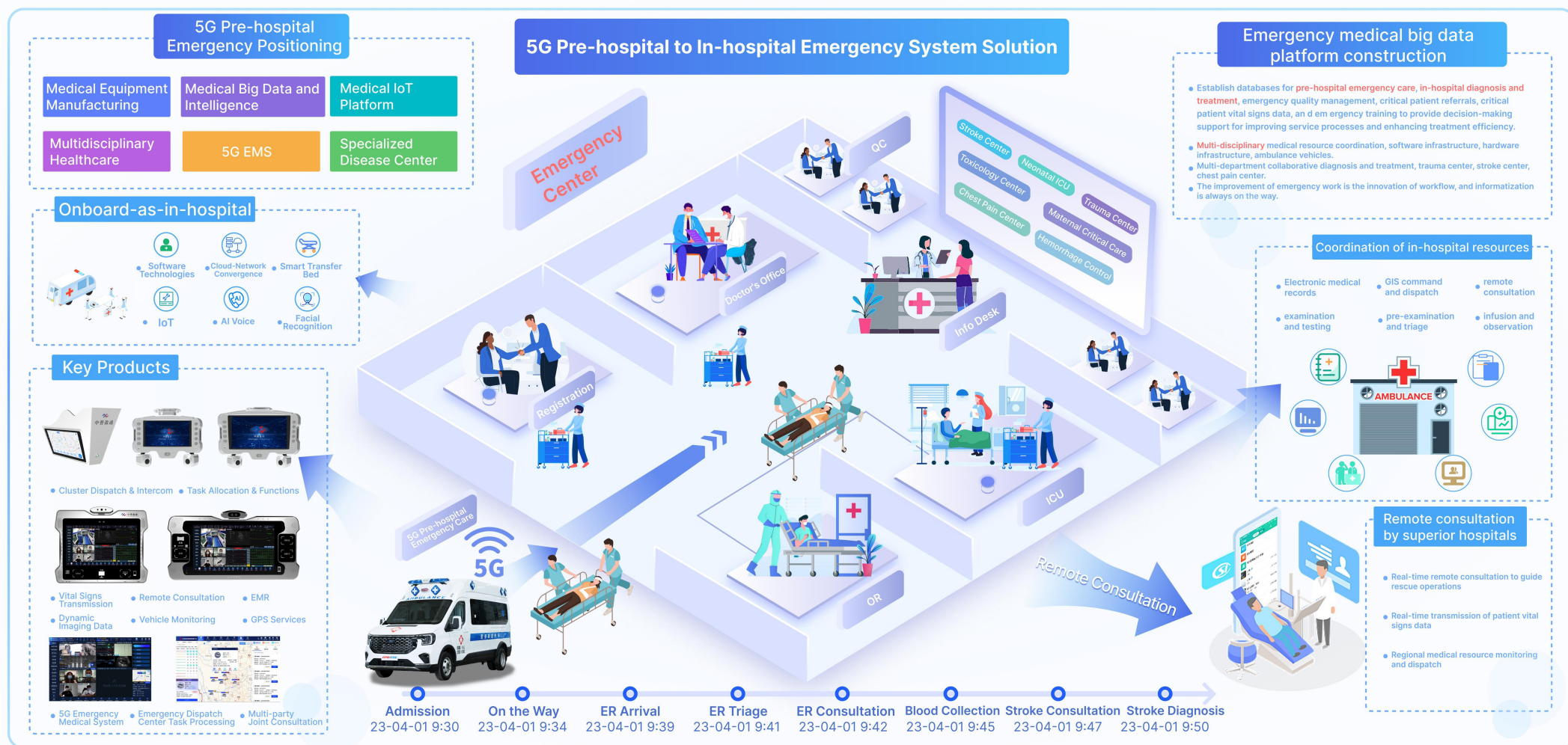
Seamless Pre-hospital to In-hospital Emergency Care Transition

5G+Medical Emergency Response=Emergency "High-Speed" Channel

Harnessing 5G's high-speed, low-latency, and massive connectivity capabilities enables synchronous transmission of large-scale HD medical imaging data. This ensures ultra-HD diagnostic visuals remain stable during transfer, eliminating lag or data loss that could lead to misdiagnosis or oversight. By shifting critical emergency procedures forward, it achieves "hospital-level care upon ambulance entry," seizing the golden window for treatment while drastically reducing response time to maximize patient survival chances.

