**Supplementary Table**

**Table S1** Results of Open Coding

| Code | Initial Category | Initial Concepts | Representative Quotations |
|---|---|---|---|
| A01 | Insufficient Integration of the CLMAs | Nominally established CLMAs; Core management authority not delegated; Lack of benefit-sharing mechanisms; Risk-sharing system not established | "We haven't truly implemented the CLMAs well; it's only nominal at present. We may go down this path in the future, but for now, it's just in name." "The leading hospital cannot manage the personnel and finances of member institutions. The 'six-unified' management (The six-unified management system of the CLMAs includes: unified personnel management, financial management, asset management, operational management, medicine and consumables catalogue, and medicine and consumables distribution.) exists only on paper and is fundamentally unimplemented." "The leading hospital and township health centers calculate their revenues separately in areas like emergency rescue and two-way referral. There's no real benefit bundling." "Township health centers and village clinics have to bear the medical risks of pre-hospital emergency care on their own. There are no clear regulations stating that the CLMAs will provide a bottom-line guarantee for us." |
| A02 | Lack of Local Government Emphasis | Did not lead in promoting the implementation of the "six-unified" management; Emergency medical capacity building not included in county key planning; No government-led cross-departmental coordination; Lack of government supervision over CLMAs emergency capacity building; No policy tilt in | "The local government hasn't taken the lead in implementing the 'six-unified' management; support is relatively weak." "The county's overall medical planning still focuses mainly on the expansion of the county hospital. The part about enhancing emergency capacity hasn't been included." "Medical insurance, staffing, and finance departments each manage their own affairs. Without government coordination, it's difficult to break the policy barriers for emergency capacity building within the CLMAs. When problems arise, no one takes the lead in solving them." "The government only issued documents saying to build the CLMAs, but hasn't actually gone to see how the emergency medical service capacity is being developed." |

| Code | Initial Category | Initial Concepts | Representative Quotations |
| --- | --- | --- | --- |
| | | emergency medical investment | "The county finance does not allocate separate funds for emergency capacity building. Medical investment doesn't give special consideration to emergency care either. Basically, the leading hospital bears its own profits and losses." |
| A03 | Difficulties in Intra-Alliance Departmental Collaboration | No authority in emergency command and dispatch; No regularized coordination mechanism for emergency referrals | "We have no command and dispatch authority, nor any say in the appointment of personnel for the health centers. It's hard to get them to work with us." "Sometimes township health centers transfer patients up without prior notice. When the county hospital's emergency beds are all full, there's no way to admit them." |
| A04 | Incomplete Coverage of the Emergency Network | Some primary-level institutions lack conditions to establish emergency stations; County emergency service radius is too large; Layout of emergency stations does not match population distribution | "Some township health centers don't have the conditions for pre-hospital emergency care and cannot establish emergency stations." "Our area is quite vast. The service radius of some health centers is too large. In cases of severe trauma, if they dispatch a vehicle alone, it's still not timely enough. We need to dispatch vehicles simultaneously and meet for handover en route." "Some remote townships have only one emergency station but serve a relatively large population." |
| A05 | Gaps in Emergency Medical Resources | Ambulances lack core equipment; Primary-level emergency diagnosis and treatment equipment is scarce | "Some of our ambulances don't even have defibrillators or oxygen tanks; they only serve a transport function. The ambulances' facilities and equipment are insufficient." "Health centers in poor condition don't have electrocardiogram monitors or simple ventilators, and cannot provide basic life support." |
| A06 | Unbalanced Progress in the Construction of the "Five Major Centres" and Treatment Units | Some treatment centers are not yet built or operational; Hardware of primary-level treatment units does not meet standards; Constructed treatment centers lack professional technical support | "Among the ‘five major centres' (of chest pain, stroke, trauma, critical maternal care, and neonatal treatment), only the stroke center and chest pain center have passed national accreditation and are operating normally. The trauma center is still under preparation." "Most township health centers have not met the hardware requirements for treatment units. Initially, we could only choose health centers with relatively stronger capabilities and more adequate personnel to establish treatment units." "The constructed treatment centers don't have |

