Preventing COVID-19 with Chinese Medicine: Concepts and Suggestions

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Abstract

The category of “epidemic diseases” is discussed extensively in the literature of traditional Chinese medicine, however it is often overlooked in modern Chinese medicine education precisely because population-level prevention and treatment do not fit easily into the dogma that individualized herbal formulas “based on patterns identified” is the primary mode of clinical reasoning in Chinese medicine. In the recent COVID-19 epidemic, the contingencies of treating large numbers of patients meant that it was not possible to provide “one prescription for each patient.” In fact, four categories of patients were sometimes given the same formula: mild and moderate confirmed cases, close contacts of confirmed cases, and suspected cases. The lines between prevention and treatment, along with clear demarcations between individual and population-level immunity, were blurred in the mist of the urgent imperative to provide what could reasonably be expected to be effective. Lessons from the large-scale participation of Chinese medicine in the COVID-19 public health crisis are relevant for the global community of Chinese medicine practitioners and may provide insights into how future epidemics could be addressed in the absence of effective vaccines or pharmaceuticals.

Keywords: Covid-19, Chinese herbal medicine, prevention of Covid-19, novel coronavirus

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following not only the number of infections and the news from Hubei but also the debates about whether the virus was airborne, the length of the incubation period, whether asymptomatic people were infectious, why there were such stark differences in severity, and many basic questions that were not yet clear at that point in the epidemic. Around me, people with very little education in science to help them were eager to understand “R” numbers, protein spikes, and the details of the 1918 influenza epidemic.

Well-credentialed scientists and self-proclaimed ones, all commanded the public’s attention. Claims to have knowledge of secret reports and conversations were the common headlines on social media. The day the World Health Organization met in Geneva to decide whether to declare “a public health emergency of international concern,” word started to spread through social media around midnight in China that they had determined such a declaration was premature. But we closed our eyes on this uncertainty, knowing that it could be yet another rumor as it was only afternoon in Europe. The next day, January 30, 2020, with 82 cases outside of China, it was officially announced. It would not be the first time we woke to the news of policies with repercussions that would impact our daily lives for months to come. School and workplace openings were delayed; people were required to wear masks in public, residential compounds issued gate passes that were checked by groups of volunteers with red armbands, and even essential businesses had reduced hours of operations. The streets of Beijing, far from the epicenter of the epidemic, were almost empty of cars and people, as if every day were the 1st day of Spring Festival.

These events were immediate and relevant, yet surreal. I think that most human beings caught in unexpected crises must feel this way. Even when you know that experts are predicting that your neighborhood or your farm will be flooded or hit by a hurricane, it is hard to be emotionally prepared for what that will really be like for you and those around you.

In this case, the suddenness felt like a natural disaster had struck, yet the crisis developed slowly. I can only compare it to following the news of a military conflict that we fear might escalate into a full-blown world war. In a sense, it is an apt comparison since what seemed to be an epidemic confined to Hubei, China, has turned out to be a worldwide pandemic. It now seems relatively certain that the virus was already spreading in other parts of the world either shortly before, simultaneously, or very shortly after the initial cases were discovered in Wuhan. The world focused on one arena, largely ignoring the possibility of activity in others.

Since that time, the epidemic in China has been successfully controlled, though more than 4600 people in China lost their lives to the disease. The global toll stands at 330,000 as I write this, and it is still not clear when this public health crisis will end. However, at this point, it is possible to begin assessing the value of the participation of Chinese medicine in the prevention and treatment of COVID-19 in China, and this may offer useful insights for other countries and medical systems. This article focuses on the concepts and methods of prevention employed in the campaign against the epidemic. I assess these in light of the particular meanings of “preventing illness” that we find within the tradition of Chinese medicine, as well as the scientific data that are now becoming available. As new infectious diseases emerge, the efficacy of herbal medicine, acupuncture, health cultivation exercises, and other modalities for treating and preventing them will continue to be of interest to physicians and patients around the world, particularly in the absence of effective, targeted biomedical pharmaceuticals.

Prevention in the Popular Imagination

One of the ways that ordinary people in China coped with the unknown and frightening possibility of being infected with this novel coronavirus (SARS-CoV-2) was to search for drugs to treat or prevent the disease that they could purchase themselves. Hoarding of over-the-counter Chinese prepared medicines and purportedly effective Western treatments, such as hydroxychloroquine, was common in the 1st month of the epidemic.