Guidelines for Mega Emergency Medical Platform Development

5G Smart Pre-hospital Emergency System Solution, based on four core modules: **5G-equipped ambulances**, **pre-hospital emergency care**, **in-hospital emergency treatment**, and **specialized disease centers**. Through big data platform integration, it achieves unified emergency care and supports multiple scenarios including pre-hospital emergency response, emergency room treatment, intensive care, and specialized treatment.



To educate the public on emergency knowledge and skills, and provide **daily pre-hospital medical emergency services to the community**.

Medical emergency support for major government events and tasks.

- Standardized quality control for pre-hospital emergency care
- Integrated pre-hospital and in-hospital electronic medical records.
- Emergency triage, green fast track

Establish a **multi-disciplinary remote consultation platform** for hospitals across the province.

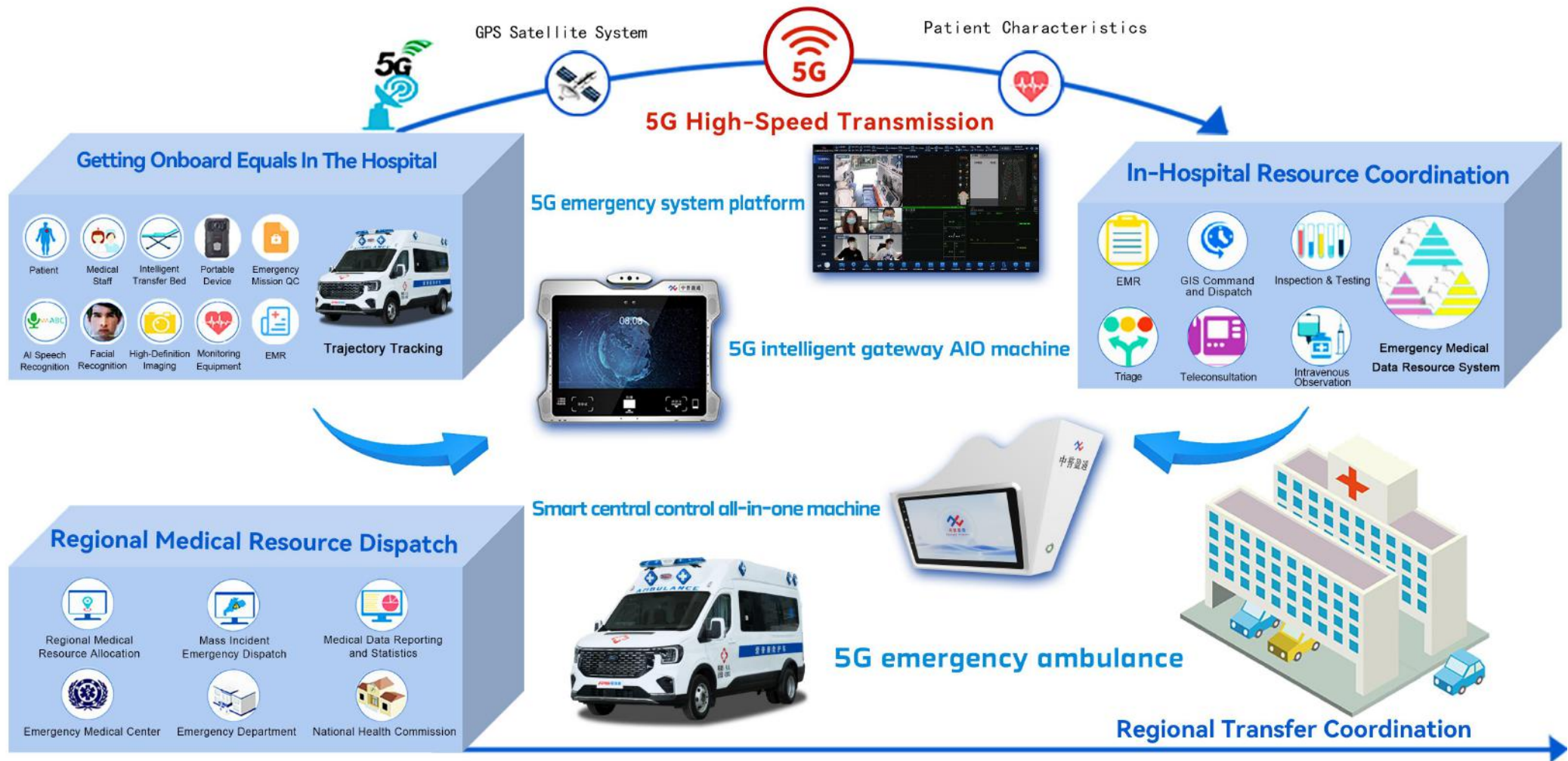
Comprehensively upgrade the **ratings of internet hospitals** and **smart hospitals** in hospitals across various cities.