| Code | Initial Category | Initial Concepts | Representative Quotations |
|---|---|---|---|
| | | | fixed specialist doctors stationed. More complex emergencies still need to be referred to the county hospital." |
| A07 | Structural Shortage of Emergency Medical Talents | Difficulty attracting high-educated emergency talents; Aging structure of emergency personnel; Lack of specialized emergency talents at the primary level; Inability to retain young emergency talents | "It's very hard to recruit undergraduates for the emergency department, let alone postgraduates." "Most of the emergency department backbones are in their 40s or 50s, some are nearing retirement. New young people are also unwilling to work in emergency." "Some township health centers don't have dedicated emergency doctors; general practitioners handle it." "Young emergency doctors trained in primary-level hospitals want to move to county or city hospitals after working a few years. So, the talent drain is quite serious." |
| A08 | Fragmentation of Informatization Construction | Emergency information systems use different brands; Cross-institutional diagnosis and treatment data cannot be shared; No unified pre-hospital emergency dispatch platform; Emergency data not managed with standardized criteria | "The brands of emergency information systems differ across units. To achieve information interoperability requires additional investment for access, and the construction levels are uneven." "Systems are not interconnected. Test reports from patients at the health center cannot be retrieved when transferred to the county hospital, requiring re-examination." "The 120 pre-hospital emergency center is both connected to and relatively independent from our hospital. It actually belongs to our hospital's emergency department. From the perspective of the 120 emergency system construction, it does not meet national requirements for the entire emergency system construction." "Informatization system construction is incomplete. Some places have systems, others don't and rely on computer spreadsheets for records. Moreover, the standards for filling out emergency medical records and resuscitation records are not unified between county and township levels, making it impossible to aggregate data for quality control analysis." |
| A09 | Insufficient Financial Investment | Shortage of special funds for emergency care; No guaranteed operational funds for | "The annual allocation for emergency care is very limited, basically relying on the hospital's own sustenance. Emergency care is not a key project for the hospital, so the funds obtained are still |

| Code | Initial Category | Initial Concepts | Representative Quotations |
|---|---|---|---|
| | | pre-hospital emergency care; No special budget for purchasing emergency equipment; No financial subsidy for emergency personnel salaries | quite limited."<br>"Pre-hospital emergency care is entirely funded by the leading hospital for operations, relying solely on the hospital's own funds to subsidize it. The pressure is enormous."<br>"There is no special financial procurement budget for updating old ambulances, defibrillators, and other equipment. The hospital cannot bear the cost alone."<br>"Emergency doctors face high work risks and intensity, but there is no special financial salary subsidy. Their salary is the same as that of ordinary clinical doctors, sometimes even lower." |
| A10 | Insufficient Homogeneous Management of EMS | Remains only at the level of basic operational guidance; Emergency diagnosis and treatment standards are not unified between county and township; No rigid constraints in emergency quality assessment | "For member institutions, it's mainly about management and operational guidance, which is homogeneous management. The leading hospital will send deputy directors down, but without real personnel authority, so the effect is not very obvious either."<br>"The disposal process and medication standards for common emergencies are inconsistent between county hospitals and township health centers. Patients need treatment plan adjustments after referral."<br>"Although homogeneous assessment indicators for emergency care have been formulated, they are not hard-linked to rewards and punishments. So, the effectiveness of implementation at the primary level, whether good or bad, doesn't really have consequences." |
| A11 | Insufficient Implementation of Tiered Diagnosis and Treatment | Low willingness of patients to be referred-down to primary level; Blurred boundaries between acute and chronic care in diagnosis and treatment; No linkage for follow-up diagnosis and treatment of referred-down patients; Insufficient | "Patients are unlikely to be referred down to health centers. The purpose of coming to the county hospital is to avoid being treated below, so they all come directly."<br>"Chronic disease patients often come to the emergency department for medication and infusions, occupying the beds and resources of the acute patients."<br>"The county hospital transfers recovering patients to health centers, but some health centers lack supporting rehabilitation facilities and personnel. So, even if transferred down promptly, the follow-up treatment cannot keep up." |