An online buying spree sold out all suppliers of the three-herb prepared Chinese medicine Shuang Huang Lian Kou Fu Ye (双黄连口服液 Double Coptis Oral Liquid) after major news outlets reported that scientific research had demonstrated that one of the components could inhibit SARS-CoV-2 in the lab [Note2]. Chinese medicine authorities, including Zhang Boli, quickly pointed out that any number of the medicinals in the “clear heat resolve toxin” category might have inhibitory effects if they were also subjected to tests [Note3]. This alone was not enough to warrant confidence in their use. Although general formulae for prevention, designed to be taken by those with no confirmed exposure to the virus, continued to be widely shared and recommended, this behavior added to the general atmosphere of distrust in Chinese medicine amongst many in the biomedical and scientific communities in China. This debate has piggy-backed on recent discourse regarding whether single herbs such as Banlangen (Isatis Root) can “prevent”. Some segments of the biomedical community in China have taken this claim as emblematic of “fuzzy-thinking” or “unscientific” assertions in Chinese medicine [Note4]. This social and professional context has made discussion of preventing COVID-19 with herbal medicine a “sensitive topic” that corporate medical groups and professional biomedical associations often simply avoided.

Thinking through the Concept of Prevention

This incident actually highlights a level of confusion around what exactly “preventing COVID-19” could and should mean from the perspective of Chinese medicine. I think that it is helpful if we first identify some basic principles:

1. Inhibition of a virus in a Petri dish does not necessarily translate into prevention of infection or the development of disease due to a pathogen in individual human beings
under real-life conditions. Laboratory results are good news; however, inhibition in isolated cells in a laboratory is several important and arduous steps away from showing positive results for preventing the viral infection in humans. The road from laboratory findings to animal testing to human clinical trials is a long one.

2. Formulas or single herbs that are indicated for the treatment of a disease are not necessarily effective for preventing that disease. Chinese medicinals have inherent properties and multi-faceted functions that are selected to address a symptom, a pathological process, or something that is lacking in the body and therefore leading to less than optimal functioning. Often, all of these can be skillfully addressed with a decoction prescription tailored to an individual.

3. Chinese herbal medicine rests on the foundation of a set of principles that has its own internal logic. The composition and dosages in herbal formulas are based on the traditional properties ascribed to each medicinal substance, their synergistic effects in compound formulas, and the functions they have within the framework of the human organism and the environment in Chinese medicine.

In fact, the combination of bitter and cold herbs in Shuang Huang Lian Kou Fu Ye could be counter-productive in light of the nature of the illness caused by the novel coronavirus from a Chinese medicine perspective. Many expert physicians in traditional Chinese medicine departments around the country, including those on the frontlines in Wuhan, report that COVID-19 manifests as a pattern of dampness, heat, and toxins invading the lungs. In some cases, there are also cold and dryness with damage to the fluids, as well as blood stasis.

From a professional, clinical perspective, “clearing heat and resolving toxins” is only one part of a strategy that one might use to treat a pattern that called for this approach. We might also need to “transform phlegm” to increase expectoration and clear airways, “dispel wind” to get rid of chills and headache, or “diffuse the lung” to stop wheezing. Cold and bitter herbs could actually drive the “external pathogens” deeper into the body and make recovery both longer and more difficult. In the case of the novel coronavirus, it causes dampness that can obstruct the lungs or the intestines, so heat-clearing herbs could potentially make the dampness, and therefore the symptoms, worse.

This is all common knowledge for professional herbalist, of course, but it was also a frequent topic for public education during the coronavirus crisis, as the Chinese medicine community strove to help the public understand traditional herbal medicine on its own terms. In fact, the buying-spree and the official and unofficial responses to it highlight the contradictions around the status of Chinese medicine in China today. Simply put, we live in times in which some segments of the public trust in the efficacy of Chinese medicine because of their perception of its semi-scientific basis and not because they share, or even possess a rudimentary understanding of, its underlying concepts of the body and illness. Using Chinese medicinals as pharmacological substitutes is easily accepted and endorsed, while rationales based on premodern etiologies such as wind and warm disease are increasingly rejected by non-specialists in China.

**“TREATING ILLNESS BEFORE IT MANIFESTS” IN CHINESE MEDICINE**

A colleague recently asked me how to translate “Zhi Wei Bing (治未病),” or “treating illness before it manifests”, in the context of a government document about the impending establishment of departments with this name in hospitals throughout the country. This led to a discussion about the word, its meaning in different texts, and the concept. Is this really equivalent to “preventative medicine” as it is conceived in biomedicine?