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03

SOLUTIONS



EGC



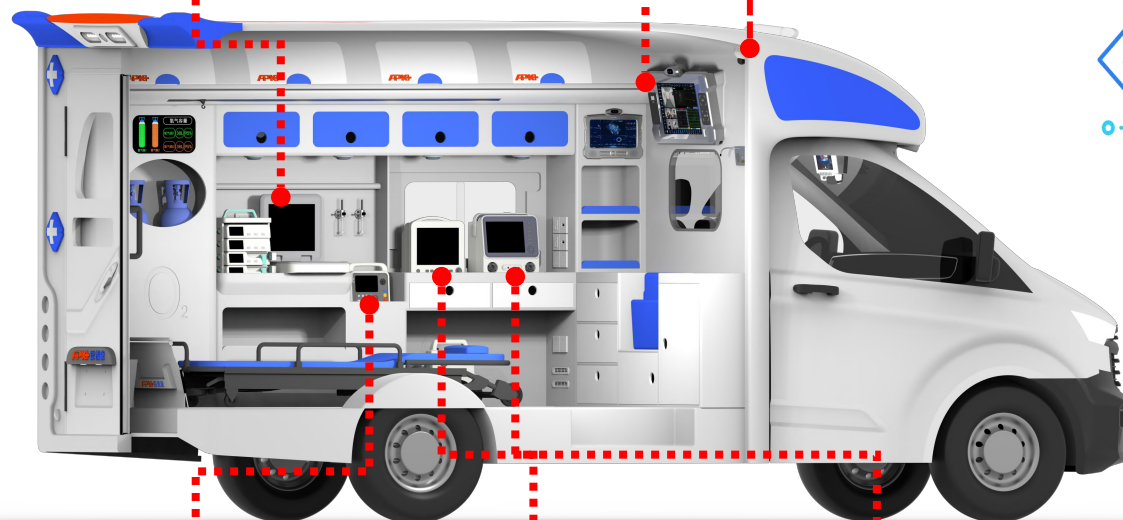
**5G Smart Gateway
All-in-One Device**



**In-Vehicle
Panoramic Camera**



In-Hospital Command Center



Defibrillator



Monitor



Ventilator



- Seamless pre-hospital and in-hospital coordination to rapidly develop rescue plans.
- Real-time synchronization, query, and display of patient vital signs and medical records.
- Real-time voice intercom and video communication guidance with in-hospital experts.
- Low-latency remote operation, nursing, and testing.
- Intelligent big data platform with multi-level data visualization.



In-Vehicle Scenario



5G redundant design, multi-channel network aggregation; supports multi-SIM card insertion with cross-carrier switching; enables network CPE and local area network coverage; provides Wi-Fi wireless network coverage.



ARM and X86 dual CPU system architecture, systems operate independently and can be switched; core critical components and chips can be customized for domestic production.



Binocular cameras for intelligent recognition applications; HD video cameras for video conferencing and calls; multiple external monitoring cameras can be connected to build a panoramic monitoring system.



Supports Beidou and GPS dual positioning systems; supports vehicle OBD system access.



Embedded ID card/social security card/QR code module; embedded infrared temperature sensor unit for human body temperature measurement; includes biometric recognition such as fingerprint module.



High-fidelity speakers ensure call quality; one-touch mute facilitates medical staff diagnosis in noisy environments.



Supports medical device network access; supports wired/wireless medical device access; supports HDMI/VGA/CAN/RS485 and other video and control communication interface access.



AR remote emergency care, AI intelligent analysis, VR virtual medicine.



A 5G ambulance is a mini emergency room equipped with ECG machines, defibrillator monitors, ventilators, and color ultrasound machines. Paramedics can immediately use 5G medical devices to perform ventilator procedures, blood tests, ECGs, and ultrasounds. Via 5G networks, massive medical imaging, vital signs, medical records, and other critical data can be transmitted to hospitals in milliseconds, enabling seamless pre-hospital and in-hospital coordination. Hospitals can rapidly formulate treatment plans and prepare for surgery in advance.



