Development and Inheritance of Modern and Contemporary Snakebite Medicine in Suzhou

Weiren SHI[1]*, Zhong'en GAO[2], Zehao ZHONG[3], Yujia ZHANG[1]

1. Suzhou Vocational Health College, Suzhou 215009, China; 2. Suzhou Hospital of Traditional Chinese Medicine, Suzhou 215009, China; 3. Jiangyin Hospital of Traditional Chinese Medicine, Wuxi 214400, China

Abstract The development of snakebite treatment in Suzhou during the modern and contemporary periods has undergone an evolutionary progression, transitioning from folk practices to systematic integration, and subsequently to the integration of traditional Chinese and Western medicine. During the Republic of China period, Ye Juquan and other physicians pioneered the systematic scientific organization of herbal medicine for the treatment of snakebites. Following the establishment of the People's Republic of China, the government undertook initiatives such as the "folk remedy collection" movement to gather traditional folk remedies. Additionally, snake herbalists were integrated into the formal hospital system, and specialized treatments, including "Wujiang snakebite medicine", were developed. Since the implementation of reform and opening-up policies, although the prominence of antivenom has diminished the dominant role of traditional Chinese medicine (TCM) in first aid, Suzhou has gradually developed a distinctive rescue model that prioritizes antivenom as the primary treatment while incorporating TCM as a complementary approach. This model demonstrates its unique value particularly during the stages of severe case treatment and rehabilitation. In the 21st century, the specialty of snakebite treatment has been formally recognized by relevant authorities, marking its transition from a traditional folk practice to a modern TCM specialty. This development highlights the enduring vitality and clinical adaptability of the Wumen School of Medicine in the prevention and treatment of snakebites. This paper systematically reviews the transmission and development of Suzhou snakebite medicine through policy, academic discourse, and social interactions in the modern era, elucidates the mechanisms by which this specialty sustains its relevance amid changing circumstances, and offers insights for the preservation and advancement of regional medical heritage.

Key words Snakebite, Snakebite herbalist, Traditional Chinese medicine (TCM), Wumen School of Medicine, Integration of traditional Chinese and Western medicine

1 Introduction

Suzhou is situated between the Yangtze River and Taihu Lake, characterized by a dense network of waterways and numerous tidal flats. This geographical setting not only supports agricultural and commercial activities but also creates a favorable habitat for snakes. Consequently, due to the frequent presence of venomous snakes, the Suzhou region has developed a rich tradition of folk remedies for treating snakebites since ancient times. During the Ming and Qing dynasties, a group known as the snake beggars who performed with snakes emerged. In the region west of Xushuguan in Suzhou, there were unusual accounts of these snake beggars subduing venomous snakes and providing treatment to the injured, as documented in scholars' notes[1]. Wangting Town, situated within this area, has also served as a link connecting historical and contemporary narratives. Furthermore, towns such as Tongli and Pingwang in Wujiang, along with townships including Meili, Baimao, and Xinzhuang in Changshu, are recognized as the home of snakebite herbalists. Conversely, since the Song and Yuan Dynasties, the tradition of Confucian medicine in Suzhou had deepened significantly. By the Ming and Qing Dynasties, Suzhou had earned the reputation of producing "many imperial physicians in Wuzhong", which led traditional Chinese medicine (TCM) practitioners in Suzhou City to adopt a cautious and reserved attitude toward folk snake herbalists, snake beggars, and their associated practices. In the early years following the establishment of the People's Republic of China, both TCM and Western medicine faced significant challenges in effectively treating venomous snakebites. It was only after snakebite herbalists garnered official recognition that improvements began to emerge. Subsequently, various political movements had fostered increased attention from academic circles in both traditional Chinese and Western medicine, as well as from the general public in Suzhou, toward snakebite prescriptions and remedies. Some hospitals have incorporated snakebite herbalists into their staff, facilitating the transmission and development of their expertise to the present day.

2 Research on snakebites from the Republic of China to the "first seventeen years" of the People's Republic of China

2.1 Research on TCM by Suzhou National Medical College and Rural Medical Continuing Education Cooperative In the medical field, the spread of Western influence to the East in modern times significantly impacted TCM and pharmacology. Influenced by new developments in medicine and pharmacology, a group of TCM practitioners began to attempt the integration of traditional Chinese and Western medicine. By the era of the Republic of China, a movement toward the "scientization of TCM (pharmacology)" had emerged, advocating for the systematic analysis and investigation of TCM using scientific methods. In Suzhou, Ye Juquan is widely recognized as a pioneer in TCM research.

Received: December 10, 2025 Accepted: January 20, 2026
Supported by General Program of Philosophy and Social Science Research in Colleges and Universities of Jiangsu Province (2024SJYB1134); Scientific Research Project of Suzhou Vocational Health College (SZWZYQDJ0113).
* Corresponding author. Weiren SHI, doctoral degree, lecturer.

Ye Juquan practiced medicine in Wuxing Village during his early years. In 1925, he enrolled in a correspondence school established by Yun Tieqiao in Shanghai, where he systematically studied the theories of both traditional Chinese and Western medicine. This education led him to develop an initial interest in researching TCM. Upon returning to his hometown after completing his studies, Ye combined the folk single prescriptions he had encountered in his youth and founded the National Medicine Single Prescription Experimental Research Society in 1933. He led apprentices in collecting herbs and conducting research on single-ingredient TCMs and folk herbs. This initiative not only rectified inaccuracies in previous records but also expanded the range of medicinal applications. In 1935, Ye was invited to teach at Suzhou National Medical College, which subsequently established the Suzhou National Medical Hospital and the Suzhou National Medical Research Institute. Ye served as one of the appointed physicians and research instructors. Throughout his medical practice, Ye actively engaged with itinerant folk doctors, collecting and systematizing traditional folk prescriptions.

Following the closure of the Suzhou National Medical School in 1941, Ye relocated to the rural areas of Suzhou, where he continued to practice medicine and manage a cooperative. At the onset of the People's Republic of China, to support rural public health initiatives and the patriotic health campaign, Ye, together with colleagues in Suzhou, reestablished the Rural Medical Continuing Education Cooperative. This organization actively engaged in the prevention and treatment of infectious diseases and provided training for TCM assistants in rural communities. In a stable environment, Ye was able to concentrate on the study of prescriptions and medicines, resulting in the publication of *Practical and Effective Folk Simple Prescriptions*[2] and the translation of *Folk Medicines from Animals and Plants* written by Japanese scholars[3]. The former work is a compilation of folk single prescriptions that Ye collected and organized over many years, including various herbs known for their efficacy in treating snakebites. The latter specifically enumerates animal- and plant-based medicines used for "bites from vipers and other snakes". These texts represent the earliest documented folk records of snakebite herbs in the Suzhou region, establishing Ye as a pioneer in this field[4].

2.2 Collection of prescriptions during the "folk remedy collection movement" At the inception of the People's Republic of China, the policy of "scientification of TCM (pharmacology)" was implemented. Pharmacists who had served under the previous government were permitted to continue their research on TCM under the auspices of the new people's government. Following the introduction of new policies concerning TCM, the Ministry of Health began to emphasize TCM treatment techniques and encouraged practitioners to contribute prescriptions by convening meetings of TCM representatives at various administrative levels. With the convening of various conferences on TCM across different regions, an increasing number of TCM practitioners voluntarily shared their family heirloom tests and secret recipes. In the East China region, the Jiangsu Provincial Conference on TCM was held at the end of June 1954, bringing together 70 TCM representatives throughout the province to communicate new policies related to TCM. During the conference's exchange session, numerous representatives presented their secret treatment recipes[5]. In October 1954, the East China Region and Shanghai Traditional Chinese Medicine Representatives Conference was held in Shanghai. Tan Zhenlin, Secretary of the East China Bureau, emphasized the equal importance of traditional Chinese and Western medicine, and encouraged attending TCM practitioners to exchange medical knowledge and experiences[6].