Preventative medicine is a branch of modern medicine that has become increasingly important as we conquer infectious diseases with hygiene, vaccines, and improved treatments, but suffer from diseases of aging and affluence in ever-growing numbers. Preventing chronic diabetes, heart disease, or hypertension with behavioral interventions and/or prescribing pharmaceuticals to control these conditions and prevent complications are all aspects of disease prevention. Being able to prevent infectious diseases based on knowledge of transmission and other risk factors is one of the greatest achievements of modern medicine, but new diseases are driving us to consider exactly how we might “improve immunity” or “host defense.” Since we cannot always avoid coming into contact with microorganisms that cause disease, especially in the case of diseases such as COVID-19 with long incubation periods and many asymptomatic patients, how we might make both individuals and populations less susceptible is a logical question to ask. Recent research on the role of gastrointestinal microbiota in the regulation of immune responses throughout the body, particularly in the respiratory system, may help answers these questions [Note 5].

One of the most frequently cited aphorisms in Chinese medicine today is “The superior physician treats illness before it manifests (上工治未病).” This is the word that was used for the naming of “new” departments of Chinese medicine preventive medicine mentioned above. In modern textbooks, this is said to include three aspects: treating small imbalances, indicated by signs and symptoms, before they become actual illnesses; treating a current illness in a timely manner so that it does not become more serious; and preventing complications or the development of chronic conditions. Although one can argue that this definition is, in fact, an amalgamation of different classical medical works written centuries apart, it is nonetheless representative of modern literature on the subject for the purpose of our discussion here.
Since the 1950s, modern Chinese medicinal education and institutional practice have emphasized “treating based on pattern differentiation (辨证论治).” The advantage of this is that one can almost always find some imbalance that can be given an appropriate pattern designation and can be treated based on the Qi dynamic or zang-fu functions one has learned. This holds true for both serious, even life-threatening disorders and minor discomforts. Occasionally, someone does come to the clinic asking for an evaluation of subtle imbalances that do not manifest in any discomfort or weakness, usually after hearing a lecture or reading an article about the wonders of pulse or tongue diagnosis. This happens in both China and the United States or Europe. In practice, patients almost always have a complaint when interviewed extensively enough, however, and this then becomes the basis for treatment strategies and self-care advice. For example, patients with signs of spleen qi deficiency and dampness, and a family history of diabetes mellitus, could reasonably conclude that treating this is preventing obesity, insulin resistance, and the potential to actually develop diabetes in the long run.

At the broadest level, all health cultivation practices (Yangsheng 养生) are aimed at improving health, well-being, and longevity. These can be classified into “universal” advice that all people are said to benefit from, such as drinking ginger water in the winter, making the cooling tea (Liang Cha 凉茶) so popular in the south in the summer months, or following any of the practices of the 24 solar nodes (Ershisi jieqi 二十四节气). Or, they can be based on correcting the imbalance of a particular Zang-fu, such as Bo He, Gou Qi Zi, Ju Hua, Jue Ming Zi as teas for liver–kidney yin vacuity.

In the recent discourse on preventing and treating COVID-19 with Chinese herbal medicine, one commonly hears both professionals and lay people asserting that its efficacy is due to “boosting immunity” and “improving the environment of the body so that it can fight the disease [Note 6].” There is a reluctance to assert that Chinese herbal decoctions can “kill the virus.” This is understandable as eliminating or deactivating tiny microorganisms has certainly not been a part of the theories or treatment strategies of Chinese medicine. However, when groups of patients who have been confirmed to have COVID-19 through nucleic acid tests have symptoms for shorter periods of time and test negative more quickly than cohort groups that did not take herbal decoctions, this line of inquiry is not easily dismissed. The same question arises when we look at instances when all the personnel at a particular hospital took a decoction designed for prevention for the entire period in which they had contact with infected patients, with the result that there were no infections amongst medical personnel, while seemingly comparable hospitals suffered multiple infections. The same is true of anecdotal descriptions of close contacts of confirmed cases who took decoctions preventatively and later tested negative for the virus. Obviously, these situations will never be part of a rigorous randomized controlled trial (RCT) for practical, ethical, and scientific reasons.