Product Business Process

Targeting medical institutions at all levels, this solution centers on the **5G Smart Gateway All-in-One Device** to build a 5G intelligent emergency care system. It achieves seamless integration between hospital emergency systems, ensures data interoperability, extends in-hospital emergency services forward, and establishes a new "**boarding-is-admission**" emergency care model for patients.



Emergency Cloud Platform

5G private network, 5G public network, hospital dedicated line and other network guarantees

Hospital HIS/PACS/LIS and other information systems

Emergency Management Platform

Regional Health Management Platform

Medical Insurance Payment Platform

Core Advantages

- Leveraging cutting-edge 5G network advantages to ensure secure, stable, and high-speed data transmission during ambulance transit;
- The emergency care process is fully integrated with seamless pre-hospital/in-hospital data connectivity, delivering end-to-end unified emergency services;
- Meets smart hospital rating requirements for pre-diagnosis emergency coordination and supports hospital accreditation evaluations.

The deployment of 5G-enabled mobile nursing carts with integrated nursing information systems addresses critical challenges in traditional nursing workflows, including duplicate data entry, manual documentation, untraceable medication order lifecycles, imprecise care management, and inadequate safety monitoring. This solution delivers core functionalities such as barcode verification, medication order execution, and bedside vital signs collection. By utilizing QR code wristbands for patient identification and enabling real-time medication-patient matching through terminal scanning, the system significantly enhances medication safety protocols and overall healthcare security.



Remote Ward Round



Video Consultation



Interdepartmental Information Sharing

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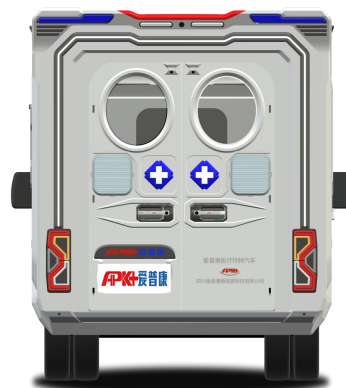
04

**PRODUCT
SHOWCASE**

5G Emergency Ambulance - V363 Mobile Medical Unit



Exterior Display



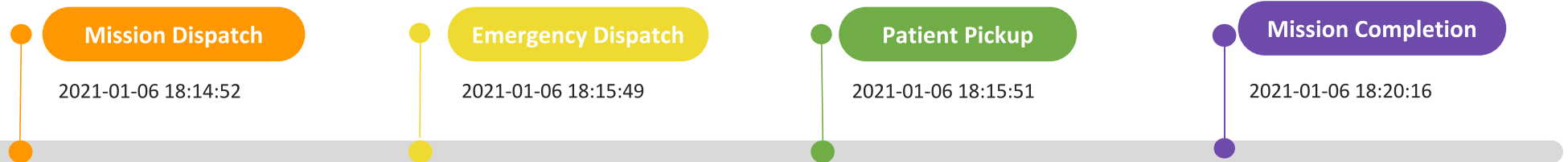
➤ All above models are available with optional configurations:
Long Wheelbase / Medium Wheelbase / Short Wheelbase • Low Roof / Medium Roof / High Roof • Automatic Transmission / Manual Transmission

5G Emergency Ambulance - V363 Mobile Medical Unit



Key Specifications			
External Dimensions (mm)	L:5998 W:2164 H:2775	Displacement (ml)	2296
Fuel Type	Diesel	Passenger Capacity	5-9

➤ All listed models offer configurable options: Long/Medium/Short Wheelbase • Low/Medium/High Roof • Automatic/Manual Transmission



Emergency Vehicle Front Cabin Integrated Console



Trunked Radio Dispatch & Intercom

Rapid Mission Tracking & Real-Time Processing

Vehicle Driving Monitoring & Recording

Prevent Accidents, Facilitate Traceability, Ensure Safety

Real-Time Navigation

Precision Task Navigation, Real-Time Synchronized Location

Mission Dispatch

Rapid Task Deployment, Accelerating Emergency Response Process



The installation of an integrated front cabin console on the ambulance roof enables all functions – including **driving monitoring and recording, trunked radio dispatching and intercom, online navigation**, and task assignment – to be displayed and controlled on a single screen, facilitating convenient and efficient emergency response operations for drivers.