In 1955, the practice of providing prescriptions at conferences evolved into a broader movement focused on the donation of prescriptions. Hebei Province took the lead by introducing initiatives such as "remedy collection and talent recruitment", thereby expanding the scope of collecting single-ingredient, empirical, and secret formulas beyond the TCM sector[7]. This approach was publicized by *Health News* and subsequently inspired similar efforts nationwide. Through a talent recruitment initiative, Hebei Province engaged local grassroots "folk experts" to support hospital treatments. The practice also exerted a national influence through the *People's Daily*[8]. In June 1956, during the Third Session of the First National People's Congress, Minister of Health Li Dequan endorsed the collection of TCM prescriptions while addressing the role of TCM in the prevention and treatment of schistosomiasis. He further encouraged regional authorities to enhance the utilization of single-ingredient, empirical, and secret formulas[9]. To implement the directives of the meeting, Zhu Liangchun from Nantong Hospital of Traditional Chinese Medicine visited Ji Desheng and other local experts, requesting their participation in outpatient services at the hospital. Subsequently, Ji Desheng donated the secret formula for his snakebite medicine. At that time, China lacked modern treatments for snakebites, and Ji Desheng's snakebite medicine attracted the attention of the Ministry of Health. His story was published in the *People's Daily*, serving as a national model aimed at encouraging various regions to gather experience in treating snakebites, in addition to general medical prescription collection[10].

Due to the necessity of supporting the development of Nanjing University of Chinese Medicine and Jiangsu Province Hospital of Chinese Medicine, personnel specializing in TCM in Suzhou experienced frequent transfers. Consequently, the meeting of TCM representatives in the Suzhou region was postponed until December 1955. Following this meeting, the Traditional Chinese Medicine Research Committee of the Suzhou TCM Workers Association and the Wu County Health Workers Association were established. Additionally, the membership congress of the Suzhou TCM Workers Association was convened in November 1956. The TCM Research Committee of the Wu County Health Workers Association compiled the prescriptions donated during the aforementioned two meetings into the *Compilation of Secret and Empirical Prescriptions of Traditional Chinese Medicine*[11]. Reflecting the strong influence of

Suzhou's profound Confucian tradition, the majority of donors at that time were formally trained practitioners of TCM. Notably, no folk empirical prescriptions, including those for snakebites, were contributed. The social response was notably enthusiastic, resulting in increased participation in the donation of prescriptions. In the *Compilation of Secret and Empirical Prescriptions of Traditional Chinese Medicine* (*Second Series*), published in April 1958, folk empirical prescriptions for insect and snakebites were included[12]. Historically, Suzhou has attracted a substantial population of itinerant individuals, such as snake beggars, due to its prosperous commerce and convenient land and water transportation. The development of modern railway transportation further contributed to this influx. Ji Desheng, a former resident of Suzhou, became a disciple of a snake beggar surnamed Han, who was active near the northern gate of Suzhou during that period[13]. These individuals often originated from modest backgrounds but possessed valuable skills that warrant recognition.

2.3 Health sector's emphasis on snakebite medicine during the Great Leap Forward In light of prior research on snake herbalists and the identification of snakebite prescriptions, the Ministry of Health convened a national conference dedicated to the exchange of knowledge on snakebite treatments. In October 1959, the National Snakebite Prescription Exchange Conference was held in Guangzhou[14], attended by relevant experts from southeastern coastal provinces and cities, as well as renowned folk snake herbalists from the region, including Ji Desheng from Jiangsu. Initial proposals for regional collaboration on snakebite and venom research were also presented. Following the meeting, leveraging the clinical validation of Ji Desheng snakebite medicine as an opportunity, the East China region established a clinical research cooperation network focused on snakebite medicine across Jiangsu, Zhejiang, and Shanghai. This network was based on several hospitals and research institutions located in Nantong, Wuxi, Suzhou, and other areas. Among them, the cooperating hospitals in Suzhou were the First Affiliated Hospital of Suzhou Medical College, Suzhou Hospital of Traditional Chinese Medicine, and Suzhou PLA 100 Hospital[14-15]. As Suzhou Medical College had recently been established, it was the most active institution in researching snakebite prescriptions, supported by well-developed scientific research facilities. Consequently, it became the early center for snakebite medicine research in Suzhou, with subsequent primary responsibility transitioning to Suzhou Hospital of Traditional Chinese Medicine.

In the same year, Hui Zhifang, who was then serving as the director of the Suzhou Municipal Health Bureau, visited the renowned snake herbalist He Fulin and his wife Kan Aju in Wangting Town. He arranged for them to establish the Wu County Poisonous Snake Prevention and Treatment Institute at the former Fangong Temple on Shangfang Mountain. This initiative was supported by Xu Zhengkui, the TCM representative of the Wu County Health Bureau. Xu also publicized He's Snake Detoxifying Powder[16]. Unlike Wu County, Zhu Songguan was the first practitioner specializing in snakebite medicine in Suzhou City. To emphasize the significance, the Suzhou Municipal Government allocated a residence for Zhu on Shiquan Street and permitted him to practice medicine at home. Encouraged by this support, Zhu donated his secret recipe, which was subsequently studied by Wang Daosheng and colleagues from the Pharmacology Group at Suzhou Medical College[17]. However, following experimental evaluation by Wang's team, Zhu's snakebite medicine, along with other traditional folk snake remedies, was found to have issues related to unidentified active ingredients and uncertain efficacy. Consequently, further research in this area was discontinued.

During the development of the folk remedy collection movement into the "national remedy collection" phase, the Wu County Health Bureau actively mobilized the public to donate medical prescriptions. Within just over one year, a total of 11 425 folk remedies, including single-ingredient, empirical, and secret formulas, were collected. Additionally, the Wu County Health Bureau engaged several renowned Suzhou physicians—such as Jin Liqian, Liu Zheming, Gu Jingting, Gu Yunshi, and Tang Jimin—to join the Wu County Medical Association. This association undertook the task of organizing and reviewing the donated prescriptions. Ultimately, the Wu County Medical Association selected 1 192 empirical prescriptions and compiled them into the *Collection of Folk Practices in Traditional Chinese Medicine*. This volume was published in December 1959 and notably included numerous prescriptions for treating snakebites[18].

2.4 Research during the period of national economic adjustment Since 1958, Suzhou Hospital of Traditional Chinese Medicine had periodically established apprentice classes to train new generations of practitioners in TCM. Yu Daxiang, a physician at the hospital, introduced students to folk snakebite medicine following his lectures, an approach that particularly captured the interest of Hui Zhonghua during the second session. Upon graduation, Hui joined the Huqiu Town Health Center, located on Shantang Street. Due to the high incidence of snakebite injuries in rural areas, Hui developed a strong interest in snakebite medicine. In 1964, he was selected by the hospital and assigned to the Wu County Snake Prevention Institute, where he studied following He Fulin for two years. During this period, Zhu Songguan visited the hospital for consultation, providing Hui the opportunity to become acquainted with him. From that time onward, they frequently exchanged treatment experiences. Hui conducted a comparative study on the species of venomous snakes in southern Jiangsu, southern Anhui, and northern Zhejiang, as well as the quantity of venom they excrete. The findings indicated that viper (*Agkistrodon halys*) was the most venomous snake species in southern Jiangsu, with the amount of venom excreted being approximately similar across the three regions. Furthermore, it was observed that the toxicity of viper in the coastal areas of Taihu Lake was greater than that in the inland areas. Additionally, a correlation was identified between the distance between the venomous fangs and the amount of venom excreted by viper.