One can certainly still explain this phenomenon as “supporting the healthy (upright) qi (Fuzheng 扶正),” quoting the line from the Yellow Emperor’s Classic Italic: “If pathogenic qi invades, then this is certainly because the qi is vacuous (邪之所凑其气必虚)” [Note 7]. However, this is a normative idea that does not, in fact, match the actual ingredients in the formulae used to prevent contraction in effected geographical areas and to prevent the progression from mild to severe disease in confirmed cases. These formulas included medicinals to clear heat and resolve toxins, clear the lung and transform phlegm, moisten the lung, supplement qi, dry dampness, percolate dampness, regulate qi, and disperse wind. These can hardly be subsumed under the principle of “supporting healthy qi.”

This has a direct bearing upon how we conceptualize prevention. Within the tradition, it is clear that Fuzheng [using supplementing medicinals to boost some aspect of the healthy qi of the body] is either one component of a more comprehensive strategy to treat illness, or it may be the primary treatment principle employed when a patient is either constitutionally weak or recovering from disease. This is commonly seen in prescriptions for recovering COVID-19 patients who often have qi and yin vacuity. However, if we are not merely supporting the body and making it more resistant to contracting disease, then the prevention we are speaking of here entails aspects of “treating illness before it manifests” that do not neatly overlap with the concepts of prevention or host defense in biomedical.

**Recent Epidemics, Prevention, and Chinese Medicine**

One of the best known Chinese Medicine doctors in Beijing, Lu Zhi-Zheng, who will be 100 years old at the end of the year, wrote a piece just a few days ago (May 13th, 2020), reflecting upon the outbreak of Japanese Encephalitis in Shijiazhuang (a city about an hour south of Beijing) in 1954 [Note 8]. He was one of the three members of a team designated by the Ministry of Health to investigate the efficacy of Chinese herbal medicine treatment during the outbreak in Shijiazhuang. It is striking to see the parallels with the recent epidemic of COVID-19. In both cases, Chinese medicine utilization was high (over 90%) but was rarely used exclusively. A small set of cases who were only treated with Chinese medicine became a key factor in the analysis of the fact finding mission in 1954. Then, as now, this evidence, combined with retrospective comparisons of cohort that used only biomedical treatments, was used to show the efficacy of Chinese medicine. At that time, there were no effective drugs or other treatments for Japanese encephalitis, and physician used a variety of means, Lu tells us of treatments such as ice pillows and cold-water enemas to bring down the high fevers in an attempt to prevent brain damage. Chinese medicine stood out as having a rational and systematic approach, despite being denied the designation “scientific.”
Eric Karchmer gives us another example from the 2003 SARS outbreak that highlights the actual situation doctors faced as they treated patients in the middle of an epidemic when triage and prompt confirmation of a biomedical diagnosis was not always possible:

In a review of the 103 SARS patients admitted to the Guangdong Provincial Hospital of Chinese Medicine from January to April 2003, researchers found that seven had died, with a mortality rate of 6.79% that compares quite favorably to other epidemic areas where the rate was as high as 15%. Deng Tie-Tao insisted that these statistics, although notable, do not tell the whole story, because they omit all the patients with high fevers who were cured by timely herbal medicine treatments before the disease progressed to a stage where it could be positively identified. They also fail to recognize that there were no cases of SARS among hospital staff, who all took Chinese herbal medicine prophylactically, thus highlighting another presumed advantage of Chinese medicine – its preventive emphasis [Note 9].

Many of the same advantages, and the same difficulties, are evident when we attempt to evaluate Chinese medicine’s role in the recent COVID-19 epidemic.

**COVID-19 as Damp Epidemic Qi Manifesting as Patterns (Zheng)**

The category of “epidemics” is often overlooked in modern Chinese medicine education precisely, because their treatment does not fit easily into the dogma that “treating according to patterns identified” is the primary mode of clinical reasoning in Chinese medicine. Although the treatment plans created by the National Health Commission and various provinces do indeed divide the stages of COVID-19 into patterns that will be familiar to the modern Chinese medicine practitioner, my analysis of the lectures and the essays written by senior CM physicians on the frontlines revolves around explaining treatments in terms of the nature of the “pestilent qi” or “warm epidemic qi” itself [Note 10]. The language of “epidemic disease” is used to legitimize treatment choices and to explain their efficacy. This thought process does not fit neatly into the pattern/disease or the qi dynamic/underlying disease dichotomies that we find in modern textbooks. Underlying treatment in all the different clinical settings was the knowledge that we were dealing with this particular virus and its typical clinical presentation. The “nature of the virus” was described in slightly different terms by physicians working in different climates and clinical settings; however, in all cases, the nature and typical progression of this specific epidemic disease were privileged over other diagnostic categories. Zhang Boli explains this below:

We understand this novel coronavirus as something that can be categorized as an “epidemic” or a “warm epidemic” disease, in terms of the categories of traditional Chinese medicine. Like other epidemic or pestilential diseases recorded throughout history, this one is transmitted through the mouth and nose. Moreover, the symptoms tell us that it is a damp-heat toxin with stagnation and deficiency. We have concluded that it is a damp–toxin epidemic.