The manufacturer of the front cabin integrated console possesses specialized vehicle modification certifications. Utilizing an overhead mounting design that complies with traffic regulations, the system features concealed wiring layout to ensure in-cab safety, tidiness, and aesthetic integrity.

5G Smart Gateway All-In-One Machine

Major operators

infrared temperature measurement



Voice Announcements



Drone Command



GPS/BD navigation



Remote video consultation



Rescue video recording



Blood oxygen data monitoring



ECG image transmission



Monitor data transmission



Ventilator data transmission



Defibrillator data transmission



Personnel attendance



tpms



Vehicle video monitoring



Temperature and humidity control



Medical equipment testing



Medical insurance case management



Vehicle power monitoring



Barcode/QR code recognition



Vehicle operation information monitoring



Identification of ID card /social security card



Emergency central control platform scheduling



Make full use of the high speed, low latency, and massive connectivity characteristics of 5G. Independently develop 5G business function software and create a 5G emergency vehicle equipped with core emergency medical rescue functions such as emergency consultation, vital sign collection, emergency electronic medical records, and comprehensive monitoring, establishing a new emergency rescue model of "hospital admission upon boarding."

5G Emergency Rescue System - Vehicle Side



5G Emergency Rescue System - Hospital Side



Mobile Side



Main Functions



Multi-party audio and video consultation
Multi-network aggregation, vehicle-grade consultation.
Network self-adaptation, no dialing required.



Vehicle Monitoring
Multi-channel HD video real-time transmission



Electronic Medical Records
General template + five major specialty templates



Critical Condition Early Warning
Early notification of critical illnesses



Medical Instrument Data Collection
ECG, Monitoring, Ultrasound, Blood Gas, etc.

Supports integration with the 120 video dispatch system, hospital HIS systems, etc.
Achieves seamless connection of pre-hospital and in-hospital data.

Leveraging The Advantages Of 5G, AI, And Cloud-Network Technologies, It Enables Intelligent Calling, Precise Positioning, Smart Assistance, And In-Vehicle Consultation Services. Integrated With The Hospital Emergency Information System, It Merges Electronic Medical Records, Emergency Knowledge Base, And 120 Command Dispatch Systems To Create A Comprehensive 5G Emergency Medical Platform.

Emergency Knowledge Base

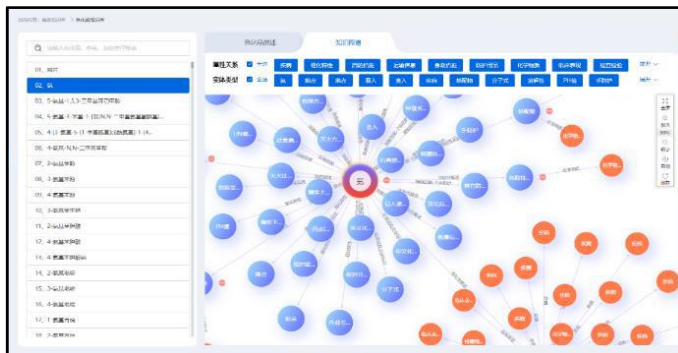


District Emergency Quality Control Platform



Electronic Medical Records

Common Emergency Knowledge Graph



Emergency Command and Dispatch



In addition to basic equipment, ambulances also need a pressure infusion device, thoracic decompression equipment, a portable or multi-function ventilator, a defibrillator, and an ECG monitor. The 5G smart gateway all-in-one machine can connect to 95% of medical instruments on the market, allowing patient data to be transmitted to hospitals or the 120 command center through the gateway.



Other Instruments



Pulse Oximeter



Pulse Oximeter



Blood Flow Detector



Infusion Pump

The Universiade Event Support

During the 31st Summer Universiade, the 5G Negative Pressure Ambulance can achieve remote audio and video consultations, collection and transmission of vital signs data, real-time monitoring of both internal and external vehicle video footage, and vehicle location information. Based on the patient's condition, dynamic rescue arrangement recommendations and preparation plans will be provided. This will enhance the hospital's on-site support capabilities, ensuring the safe, smooth, and efficient completion of the support tasks, and demonstrate the hospital's high-quality, high-standard, and high-efficiency medical emergency rescue capabilities.