In response to the increased demand for medicinal herbs following the Great Leap Forward, the Wuxian County Health Bureau conducted a survey of the county's wild medicinal resources in 1961. The results were compiled and published in September of the same year under the title *Preliminary Compilation of Survey Data on Wild Medicinal Resources in Wuxian County, Suzhou.* The book presents statistical data on folk herbal medicines and their donors. Notably, herbal remedies for snakebites include species such as *Impatiens balsamina*, *Glycine max*, *Lysimachia klattiana*, *Scutellaria barbata*, *Viola philippica*, *etc.* The donors comprised both urban and rural monks as well as members of the secular community, demonstrating the widespread enthusiasm of the population during that period[19].

During the period of national economic adjustment, research on snakebite medicine was generally limited. Most studies consisted of summaries of earlier work, with the exceptions of Hui's research and investigations into folk remedies. During this time, medical experts largely withdrew from TCM research and redirected their focus toward Western medicine and biological products. This shift yielded certain achievements within a short timeframe, but it also entailed political risks.

3 Development of snakebite medicine in Suzhou during the "Cultural Revolution"

At the onset of the "Cultural Revolution", Suzhou Medical College experienced a significant disruption. During the national economic adjustment period, the college discontinued research on TCM, including snakebite prescriptions, and instead concentrated on the study of pharmaceuticals and snake venom toxicology. Consequently, the college was accused of "ideological deviation", resulting in the cessation of all research activities. The laboratory was not restored until September 1968, but all prior research findings had been destroyed[20]. Concurrently, the Traditional Chinese Medicine Department of the former Suzhou Municipal Health Bureau was abolished and was not reestablished until 1983. Subsequently, the development of TCM for snakebite treatment in Suzhou's urban and rural areas entered a relatively autonomous phase[21], which, to some extent, provided these regions with greater operational flexibility.

3.1 Grassroots efforts in adversity Following the onset of the "Cultural Revolution", numerous physicians from Suzhou's cities and counties were dispatched to rural areas to implement Mao Zedong's "June 26 Directive". Among these individuals, Hui Zhonghua was assigned to the Cooperative Medical Station of the Chahua Group in Huqiu Commune. Notably, the nearby Huqiu Welfare Home (now the location of Suzhou Social Welfare General Hospital) was home to an elderly traditional snake herbalist named Wang Chunsheng. During his period of reassignment, Hui continued to seek mentorship from Wang. Wang's disciples included Lu Lansheng, a snake herbalist from Wangting Town, whose successor was He Fulin. Another disciple, Tu Zhenglin, practiced medicine in Guangfu Town during the same period. Additionally, a disciple surnamed Tang maintained a close relationship with Ji Desheng and engaged in performing snake shows and selling medicine around Tairang Bridge. Similarly, Zhu Songguan, who had been active on Guanqian Street in earlier years, indirectly studied under his father-in-law, Master Wang (whose real name remains unknown), through his wife, Wang Xiaorong. Master Wang had traveled extensively in his youth before settling in Meili Township, Changshu, where he established himself as a folk snake herbalist. The identities of snake beggars and folk snake herbalists were subject to transformation, a phenomenon that became increasingly pronounced in the absence of state authority at the grassroots level. Prior to the "Cultural Revolution", these snake herbalists were primarily individuals possessing a single skill[22]. With the exception of He Fulin, none held formal medical qualifications. It was only with the advent of the barefoot doctor movement that they received partial official recognition.

Concurrently, in response to the specific circumstances of Wujiang County, the Wujiang County Health Bureau convened three to four specialized meetings annually to examine the prevention and treatment of snakebite injuries. During the barefoot doctor movement, numerous groups invited local snake herbalists or herbal practitioners proficient in treating snakebites to instruct barefoot doctors within their groups on appropriate treatment methods. This approach served as an inspiration for the Wujiang County Health Bureau. In May 1970, during a meeting of staff representatives from the county medical system, the Wujiang County Health Bureau convened 24 staff members recommended by pharmacies, grain management offices, rice factories, and other units to address snakebite treatment. These individuals contributed their family secret recipes, which were subsequently submitted to Wujiang County People's Hospital for research purposes. Furthermore, these individuals were scheduled to provide regular training to barefoot doctors to standardize the treatment of snakebite injuries[23]. During this period, these workers managed snakebite cases in addition to their regular responsibilities. For example, Ling Shengchang, a pharmacist at Tongli Pharmacy, treated over 300 patients between 1966 and 1976. In 1970, such pharmacists in the county attended to 77 snakebite victims[24]. That same year, the Wujiang County Health Bureau assigned Ling Shengchang and Chen Xuzhong from Shengze Pharmacy to Kunshan County to assist with snakebite rescue operations. They collaborated with local health workers to organize a five-day "Mao Zedong Thought Study Session", ostensibly aimed at political education, to train barefoot doctors in the area[23].

In addition to organizing training sessions, Wujiang County actively promoted snakebite prevention methods through traveling exhibitions and established regional task forces dedicated to snakebite prevention. On May 25 – 26, 1972, the Wujiang County Health Bureau convened an Experiential Exchange Conference on the Treatment of Venomous Snakebites in Luxu Town. The conference brought together 24 representatives who had previously contributed treatment formulas, along with three employees proficient

in snakebite treatment recommended by the Wujiang County Grain and Oil Bureau, totaling 27 delegates[25]. The conference established seven collaborative teams for snakebite prevention and treatment, organized according to the geographical and medical characteristics of each district within Wujiang County. The leaders of these seven teams, together with an expert from Wujiang County People's Hospital, constituted a leading group. Additionally, Qian Keqiang from the Wujiang County Health Bureau, Shi Ran from the Wujiang County Pharmaceutical Company, and Zhou Hao from the Grain and Oil Bureau were appointed as the principal responsible individuals[26]. This regionally based collaborative model was seamlessly integrated with the three-tier medical system developed during the barefoot doctor movement, thereby creating a three-tier snakebite prevention network. Furthermore, this network facilitated the dissemination of information and the collection of traditional remedies for snakebite treatment.

3.2 Research on snakebite formulas during the Chinese herbal medicine movement

3.2.1 Sorting and research of prescriptions in Suzhou and Wu County. From the late 1960s to the early 1970s, a "Chinese herbal medicine movement" swept across society to "prepare for war and famine" while addressing shortages of pharmaceutical drugs. This movement reaffirmed the significance of Chinese herbal medicine, prompting medical professionals to partially reintegrate herbal research methodologies. In addition to compiling and screening herbal formulas, advancements in pharmaceutical manufacturing enabled experts to reformulate snakebite remedies into more convenient dosage forms. This initiative was consistent with the contemporaneous political campaign to "develop new medicines and pharmacological approaches".

This period also experienced a resurgence in the contribution of prescription formulations. In particular, Zhu Songguan submitted a previously undisclosed formula of ocular prescriptions for snakebites. This formulation attracted considerable interest from the Pharmacology and Neurology Department at Suzhou Medical College, which had recently recovered from the disruptions caused by the extreme "leftist" movement. Researchers advanced beyond simple ingredient analysis to conduct clinical trials, thereby confirming the formula's protective efficacy against neurotoxin poisoning[27]. Subsequently, the formula was reformulated into the "691 Eye Drops" solution[28]. This snakebite eye drop embodies distinctive Jiangnan characteristics, functioning not only to neutralize snake venom but also to reduce inflammation and exert antibacterial effects, thereby addressing symptoms such as ocular redness, swelling, heat, and pain. Although the product is currently scarce, its original formula remains preserved by Zhu Songguan's son, Zhu Xuegen, and awaits renewed scholarly and clinical attention.