Why is this called damp–toxin epidemic disease? This illness presents with very typical and obvious signs of “damp pathogen.” We see the dampness in the characteristics it displays of being hidden and hard to pinpoint, producing sticky secretions that stagnate together, and being a difficult condition that tends to linger. We see the toxin pathogen because it is characterized by rapid change and severe or life-threatening disease. At the same time, it exhibits unusual characteristics. Epidemic disease is defined by the fact that it is widely and easily transmitted and easily combines with foul turbidity. From these descriptions, we can see that it obviously fits into these categories. The damp and toxic characteristics of this disease are particularly pronounced and obvious.

In terms of the location of the disease, it is quite apparent that it is the hand and foot tai-yin channels that are involved. The Hand tai-yin channel is the lung, so that is clear, and the dampness aspect relates to the foot tai-yin spleen channel, so the location is clear [Note 11].

Liu Qingquan explains this further:

Epidemic diseases come about for different reasons than the common cold, or seasonal flu. We cannot understand it as a seasonal disease. Sometimes, changes in the weather are a trigger, but they are not the root; the root is the epidemic pestilence. For example, we most definitely should not take the climatic changes of cold and warmth, wind–cold, wind–warm, or wind–heat as the cause of this disease. Those are merely immediate triggers that induce the disease onset. Severe epidemic toxin pathogens entered people’s bodies quickly, causing new diseases like this. This is what we should know about the cause of the disease [Note 12].

Drawing on both the long history of treating epidemics in China recorded in the classical medical literature, which includes over 300 instances from the Han dynasty to the 20th century, and their own experiences with infectious diseases in recent times, the doctors on the National Steering Committee sent to Wuhan express confident that Chinese medicine can be successfully applied to epidemic disease treatment. Whether it was “great pots of decoction” that were given to patients in community centers when triage was not possible, or the modified prescriptions given to mild and moderate cases in the temporary shelter hospitals, or the treatment of patients in the hospital wards and the ICU that required “changing the prescription three times a day” to respond to potentially life-threatening symptoms, all of these fit comfortably into the conceptions of clinical Chinese medicine of the three physicians we focused on. It is striking that often, the same person who is well-trained in reading laboratory reports and has participated extensively in modern research studies, considers the 60-year cycle and the attributes of each year to...
be significant knowledge that contributes to our understanding of the nature of this virus and how to treat it.

Evaluating Results from the Perspective of Chinese Medicine

The State Council Information Office held a conference on March 23, 2020. Secretary Yu Yan-hong reported at that conference that more than 4,900 Chinese medicine personnel from all over the country went to support Hubei. This accounted for 13% of the total number of medical personnel assisting Hubei. Among the more than 70,000 patients diagnosed nationwide, 91.5% of them used some form of Chinese medicine. In Hubei province, the proportion was 90.6% [Note 13]. Looking more closely at the situation in Wuhan, patients were triaged as indicated in Table 1.

Zhang Boli discussed the results at the Jiang Xia Temporary Shelter Hospital:

Jiang Xia Temporary Hospital opened officially on February 14, 2020, and closed on March 10, 2020, over the course of which we treated 564 people. 483 recovered and 68 were transferred to designated hospitals (at the final stage) for policy reasons. We kept in touch and followed up with all of these patients, and they all recovered quite quickly. The requirements for discharge were two negative nucleic acid tests and significant resolution of the lung infiltrates as seen on CT scans. The last 68 patients were transferred to hospitals precisely because we were able to free up beds and then treat and discharge patients. Hence, the authorities decided to close the hospital on March 20 and transfer these last patients out. Overall, we had 0 patients develop serious disease, 0 cases re-test positive (after recovery), and 0 cases of infections among medical personnel. These were excellent results [Note 14].

An observational cohort study was conducted on a subset of patients at the Jiang Xia Temporary Hospital. 280 patients were given a formula, *Xuan Fei Bai Du Tang*, which was created by the Steering Group members and this was compared with a group that received biomedical treatment only at another hospital. The formula, shown below, was modified from the classical formulae *Ma Xing Shi Gan Tang*, *Ma Xing Yi Gan Tang*, *Qian Jing Wei Jing Tang*, and *Tingli Dazao Xie Fei Tang*. The primary evaluative criterion was the number of cases who developed into serious disease. The results are shown in Figure 1.