Our technical staff training on the use of the 5G Negative Pressure Ambulance System.



Image Source: Chengdu Medical College
Second Affiliated Hospital 416 Hospital




Image Source: Sichuan University West China
Hospital Longquan Hospital



Won the Bid for the Emergency Procurement Project of 200 Monitoring-type Negative Pressure Ambulances and In-vehicle Medical Equipment by Chengdu Municipal Health Commission


- Meets the multidisciplinary treatment requirements for critically ill and emergency patients.
- Meets the requirements for high-definition remote consultation **audio** and video, as well as real-time transmission of dynamic image data, maximizing the support for pre-hospital emergency work and optimizing the emergency response process.
- Equipped with core functions such as real-time transmission of vital signs, remote consultation, pre-hospital electronic medical records, GPS services, and vehicle comprehensive monitoring; the hardware is efficient and stable, ensuring the reliable and stable operation of the pre-hospital emergency system.
- The design and manufacture of the 5G negative pressure ambulance meet the requirements of safety, reliability, comfort, ease of operation, and efficiency, ensuring the basic needs for medical emergency activities and the essential requirements for medical rescue during public health emergencies.



 Create an ambulance equipped for the treatment, monitoring, and transport of infectious patients, meeting the needs of multidisciplinary treatment for critical and emergency conditions.


- 5G Negative Pressure Ambulance: Meets the demand for real-time transmission of high-definition audio, video, and dynamic image data for remote consultations. It is equipped with core functions such as vital sign transmission, remote consultations, pre-hospital electronic medical records, GPS services, and vehicle monitoring. It maximizes the ability to meet pre-hospital emergency needs and optimizes the emergency process.
- It is in compliance with multidisciplinary treatment for critical and emergency conditions.



 Create an ambulance equipped for the treatment, monitoring, and transport of infectious patients, meeting the needs of multidisciplinary treatment for critical and emergency conditions.

- 5G Negative Pressure Ambulance: Meets the needs for high-definition remote consultation with audio, video, and real-time transmission of dynamic image data. Equipped with core functions such as vital signs transmission, remote consultation, pre-hospital electronic medical records, GPS services, and vehicle monitoring. It maximizes the ability to meet pre-hospital emergency requirements, optimizing the emergency response process.
- Complies with multidisciplinary treatment for critical and emergency conditions.



 Jointly build the 5G pre-hospital emergency system for Chengdu 120 Emergency Center.

- 5G Ambulance: An upgraded version of the traditional ambulance, equipped with core functions such as vital signs transmission, remote consultation, pre-hospital electronic medical records, GPS services, and vehicle monitoring.
- Remote Consultation: Utilizing the high bandwidth capabilities of 5G, enabling 5G remote consultations to enhance the remote medical service experience.

Chengdu Municipal Health Commission

The First People's Hospital of Chengdu

The Second People's Hospital of Chengdu

The Third People's Hospital of Chengdu

The Fourth People's Hospital of Chengdu

The Fifth People's Hospital of Chengdu

The Sixth People's Hospital of Chengdu

The Seventh People's Hospital of Chengdu

The Eighth People's Hospital of Chengdu

Chenghua District Third People's Hospital

Chengdu Emergency Medical Command Center

Affiliated Hospital of Chengdu University

Chengdu Women's and Children's Central Hospital

Chengdu Public Health Clinical Medical Center

Jitian Central Health Center, Sichuan Tianfu New Area

Taiping Central Health Center, Sichuan Tianfu New Area

HY Community Health Service Center, Sichuan Tianfu New Area

Mental Health Center of Sichuan Tianfu New Area

The First People's Hospital of Longquanyi District, Chengdu

The Second People's Hospital of Longquanyi District, Chengdu

West China Tianfu Hospital, Sichuan University

People's Hospital of Sichuan Tianfu New Area

Longquanyi District Traditional Chinese Medicine Hospital

Longquanyi District Maternal and Child Health Hospital

Xihe Town Public Health Center, Longquanyi District, Chengdu

Pujiang County Traditional Chinese Medicine Hospital

Pujiang County Second People's Hospital

Xilai Public Health Center, Pujiang County

Datang Public Health Center, Pujiang County

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- Accumulated 50+ patent applications, with 24 granted
- 4 product certification reports





中国医学装备协会2021年救护车设备采购项目交付仪式



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WhatsApp

5G Caring for Universal Health