In September 1970, the National Chinese Herbal Medicine Exhibition was held in Beijing to promote the "Chinese herbal medicine movement" and to review contributions and achievements in integrated Chinese and Western medical therapies from across the country. Earlier that year, in July, Suzhou's health authorities collaborated with cultural and educational departments to organize the Suzhou Chinese Herbal Medicine and New Medical Methods Exhibition. This event featured single-ingredient remedies, empirical formulas, and secret prescriptions collected during the Chinese herbal medicine movement. Following the exhibition, these materials were compiled into a booklet titled *Compilation of Chinese Herbal Medicine, Single-Ingredient Formulas, and Empirical Prescriptions*. This publication included empirical prescriptions contributed by the Huqiu Commune, along with brief case histories and descriptions of patient recovery outcomes[29]. Three months later, a second volume was released, which compiled five snakebite formulas and corresponding recovery case data from the Tingjing, Cangshu, Guangfu, and Jinshan communes[30].

3.2.2 Research and development of TCM snakebite preparations in Wujiang County. During the "Chinese herbal medicine movement", all snakebite remedies collected in Wujiang County were submitted to Wujiang County People's Hospital for research. Through systematic screening, the hospital identified that the formula contributed by Yu Asi, a snake herbalist from Tongli Town, was the most effective in treating local viper bites. Concurrently, Wujiang County Pharmacy processed commonly used detoxifying Chinese herbs into injections, tablets, and tinctures to facilitate emergency treatment of snakebites at the grassroots level and to promote the use of snakebite medicine[24]. Following the submission of these findings and practices by the Wujiang County Health Bureau, relevant authorities required regions, including Suzhou, to reformulate the collected snakebite remedies. Due to the prevalent quality issues associated with most self-prepared formulations during the "Chinese herbal medicine movement", the Wujiang County Health Bureau established the Wujiang County Pharmaceutical Factory to specialize in the production of Chinese herbal formulations. Yu's snakebite prescription was also entrusted to this factory for reformulation.

Wujiang Pharmaceutical Factory was established in 1971 on the western outskirts of Tongli Town. With financial support from the Jiangsu Provincial Pharmaceutical Company, the factory initiated trial production of "Wujiang Snakebite Medicine", an enhanced formulation based on Yu's original snakebite remedy. By 1973, both tablet and intramuscular injection forms had been developed. During this period, the snakebite prevention network expanded from Wujiang County to encompass the entire Suzhou region, with collaborative trials conducted by regional snakebite prevention units, including areas now part of Wuxi City. In response to hospital emergency requirements, the following year saw the development of dual-purpose injections suitable for both intramuscular and intravenous administration. This advancement facilitated the creation of an integrated Chinese – Western medical therapy, combining Wujiang Snakebite Medicine injection with one dose of alkaloids, one dose of flavonoids, and one dose of cardiac glycosides, effectively mitigating issues such as injection-related pain[31].

After five years of collaborative trials, the development of Wujiang Snakebite Medicine reached a stage of maturity. Consequently, the Jiangsu Provincial Health Bureau convened an appraisal meeting for Wujiang Snakebite Medicine on July 11 – 12, 1976. The meeting was jointly chaired by representatives from the Suzhou District Science and Technology Group, the Industrial Bureau, and the Health Bureau, and included 49 delegates from 41 institutions, such as the Jiangsu Provincial Pharmaceutical Inspection Institute and the Jiangsu Provincial Science and Technology Bureau. Wujiang Snakebite Medicine successfully passed validation and was designated as the representative TCM formulation for snakebite treatment in the Suzhou region. It was subsequently widely stocked in local primary healthcare units, serving as the pharmaceutical foundation supporting the grassroots snakebite prevention network[32].

3.3 New status of snake herbalists and improvement of social status As the efficacy of snakebite medicine became increasingly recognized, the social status of snake herbalists correspondingly improved. In 1963, the Shangfang Mountain Venomous Snake Dispensary, initially operated by He Fulin and his wife, was officially registered as the Snake Herbalist Joint Clinic, thereby formally acknowledging the couple as licensed medical practitioners. Two years later, the clinic was elevated to the Wuxian Snake Herbalist Hospital, broadening its scope of services to encompass treatment for snakebites and dermatological conditions. By 1970, the clinic had expanded to accommodate 20 beds and included an attached snake farm, thereby becoming the primary center for snakebite prevention and treatment in the rural areas of Suzhou at that time. Following the establishment of the three-tier rural cooperative medical system, the clinic was administratively incorporated into the Jinshan Commune Health Center in Mudu Town. He Fulin founded a specialized snakebite treatment department and initiated training courses focused on snakebite management at this clinic. Additionally, the hospital assigned Dr. Zhu Jiechen to apprentice under He Fulin, thereby systematizing He's expertise[33]. During this period, Wang Shuisheng, a disciple of He who trained at Shangfang Mountain, practiced medicine as a barefoot doctor in the Mudu countryside. The enduring influence of He is reflected in the contemporary Suzhou folk saying: "snake bites, send to Mudu"[34].

During the same period, various counties and townships implemented comparable initiatives. Prior to the establishment of the People's Republic of China, the snake beggars Lu Hongshou and his son Lu Wenlong provided treatment for snakebites to members of the Jiangnan Anti – Japanese Volunteer Army in Kejing Village, Changshu. In 1964, while performing snake acts and selling medicinal remedies in Baimao Township, Changshu, Lu Wenlong accidentally poisoned himself and lost consciousness. The Baimao Township Government promptly arranged for his transfer to Changshu County People's Hospital for emergency medical care. Later, as an expression of gratitude, Lu Wenlong donated his family's traditional snakebite remedy formula to the Baimao Township Health Center. The center swiftly integrated this formula into their treatment protocols and appointed Dr. Xu Bingxing to apprentice under Lu Wenlong in order to systematize the knowledge. Later, Dr. Lyu Guisheng joined this initiative, and together the three assumed responsibility for snakebite treatment and clinical research[35].

During the specific period, snakebite treatment constituted the primary source of income for the two aforementioned health centers. Other hereditary snakebite practitioners, including Song Ajin and Fei Baoxing in Meili Township[36], the uncle-nephew duo Zhou Hezhi and Zhou Jinquan in Beiqiao Town (currently part of Xiangcheng District)[37], and Zhang Genmu in Taicang County, were all officially recognized as barefoot doctors[38]. Furthermore, certain TCM practitioners in Suzhou, such as Chen Ruxiang of Tongdetang in Kunshan County, also operated snakebite clinics[39]. The prevention and treatment of snakebites gradually became a prevalent practice within Suzhou's TCM community, signifying the final period of prominence for folk snake herbalists.

4 New changes in snakebite prevention and control in the early stage of reform and opening up

4.1 Generational transition of snake herbalists and unrivaled excellence of snakebite specialty Following the conclusion of the "Cultural Revolution", Hui Zhonghua was admitted to Suzhou Hospital of Traditional Chinese Medicine, where he initiated the hospital's snakebite treatment program. During this period, Hui progressively developed his own therapeutic approaches for managing snakebites, including the application of high ligation to inhibit neurotoxin absorption, the Eight Evils and Eight Winds acupuncture detoxification technique, and herbal remedies targeting acute kidney failure induced by snake venom. In 1984, Gao Zhong'en, a graduate of the Suzhou Traditional Chinese Medicine Special Class at Nanjing College of Traditional Chinese Medicine, joined the hospital and became Hui's apprentice. Together, the mentor and apprentice formally established the hospital's specialized snakebite treatment department. In addition to his training under Hui, Gao engaged in professional exchanges with Zhu Xuegen, a successor to Zhu Songguan's medical tradition. While studying at Beijing University of Chinese Medicine, he also sought mentorship from leading snakebite prevention experts in Beijing. These experiences established him as a prominent authority in snakebite treatment both at the hospital and throughout Suzhou. Another colleague, Jiang Huiming, briefly contributed to the specialized snakebite treatment efforts. Between 1984 and 1985, the Suzhou Hospital of Traditional Chinese Medicine conducted multiple training sessions to provide formal TCM education to village doctors, formerly known as barefoot doctors. For example, Zhou Wenhua, a grassroots physician from Taicang County, acquired standardized techniques for snakebite prevention and treatment through these programs. As a result, his Shabei Health Station in Shaxi Town was integrated into Suzhou's snakebite prevention and treatment network[40].