**Xuan Fei Bai Du Fang:**

- *Sheng Ma Huang*, *Ku Xing Ren*, *Sheng Shi Gao*, *Sheng Yi Yi Ren*, *Cang Zhu*, *Huo Xing*, *Qing Hao Cao*, *Hu Zhang*, *Ma Bian Cao*, *Gan Lu Gen*, *Ting Li Zi*, *Ju Hong*, *Sheng Gan Cao*

Main actions: Diffusing the lungs and transforming dampness; clearing heat and penetrating (pushing out) pathogens; and draining the lungs and resolving toxins. This is suitable for moderate cases of COVID-19 with damp–toxin constraining the lungs pattern.

A different formula was used in the Wuchang district of Wuhan, and Tong Xiaolin describes the results both anecdotally and through an observational study. The formula “Wuhan Anti-Epidemic Formula 1” was given to 50,000 people.

| Category:                        | Site Triaged to:       |
|---------------------------------|------------------------|
| Confirmed Cases—mild            | Temporary shelter hospitals |
| Confirmed Cases—serious         | Designated hospitals   |
| Fever (of undetermined origin)  | Quarantine Sites        |
| close contacts (of confirmed cases) | Quarantine Sites   |
| Suspected cases                 | Quarantine Sites        |
| Cases under observation         | Quarantine Sites        |

Table 1: Patient Triage

![Figure 1: The results of observational cohort study](image.png)
Local health official described how the number of confirmed cases declined “precipitously” after the first 14 days of the distribution campaign [Note 15]. Dr. Tong supervised an observational study that demonstrated the following:

The “Wuchang model” played a crucial role in community prevention and control. We collected data to better understand what was effective and what was not. An observational study of 721 cases [Note 16] showed significant differences in the rates of the development of serious disease. Of 430 patients with mild COVID-19 who took Cold-Damp Epidemic Formula, none of these patients developed serious disease. However, of the 291 cases in the control group, 6.8% did develop serious disease.

The kind of scientific research that may positively affect the development of the profession and its inclusion in global healthcare systems is just beginning to be published, and we look forward to watching this progression. However, it is equally essential that we look critically at the current models of research and their limitations. The strengths and weakness of Chinese medicine need to be evaluated on their own terms.

**Implication for the Development of the Field of Chinese Medicine in China and Abroad**

Seizing the moment, essays and proposals have emerged in recent weeks calling for educational reforms and the inclusion of CM in emergency rooms and intensive care units in more hospitals in China. Although Chinese medicine doctors in China regularly treat patients with cancer, stroke, and heart disease in hospital wards in integrated medicine hospitals, there are still barriers to include herbal medicine, acupuncture, and other methods into the care of acute and critical patients. However, doctors in the countryside and small towns certainly still treat conditions that doctors in urban areas are either unable (because they lack the skills) or unwilling to treat due to concerns about legal and financial issues. These are institutional-level problems.

In the recent COVID-19 epidemic, the contingencies of treating large numbers of patients meant that it was not possible to provide “one prescription for each patient.” In fact, four categories of the patients were sometimes given the same formula: mild and moderate confirmed cases, close contacts of confirmed cases, and suspected cases. These large-scale community efforts make efficacy essentially impossible to ascertain if our only standard is the “RCT.” However, from the broader perspective of public health and the real-life complexities of clinical strategy, the data from these highly-organized decoction distribution projects, which were often monitored through cellphone Apps, are extremely valuable. Perhaps, more convincing are the case-controlled observational studies that show, just as Deng Tie-Tao described, the very low rates of mild converting to serious cases, and the almost zero infection rates for medical workers in the Chinese medicine temporary shelter hospitals. Fortunately, increased resources and research experience have meant that this epidemic has and will yield scientific medical reports that offer the type of data that have become the gold standard with the dominance of biomedicine and materialist science.

The experiences in China will certainly be a source of inspiration and reflection for Chinese medicine communities around the world that are still forging their identities and struggling to make a place for themselves within modern healthcare systems.

**Herbal Formulas for Reference**

The herbal teas below were compiled by the Beijing Administration of Traditional Chinese Medicine (北京市中医管理局) for home use as a preventative during the outbreak of COVID-19. They are called “herbs that replace tea (代茶饮),” or simply “herbal teas” in English.