| Code | Initial Category | Initial Concepts | Representative Quotations |
|---|---|---|---|
| | | capacity of primary level to receive referred emergency cases; Lack of incentive mechanisms for tiered diagnosis and treatment | "Some health centers lack complete equipment and talents and are incapable of receiving mild emergency cases referred down from the county hospital." "We don't have specific incentive measures targeting patients and doctors for tiered diagnosis and treatment. Everyone gets their own share of money, so the initiative to participate actively in tiered diagnosis and treatment is not high." |
| A12 | Singular Forms of Counterpart Assistance | Mainly offline centralized training; No long-term expert secondment mechanism; No quantitative evaluation of assistance effectiveness; No practical emergency operation teaching conducted; Assistance not tailored to the actual needs of the primary level | "Assistance to health centers is still mainly about training personnel and helping them develop new technologies." "The county hospital sends experts to health centers for training irregularly. Due to manpower shortages, the emergency department rarely has personnel available for long-term stationing at health centers to guide work." "The assistance ends, but there is no regular check on the success rate of emergency treatment and referral at member institutions. So, the effectiveness of the assistance cannot be measured with numbers." "We still focus on emergency theory training. Sometimes venue and time are limited, so there are few opportunities to conduct practical resuscitation drills with them." "No different plans are specifically formulated based on the equipment and talent shortages of member institutions' emergency departments. Assistance measures are still singular." |
| A13 | Low Quality of Emergency Care | Weak capacity of primary level in handling emergency diseases; Non-standardized emergency diagnosis and treatment processes; Incomplete writing of emergency medical records; Insufficient auxiliary examination capacity for emergencies at | "Some township health centers have poor conditions, lacking good equipment and doctors. Many diseases cannot be handled and are directly sent to the county hospital." "The primary level sometimes doesn't follow the rules for triage. During busy times, minor and severe injury patients might get mixed up, which can easily delay the rescue of severe patients." "Emergency medical records at health centers and village clinics simply record the patient's symptoms, sometimes omitting key vital signs like blood pressure and heart rate." "Some health centers and village clinics cannot |

| Code | Initial Category | Initial Concepts | Representative Quotations |
|---|---|---|---|
| | | primary level | perform rapid blood tests, ultrasound, and other examinations for emergencies. They cannot quickly determine the cause of the emergency, leading to blind transfer." |
| A14 | Professional Burnout Among Medical Staff | Excessive emergency workload and holding multiple roles; Emergency compensation does not match work intensity; Narrow career advancement channels for primary-level emergency staff; High risk in emergency work without safeguards; No reasonable compensation or time off for overtime | "Doctors and nurses have to be responsible for pre-hospital emergency, in-hospital emergency, and the work of treatment centers. The work pressure is huge, the salary is not much, it's particularly exhausting." "Emergency department doctors often work night shifts and handle emergencies, with work pressure much higher than general clinical departments, but their salary is not correspondingly increased." "Primary-level emergency doctors have few opportunities to conduct research. Professional title evaluation mainly relies on seniority, leaving little room for career development." "If a patient cannot be saved, family members easily complain and hold accountable. The hospital doesn't provide any special protective measures for medical staff." "We often have to dispatch for emergencies on holidays and at night, without overtime pay or reasonable time off. Both body and mind are long-term overload state." |
| A15 | Public Cognitive Bias | Contact family first rather than emergency services after onset of illness; Underestimation of primary-level emergency medical service capacity; Non-emergency symptoms occupy emergency resources | "Some patients, after falling ill, don't directly call the hospital. They call family first, who then call the hospital or acquaintance homo sapiens, delaying the condition." "Villagers always feel that health centers and clinics cannot handle acute illnesses. For minor injuries or slight stomach aches, they prefer to go to the county hospital." "Non-urgent matters like colds, fevers, or getting chronic disease medication—everyone runs to the emergency department, thinking they don't have to queue." |