During the initial phase of reform and opening-up, several domestically produced antivenoms successfully completed clinical trials and were progressively introduced nationwide[41]. Considering that antivenoms exhibited more rapid detoxification and greater efficacy consistency than TCM, thereby significantly enhancing patient survival rates, clinical management of snakebite cases across the country—including in Suzhou—swiftly transitioned to an integrated treatment model. This model prioritized antivenoms as the primary therapeutic intervention, supplemented by TCM. This development facilitated the simplification of snakebite treatment protocols and the transition toward emergency medicine. During this period, China actively promoted medical specialization and scientization. Following the retirement of resident snakebite herbalists, hospitals throughout Suzhou gradually discontinued dedicated snakebite departments, transferring full responsibility for snakebite treatment to emergency departments. Meanwhile, TCM practitioners with expertise in treating snakebites continued to participate in consultations. At Wuxian Mudu People's Hospital, practitioners such as Zhu Jiechen, who inherited the medical skills of He Fulin, and Jin Qingjiang, a recently joined descendant of the Jin traditional physicians, exemplified this category. Jin Qingjiang had accompanied his father, Jin Lianqian, on visits to consult experts and gather knowledge in the Luzhi Town area, where he acquired techniques related to snakebite medicine[42]. Concurrently, He Kangrong, son of He Fulin, drew upon his family's medical heritage to specialize in dermatology at the same hospital.

The only exception was the snakebite specialty clinic at Suzhou Hospital of Traditional Chinese Medicine. In the context of widespread closures of similar clinics nationwide due to low economic viability, master practitioners Hui Zhonghua and Gao Zhong'en diligently maintained the TCM approach to snakebite treatment and actively collaborated with the emergency department. As demand continued, hospital administrators ultimately integrated the two departments, creating a snakebite clinic within the emergency department under a dual-signage system. Hui and Gao trained physicians from both emergency medicine and TCM surgical disciplines, aiming to preserve the distinctive characteristics of TCM within the emergency medicine framework. Subsequently, the snakebite specialty clinic was relocated to the emergency department to enhance operational efficiency, while Hui and Gao established a dedicated specialty clinic for joint diseases. Notably, at that time, Suzhou Hospital of Traditional Chinese Medicine possessed unparalleled expertise in snakebite treatment. When other emergency departments in both Chinese and Western hospitals encountered severe snakebite cases, they frequently transferred patients to this hospital for intervention under the guidance of Gao. Gao also traveled among hospitals within the snake prevention network to provide treatment, thereby facilitating more effective recovery for patients disabled by snakebites and reducing the incidence of long-term complications. Despite the absence of hemodialysis equipment, he successfully managed critically ill patients through the combined use of antivenom and traditional therapies. This approach systematically demonstrated the distinctive advantages of TCM in rescuing patients from toxic organ failure, restoring damaged limbs, preventing complications, and promoting post-treatment rehabilitation. Furthermore, it signified the advancement and maturation of Suzhou's modern TCM techniques for snakebite treatment.

4.2 Establishment of the national society for snakebite research and its Suzhou branch

4.2.1 China association for the prevention and treatment of snakebites and its Suzhou branch. Following earlier developments, traditional snake herbalists who were integrated into hospitals and clinics gained access to scientific medical resources, whereas informal folk snake herbalists continued to operate widely outside formal healthcare institutions. To standardize grassroots snakebite treatment, disseminate the latest domestic snake prevention technologies, and promote knowledge exchange among snake prevention personnel, the National Association for the Prevention and Treatment of Snakebites was established. In 1984, based on proposals by Lu Zhizheng, an expert from the China Academy of Chinese Medical Sciences, and Lin Shixiao, then President of the China Rural Health Association, the China Association for the Prevention and Treatment of Snakebites (hereinafter referred to as the Snake Association) was founded. The founding members included military physician Wu Lisun from the troops stationed in Jiangxi, Jiangxi snake prevention experts Shu Purong, Zhu Zhenju (Shu's wife), Yu Wenqiu, as well as specialists from Guangxi and Anhui provinces. The association was constituted as a private academic organization affiliated with the China Rural Health Association.

In the late 1980s, the influence of the Snake Association expanded into the Suzhou region. The association's activities in Suzhou were primarily supported by sponsorship from Changshu Longliqi Co., Ltd., whose founder, Xu Zhiwei, became a council member of the Snake Association. In January 1992, with assistance from the Snake Association, the company established the Suzhou Jieshan Institute for Snake Resource Application Technology Development (hereafter referred to as the Suzhou Snake Research Institute). In March of the same year, the Snake Association, the Suzhou Snake Research Institute, and Changshu Baimao Township Hospital jointly established the Suzhou Snake Research Institute Changshu Venom Medical Center. Qin Gongping, who was serving as the Snake Association's first president at the time, was appointed honorary director of the center, while Xu Zhiwei served as an advisor[43]. Under this framework, the Snake Association provided guidance for grassroots snake prevention efforts in the Suzhou region.

4.2.2 Influence of two major official academic organizations in Suzhou. Both the public and the government acknowledged the significance of standardizing snakebite treatment on a national scale. As the premier academic institution for TCM in China, the China Academy of Traditional Chinese Medicine (later renamed

the China Academy of Chinese Medical Sciences) established the National Association of Traditional Chinese Medicine in 1979, which was subsequently renamed the Chinese Association of Chinese Medicine in 1992. Two years later, the Academy founded the Chinese Society of Integrative Medicine, later renamed the Chinese Association of Integrative Medicine in 1990. These two medical associations developed local branches throughout the country, including the Suzhou Traditional Chinese Medicine Association and the Suzhou Association of Integrative Medicine. Membership of the Suzhou Traditional Chinese Medicine Association was predominantly distributed across various levels of traditional Chinese medicine hospitals in Suzhou, whereas members of the Suzhou Association of Integrative Medicine were primarily concentrated at the Suzhou Hospital of Traditional Chinese Medicine and the Suzhou Hospital of Integrative Medicine (also known as Mudu People's Hospital).

In response to the specialized demands of snakebite treatment, the China Association of Traditional Chinese Medicine established the Snakebite and Venom Medicine Committee following the creation of its surgery branch. Simultaneously, the China Association of Integrative Medicine formed the Snakebite Emergency Medicine Working Group under its Emergency Medicine Committee. These organizations collaboratively oversaw snakebite treatment across all levels of traditional Chinese medicine hospitals, including the Suzhou Hospital of Integrated Traditional and Western Medicine (both associations were registered with the Suzhou Hospital of Traditional Chinese Medicine). This integrated model of Chinese and Western medicine provided the necessary personnel support for Suzhou's transition from snakebite prevention to emergency treatment. As a result, Suzhou developed a framework wherein the Snake Association directed grassroots prevention efforts, while the two principal official academic societies managed snakebite treatment at the county level and above. The activities of these three major academic organizations progressively marginalized folk snake herbalists. By the end of the 20th century, folk snake herbalists had completely disappeared from the historical landscape. Subsequently, the officially endorsed snakebite emergency treatment system entirely supplanted the original snakebite prevention and treatment framework.