For healthy adults:
- Mai Dong (麦冬 Radix Ophiopogonis) 3 g
- Sang Ye (桑叶 Folium Mori) 3 g
- Ju Hua (菊花 Flos Chrysanthemi) 3 g
- Chen Pi (陈皮 Pericarpium Citri Reticulatae) 2 g.

Steep the herbs above in a teapot of hot water for 10–15 minutes. You can leave them in the pot and keep adding water throughout the day. 2–3 cups per day is adequate.

This combination moistens the lungs to prevent dry cough, dry mouth, or irritability due to an external pathogen invasion. It moistens the intestines to prevent constipation, dispels wind and heat, and helps regulate the digestion. The herbs work synergistically to keep proper moisture in the respiratory tract (which we know is important for fighting pathogens) and help the qi of the lung flowing freely.

For children:
- Jin Yin Hua (金银花 Flos Lonicerae) 3 g
- Lu Gen (芦根 Rhizoma Phragmitis) 6 g
- Chen Pi (陈皮 Pericarpium Citri Reticulatae) 2 g.

Steep the herbs above in a teapot of hot water for 10–15 minutes. You can leave them in the pot and keep adding water throughout the day. 1–2 cups per day is adequate, depending on the age of the child.

Take for 6 days at a time. This course can be repeated every 2–3 weeks.

This combination clears heat from both the upper and lower body and is indicated for mild signs of heat, such as mouth sores, irritability, constipation, gas and bloating, or mild skin rashes. It also dispels wind, which is part of a cold or flu pattern in Chinese medicine. The tangerine peel harmonizes the digestive functions and treats nausea, vomiting, or cough by helping the qi descend. The overall strategy is to keep the respiratory and digestion functions working optimally and to prevent any excess heat or dampness from developing.

**Wuhan Formula No. 1 for Prevention:**
Cang Zhu (苍术 Rhizoma Atractylodis) 3 g, Jin Yin Hua (金银花 Flos Lonicerae) 5 g, Chen Pi (陈皮 Pericarpium Citri Reticulatae) 3 g, Lu Gen (芦根 Rhizoma Phragmitis) 2 g, Sang Ye (桑叶 Folium Mori) 2 g, Sheng Huang Qi (黄芪 Radix Astragali Sea Hedysari) 10 g

Steep and drink as a tea for 7–10 days.

Explanation:
Cang Zhu dries dampness and transforms turbidity; Jin Yin Hua treats wind–heat, cools the blood, and resolves toxins; Chen Pi regulates qi, transforms phlegm, and treats qi stagnation in the lung; Lu Gen clears heat, treats vexation and agitation, and stops vomiting; Sang Ye treats wind–heat, lung–heat, and liver–fire; Huang Qi supplements qi, stabilizes defensive qi, disinhibits water, and disperses swelling.

Wuhan Anti-Epidemic Formula (Cold-Dampness Formula 1):

Sovereign: Treat the Membrane Source – Jiao Bing Lang (槟榔 Semen Arecae), Wei Cao Guo (草果 Fructus Tsaooko), Hou Po (厚朴 Cortex Magnoliae Officinalis).

Minister: Treat Interior and Exterior – Diffuse lung and disperse cold – Ma Huang (麻黄 Herba Ephedrae), Shi Gao (石膏 Gypsum Fibrosum), Qiang Huo (羌活 Radix Atractylodis Macrocephalae), Fu Ling (茯苓 Poria) fresh ginger.

Minister: Build the Spleen and Expel Dampness

Build the spleen – Jiao Shan Zha (山楂 Fructus Crataegi), Jiao Mai Ya (麦芽 Fructus Hordei Germinatus), fresh ginger

Expel dampness – transform dampness: Huo Xiang (藿香 Herba Pogostemonis); dry dampness: Cang Zhu (苍术 Rhizoma Atractylodis), Hou Po (厚朴 Cortex Magnoliae Officinalis); percolate dampness: Sheng Bai Zhu (白术 Rhizoma Atractylodis Macrocephalae), Fu Ling (茯苓 Poria); disinhibit dampness: Ting Li Zi (葶苈子 Semen Lepidii)

Assistant: Treat Collateral (luo) Toxin – Guan Zhong (贯众 Rhizoma Blechni), Xuchangliu, Di Long (地龙 Lumbricus)

Envoy: Enter the Membrane Source – Ting Li Zi (葶苈子 Semen Lepidii) (directly reaches the membrane source and separates and disperses to lead out; drains the lung and calms wheezing; disinhibits water; and disperses swelling)

For Pronounced Fever, Add Modification 1: Ma Huang (麻黄 Herba Ephedrae) 6 g, Lu Gen (芦根 Rhizoma Phragmitis) 60 g, Sheng Shi Gao (石膏 Gypsum Fibrosum) 15 g, Chai Hu (柴胡 Radix Bupleuri) 15 g.