5 Misfortune brings fortune, and fame returns to the Wumen

5.1 TCM snakebite treatment persists through setbacks By the late 20th century, a consensus had been established within the TCM community specializing in snakebite treatment. It was agreed that early-stage snakebites should be managed with antivenom in combination with syndrome differentiation-based TCM therapy. In critical cases, an integrated approach combining Chinese and Western medicine—specifically, antivenom administration alongside Chinese herbal formulations—was recommended. Additionally, conventional treatment protocols continued to incorporate Chinese herbal medicine[44]. Within Western medicine, academic exchanges between Chinese and Western practitioners revealed that clinical feedback consistently indicated that antivenom serum frequently caused serum sickness. Moreover, Western medicine lacked effective interventions for the cellular toxicity and complications induced by snake venom. In contrast, TCM methods were able to address these deficiencies with precision. Therefore, the preservation of TCM approaches was deemed essential, facilitating the ongoing development of Chinese herbal preparations for snakebite treatment[45].

With the deepening of reforms, a substantial number of state-owned enterprises across China underwent restructuring or consolidation around the turn of the century, resulting in the discontinuation of production for most TCM snakebite remedies. In the Suzhou region, the closure of the Wujiang Pharmaceutical Factory in 2000 led to the cessation of Wujiang Snakebite Medicine production. Consequently, numerous primary healthcare units in Suzhou, particularly in Wujiang, lacked both the storage capacity for antivenom serum and access to TCM formulations. These units subsequently withdrew from snakebite prevention and treatment initiatives, leading to the disintegration of the established snakebite prevention network. As a result, TCM treatment methods in Suzhou hospitals at various levels reverted to classical formulas and their derivative in-house preparations. Notable examples include the He's Snake Medicine Tablets at Mudu People's Hospital[33] and the Viper Bite Formulas I and II, along with their preparations, at Baimao Township Health Center[37].

5.2 Formation of modern TCM snakebite treatment team in Suzhou Although TCM has diminished in its primary role in the treatment of snakebites, the modernized TCM snakebite treatment team in Suzhou has progressively matured. In April 1995, the Snake Association held an academic conference in Suzhou to discuss emergency care for snakebites and the development of medicinal snake resources[46]. Subsequently, in June of the same year, the Suzhou Association of Traditional Chinese Medicine organized the inaugural Suzhou Snakebite Academic Conference at the Golden Gate Hotel. This conference emphasized the promotion of antivenom serum usage, the exchange of clinical feedback, and the advancement of integrating TCM snakebite treatment with emergency medicine. Under the leadership of Gao Zhong'en, then Director of the Snakebite and Arthritis Department at Suzhou Hospital of Traditional Chinese Medicine, the conference established the Snakebite Professional Committee (also known as the Snakebite and Arthritis Working Group) within the association[47]. Participants, including Gao Zhong'en, also attended the following year's National Conference on Traditional Chinese Medicine Nephrology, where they presented Suzhou's experiences in snakebite treatment.

Subsequently, the Snakebite Specialized Committee of the Suzhou Association of Traditional Chinese Medicine convened academic conferences and organized training courses on snakebite management on an irregular basis. Recognizing Suzhou's prominent academic position in snakebite research, from April 16 to 18,

2009, the Jiangsu Association of Traditional Chinese Medicine, the Jiangsu Association of Integrated Traditional and Western Medicine, and the Suzhou Hospital of Traditional Chinese Medicine jointly hosted the Jiangsu Provincial Training Course on Snakebites and Arthropod Stings. This event assembled leaders from Suzhou's snakebite emergency network hospitals to exchange clinical experiences and treatment methods. A compilation of conference papers was produced to serve as a reference for participating institutions. Through these initiatives, the TCM community in Suzhou has fostered a new generation of snakebite specialists, including Liu Haiyan, Guo Ying, Zhang Yiting, and Shan Yu from Suzhou Hospital of Traditional Chinese Medicine; Yang Xingsheng, Zhou Wenjun, and Tang Min from Changshu Baimao Township Health Center; and Meng Hao from Zhangjiagang Hospital of Traditional Chinese Medicine—all of whom practice in emergency departments or TCM surgical units. Concurrently, the Suzhou Society of Integrative Medicine has developed specialists such as Luo Jianping and Xue Yi at Mudu People's Hospital (Suzhou Hospital of Integrative Medicine), who are dedicated to snakebite research. Consequently, a modernized TCM snakebite treatment team has been established.

5.3 Revival of snakebite specialty and rectification of Wumen snake herbalists In contrast to the development of TCM, the availability of antivenom serum in the 21st century has exhibited a pattern characterized by "one increase and two decreases": while a greater number of institutions have adopted its use, both stockpiles and the diversity of products available on the market have declined. Manufacturers have concurrently reduced the variety of products offered and experienced fluctuations in production volumes, influenced by market dynamics. The existence of only one domestic manufacturer of antivenom serum, combined with the product's limited shelf life of three years, has resulted in reserve hospitals traditionally treating the serum as a non-revenue-generating drug. This practice has inadvertently increased the risk of declining reserve levels. Between 2008 and 2010, supply disruptions affecting multiple antivenoms resulted in the depletion of hospital reserves nationwide, precipitating a "serum shortage"[48-49]. This situation has renewed interest in TCM snakebite preparations as alternative treatments, with the Jidesheng Snakebite Tablets, which continue to be produced, becoming a standard reserve medication across healthcare institutions in Suzhou.

As TCM preparations for snakebite treatment regain prominence, the management of snakebites within this medical system has also been reemphasized. Suzhou Hospital of Traditional Chinese Medicine, utilizing its leading city-level snakebite specialty department, has been designated as the central hospital of the newly established Suzhou snakebite emergency network. In 2005, the snakebite specialty discipline at Mudu People's Hospital was recognized as a Suzhou municipal key clinical specialty in TCM and was formally incorporated into the Nephrology Department in July of the following year[33]. In addition, the Snake Venom Medical Center at Baimao Township Health Center in Changshu City has continued to develop as a specialized facility for snakebite treatment. This hospital is now acknowledged as Changshu City's dedicated snakebite hospital, and its unique snakebite treatment methods are recently inscribed as part of Changshu City's intangible cultural heritage[35].

Following a thorough evaluation of snakebite treatment capabilities, research advancements, and regional healthcare accessibility within Suzhou's medical institutions, the Suzhou Municipal Health Bureau officially designated Suzhou Hospital of Traditional Chinese Medicine, Mudu People's Hospital, and Changshu Baimao Township Health Center as the city's designated facilities for snakebite treatment. Consequently, the snakebite specialty—a branch of Suzhou's Wumen School of Medicine—received formal recognition, marking its development from a "traditional folk remedy" practiced since the Ming and Qing dynasties into a modern, established specialty within TCM.

6 Conclusions

The focus on snakebite remedies throughout much of China emerged in the mid-1950s, but Suzhou gained an advantage due to Ye Juquan's distinctive foresight. During the folk remedy collection movement, Suzhou's traditional folk remedies for snakebites were extensively documented in publications, and folk snake herbalists were incorporated into official medical circles. Following their integration, hospitals in Suzhou actively studied these practitioners' techniques and refined their formulations. Some remedies were subsequently standardized into formal Chinese snakebite preparations, which significantly reduced mortality rates from snakebites in the region prior to the widespread availability of antivenom. Over time, traditional snake herbalists have aged, while contemporary herbalists in snakebite treatment have emerged. The management of snakebites has become increasingly standardized, yet the distinctive characteristics of TCM persist and continue to evolve. Novel proprietary TCM formulations are continually developed and have demonstrated enduring efficacy. In clinical practice, TCM approaches to snakebite treatment encompass multiple stages: local wound care, correction of systemic multi-organ damage, ulcer healing, limb function restoration, management of complications (including serum sickness), and post-recovery rehabilitation. Each stage utilizes distinct but interrelated therapeutic strategies, reflecting the core principles of TCM syndrome differentiation and treatment, and illustrating its broad applicability across diverse clinical conditions. Consequently, the preservation of specialized snakebite departments represents a commitment to maintaining the unique features of TCM. Moreover, snakebite medicines have potential applications in treating general venomous insect bites and reducing surgical inflammation. The medicinal properties of snakes themselves merit comprehensive exploration to maximize public health benefits, as exemplified by the integrated clinical-research-product development model implemented in Changshu. This highlights the practical importance of sustaining and advancing the Wumen snakebite department.

References

[1] YU Y. Youtai Xianguan Notes: Volume 11[M]. Shanghai: Shanghai Ancient Books Publishing House, 1986: 295. (in Chinese).

[2] YE JQ. Ye Juquan's Practical and Effective Folk Simple Prescriptions [M]. Beijing: China Press of Traditional Chinese Medicine, 2015: 1. (in Chinese).

[3] KAWANAKA T, SHIMANO T; translated by YE JQ. Folk Medicines from Animals and Plants[M]. Shanghai: Qianqingtang Bookstore, 1952: 1. (in Chinese).

[4] ZHANG JY. Academic Biography of Ye Juquan[M]. Beijing: China Braille Press, 2015: 1. (in Chinese).

[5] CHEN RS, WEN CL. Talking about National Medicine: Jiangsu Volume [M]. Zhengzhou: Henan Science and Technology Press, 2017: 95. (in Chinese).

[6] East China and Shanghai Hold Traditional Chinese Medicine Representative Conference[N]. People's Daily, 1954-10-17(3). (in Chinese).

[7] LI J. Presenting prescriptions and collecting folk remedies[J]. Chinese Journal for the History of Science and Technology, 2015, 36(4): 1. (in Chinese).

[8] XI G. Implementation of traditional Chinese medicine policy in recent years: Situation and experience[J]. Journal of Traditional Chinese Medicine, 1958(12): 799-805. (in Chinese).

[9] Eliminate the Diseases Most Harmful to People's Health: Minister Li Dequan's Speech at the Third Session of the First National People's Congress[N]. Health News, 1956-6-22(1). (in Chinese).

[10] Effective Traditional Chinese Medicine Prescription for Treating Venomous Snake Bite Now Available[N]. People's Daily, 1956-08-01(7). (in Chinese).

[11] WANG GP. General History of Suzhou: Volume of the People's Republic of China (1949-1978)[M]. Suzhou: Soochow University Press, 2019: 313. (in Chinese).

[12] Jiangsu Provincial Committee for Research on Traditional Chinese Medicine and Materia Medica. Compilation of Secret and Proven Prescriptions in Traditional Chinese Medicine (Second Series)[M]. Nanjing: Jiangsu People's Publishing House, 1958: 89. (in Chinese).

[13] Anon. Yangzhong Cultural and Historical Materials (Issue 5)[M]. Compiled by the Committee of Cultural and Historical Materials of the Yangzhong County Committee of the Chinese People's Political Consultative Conference, Jiangsu Province, 1986: 29. (in Chinese).

[14] Anon. Huadi 1986 (Bound Volume)[M]. Guangzhou: Editorial Department of "Huadi" Literature Magazine, 1986: 271. (in Chinese).

[15] Pathology Teaching and Research Group of Suzhou Medical College, Experimental Group of People's Liberation Army 100 Hospital. Acute pathological and morphological changes in animals poisoned by Agkistrodon, cobra, and bungarus[J]. New Medicine, 1973(4): 193-194. (in Chinese).

[16] XU ZK. Introduction to prevention and treatment of agkistrodon bite[J]. Jiangsu Journal of Traditional Chinese Medicine, 1961(5): 20-21. (in Chinese).

[17] ZHOU ZH. Record of Contemporary Suzhou Talents[M]. Shanghai: Shanghai Joint Publishing Company, 1999: 67. (in Chinese).

[18] JIN QJ. Legend of Jin Yitie[M]. Suzhou: Guwuxuan Publishing House, 2022: 156-157. (in Chinese).

[19] Wuxian Health Bureau, Wuxian Science and Technology Commission. Preliminary Compilation of Survey Data on Wild Medicinal Resources in Wuxian County, Suzhou Special District[M]. Printed by Wuxian Health Bureau, 1961: 1. (in Chinese).

[20] GU G, WANG XR. A Brief History of Suzhou Medical College[M]. Suzhou: Soochow University Press, 2010: 103. (in Chinese).

[21] Four Suggestions from the Seventh Group (Peasants' and Workers' Party) of the First Session of the Seventh Suzhou Municipal Political Consultative Conference for Creating a New Situation in Suzhou's Traditional Chinese Medicine Undertaking: 1983-04-02. Suzhou: Suzhou Municipal Archives (Collection B02, Catalog 001, File 0072): 76. (in Chinese).

[22] Unearth Treasures of National Medicine, Launch a Mass Movement to Collect Folk Remedies[N]. Health News, 1958-12-13(4). (in Chinese).

[23] Brief Report on the Treatment of Venomous Snake Bites: 1970-12-21. Suzhou: Wujiang District Archives (Collection 3011, Catalog 3, File 12): 36-38. (in Chinese).

[24] Reply Regarding the Treatment of Venomous Snake Bites: 1976-07-20. Suzhou: Wujiang District Archives (Collection 4002, Catalog 3, File 84): 90. (in Chinese).

[25] Report on the "Experience Exchange Conference on Treating Venomous Snake Bites": 1972-05-28. Suzhou: Wujiang District Archives (Collection 3011, Catalog 3, File 15): 71. (in Chinese).

[26] Summary of Drugs for Treating Venomous Snake Bites: 1971-06-29. Suzhou: Wujiang District Archives (Collection 3011, Catalog 3, File 23): 71-72. (in Chinese).

[27] Snake Doctor Zhu Songguan Serves the People Well and Should Be Absorbed into the Medical Organization: 1981-01-23. Suzhou: Suzhou Municipal Archives (Collection B02, Catalog 001, File 0052): 137. (in Chinese).

[28] ZHOU HF. Complete Book of Chinese Secret Prescriptions[M]. Beijing: Scientific and Technical Documents Publishing House, 1991: 160. (in Chinese).

[29] Revolutionary Committee of Culture, Education, and Health of Suzhou City, Jiangsu Province. Compilation of Chinese Herbal Medicines, Simple Prescriptions, and Proven Prescriptions[M]. Printed by the Revolutionary Committee of Culture, Education, and Health of Suzhou City, Jiangsu Province, 1970: 41. (in Chinese).

[30] Health Bureau of Suzhou Special District Revolutionary Committee. Selected Simple and Proven Prescriptions[M]. Reprinted by the Health Bureau of Suzhou Special District Revolutionary Committee, 1970: 70-72. (in Chinese).

[31] Wujiang County Pharmaceutical Factory, Jiangsu Province. Compilation of Materials for the Appraisal Meeting of Wujiang Snake Medicine[M]. Printed by Wujiang County Pharmaceutical Factory, Jiangsu Province, 1976: 1-124. (in Chinese).

[32] Wujiang Snake Medicine Appraisal Certificate: 1976-07-12. Suzhou: Wujiang District Archives (Collection 2021, Catalog 1, File 54): 106-109. (in Chinese).