For Severe Cough and Asthma, Add Modification 2: Liao Qiao (连翘 Fructus Forsythiae) 15 g, Bai Bu (白部 Radix Stemonae) 15 g, Ting Li Zi (葶苈子 Semen Lepidii) 15 g, Xian He Cao (仙鹤草 Herba Agrimoniae) 15 g, Zhi (honey-fried) Zi Wan (紫菀 Radix Asteris) 15 g.

For Loss of Appetite, Nausea and Vomiting, or Diarrhea, Add Modification 3: Chao Lai Fu Zi (莱菔子 Semen Raphani) 15 g, Chen Pi (陈皮 Pericarpium Citri Reticulatae) 15 g, Jiang Ban Xia (半夏 Rhizoma Pinelliae) 15 g, Huang Lian (黄连 Rhizoma Coptidis) 6 g, Pao Jiang (炮姜 Rhizoma Zingiberis Preparata) 9 g.

For Shortness of Breath and Fatigue, Add Modification 4: Huang Qi (黄芪 Radix Astragali seu Hedysari) 30 g, Dang Shen (党参 Radix Codonopsis) 15 g, Dan Shen (丹参 Radix Salviae Miltiorrhizae) 15 g, Chao Bai Shu (白术 Rhizoma Atractylodis Macrocephalae) 15 g, Gan Jiang (干姜 Rhizoma Zingiberis) 9 g, Bei Sha Shen (北沙参 Radix Glehniae) 30 g.

Notes
1. This poem was translated by Zhao Yanchun and Nina Katz.
2. Shanghai Institute of Pharmacology and Wuhan Institute of Virology Discover the TCM Prepared-medicine Shuang Huanglian Koufu Ye Can Inhibit the Novel Coronavirus上海药物所、武汉病毒所联合发现中成药双黄连口服液可抑制新型冠状病毒http://www.chinanews.com/gn/2020/01-31/9074658.shtml. Published Jan. 31, 2020. Accessed on May 15, 2020
3. https://m.haiwainet.cn/middle/3544609/2020/0203/content_31709168_1.html published Feb. 2, 2020. Accessed on April 15, 2020
4. See, for example: Why does the myth of Banlangen refuse to die? https://dxy.com/column/2366. Accessed on May 15, 2020
5. See, for example: Samuelson DR, Welsh DA, Shellito JE. Regulation of lung immunity and host defense by the intestinal microbiota. Front Microbiol. 2015; 6:1085. Published 2015 Oct 7. doi:10.3389/fmicb.2015.01085
6. For a similar but more nuanced explanation, see: “To help Chinese Medicine Boost Immunity, Remember These Four Points”[in Chinese]. Economic Times, May 11, 2020. Accessed on May 13, 2020.
7. From Chapter 33, Discussion on Hot Diseases, of the Plain Questions.
8. Lu, Zhizheng, “Reflections on the Epidemic of Japanese Encephalitis in Shijiazhuang and Establishing the Role of Chinese Medicine in Epidemics,” accessed on the official WeChat account of the State Administration of Traditional Chinese Medicine, May 13, 2020.
9. Karchmer, Eric. Same as (2) above, pp. 210-211
10. Translations of lectures and essays from CM physicians on the frontlines in Wuhan and others are available in book form as a free download on the Passiflora Press website and Amazon. See Shelley Ochs and Thomas Avery Garrant (translators and editors), Chinese Medicine and COVID-19: Results and Reflections from China. Passiflora Press, 2020.
11. Zhang Boli, see note 11 above.
12. Liu Qingquan, see note 11 above.
13. See note 10 above.
14. Zhang Boli. Note 10
15. Tong Xiaolin, note 10
16. The results of this research study have not yet been published. It was jointly conducted by Dr. Tong Xiaolin and his team from Guanganman Chinese Medicine Hospital (China Academy of Chinese Medical Science Affiliated Hospital), Wuchang District Government, Hubei Province Chinese Medicine Hospital, Dr. Liu Baoyan’s team from China Academy of Chinese Medical Science, and Dr. Liu Jan-ping’s team from Beijing University of Chinese Medicine.

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**Conflicts of interest**
There are no conflicts of interest.