[33] Mudu Traditional Chinese Medicine Snake Injury Treatment Enjoys Reputation in Suzhou: What Stories Are Behind Three Generations of Inheritance[EB/OL]. WeChat Public Platform, 2016-09-08. https://mp.weixin.qq.com/s/MHZVTczNW2B3IsCfvdixuQ. (in Chinese).

[34] Record of Snake Bite Patient Turning Danger into Safety[N]. Changshu Daily, 1989-07-11(4). (in Chinese).

[35] Century-Old Snake Injury Treatment in Baimao Selected as Intangible Cultural Heritage[EB/OL]. WeChat Public Platform, 2022-03-11. https://mp.weixin.qq.com/s/u7Yap0JUUJMcpQEJWvPRAA. (in Chinese).

[36] Volunteer Snake Doctor for 19 Years, Treats People's Injuries Without Charging[N]. Changshu Daily, 1984-05-06(4). (in Chinese).

[37] JIANG YP. Collection of Traditional Chinese Medicine Diagnosis and Treatment Experiences: Contemporary Medical Elites in the Taihu Lake Area[M]. Beijing: People's Medical Publishing House, 1996: 547.

(in Chinese).
[38] Editorial Committee of "Beiqiao Town Chronicle". Suzhou Local Chronicles: Beiqiao Town Chronicle[M]. Suzhou: Soochow University Press, 2007: 351. (in Chinese).
[39] Taicang Municipal Intangible Cultural Heritage Project: Zhang Genmu Snake Wine[EB/OL]. WeChat Public Platform, 2020 - 10 - 20. https://mp. weixin. qq. com/s/co5Ip0RLBRzkOFDZwBzkfg. (in Chinese).
[40] ZHAO HQ. Essence of Kunshan Ethnic Folk Culture: Traditional Chinese Medicine Volume[M]. Shanghai: Shanghai People's Publishing House, 2010: 150. (in Chinese).
[41] Anon. He keeps the people's diseases in mind: Remembering national model rural doctor Zhou Wenhua[J]. Chinese Rural Medicine, 1996, 3(2): 1. (in Chinese).
[42] ZHAO K, ZHANG YH. A Brief History of the Development of Biological Products in China: 1910 - 1990[M]. Compiled by Beijing Institute of Biological Products, 2003: 1. (in Chinese).
[43] Jin Qingjiang from Suzhou Integrated Traditional Chinese and Western Medicine Hospital: Inheriting Family Learning as a Medical Master, Benevolent Heart and Skill Assisting Gusu[EB/OL]. WeChat Public Platform, 2021 - 08 - 16. https://mp. weixin. qq. com/s/7VazdLHuPycCgowA5AEFyA. (in Chinese).
[44] WANG LM, XU BX. Establishment of Changshu snake venom medical center of Suzhou snake research institute, China snake association[J]. Snake, 1992(3): 54. (in Chinese).
[45] SHU PR, ZHU ZJ. Prospects of Chinese herbal medicine in treating snake bites[J]. Snake, 1991, 3(3): 2. (in Chinese).
[46] ZHONG JF. Progress in emergency treatment of snake bites in China: Summary of the national academic conference on emergency treatment of snake bites[J]. Journal of Medical Research, 1991(7): 21 - 23. (in Chinese).
[47] Anon. Minutes of the Suzhou meeting of the China snake association[J]. Snake, 1995(2): 63. (in Chinese).
[48] Woman in Wuhan Bitten by Hundred-Pace Snake Flies to Guangzhou for Antivenom Injection to Save Life[N]. Chutian Metropolis Daily, 2010 - 01 - 26(1). (in Chinese).
[49] Sharp Increase in Snake Bite Victims Nationwide, Antivenom Serum for Agkistrodon in Short Supply at Municipal Hospital of Traditional Chinese Medicine[N]. City Express, 2010 - 07 - 23(1). (in Chinese).

(From page 48)

[9] SUN HL, PENG H, FU H. The reliabililty and consistency of health literacy scale for chronic patients[J]. Fudan University Journal of Medical Sciences, 2012, 39(3): 268 - 272. (in Chinese).
[10] MAYINUER · TUOHETI, HOU M, LI P. Correlation analysis of emergency response ability, knowledge and attitude of nurses from primary care facilities in public health emergencies[J]. Chinese Nursing Management, 2018, 18(10): 1390 - 1394. (in Chinese).
[11] AL-GHAREEB AZ, COOPER SJ. Barriers and enablers to the use of high-fidelity patient simulation manikins in nurse education: An integrative review[J]. Nurse Education Today, 2016, 36: 281 - 286.
[12] FU MX, HE P, WANG YF, *et al*. Self-efficiency level of nurses in primary hospitals under public health emergency and its influencing factors[J]. Guangxi Medical Journal, 2022, 44(19): 2314 - 2317. (in Chinese).
[13] LIN RJ, YAN XL, ZHANG XL, *et al*. Effectiveness of collaborative physician-nurse tele-mentoring within a medical consortium model in enhancing research competence among nurses in primary healthcare institutions[J]. Journal of Nursing, 2025, 32(19): 49 - 53. (in Chinese).
[14] YAO JX, HU XX, ZHANG ML. Construction of medical imaging diagnosis center under tightly-knit county-level medical consortium and exploration of remote diagnosis service practice: A case study of feixi county[J]. Modern Hospitals, 2025, 25(12): 1815 - 1819. (in Chinese).
[15] BO YQ, ZHANG ML, LI SM, *et al*. Dilemmas and breakthroughs in the construction of county medical consortia in megacities: A case study based on Xiqing District, Tianjin[J]. Chinese Rural Health Service Administration, 2025, 45(12): 843 - 847. (in Chinese).

(From page 51)

[3] LIU XM, HUA ZH, WEI BF, *et al*. Effects of intensive pharmaceutical intervention led by clinical pharmacists on the risk of ischemic stroke in hypertensive patients[J]. China Pharmacy, 2023, 34(2): 228 - 232. (in Chinese).
[4] SHEN ZY, DING SQ, ZHONG ZQ, *et al*. Validity and reliability of the Chinese version of the Treatment Satisfaction Questionnaire for Medication-Second Edition in patients with hypertension[J]. Chinese Mental Health Journal, 2021, 35(4): 277 - 283. (in Chinese).
[5] WU YY, TIAN F, CHEN M, *et al*. Correlation analysis between health literacy and self-management behaviors in patients with essential hypertension[J]. Modern Nurse, 2024, 31(10): 140 - 145. (in Chinese).
[6] HAN D, NIE L, WANG MH, *et al*. Study on the management model of elderly patients with hypertension by multi-disciplinary comprehensive management team of tertiary hospital collaborated with community pharmacists[J]. China Pharmacy, 2024, 35(16): 2033 - 2037. (in Chinese).
[7] LI LY, ZHU HY, QIU Y, *et al*. Effect of the pharmaceutical care model based on "Internet +" on blood pressure control level and medication adherence in patients with hypertension[J]. Practical Preventive Medicine, 2024, 31(12): 1439 - 1443. (in Chinese).
[8] LI LY, CHEN WY, ZHOU HA, *et al*. Effect of an "Internet + novel pharmaceutical care" model on treatment compliance and blood pressure control in hypertensive patients[J]. Modern Diagnosis and Treatment, 2024, 35(10): 1516 - 1517, 1520. (in Chinese).
[9] SU CL. Impact of pharmaceutical care on medication adherence and blood pressure control in elderly hypertensive patients[J]. The Medical Forum, 2020, 24(23): 3366 - 3368. (in Chinese).
[10] GAO YL, ZHOU JX, ZHANG BQ, *et al*. Research on the role of internet plus pharmaceutical care in improving the rationality and safety of drug use in patients with hypertension[J]. Strait Pharmaceutical Journal, 2024, 36(1): 78 - 80. (in Chinese).